



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

EVALUATE JET PUMP OPERABILITY

JPM Number: LOJPM6717

REVISION NUMBER: 001

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure ST-6-043-320-1 Rev: 45
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

SME / Instructor

Date

SME / Instructor

Date

SME / Instructor

Date

II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces 2010 RO A1-2 Revised to new template and to align with latest procedure revision.	08/15/14
001	Updated template and KA	10/31/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

The candidate should report the test is UNSAT due to failure on "A" loop drive flow high and "A" loop jet pumps flow low.

V. INITIAL CONDITIONS:

Plant conditions are as follows:

1. Unit 1 is in OPCON 1
2. An unexpected drop in reactor power occurred
3. An unexplained rise in core flow occurred
4. ON-100, Failure Of A Jet Pump, was entered

VI. INITIATING CUE:

Perform ST-6-043-320-1, Daily Jet Pump Operability Verification for Two Recirculation Loop Operation, report the results, and (SRO only) any compensatory actions, if required

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Provide Candidate with the following: <ul style="list-style-type: none"> • JPM briefing sheet • Yellow Copy of ST-6-043-320-1 • PMS computer screen shots • Calculator • Unit 1 Tech Specs (SRO Only) 					
*	1. [ST-6-043-320-1 step 4.3.1.3] Determine if Loop "A" flow is within 10% of the loop flow values on the established pump speed-loop flow characteristic curve	Candidate determines that Loop "A" is NOT within the limits – UNSAT			
*	2. [ST-6-043-320-1 step 4.3.2.3] Determine if Loop "B" flow is within 10% of the loop flow values on the established pump speed-loop flow characteristics curve.	Candidate determines that loop "B" is within the limits – SAT			
*	3. [ST-6-043-320-1 step 4.3.3.4] Determine if the value of total core flow is within 10% of the established Total Core Flow value derived from Recirc Loop Flow Measurements	Candidate determines that total core flow is within the limits – SAT			
*	4. [ST-6-043-320-1 step 4.3.4.4] Determine if Loop "A" Jet Pump diffuser-to-lower plenum differential pressure is within 10% of the established patterns	Candidate determines that the jet pumps on Loop "A" are NOT within the limits - UNSAT			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	5. [ST-6-043-320-1 step 4.3.5.4] Determine if Loop "B" Jet Pump diffuser-to-lower plenum differential pressure is within 10% of the established patterns	Candidate determines that all of the jet pumps on Loop "B" are within the limits - SAT			
*	6. [ST-6-043-320-1 step 4.4.1] Verify at least two of the step combinations are satisfactory: <ul style="list-style-type: none"> 4.3.1.3 and 4.3.2.3 (Pump speed vs. drive flow) UNSAT 4.3.3.4 (Total loop flow vs. total core flow) SAT 4.3.4.4 and 4.3.5.4 (Individual JP DP vs. Drive Flow) UNSAT 	Candidate determines that two of three areas are UNSAT and the overall ST results are UNSAT Report the unsatisfactory results – The "A" Jet Pumps have failed the surveillance test.			
<p>NOTE: This is the termination point for RO's</p> <p>CUE: (RO's only) - You have met the termination criteria for this JPM</p> <p>The remaining portion of this JPM is "SRO's only"</p>					
*	7. SRO candidate determines Tech Spec implications of the failed Jet Pump surveillance test	Tech Spec LCO 3.4.1.2 With one or more Jet Pumps inoperable, be in HOT SHUTDOWN within 12 hours			
CUE: (SRO) You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: EVALUATE JET PUMP OPERABILITY

JPM Number: LOJPM6717

Revision Number: 001

Task Number and Title: 2000010401 ON-100, Actions For Jet Pump Failure
3410070302 Direct action per T.S. when an LCO is not satisfied

K/A Number and Importance: Generic 2.1.19 3.9/3.8
Generic 2.2.40 3.4/4.7

Safety Function (1-9) 1

Admin Category (A1-4) 1/2 (Conduct of Operations / Equipment Control)

Level of Difficulty (1-5) 3

Suggested Testing Environment: Classroom

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

Reference(s): ST-6-043-320-1, Daily Jet Pump Operability for Two Recirculation Loop
Operation, Rev 45
Tech Specs

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

Testing Method: ☐ Simulate ☒ Perform

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

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

Plant conditions are as follows:

1. Unit 1 is in OPCON 1
2. An unexpected drop in reactor power occurred
3. An unexplained rise in core flow occurred
4. ON-100, Failure Of A Jet Pump, was entered

INITIATING CUE:

Perform ST-6-043-320-1, Daily Jet Pump Operability Verification for Two Recirculation Loop Operation, report the results, and (SRO only) any compensatory actions, if required.

Document required action(s):

RPV NORMAL

CNTMT NORMAL

RU

RA

CH

1

PM

47

RX

0

FC

2

T

19

CW

2

SS

18

EL

6

Group Point Display - Group Data Display on LG1PA

Change Group

Group Definition

List Groups

Group Number: 33

Group Name: DAILY ST PTS (JET PP & DAILY)

Group Status: ACTIVE

Point ID	Description	Status	Current Value	Engineering Units	Plot Limit	Low	High	Plot Limit
1 R033	DRYWELL EL 330 FT TEMP	NML	136	DEGF	0			80
2 R036	DRYWELL EL 260 FT TEMP	NML	124	DEGF	50			250
3 R037	DRYWELL EL 260 FT TEMP	NML	124	DEGF	50			250
4 R034	DRYWELL EL 320 FT TEMP	NML	136	DEGF	50			250
5 B018	(18) REACTOR CORE FLOW	NML	89.2	MLB/H	0.0			120.0
6 B037	(19) A RECIRC PMP A1(DRIVE) FLOW	NML	16.875	MLB/H	0.000			20.000
7 B039	(21) B RECIRC PMP B1(DRIVE) FLOW	NML	15.122	MLB/H	0.000			20.000
8 E1266	A RECIRC PUMP SPEED	NML	1314	RPM	18.000			102.000
9 E1267	B RECIRC PUMP SPEED	NML	1314	RPM	18.000			102.000
10 E050	D11 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50
11 E052	D13 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50
12 E051	D12 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50
13 E053	D14 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50

14

15

16

17

18

19

20

12:54:54 -I- Loading display MGPDFW

LINERICK 1

12:55:18

SIM

RPV NORMAL
CNTMT NORMAL
E1192FL2
D/W FLR DRN SUMP FLW 2 MIN AVGL
NML
0.248
GPM
8.000





















Group Point Display - Group Data Display on LG1PA

☒ Change Group

☒ Group Definition

☒ List Groups

Group Number: 2
Group Name: JET PUMP D/P'S ("Z" SHIFT ST)
Group Status: ACTIVE

Point ID	Description	Status	Current Value	Engineering Units	Plot Limit	Low	High	Plot Limit
1	E1084 JET PUMP 1 SINGLE TAP DP	NML	35.529	%	0.000			100.000
2	E1103 JET PUMP 2 SINGLE TAP DP	NML	35.424	%	0.000			100.000
3	E1105 JET PUMP 3 SINGLE TAP DP	NML	33.156	%	0.000			100.000
4	E1247 JET PUMP 4 SINGLE TAP DP	NML	34.552	%	0.000			100.000
5	E1249 JET PUMP 5 SINGLE TAP DP	NML	44.385	%	0.000			100.000
6	E1255 JET PUMP 6 SINGLE TAP DP	NML	37.797	%	0.000			100.000
7	E1257 JET PUMP 7 SINGLE TAP DP	NML	33.784	%	0.000			100.000
8	E1259 JET PUMP 8 SINGLE TAP DP	NML	32.039	%	0.000			100.000
9	E1263 JET PUMP 9 SINGLE TAP DP	NML	34.901	%	0.000			100.000
10	E1265 JET PUMP 10 SINGLE TAP DP	NML	42.502	%	0.000			100.000
11	E1037 JET PUMP 11 SINGLE TAP DP	NML	27.541	%	0.000			100.000
12	E1097 JET PUMP 12 SINGLE TAP DP	NML	27.704	%	0.000			100.000
13	E1104 JET PUMP 13 SINGLE TAP DP	NML	25.119	%	0.000			100.000
14	E1235 JET PUMP 14 SINGLE TAP DP	NML	26.724	%	0.000			100.000
15	E1254 JET PUMP 15 SINGLE TAP DP	NML	27.187	%	0.000			100.000
16	E1248 JET PUMP 16 SINGLE TAP DP	NML	25.055	%	0.000			100.000
17	E1256 JET PUMP 17 SINGLE TAP DP	NML	15.519	%	0.000			100.000
18	E1258 JET PUMP 18 SINGLE TAP DP	NML	17.021	%	0.000			100.000
19	E1260 JET PUMP 19 SINGLE TAP DP	NML	27.541	%	0.000			100.000
20	E1264 JET PUMP 20 SINGLE TAP DP	NML	26.680	%	0.000			100.000

06:49:04 PS-PRINT - %SYSTEM-S-NORMAL

LIMERICK 1

FWD

BWD

6:50:45

SIM



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

DETERMINE MAXIMUM GENERATOR VARS

JPM Number: LOJPM6719

REVISION NUMBER: 000

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure ON-126 Rev: 14
Procedure E-5 Rev: 22
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

SME / Instructor

Date

SME / Instructor

Date

SME / Instructor

Date

II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This is a new JPM.	07/25/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

Determine the following:

Part 1 - Maximum VARs at 75 psig H2 and 1200 MWe determined to be **400 MVARs**

Part 2 - A power reduction to **≤ 1160 MWe** (≤ 1163 if linear interpretation is used) is required to maintain VARs at **400 MVARs** with Main Generator H2 press at 70 psig.

V. SIMULATOR SETUP

1. N/A

VI. INITIAL CONDITIONS:

1. Unit 2 is at 100% power when the PJM issued a Voltage Reduction Alert.
 - The TSO has requested the plant maintain maximum VAR support
 - U2 Generator Real Power is 1200 MWe
 - Current U2 Generator H2 pressure is 75 psig.

VII. INITIATING CUE:

Shift Supervision directs you, to determine the Maximum VAR output that remains within the capability of the U2 Generator for the current plant conditions.

VIII. FOLLOWUP CUE:

A leak developed in the generator H2 system that resulted in an unexpected "2 Gen Hydrogen And Seal Oil Sys Trouble" Alarm and uncontrolled Main Generator Hydrogen Pressure drop.

What additional procedure entry is required? _____

The leak has been identified and mitigated, current generator H2 pressure is 70 psig and steady.

What if any U2 maneuvering is required to maintain the maximum VAR output determined in part 1 (results of Initiating Cue) above while staying within the U2 Generator Capability?

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

IX. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Provide candidate with a copy of the following: <ul style="list-style-type: none"> E-5, Grid Emergency 				
*	1. Candidate determines the Maximum VARS at 1200 MWe with H2 press at 75 psig.	Candidate concludes, using E-5 Attachment 2, the maximum VARS with H2 press at 75 psig and at 1200 MWe determined to be 400 MVARs		
EVALUATORS NOTE: Once the First Initiating task is complete, provide candidate with the following: <ul style="list-style-type: none"> Followup Cue Once ON-126 Procedure Entry Requirement determined, Provide ON-126, Uncontrolled Main Generator Hydrogen Depressurization. 				
*	2. Candidate evaluates conditions provided in Follow-up Cue and determines ON procedure entry is required.	Candidate determines that the symptoms for ON-126, Uncontrolled Main Generator Hydrogen Depressurization have been met.		
*	3. Candidate determines the requirements for Maximum VAR support when U2 Generator H2 pressure is reduced to 70 psig.	Candidate, using Attachment 1 of ON-126 (OR E-5 Attachment 2) concludes that a power reduction to ≤1160 MWe (≤1163 if linear interpretation is used) is required to maintain VARS at 400 MVARs with Main Generator H2 press at 70 psig.		
CUE: You have met the termination criteria for this JPM				

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: DETERMINE MAXIMUM GENERATOR VARS

JPM Number: LOJPM6719

Revision Number: 000

Task Number and Title: 2001110501, ON-126 Actions for Uncontrollable Main Generator Hydrogen Depressurization.

K/A Number and Importance: Generic 2.1.25 3.9/4.2

Safety Function (1-9) N/A

Admin Category (A1-4) 2 (Equipment Control)

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): ON-126, Uncontrolled Main Generator Hydrogen Depressurization, Rev 14
E-5, Grid Emergency, Rev 22

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

LIMERICK GENERATING STATION

JOB PERFORMANCE MEASURE

INDIVIDUAL BRIEFING SHEET

INITIAL CONDITIONS:

1. Unit 2 is at 100% power when the PJM issued a Voltage Reduction Alert.
 - The TSO has requested the plant maintain maximum VAR support
 - U2 Generator Real Power is 1200 MWe
 - Current U2 Generator H2 pressure is 75 psig.

INITIATING CUE:

Shift Supervision directs you, to determine the Maximum VAR output that remains within the capability of the U2 Generator for the current plant conditions.

Provide response below:

This image shows a single sheet of white paper with horizontal black ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



FOLLOWUP CUE:

What additional procedure entry is required?

What if any U2 maneuvering is required to maintain the maximum VAR output determined in part 1 (results of Initiating Cue) above while staying within the U2 Generator Capability?

Provide response below:

[illegible]



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

PREPARE A PARTIAL PROCEDURE

JPM Number: LOJPM6777

REVISION NUMBER: 001

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure ST-6-043-200-1 Rev: 23
Procedure AD-LG-101-1002 Rev: 14
Procedure HU-AA-104-101 Rev: 5
Procedure HU-AA-1212 Rev: 7
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

SME / Instructor

Date

SME / Instructor

Date

SME / Instructor

Date



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0777 Rev. 1. Revised to new template and aligned with latest procedure revision(s).	5/31/15
Rev001	JPM revised to new JPM Template and procedure revisions	11/03/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

Partial procedure, ST-6-043-200-1, Reactor Recirculation System Quarterly Valve Test prepared for PMT of HV-043-1F020, in accordance with plant procedures, AD-LG-101-1002, Temp Changes to Approved Documents and Partial Procedure Use, and HU-AA-104-101, Procedure Use and Adherence.

V. INITIAL CONDITIONS:

1. Maintenance on HV-043-1F020, Recirc Loop Sample Line PCIV (OUTBOARD) is complete per work order C0995903-01.
2. A PMT is required to determine operability of HV-043-1F020.

VI. INITIATING CUE:

You are directed to prepare a partial on ST-6-043-200-1 to determine operability for valve HV-043-1F020, Recirc Loop Sample Line PCIV (OUTBOARD) following maintenance.

Examination Proctor will perform any needed approvals

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
<p>EVALUATORS NOTE: If copy of C099590301 requested, inform candidate "Work Order has been evaluated by the WCS".</p> <p>Provide Candidate with the following:</p> <ul style="list-style-type: none"> • JPM briefing sheet • Yellow Copy of ST-6-043-200-1 • AD-LG-101-1002, Temporary Changes to Approved Documents and Partial Procedure Use • HU-AA-104-101, Procedure Use and Adherence. • Have the following available to be provided if requested: HU-AA-1212, Technical Task Risk/Rigor Assessment, Pre-Job Brief, Independent Third Party Review, and Post-Job Review <p>EVALUATORS NOTE: Candidate may request to write "PARTIAL" on computer generated "Valve Stroke Timing List" report another RO will obtain the "Timing List"</p>					
*	1. [HU-AA-104-101 step 4.6.1.6] WRITE "PARTIAL" on the first page of the procedure.	"PARTIAL" written on the first page of the ST-6-043-200-1			
*	2. [HU-AA-104-101 step 4.6.1.7] WRITE "Reason for Partial Performance" on the first page of the procedure and INSERT the reason for partial procedure performance.	"Reason for Partial Performance" i.e. "PMT to determine operability following maintenance" or equivalent, written on the first page of the ST-6-043-200-1			
*	3. [HU-AA-104-101 step 4.6.1.8] ANNOTATE steps that are not applicable to HV-043-1F020 PMT before performing a partial procedure with "N/A".	Steps pertaining to Check Valve Test steps 4.5.1 and 4.5.2 are "N/A" In section 4.0 "PROCEDURE" Only Section 4.5 "Check Valve Test" marked N/A			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	4. [HU-AA-104-101 step 4.6.1.9] WRITE "Partial Procedure Approval" on the first page of the procedure.	"Partial Procedure Approval" written on the first page under "Additional Action/Comments" of the ST-6-043-200-1.			
	5. Initial and date "Additional Action/ Test Comments" section of ST-6- 043-200-1.	Candidate signs and dates "Person making entry" section of "Additional Action/ Test Comments" section of the ST- 6-043-200-1.			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: Prepare A Partial Procedure

JPM Number: LOJPM6777

Revision Number: 001

Task Number and Title: TCO-2990110301 – Recommend Revisions to Operating Procedures

K/A Number and Importance: Generic 2.2.6 Knowledge of the process for making changes to procedures. CFR: 45.13 3.0/3.6

Level of Difficulty (1-5) 3

Safety Function (1-9) N/A

Admin Category (A1-4) 2

Suggested Testing Environment: Simulator/Classroom

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

Reference(s): ST-6-043-200-1, Reactor Recirculation System Quarterly Valve Test, Rev 23.

AD-LG-101-1002, Temp Changes to Approved Documents and Partial Procedure Use, Rev 14.

HU-AA-104-101, Procedure Use and Adherence, Rev 5.

HU-AA-1212, Technical Task Risk/Rigor Assessment, Pre-Job Brief, Independent Third Party Review, and Post-Job Review, Rev 7.

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

Testing Method: ☐ Simulate ☒ Perform

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

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

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

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. Maintenance on HV-043-1F020, Recirc Loop Sample Line PCIV (OUTBOARD) is complete per work order C0995903-01.
2. A PMT is required to determine operability of HV-043-1F020.

INITIATING CUE:

You are directed to prepare a partial on ST-6-043-200-1 to determine operability for valve HV-043-1F020, Recirc Loop Sample Line PCIV (OUTBOARD) following maintenance.

Examination Proctor will perform any needed approvals

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

ACTIONS REQUIRED FOR SPIKING ARM

JPM Number: LOJPM6728

REVISION NUMBER: 000

DATE: _____

Developed By:	_____	_____
	Instructor	Date
Validated By:	_____	_____
	SME or Instructor	Date
Reviewed By:	_____	_____
	Operations Representative	Date
Reviewed By:	_____	_____
	EP Representative	Date
Approved By:	_____	_____
	Training Department	Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:

Procedure <u>S27.1.A</u>	Rev: <u>21</u>
Procedure <u>S27.10.A</u>	Rev: <u>9</u>
Procedure <u>ARC MCR 109 B-4</u>	Rev: <u>2</u>
Procedure _____	Rev: _____
Procedure _____	Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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

II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM is New	11/01/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

1. On the Individual Briefing Sheet the following identified:
 - a. Location of ARM identified as Unit 1 RHR DIV 2 Rm (Area 16 Elev 201) and
 - b. Section 4.3 of S27.1.A to remove Area ARM from service, documented.

V. SIMULATOR SETUP:

None.

VI. INITIAL CONDITIONS:

1. Unit 1 is at 100% power.
2. Annunciator 109 B-4 "Reactor Encl Area Hi Radiation", has been received several times this shift
3. Each time it has been determined to be spiking of channel # 9
4. The RP tech has verified that local area readings are normal.

VII. INITIATING CUE:

1. Shift Supervision directs you to identify, and record below, the location in the plant monitored by this ARM
2. Identify all compensatory actions required to address this nuisance alarm and record these actions below.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Provide Candidate with the following: <ul style="list-style-type: none"> • Individual Briefing Sheet • ARC 109 RAD B-4, REACTOR ENCL AREA HI RADIATION • S27.10.A, Guidance For Addressing Area Radiation Monitoring Alarms • S27.1.A, Operation of the Area Radiation Monitoring System 					
	1. [ARC MCR 109 B-4] Reference ARC 109 B-4 to identify appropriate channel initiating alarm	Channel # 9 identified per Initial Conditions			
	2. [S27.10.A] Using S27.10.A, Guidance For Addressing Area Radiation Monitoring Alarm determine the following:	N/A			
	2a. [S27.10.A step 4.2] IF a high radiation alarm occurs AND Radiation Protection has determined the alarm to be false, THEN USE Attachment 1	S27.10.A Attachment 1 referenced			
	2b. [S27.10.A Attachment 1] HP has verified dose rates in area are normal AND ARM channel is spuriously spiking	Area dose rates normal and ARM spuriously spiking Identified per Initial Conditions			
*	2c. [S27.10.A Attachment 1 page #4 of 6] T-103 SAMP-2 ARM Channels 1,2,8,9,10,11,21,22 For either Unit 1 or 2	Candidate determines ARM channel 9 listed and follows YES path of S27.10.A Attachment #1			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	2d. [S27.10.A Attachment 1] Place ARM in zero.	Candidate determines to place ARM in zero using S27.1.A			
*	2e. [S27.10.A Attachment 1] Have HP install a potable ARM in the vicinity of the inoperable monitor.	Candidate requests HP Tech to install portable ARM DIV 2 RHR room (Area 16, Elev 201') for RIS-09-M1-1K600			
	3. [S27.1.A Attachment 1 page 1 of 3] Using S27.1.A, Operation of the Area Radiation Monitoring System determine area(s) affected by nuisance alarm.	DIV 2 RHR room (Area 16, Elev 201') identified			
*	4. [S27.1.A step 4.3.1] ENSURE mode switch for ARM to "ZERO" position at Aux Equipment Room panel	ARM #9 placed in ZERO			
*	5. [S27.1.A step 4.3.2] PRESS RESET button on ARM TRIP UNIT	RESET button depressed on ARM TRIP UNIT			
	6. [S27.1.A step 4.3.3] HANG an EST stating "Removed from Service per S27.1.A	EST tag hung on channel #9 ARM			
	7. [S27.1.A step 4.3.4] VERIFY applicable "Area Radiation" alarm reset in MCR	"Area Radiation" alarm reset in MCR			
	8. [S27.1.A step 4.3.5] PRESS "ACK Alarm" key on recorder RR-M1-0R601 or RR-M1-*R600	"ACK Alarm" key on recorder RR-M1-*R600 predded			
	9. [S27.1.A step 4.3.6] VERIFY LED for associated ARM on recorder RR-M1-0R601 or RR-M1-*R600 is lit	LED for associated ARM on recorder RR-M1-1R600 is lit			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	10.[S27.1.A step 4.3.7] VERIFY "Common Area Rad Monitor" downscale alarm 00-C824/G-5 OR "*Unit Area Rad Monitor" downscale *0C-800/A-5 is reset.	"Unit Area Rad Monitor" downscale 10C-800/A-5 is reset.			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



NRC Answer Summary Page

As a minimum the following conditions should be referenced for the spiking ARM"

1. (2c) Identify appropriate channel initiating alarm, channel #9 is T-103 / SAMP referenced
2. (2e) Area(s) affected by nuisance alarm. - DIV 2 RHR room (Area 16, Elev 201')
3. (2e) Have HP install a potable ARM in the vicinity of the inoperable monitor DIV 2 RHR room (Area 16, Elev 201')
4. Candidate may determine to document S27.1.A step 4.3, or as a minimum:
 - (4) Place mode switch for ARM to "ZERO" position at Aux Equipment Room
 - (5) Press RESET button on ARM TRIP UNIT



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: ACTIONS REQUIRED FOR SPIKING ARM

JPM Number: LOJPM6728

Revision Number: 000

Task Number and Title: 2990090301 Apply Radiation and Contamination Safety Procedures

K/A Number and Importance: Generic 2.3.15 2.9/3.1

Safety Function (1-9) 9

Admin Category (A1-4) 3 (Radiation Controls)

Level of Difficulty (1-5) 3

Suggested Testing Environment: Classroom

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

Reference(s): ARC 109 RAD B-4, REACTOR ENCL AREA HI RADIATION Rev 2

S27.10.A, Guidance For Addressing Area Radiation Monitoring Alarms Rev 9

S27.1.A, Operation of the Area Radiation Monitoring System Rev 21

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. Unit 1 is at 100% power.
2. Annunciator 109 B-4 "Reactor Encl Area Hi Radiation", has been received several times this shift
3. Each time it has been determined to be spiking of channel # 9
4. The RP tech has verified that local area readings are normal.

INITIATING CUE:

1. Shift Supervision directs you to identify, and record below, the location in the plant monitored by this ARM
2. Identify all compensatory actions required to address this nuisance alarm and record these actions below.

Record action(s):

[illegible]

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

DETERMINATION OF ADEQUATE SHIFT STAFFING

JPM Number: LOJPM6712

REVISION NUMBER: 000

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:

Procedure <u>OP-LG-101-111</u>	Rev: <u>5</u>
Procedure _____	Rev: _____
Procedure _____	Rev: _____
Procedure _____	Rev: _____
Procedure _____	Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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

II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0712 Rev. 2. Revised to new template and to align with latest procedure revision.	11/04/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

Determine that shift is below minimum staffing requirements and take appropriate corrective action to ensure adequate shift staffing.

V. SIMULATOR SETUP:

None

VI. INITIAL CONDITIONS:

1. Unit 1 is in OPCON 1
2. Unit 2 is in OPCON 4
3. Today's date is 12/25
4. It is night shift 18:00 – 06:00
5. The entire shift has participated in a Christmas meal at @ 0000
6. Initial shift staffing consists of the following;
 - 1 Shift Manager
 - 3 Senior Reactor Operators
 - 3 Reactor Operators
 - 11 Equipment Operators (5 Equipment Operators are Fire Brigade Qualified)

VII. INITIATING CUE:

At 0130, the Unit 2 Reactor Operator and a Fire Brigade Qualified Equipment Operator complain of severe stomach pain/headache and are unable to perform operator duties.

Determine if staffing requirements for current operating modes are met.

- Include any immediate and long term (greater than 2 hours) corrective actions that are required to ensure adequate shift staffing is met.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Provide Candidate with the following: <ul style="list-style-type: none"> JPM Briefing Sheet OP-LG-101-111, Shift Staffing Requirements 					
	1. Candidate reviews OP-LG-101-111, to determine shift staffing requirements.	N/A			
	2. Determine that shift staffing is in violation of minimum shift staffing requirements per OP-LG-101-111.	N/A			
*	2a. RO position is not adequately filled, additionally Unit 2 must be staffed with an RO	Determination made that: RO staffing is not adequately filled per OP-LG-101-111 (Minimum required staffing is 3 ROs) An RO is required at the Unit 2 Controls			
*	2b. Fire Brigade position is not adequately filled	Determination made that Fire Brigade position is not adequately filled per OP-LG-101-111 (Minimum required staffing is 5)			
	3. Determine action necessary IAW current shift manning, as follows:	N/A			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: <ul style="list-style-type: none"> With 1 RO unable to perform duties, the shift is below minimum requirements, and Unit 2 must be staffed with an RO With 1 Fire Brigade qualified EO unable to perform duties the shift is below minimum requirements. 					
*	3a. [OP-LG-101-111 Step 4.1.1.4] States except for Shift Manager, shift crew composition may be one less than minimum requirements for up to 2 hours.	Determination made that action must be taken to restore the crew composition for the RO position within 2 hours			
*	3b. [OP-LG-101-111 Step 4.1.2.3] States the fire brigades may be less than the minimum requirements for a period not to exceed 2 hrs.	Determination made that action must be taken to restore the crew composition for the Fire Brigade within 2 hours			
	4. Take action to restore minimum shift staffing as follows:	N/A			
EVALUATORS NOTE: Action is required to staff the RO position. This action can include moving one of the 3 SROs into the RO position.					
*	4a. Take action to restore minimum shift staffing for RO	Perform operator call-in to get RO position manned within 2 hours or move one of the 3 SROs into the PRO/RO position. Have PRO replace Unit 2 RO until replacement arrives or SRO fills in for PRO			
*	4b. Take action to restore minimum shift staffing for Fire Brigade	Perform operator call-in to get Fire Brigade qualified EO manned within 2 hours			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: DETERMINATION OF ADEQUATE SHIFT STAFFING

JPM Number: LOJPM6712

Revision Number: 000

Task Number and Title: 3420140302 Manage the Shift Team

3430160302 Assure Adequate Personnel Coverage For All Plant Conditions In Accordance With Overtime Policy.

K/A Number and Importance: Generic 2.1.5 2.9 / 3.9

Safety Function (1-9) N/A

Admin Category (A1-4) 1 (Conduct Of Operations)

Level of Difficulty (1-5) 3

Suggested Testing Environment: Classroom

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

Reference(s): OP-LG-101-111, Shift Staffing Requirements Rev 5

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 30 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. Unit 1 is in OPCON 1
1. Unit 2 is in OPCON 4
2. Today's date is 12/25
3. It is night shift 18:00 – 06:00
4. The entire shift has participated in a Christmas meal at @ 0000
5. Initial shift staffing consists of the following;
 - 1 Shift Manager
 - 3 Senior Reactor Operators
 - 3 Reactor Operators
 - 11 Equipment Operators (5 Equipment Operators are Fire Brigade Qualified)

INITIATING CUE:

At 0130, the Unit 2 Reactor Operator and a Fire Brigade Qualified Equipment Operator complain of severe stomach pain/headache and are unable to perform operator duties.

Determine if staffing requirements for current operating modes are met.

- Include any immediate and long term (greater than 2 hours) corrective actions that are required to ensure adequate shift staffing is met.

Provide immediate and long term requirements and any corrective actions required below

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

DETERMINE ACCEPTABILITY OF INSTALLING FUEL POOL GATES

JPM Number: LOJPM6763

REVISION NUMBER: 000

DATE: _____

Developed By:	_____	_____
	Instructor	Date
Validated By:	_____	_____
	SME or Instructor	Date
Reviewed By:	_____	_____
	Operations Representative	Date
Reviewed By:	_____	_____
	EP Representative	Date
Approved By:	_____	_____
	Training Department	Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:

Procedure <u>1GP-6.1</u>	Rev: <u>32</u>
Procedure <u>RT-1-053-850-0</u>	Rev: <u>7</u>
Procedure _____	Rev: _____
Procedure _____	Rev: _____
Procedure _____	Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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

II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM is new	11/04/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

Determine the heat transfer capability of the Fuel Pool Cooling System is currently insufficient to dissipate the current Decay Heat Load.

V. SIMULATOR SETUP:

None

VI. INITIAL CONDITIONS:

1. Unit 1 is in a Refueling Outage.
2. The reactor was shutdown 11 days ago
3. Refuel Floor Secondary Containment is established.
4. The only Fuel Pool Cooling available is the '2A' and '2B' FPC Pumps with the '2A' and '2B' FPC Heat Exchangers.
5. Reactor Engineering (Joe Rubinaccio) has determined the total decay heat load contained in the Spent Fuel Pools (SFP) to be the following:

Days after Shutdown	SFP Heat Load (cross tied) (MW)
9	4.77
10	4.66
11	4.56
12	4.47
13	4.40
14	4.33
15	4.27

VII. INITIATING CUE:

Shift Supervision directs you to perform GP- 6.1 step 3.12.10, Install Reactor Cavity/Spent Fuel Pool Gates.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Provide the following to the Candidate: <ul style="list-style-type: none"> 1GP-6.1, Rev 32, Shutdown Operations – Refueling, Core Alteration and Core Offloading Pages 96, 97 (Section 3.12.10), and 134 (Verification of Adequate FPC Decay Heat Removal). Completed copy of RT-1-053-850-0, Heat Transfer Capability of Fuel Pool Cooling Systems performed on 3/19/16. Calculator Answer Rounding – Students my round answers provided the rounding does not affect the outcome of the JPM. 					
*	1. [1GP6.1 step 3.12.10.1] OBTAIN the total decay heat load contained in the spent fuel pools.	Candidate determines the total heat load for day 11 of the refueling outage to be <u>4.56 MW</u> from Initial Conditions.			
	2. [1GP6.1 step 3.12.10.2] RECORD the spent fuel pool decay heat load on step 1 of Attachment #8	Candidate records on 1GP6-1 Attachment #8 Decay Heat Load = 4.56 MW			
	3. [1GP6.1 step 3.12.10.3] DETERMINE the number of Fuel Pool Cooling Water Pumps AND Heat Exchangers that are available	Candidate determines the 2A and 2B Fuel Pool Cooling Pumps with the 2A and 2B FPC Heat Exchangers are available from Initial Conditions.			
*	4. [1GP6.1 step 3.12.10.4] RECORD the heat transfer capability shown on Attachment 9 of RT-1-053-850-0 for available FPC Pumps AND Heat Exchangers on Step 2 of Attachment #8.	Candidate determines from Attachment #9 of RT-1-053-850-0 the Heat Transfer Capability of the Unit 2 'A' and 'B' FPC Pumps/HTXCH to be <u>15.1540845 BTU/hr</u>			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	5. [1GP6.1 step 3.12.10.5] VERIFY that the heat transfer capability of the Fuel Pool Cooling System is greater than the decay heat load in the spent fuel pools.	Candidate determines the heat transfer capability of the FPC system using 1GP-6-1, Attachment 8 $15.1540845 \times 10^6 \frac{\text{BTU}}{\text{Hr}} \times 1 \frac{\text{MW}}{3.413 \times 10^6 \frac{\text{BTU}}{\text{HR}}} = \underline{4.44} \text{ MW}$			
*	6. [1GP6.1 step 3.12.10.6] IF the heat transfer capability of the Fuel Pool Cooling System is less than the decay heat load in the spent fuel pools, THEN PERFORM one of the following:	Candidate determines that 4.4 MW (heat transfer capability of the FPC system) is < (less than) the 4.56 MW (decay heat load) <u>4.44 MW < 4.56 MW</u>			
*	6a. [1GP6.1 step 3.12.10.6a] WAIT to install Reactor Cavity/Spent Fuel Pool Gates until decay heat load in the spent fuel pool is less than or equal to the heat transfer capability of the fuel pool cooling system.	Candidate determines to wait until decay heat load in the spent fuel pool is less than or equal to the heat transfer capability of the fuel pool cooling system. (Candidate may determine to perform 1GP6.1 step 3.12.10.6b which is acceptable)			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: DETERMINE ACCEPTABILITY OF INSTALLING FUEL POOL GATES

JPM Number: LOJPM6763

Revision Number: 000

Task Number and Title: 2035010401 Monitor Fuel Pool Cooling Operation

K/A Number and Importance: G2.1.40 2.8/3.9

Safety Function (1-9) N/A

Admin Category (A1-4) 1 (Conduct of Operations)

Level of Difficulty (1-5) 5

Suggested Testing Environment: Classroom

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

Reference(s): RT-1-053-850-0, Heat Transfer Capability of Fuel Pool cooling Systems Rev 7
1GP6.1, Shutdown Operations, Refueling, Core Alteration and Core Offloading Rev 32

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

Testing Method: ☐ Simulate ☒ Perform

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

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. Unit 1 is in a Refueling Outage.
2. The reactor was shutdown 11 days ago
3. Refuel Floor Secondary Containment is established.
4. The only Fuel Pool Cooling available is the '2A' and '2B' FPC Pumps with the '2A' and '2B' FPC Heat Exchangers.
5. Reactor Engineering (Joe Rubinaccio) has determined the total decay heat load contained in the Spent Fuel Pools (SFP) to be the following:

Days after Shutdown	SFP Heat Load (cross tied) (MW)
9	4.77
10	4.66
11	4.56
12	4.47
13	4.40
14	4.33
15	4.27

INITIATING CUE:

Shift Supervision directs you to perform GP- 6.1 step 3.12.10, Install Reactor Cavity/Spent Fuel Pool Gates.

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

EVALUATE JET PUMP OPERABILITY

JPM Number: LOJPM6717

REVISION NUMBER: 001

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure ST-6-043-320-1 Rev: 45
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces 2010 RO A1-2 Revised to new template and to align with latest procedure revision.	08/15/14
001	Updated template and KA	10/31/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

The candidate should report the test is UNSAT due to failure on "A" loop drive flow high and "A" loop jet pumps flow low.

V. INITIAL CONDITIONS:

Plant conditions are as follows:

1. Unit 1 is in OPCON 1
2. An unexpected drop in reactor power occurred
3. An unexplained rise in core flow occurred
4. ON-100, Failure Of A Jet Pump, was entered

VI. INITIATING CUE:

Perform ST-6-043-320-1, Daily Jet Pump Operability Verification for Two Recirculation Loop Operation, report the results, and (SRO only) any compensatory actions, if required

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Provide Candidate with the following: <ul style="list-style-type: none"> • JPM briefing sheet • Yellow Copy of ST-6-043-320-1 • PMS computer screen shots • Calculator • Unit 1 Tech Specs (SRO Only) 					
*	1. [ST-6-043-320-1 step 4.3.1.3] Determine if Loop "A" flow is within 10% of the loop flow values on the established pump speed-loop flow characteristic curve	Candidate determines that Loop "A" is NOT within the limits – UNSAT			
*	2. [ST-6-043-320-1 step 4.3.2.3] Determine if Loop "B" flow is within 10% of the loop flow values on the established pump speed-loop flow characteristics curve.	Candidate determines that loop "B" is within the limits – SAT			
*	3. [ST-6-043-320-1 step 4.3.3.4] Determine if the value of total core flow is within 10% of the established Total Core Flow value derived from Recirc Loop Flow Measurements	Candidate determines that total core flow is within the limits – SAT			
*	4. [ST-6-043-320-1 step 4.3.4.4] Determine if Loop "A" Jet Pump diffuser-to-lower plenum differential pressure is within 10% of the established patterns	Candidate determines that the jet pumps on Loop "A" are NOT within the limits - UNSAT			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	5. [ST-6-043-320-1 step 4.3.5.4] Determine if Loop "B" Jet Pump diffuser-to-lower plenum differential pressure is within 10% of the established patterns	Candidate determines that all of the jet pumps on Loop "B" are within the limits - SAT			
*	6. [ST-6-043-320-1 step 4.4.1] Verify at least two of the step combinations are satisfactory: <ul style="list-style-type: none"> 4.3.1.3 and 4.3.2.3 (Pump speed vs. drive flow) UNSAT 4.3.3.4 (Total loop flow vs. total core flow) SAT 4.3.4.4 and 4.3.5.4 (Individual JP DP vs. Drive Flow) UNSAT 	Candidate determines that two of three areas are UNSAT and the overall ST results are UNSAT Report the unsatisfactory results – The "A" Jet Pumps have failed the surveillance test.			
<p>NOTE: This is the termination point for RO's</p> <p>CUE: (RO's only) - You have met the termination criteria for this JPM</p> <p>The remaining portion of this JPM is "SRO's only"</p>					
*	7. SRO candidate determines Tech Spec implications of the failed Jet Pump surveillance test	Tech Spec LCO 3.4.1.2 With one or more Jet Pumps inoperable, be in HOT SHUTDOWN within 12 hours			
CUE: (SRO) You have met the termination criteria for this JPM					

JPM Completion Time _____

JPM SUMMARY**Operator's Name:** _____**Job Title:** ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER**JPM Title:** EVALUATE JET PUMP OPERABILITY**JPM Number:** LOJPM6717**Revision Number:** 001**Task Number and Title:** 2000010401 ON-100, Actions For Jet Pump Failure
3410070302 Direct action per T.S. when an LCO is not satisfied**K/A Number and Importance:**
Generic 2.1.19 3.9/3.8
Generic 2.2.40 3.4/4.7**Safety Function (1-9)** 1**Admin Category (A1-4)** 1/2 (Conduct of Operations / Equipment Control)**Level of Difficulty (1-5)** 3**Suggested Testing Environment:** Classroom**Alternate Path:** ☐ Yes ☒ No **SRO Only:** ☐ Yes ☒ No **Time Critical:** ☐ Yes ☒ No**Reference(s):** ST-6-043-320-1, Daily Jet Pump Operability for Two Recirculation Loop
Operation, Rev 45
Tech Specs**Actual Testing Environment:** ☐ Simulator ☐ Control Room ☐ In-Plant ☐ Other**Testing Method:** ☐ Simulate ☒ Perform**Estimated Time to Complete:** 20 minutes **Actual Time Used:** _____ minutes**EVALUATION SUMMARY:**Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ NoThe operator's performance was evaluated against standards contained within this JPM and
has been determined to be: ☐ Satisfactory ☐ Unsatisfactory**Comments:** _____

_____**Evaluator's Name:** _____ (Print)**Evaluator's Signature:** _____ **Date:** _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

Plant conditions are as follows:

1. Unit 1 is in OPCON 1
2. An unexpected drop in reactor power occurred
3. An unexplained rise in core flow occurred
4. ON-100, Failure Of A Jet Pump, was entered

INITIATING CUE:

Perform ST-6-043-320-1, Daily Jet Pump Operability Verification for Two Recirculation Loop Operation, report the results, and (SRO only) any compensatory actions, if required.

Document required action(s):

RPV NORMAL

CNTMT NORMAL

RU

RA

CH

1

PM

47

RX

0

FC

2

T

19

CW

2

SS

18

EL

6

Group Point Display - Group Data Display on LG1PA



Change Group



Group Definition



List Groups

Group Number: 33

Group Name: DAILY ST PTS (JET PF & DAILY)

Group Status: ACTIVE

Point ID	Description	Status	Current Value	Engineering Units	Plot Limit	Low	High	Plot Limit
1	R033 DRYWELL EL 330 FT TEMP	NML	136	DEGF	0			80
2	R036 DRYWELL EL 260 FT TEMP	NML	124	DEGF	50			250
3	R037 DRYWELL EL 260 FT TEMP	NML	124	DEGF	50			250
4	R034 DRYWELL EL 320 FT TEMP	NML	136	DEGF	50			250
5	B018 (18) REACTOR CORE FLOW	NML	89.2	MLB/H	0.0			120.0
6	B037 (19) A RECIRC PMP A1(DRIVE) FLOW	NML	16.875	MLB/H	0.000			20.000
7	B039 (21) B RECIRC PMP B1(DRIVE) FLOW	NML	15.122	MLB/H	0.000			20.000
8	E1266 A RECIRC PUMP SPEED	NML	1314	RPM	18.000			102.000
9	E1267 B RECIRC PUMP SPEED	NML	1314	RPM	18.000			102.000
10	E050 D11 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50
11	E052 D13 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50
12	E051 D12 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50
13	E053 D14 4.16 KV SFGD BUS VOLTAGE	NML	4.31	KVAC	0.00			4.50
14								
15								
16								
17								
18								
19								
20								

12:54:54 -I- Loading display MGPDFW

LIMERICK 1

FWD

BWD

12:55:18

SIM

RPV NORMAL
CNTMT NORMAL
E1192FL2
D/W FLR DRN SUMP FLW 2 MIN AVGL
NML
0.248
GPM
8.000





















Group Point Display - Group Data Display on LG1PA

☒ Change Group

☒ Group Definition

☒ List Groups

Group Number: 2
Group Name: JET PUMP D/P'S ("Z" SHIFT ST)
Group Status: ACTIVE

Point ID	Description	Status	Current Value	Engineering Units	Plot Limit	Low	High	Plot Limit
1	E1084 JET PUMP 1 SINGLE TAP DP	NML	35.529	%	0.000			100.000
2	E1103 JET PUMP 2 SINGLE TAP DP	NML	35.424	%	0.000			100.000
3	E1105 JET PUMP 3 SINGLE TAP DP	NML	33.156	%	0.000			100.000
4	E1247 JET PUMP 4 SINGLE TAP DP	NML	34.552	%	0.000			100.000
5	E1249 JET PUMP 5 SINGLE TAP DP	NML	44.395	%	0.000			100.000
6	E1255 JET PUMP 6 SINGLE TAP DP	NML	37.797	%	0.000			100.000
7	E1257 JET PUMP 7 SINGLE TAP DP	NML	33.784	%	0.000			100.000
8	E1259 JET PUMP 8 SINGLE TAP DP	NML	32.039	%	0.000			100.000
9	E1263 JET PUMP 9 SINGLE TAP DP	NML	34.901	%	0.000			100.000
10	E1265 JET PUMP 10 SINGLE TAP DP	NML	42.502	%	0.000			100.000
11	E1037 JET PUMP 11 SINGLE TAP DP	NML	27.541	%	0.000			100.000
12	E1097 JET PUMP 12 SINGLE TAP DP	NML	27.704	%	0.000			100.000
13	E1104 JET PUMP 13 SINGLE TAP DP	NML	25.119	%	0.000			100.000
14	E1235 JET PUMP 14 SINGLE TAP DP	NML	26.724	%	0.000			100.000
15	E1254 JET PUMP 15 SINGLE TAP DP	NML	27.187	%	0.000			100.000
16	E1248 JET PUMP 16 SINGLE TAP DP	NML	25.055	%	0.000			100.000
17	E1256 JET PUMP 17 SINGLE TAP DP	NML	15.519	%	0.000			100.000
18	E1258 JET PUMP 18 SINGLE TAP DP	NML	17.021	%	0.000			100.000
19	E1260 JET PUMP 19 SINGLE TAP DP	NML	27.541	%	0.000			100.000
20	E1264 JET PUMP 20 SINGLE TAP DP	NML	26.680	%	0.000			100.000

06:49:04 PS-PRINT - %SYSTEM-S-NORMAL

LIMERICK 1
FWD
BWD
6:50:45
SIM

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

**CALCULATE THE AVERAGE OFFGAS PRE-TREATMENT
RADIOACTIVITY RELEASE RATE**

JPM Number: LOJPM6720

REVISION NUMBER: 000

DATE: _____

Developed By:	_____	_____
	Instructor	Date
Validated By:	_____	_____
	SME or Instructor	Date
Reviewed By:	_____	_____
	Operations Representative	Date
Reviewed By:	_____	_____
	EP Representative	Date
Approved By:	_____	_____
	Training Department	Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
 - Procedure GP-5 App 1 EOC Rev: 58
 - Procedure Tech Specs U#1 Rev: _____
 - Procedure ST-5-041-885-1 Rev: 21
 - Procedure _____ Rev: _____
 - Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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

II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM modifies LLOJPM6760 Rev. 1 to an SRO JPM	10/31/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

RO: Determines Radioactive off gas release rate is 14,668 to 15,266 $\mu\text{Ci/sec}$ and chemistry sampling is required.

SRO: Determines Tech Spec 3.4.5 sampling requirements for DOSE EQUIVALENT I-131: Perform the sampling and analysis requirements of Item 4.a of Table 4.4.5-1 (At least once per 4 hours) until the specific activity of the primary coolant is restored to within its limit.

V. SETUP INSTRUCTIONS

1. Provide the following:
 - Calculator
 - GP-5 Appendix 1, End of Steady State Operations
 - Tech Specs Unit 1

VI. INITIAL CONDITIONS:

1. **Initial Conditions**
 - a. Unit 1 is in OPCI 1
 - b. 1 hour ago
 - The average Off-gas pretreatment release rate was 341.2 $\mu\text{Ci/sec}$
 - FR-69-115, SJA Disc Flow To Recombiner, read 74 scfm
2. **1 hour following Initial Conditions**
 - a. Unit 1 is in OPCI 1
 - b. There was an increase in SJA Disc Discharge Rad Monitor readings, the current readings are:
 - RR-26-1R601 "A" SJA Disc Discharge Rad Monitor reads 2461 mRem/hr
 - RR-26-1R601 "B" SJA Disc Discharge Rad Monitor reads 2534 mRem/hr
 - c. FR-69-115, SJA Disc Flow To Recombiner, reads 74 scfm

VII. INITIATING CUE:

You are directed to calculate the average offgas pre-treatment radioactivity release rate per GP-5 Appendix 1, End of Steady State Operations, and identify any required actions.

Placard is mounted to the 10C600 panel:

U/1 OFFGAS	
SUM OF SIX	<u>139</u>
K "A"	<u>0.082</u>
K "B"	<u>0.080</u>
Date:	_____

Final Conditions - Sheet # 2

Chemistry notifies the Control Room Supervisor with the results of
ST-5-041-885-1 Dose Equivalent I-131 Determination

I.D.E. Activity ($\mu\text{Ci/gm}$)	<u>0.3 microcuries per gram</u>
Sample Date/Time	<u>Today</u> / <u>15 min after</u> <u>sample requested</u>

Identify any required follow-up actions.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Provide Candidate with the following: <ul style="list-style-type: none"> Individual Briefing Sheet – Initial Sheet only; <u>DO NOT Provide</u> “Final Conditions” Sheet GP-5 Appendix 1 EOC Steady State Operations Tech Specs Unit 1 					
	1. Review GP-5 Appendix 1, End Of Cycle Steady State Operations	Candidate reviews GP-5 Appendix 1.			
	2. [GP-5 App #1 3.1.21.1] CALCULATE Off-gas release rates for the A <u>AND</u> B channels using the following equation: $RR = RL \times F \times K$ RR = Release Rate for A(B) (μCi/second) RL = Radiation Level of SJAE as indicated on RR-26-1R601 (mRem/hour) F = Off-gas flow as indicated by FR-69-115 (scfm), Point 2 K = Conversion Factor for A(B) data (posted on panel 10C600)	N/A			
*	3. <u>Channel A</u> (Point 1) RR = _____ mRem/hour X _____ CFM X <u> </u> K RR = _____ μCi/second	Calculate “A” channel release $2461 \times 74 \times 0.082 =$ <u>14,933.3 μCi/sec</u>			

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	<p>4. Channel B (Point 2)</p> <p>RR = ____ mRem/hour x ____ CFM x ____ K</p> <p>RR = ____ μCi/second</p>	<p>Calculate "B" channel release</p> <p>2534 x 74 x 0.080 = <u>15,001.2 μCi/sec</u></p>			
*	<p>5. [GP-5 App #1 3.1.21.2]</p> <p>CALCULATE the average of the A <u>AND</u> B channel values to obtain the average Off-gas pretreatment release rate as follows:</p> $ARR = \frac{(RR \text{ "A"}) + (RR \text{ "B"})}{2}$ <p>Where:</p> <p>ARR = Average Off-gas Pretreatment Release Rate (μCi/second)</p> <p>RR "A" = Release Rate value for "A" Channel (μCi/second)</p> <p>RR "B" = Release Rate value for "B" Channel (μCi/second)</p> <p>ARR = () + () 2</p> <p>ARR = _____ μCi/second</p>	<p>Calculate the average release rate</p> <p>ARR = <u>(14,933.3 + 15001.2)</u> 2</p> <p>ARR=<u>14,967.2 μCi/sec</u></p> <p>Acceptable band is 14,668 to 15,266 (14,967 +/- 2%)</p>			
*	<p>6. [GP-5 App #1 3.1.21.3]</p> <p>IF Off-Gas Release Rate rises by >10,000 μCi/second in 1 hour during steady state operation at release rates <75,000 μCi/second</p> <p>THEN CONTACT Chemistry to perform ST-5-041-885-*, Dose Equivalent I-131 Determination</p>	<p>Chemistry notified to perform ST.</p> <p>Cue: Chemistry acknowledges request to complete the ST and will notify the CRS with the results</p>			

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	<p>7. [GP-5 App #1 3.1.21.4]</p> <p>IF Off-Gas Release Rate rises by more than 50%, <u>THEN CONTACT</u> Chemistry to perform ST-5-070-885-*, Isotopic Offgas Analysis</p> <p>CUE: Chemistry acknowledges request to complete the ST and notifies the CRS with the results</p> <p>RO ONLY: You have met the termination criteria for this JPM</p>	Chemistry notified to perform ST-5-070-885-1, Isotopic Offgas Analysis			
<p style="text-align: center;"><u>SRO ONLY Portion</u></p> <p>EVALUATORS NOTE: With time compression, Chemistry has completed ST-5-041-885-1, Dose Equivalent I-131 Determination, and notifies the CRS with the results. (Have copy of full ST available if requested)</p> <p>Provide candidate with the following:</p> <ul style="list-style-type: none"> • Final Conditions Sheet #2 <p>If requested, Chemistry notifies the CRS that they are still working on ST-5-070-885-1</p>					
*	<p>8. Based on the results of ST-5-041-885-1 the CRS determines Tech Spec action(s)</p>	<p>In OPERATIONAL CONDITION 1, 2, 3, or 4, with the specific activity of the primary coolant greater than 0.2 microcuries per gram DOSE EQUIVALENT I-131, <u>perform the sampling and analysis requirements of Item 4.a of Table 4.4.5-1 (at least once per 4 hours)</u> until the specific activity of the primary coolant is restored to within its limit.</p>			
<p style="text-align: center;">CUE: You have met the termination criteria for this JPM</p>					

JPM Completion Time _____

JPM SUMMARY**Operator's Name:** _____**Job Title:** ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER**JPM Title:** CALCULATE THE AVERAGE OFFGAS PRE-TREATMENT RADIOACTIVITY RELEASE RATE**JPM Number:** LOJPM6720**Revision Number:** 000**Task Number and Title:** RO: 2730010101, Monitor Process Rad Monitor Operation**SRO:** 3420030302, Review results of a completed Surveillance Test**K/A Number and Importance:** Generic 2.3.11 3.8/4.3**Safety Function (1-9)** 9 (Radioactivity Release)**Admin Category (A1-4)** N/A**Level of Difficulty (1-5)** 3**Suggested Testing Environment:** Classroom**Alternate Path:** ☐ Yes ☒ No **SRO Only:** ☐ Yes ☒ No **Time Critical:** ☐ Yes ☒ No**Reference(s):** GP-5 App 1 EOC Study State Operations Rev. 058

ST-5-041-885-1 Dose Equivalent I-131 Rev. 021

Technical Specification 3.4.5

Actual Testing Environment: ☐ Simulator ☐ Control Room ☐ In-Plant ☐ Other**Testing Method:** ☐ Simulate ☒ Perform**Estimated Time to Complete:** 20 minutes **Actual Time Used:** _____ minutes**EVALUATION SUMMARY:**Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ NoThe operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory**Comments:** _____

_____**Evaluator's Name:** _____ (Print)**Evaluator's Signature:** _____ **Date:** _____

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS

1. Initial Conditions

- a. Unit 1 is in OPGON 1
- b. 1 hour ago
 - The average Off-gas pretreatment release rate was 341.2 uCi/sec
 - FR-69-115, SJAE Disc Flow To Recombiner, read 74 scfm

2. 1 hour following Initial Conditions

- a. Unit 1 is in OPGON 1
- b. There was an increase in SJAE Discharge Rad Monitor readings, the current readings are:
 - RR-26-1R601 "A" SJAE Discharge Rad Monitor reads 2461 mRem/hr
 - RR-26-1R601 "B" SJAE Discharge Rad Monitor reads 2534 mRem/hr
- c. FR-69-115, SJAE Disc Flow To Recombiner, reads 74 scfm

INITIATING CUE

You are directed to calculate the average offgas pre-treatment radioactivity release rate per GP-5 Appendix 1, End of Steady State Operations, and identify any required actions.

Placard is mounted to the 10C600 panel:

U/1 OFFGAS	
SUM OF SIX	<u>139</u>
K "A"	<u>0.082</u>
K "B"	<u>0.080</u>
Date:	_____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

Final Conditions - Sheet # 2

Chemistry notifies the Control Room Supervisor with the results of
ST-5-041-885-1 Dose Equivalent I-131 Determination

I.D.E. Activity ($\mu\text{Ci/gm}$) <u>0.3 microcuries per gram</u>
Sample Date/Time <u>Today</u> / <u>15 min after</u> <u>sample requested</u>

Identify any required follow-up actions.



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

ERP CLASSIFICATION AND REPORTING (TIME CRITICAL)

JPM Number: LOJPM3097

REVISION NUMBER: 004

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure EP-AA-1008 Addendum 3 Rev: 002
Procedure EP-MA-114-100-F-01 Rev: P
Procedure EP-AA-112-100-F-01 Rev: V
Procedure EP-AA-111-F-11 Rev: A
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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

**II. RECORD OF TEMPORARY CHANGES:**

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0097 Rev. 10. Revised to new template and to align with latest procedure revision.	10/15/13
001	Added Site Area Emergency declared 10 minutes after initial event due to the fact that original JPM did not provide an initial declaration within the required 15 minutes. This changes the JPM to an escalation.	10/6/14
002	Revised due to new Limerick PAR Flowchart, EP-AA-111-F-11. Sectors expanded for evacuation 2-5 miles.	06/19/15
003	Revised to new template	10/13/15
Rev004	Revised JPM to new template and procedural revisions	11/03/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

1. General Emergency (FG1) is declared within 15 minutes of the candidate beginning the classification.
2. Notification form completed and provided to Shift Communicator within 15 minutes of declaring the General Emergency.

V. SIMULATOR SETUP:

☐ Insert the following Met Data values:

RZZ002 MET Data Wind Direction (0-360) DEG AZIMUTH Target Value = 311°

RZZ003 MET Data Wind Speed (0-100) MPH Target Value = 5.0 mph

VI. INITIAL CONDITIONS:

Unit 1 is initially at 100% power when the following events occur:

T = 0

- 'A' Steam Line ruptures in the Outboard MSIV Room
- Group 1 Isolation signal is received due to high steam line flow
- A full scram occurs with all rods inserted
- "A" Steam Line Inboard and Outboard MSIVs fail to isolate automatically or manually

T = 5 minutes

- Reactor Coolant Activity starts to rise

T = 10 minutes

- EAL threshold recognized and emergency declaration made

T = 15 minutes

- State and Local notifications complete for emergency declaration
- Shift Communicator has activated the ERO



VII. CURRENT UNIT 1 PLANT CONDITIONS:

- RPV pressure is 850 psig and lowering
- RPV level is +18" and steady
- DW pressure is 0.3 psig
- Reactor Coolant Activity is 370 $\mu\text{Ci/gm}$ (Dose Equivalent I-131)
- Outboard MSIV Room temperature is 210 degrees F, up slow
- Security personnel confirms a steam release outside secondary containment from blowout panels
- North Stack WRAM is indicating $2.5\text{E}+6$ $\mu\text{Ci/sec}$.
- Post LOCA Rad Monitors are reading the following:
 - A - 96 R/hr.
 - B - 89 R/hr.
 - C - 103 R/hr.
 - D - 97 R/hr.

VIII. INITIATING CUES: This Task is Time Critical

This JPM will start when you tell the evaluator that you are aware of task conditions and are ready to begin.

You are required to make the highest classification based on the given plant conditions and make subsequent call outs. All communications should indicate a drill.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**IX. PERFORMANCE CHECKLIST:**

JPM Start Time: _____

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	NOTE TO EVALUATOR//DRIVER: If JPM is NOT conducted in Simulator: Provide a screen shot of "Meteorological 15 Minute Average Point Data".				
	1. REFER to the appropriate LGS EAL Matrix	N/A	N/A		
	2. Call for Shift Communicator to report to MCR	Shift Communicator called to report to MCR			
	3. Identify the operating MODE for the affected Unit(s) prior to the abnormal condition, and obtain appropriate Matrix.	Matrix obtained: <input checked="" type="checkbox"/> HOT <input type="checkbox"/> COLD			
	4. Review the initiating conditions applicable to the operating MODE.	Use EAL Matrix to classify event	N/A		
*	5. DECLARE the event	Event Declared: <input type="checkbox"/> UNUSUAL EVENT <input type="checkbox"/> ALERT <input type="checkbox"/> SITE AREA EMERGENCY <input checked="" type="checkbox"/> GENERAL EMERGENCY Declared 15 minutes of the JPM START TIME: DECLARATION TIME:			
	6. Direct Shift Communicator to activate the ERO or make management only notifications	N/A (Shift Communicator has activated ERO per Initial Conditions)			



	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	7. Complete the Event Notification form	At the completion of the JPM the Event Notification Form will be evaluated against the JPM standard located below.	N/A		
	8. Direct Shift Communicator to perform state and local notifications	Shift Communicator notified to make notifications within 15 minutes of DECLARATION TIME. Declaration Time: Notification Initiated Time: NOTE: the expectation is notification is initiated within 9 (nine) minutes of declaration time. Notification times between 9-15 minutes constitutes a pass with comment.			
	CUE: When form has been completed and Shift Communicator informed to process form: "You have met the termination criteria for this JPM"	N/A	N/A		
	NOTE: The following steps are performed by the evaluator following the student providing the Notification form to the evaluator.				



	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	COMMENT NUMBER
EP-MA-114-100-F-01, STATE/LOCAL EVENT NOTIFICATION FORM					
	9. UTILITY MESSAGE NO.	"2" or equivalent entered			
	10. VERIFIED WITH	N/A	N/A		
	11. EMERGENCY DIRECTOR APPROVAL	Signature entered			
*	12. CALL STATUS:	Call Status marked <input checked="" type="checkbox"/> THIS IS A DRILL			
*	13. AFFECTED STATION:	Affected Station marked for <input checked="" type="checkbox"/> LIMERICK			
*	14. AFFECTED UNIT(S):	Unit(s) marked <input checked="" type="checkbox"/> ONE <input type="checkbox"/> TWO			
*	15. CLASSIFICATION:	Classification marked <input type="checkbox"/> UNUSUAL EVENT <input type="checkbox"/> ALERT <input type="checkbox"/> SITE AREA EMERGENCY <input checked="" type="checkbox"/> GENERAL EMERGENCY			
*	16. DECLARED AT:	Time entered Date entered			
	17. THIS REPRESENTS A/VAN:	This Represents marked <input type="checkbox"/> INITIAL DECLARATION <input checked="" type="checkbox"/> ESCALATION <input type="checkbox"/> NO CHANGE			
*	18. EMERGENCY ACTION LEVEL (EAL) NUMBER:	"FG1" entered Thresholds: FC.1 <u>AND</u> (RC.5 <u>OR</u> RC.4.1 <u>OR</u> RC.4.3.a) <u>AND</u> (CT.6.1 <u>OR</u> CT.6.3.a)			



	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	COMMENT NUMBER
*	19. A BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT:	<input type="checkbox"/> A- Abnormal Rad Levels/ Radiological Effluent <input checked="" type="checkbox"/> B- Fission Product Barrier Degradation <input type="checkbox"/> C- System Malfunction <input type="checkbox"/> D- Hazards and Other Conditions Affecting Plant Safety <input type="checkbox"/> E- Independent Spent Fuel Storage Installation Malfunction <input type="checkbox"/> F- Cold Shutdown/Refueling System Malfunctions			
*	20. RADIOLOGICAL RELEASE STATUS:	Release Status marked <input type="checkbox"/> NO RELEASE <input checked="" type="checkbox"/> AIRBORNE <input type="checkbox"/> LIQUID <input type="checkbox"/> RELEASE TERMINATED			
*	21. METEOROLOGY DATA: Cue: Provide MET Attachment only if in location other than simulator	Simulator Values match displayed Tower 1 175' using 15 minute average values: Wind Direction: <u>311.0</u> (degrees) Wind Speed: <u>5.0</u> (MPH) Attachment Values : Wind Direction: <u>311.0</u> (degrees) Wind Speed: <u>5.0</u> (MPH)			
*	22. PROTECTIVE ACTION RECOMMENDATION (a <u>or</u> b) :	PAR Recommendation marked <input type="checkbox"/> NOT Applicable <input checked="" type="checkbox"/> PAR Recommendation			



	<u>ELEMENT</u>	<u>STANDARD</u>	SAT	UNSAT	COMMENT NUMBER																																
	<p>NOTE: IF PAR RECOMMENDATION is required the following items should be marked:</p> <p>[S/E] 360 DEGREES FROM 0 MILES (SITE BOUNDARY) TO 2 MILES</p> <p>AND</p> <p>THE FOLLOWING SECTORS FROM 2 MILES TO 5 MILES:</p> <table border="0"> <tr> <td>[S/E] N</td> <td>[S/E] E</td> <td>[S/E] S</td> <td>[S/E] W</td> </tr> <tr> <td>[S/E] NNE</td> <td>[S/E] ESE</td> <td>[S/E] SSW</td> <td>[S/E] WNW</td> </tr> <tr> <td>[S/E] NE</td> <td>[S/E] SE</td> <td>[S/E] SW</td> <td>[S/E] NW</td> </tr> <tr> <td>[S/E] ENE</td> <td>[S/E] SSE</td> <td>[S/E] WSW</td> <td>[S/E] NNW</td> </tr> </table> <p>AND</p> <p>THE FOLLOWING SECTORS FROM 5 MILES TO 10 MILES:</p> <table border="0"> <tr> <td>[S/E] N</td> <td>[S/E] E</td> <td>[S/E] S</td> <td>[S/E] W</td> </tr> <tr> <td>[S/E] NNE</td> <td>[S/E] ESE</td> <td>[S/E] SSW</td> <td>[S/E] WNW</td> </tr> <tr> <td>[S/E] NE</td> <td>[S/E] SE</td> <td>[S/E] SW</td> <td>[S/E] NW</td> </tr> <tr> <td>[S/E] ENE</td> <td>[S/E] SSE</td> <td>[S/E] WSW</td> <td>[S/E] NNW</td> </tr> </table> <p>AND</p> <p>Potassium Iodide (KI) be administered to the general public in accordance with state procedures and advise the remainder of the EPZ to Monitor and Prepare.</p> <p>AND</p> <p>This Protective Action Recommendation [IS] [IS NOT] the result of a Rapidly Progressing Severe Accident</p>					[S/E] N	[S/E] E	[S/E] S	[S/E] W	[S/E] NNE	[S/E] ESE	[S/E] SSW	[S/E] WNW	[S/E] NE	[S/E] SE	[S/E] SW	[S/E] NW	[S/E] ENE	[S/E] SSE	[S/E] WSW	[S/E] NNW	[S/E] N	[S/E] E	[S/E] S	[S/E] W	[S/E] NNE	[S/E] ESE	[S/E] SSW	[S/E] WNW	[S/E] NE	[S/E] SE	[S/E] SW	[S/E] NW	[S/E] ENE	[S/E] SSE	[S/E] WSW	[S/E] NNW
[S/E] N	[S/E] E	[S/E] S	[S/E] W																																		
[S/E] NNE	[S/E] ESE	[S/E] SSW	[S/E] WNW																																		
[S/E] NE	[S/E] SE	[S/E] SW	[S/E] NW																																		
[S/E] ENE	[S/E] SSE	[S/E] WSW	[S/E] NNW																																		
[S/E] N	[S/E] E	[S/E] S	[S/E] W																																		
[S/E] NNE	[S/E] ESE	[S/E] SSW	[S/E] WNW																																		
[S/E] NE	[S/E] SE	[S/E] SW	[S/E] NW																																		
[S/E] ENE	[S/E] SSE	[S/E] WSW	[S/E] NNW																																		
*	23. UTILITY PAR recommendations	Correct PAR Recommendation marked including required sectors																																			
	24. CONCLUSION	Conclusion marked <input checked="" type="checkbox"/> THIS IS A DRILL (Critical that at least one of the two status blocks on the page is marked correctly and no contradictory info is marked. If contradictory info is marked, then the incorrect step is UNSAT. If one block is blank and the other is correct, then the blank block is N/A)																																			

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: ERP CLASSIFICATION AND REPORTING (TIME CRITICAL)

JPM Number: LOJPM3097

Revision Number: 004

Task Number and Title: 3440070302, Classify Emergency Events Requiring Emergency Plan Implementation

K/A Number and Importance: Generic 2.4.41 4.6

Safety Function (1-9) N/AAdmin Category (A1-4) 4Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): EP-AA-1008, LGS EMERGENCY ACTION LEVEL (EAL) MATRIX, Rev 2
EP-MA-114-100-F-01, STATE/LOCAL EVENT NOTIFICATION FORM, Rev P
EP-AA-112-100-F-01, SHIFT EMERGENCY DIRECTOR CHECKLIST, Rev V
***** EP-AA-111-F-11, Limerick PAR Flowchart, Rev. A

Actual Testing Environment: ☒ Simulator ☐ Control Room ☐ In-Plant ☐ OtherTesting Method: ☐ Simulate ☒ PerformEstimated Time to Complete: 27 minutes Actual Time Used: _____ minutes**EVALUATION SUMMARY:**Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ No

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

Unit 1 is initially at 100% power when the following events occur:

T = 0

- 'A' Steam Line ruptures in the Outboard MSIV Room
- Group 1 Isolation signal is received due to high steam line flow
- A full scram occurs with all rods inserted
- "A" Steam Line Inboard and Outboard MSIVs fail to isolate automatically or manually

T = 5 minutes

- Reactor Coolant Activity starts to rise

T = 10 minutes

- EAL threshold recognized and emergency declaration made

T = 15 minutes

- State and Local notifications complete for emergency declaration
- Shift Communicator has activated the ERO



Current UNIT 1 Plant Conditions:

- RPV pressure is 850 psig and lowering
- RPV level is +18" and steady
- DW pressure is 0.3 psig
- Reactor Coolant Activity is 370 $\mu\text{Ci/gm}$ (Dose Equivalent I-131)
- Outboard MSIV Room temperature is 210 degrees F, up slow
- Security personnel confirms a steam release outside secondary containment from blowout panels
- North Stack WRAM is indicating $2.5\text{E}+6$ $\mu\text{Ci/sec}$.
- Post LOCA Rad Monitors are reading the following:
 - A - 96 R/hr.
 - B - 89 R/hr.
 - C - 103 R/hr.
 - D - 97 R/hr.

INITIATING CUES: This Task is Time Critical

This JPM will start when you tell the evaluator that you are aware of task conditions and are ready to begin.

You are required to make the highest classification based on the given plant conditions and make subsequent call outs. All communications should indicate a drill.

917 METEOROLOGICAL 15 MINUTE AVERAGE POINT DATA

	PID	SENSOR	DESCRIPTION	VALUE	EU
T O W E R 1	T1DTULFA	T1.SP.U	TOWER 1 270 FT WIND SPEED	6.7	MPH
	T1SPIFA	T1.SP.I	TOWER 1 175 FT WIND SPEED	5.0	MPH
	T12SPLFA	T1.SP.L	TOWER 1 30 FT WIND SPEED	7.3	MPH
	T1DRUFA	T1.DR.U	TOWER 1 270 FT WIND DIRECTION	252.3	DEG AZ
	T1DRIFA	T1.DR.I	TOWER 1 175 FT WIND DIRECTION	311.0	DEG AZ
	T1DRLFA	T1.DR.L	TOWER 1 30 FT WIND DIRECTION	257.2	DEG AZ
	T1DTULFA	T1.DT.U-L	TOWER 1 266 - 26 FT DELTA TEMP	-0.3	DEG F
	T1DTILFA	T1.DT.I-L	TOWER 1 171 - 26 FT DELTA TEMP	0.4	DEG F
	T1ATLFA	T1.AT.L	TOWER 1 26 FT AMBIENT TEMP	85.2	DEG F
	T1DPLFA	T1.DP.L	TOWER 1 26 FT DEW POINT	45.00	DEG F
	T1RNFA	T1.RN	TOWER 1 PRECIPITATION	0.1	INCHES
T O W E R 2	T2DTULFA	T2.SP.U	TOWER 2 304 FT WIND SPEED	6.8	MPH
	T2SPIFA	T2.SP.I	TOWER 2 159 FT WIND SPEED	7.3	MPH
	T22SPLFA	T2.SP.L	TOWER 2 30 FT WIND SPEED	7.8	MPH
	T2DRUFA	T2.DR.U	TOWER 2 304 FT WIND DIRECTION	251.7	DEG AZ
	T2DRIFA	T2.DR.I	TOWER 2 159 FT WIND DIRECTION	250.5	DEG AZ
	T2DRLFA	T2.DR.L	TOWER 2 30 FT WIND DIRECTION	257.6	DEG AZ
	T2DTULFA	T2.DT.U-L	TOWER 2 304 - 26 FT DELTA TEMP	-0.4	DEG F
	T2DTILFA	T2.DT.I-L	TOWER 2 155 - 26 FT DELTA TEMP	0.6	DEG F
	T2ATLFA	T2.AT.L	TOWER 2 26 FT AMBIENT TEMP	85.0	DEG F
	T2DPLFA	T2.DP.L	TOWER 2 26 FT DEW POINT	44.81	DEG F



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

START A REACTOR RECIRCULATION PUMP

JPM Number: LOJPM3121

REVISION NUMBER: 000

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure S43.1.A Rev: 71
Procedure ARC-MCR-111-A-2 Rev: 1
Procedure ARC-MCR-111 A-1 Rev: 1
Procedure OT-101 Rev: 37
Procedure OT-112 Rev: 55
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This is a new JPM.	12/06/16

Date of Revision - refers to date revision was released for approval



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Reset to single loop IC, with reactor power at ~25%, post Recirculation Pump trip with sufficient Control Rod insertion as necessary to allow for Recirculation Pump restart.
2. Ensure '1A' RRP shutdown IAW S43.2.A, and startup of '1A' RRP complete up to and including step 4.3.6 of S43.1.A. (step prior to placing ASD hand-switch to start)
3. Insert the following malfunctions to trigger when '1A' RRP discharge valve is full open (RR0SAROTSPPLYSRT):
 - a. **MRR433A**, Recirc Pump '1A' Seal No. 1 Failure with a 30 second time delay
 - b. **MRR434A**, Recirc Pump '1A' Seal No. 2 Failure with a 1 minute time delay

V. TASK STANDARD:

'1A' Reactor Recirculation Pump started and subsequently shutdown and isolated with both suction and discharge valves closed.

VI. INITIAL CONDITIONS:

1. '1A' Recirculation Pump tripped due to ASD setpoint programming error.
2. The cause has been found and corrected.
3. Reactor power is currently at ~ 25%, ready for startup of '1A' RRP.
4. S43.1.A, Start Up of Recirculation System, is complete up to and including step 4.3.6.
5. ST-6-043-391-1, "Reactor Recirculation Single Loop Operation Temperature and Flow Check," was last performed 2 minutes ago. It has been reviewed and temperatures are satisfactory by SSV.

VII. INITIATING CUE:

You have been directed by Shift Supervision to start up '1A' Reactor Recirculation Pump in accordance with S43.1.A.



Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Step 4.3.7 will initiate the following sequence of actions: <ol style="list-style-type: none"> 1. The ASD starts the pre-charge cycle. 2. The pre-charge 'In progress' light illuminates on MCR panel 10C602. 3. If the pre-charge completes in <45 seconds, the 'pre-charge complete' light illuminates on MCR 10C602. (The pre-charge status 'complete' light may illuminate and then extinguish quickly) 4. The 13.2KV breaker for the ASD will close once the pre-charge cycle is complete. 5. The reactor recirc pump motor will start and ramp up to 466 RPM speed as indicated on XR-043-101A recorder at 10C602 panel. 6. The Pump "A Running" light on 10C602 will illuminate when the recirc pump motor gets to approximately 333 RPM. <p style="text-align: center;">NOTE</p> During the pre-charge cycle MINOR, MAJOR AND TRIP alarms will annunciate but will reset.					
*	(S43.1.A, 4.3.7) 1. PLACE ASD 'START A' switch to "START"	Candidate places ASD 'START A' switch to "START" and observes startup sequence.			
	(S43.1.A, 4.3.8) 2. When the pre-charge cycle is complete, AND the ASD supply breaker closes, THEN PERFORM the following:	Candidate verifies that ASD supply breaker closes			
	2a. VERIFY the Recirc Pump is ramping up in speed as indicated on XR-043-101A on 10C602 panel	Candidate verifies when ASD supply breaker closes '1A' RRP begins ramping up in speed.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	2b. VERIFY either "Pump A RUNNING" light is lit OR pump speed is >333 RPMs	Candidate verifies either Pump A RUNNING light lit or pump speed is >333 RPMs			
<p>EVALUATORS NOTE: In the following step, applicant must ensure previous transient has subsided before next jog, while also ensuring discharge valve is full open before 3 minutes has elapsed; else a pump trip will occur.</p> <p>The first few discharge valve opening strokes will have a pronounced effect on core power and reactor water level. Once conditions are met as described, larger valve strokes can be used to obtain full open indication on HV-43-1F031A</p>					
*	(S43.1.A, 4.3.9) 3. JOG OPEN HV-43-1F031A, DISCHARGE, at 10C602 for 1 to 2 seconds allowing 5 to 10 seconds for power AND level to stabilize. Repeat as necessary until both the following conditions are met: <ul style="list-style-type: none">• Recirc Pp speed is stable at 466 rpms• FI-42-1R611A, "Total Jet Pump Loop Flow" (FL) is approximately 15 lbs/hr X10E6 or higher	Candidate alternates turning HV-43-1F031A control switch to OPEN and PULL TO LOCK to jog the discharge valve open in 1 to 2 second intervals.			
<p>EVALUATORS CUE: (If necessary): If the applicant starts to review the position of power to flow map, notify the applicant that "<u>CRS will evaluate the power to flow map and you are directed to proceed with the start-up of '1A' Reactor Recirculation Pump</u>".</p>					
*	(S43.1.A, 4.3.10) 4. ENSURE HV-43-1F031A is full OPEN.	Candidate verifies full open indication on HV-43-1F031A within 3 minutes of pump start.			
	(S43.1.A, 4.3.11) 5. PRESS PB-043-107A 'A FAULT RESET' pushbutton twice to clear any resettable HMI alarms	Candidate attempts to reset any HMI alarms that may have come in during the startup cycle			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	(S43.1.A, 4.3.12) 6. VERIFY Recirc Pp normal operating conditions per Attachment 4 for Main Control room indications AND Attachment 5 for Turbine Enclosure/Reactor Enclosure indications.	Candidate performs Attachment 4 AND requests EO to perform Attachment 5			
<p align="center">ALTERNATE PATH BEGINS HERE:</p> <p>SIMULATOR DRIVER CUE:</p> <p>Ensure Seal #1 for the '1A' Recirc Pump fails 30 seconds after Discharge Valve is full open and that Seal #2 for the '1A' Recirc Pump fails 1 minute after Discharge Valve is fully open.</p>					
	7. Candidate responds to ARC-111-A1, and checks #1 and #2 seal cavity pressures	Candidate determines Seal #1 for the 1A Recirc Pump has failed (based on indicated pressure dropping to near 0 psi)			
	8. Candidate responds to ARC-111-A2, and checks #1 and #2 seal cavity pressures	Candidate determines Seal #2 for the '1A' Recirc Pump has failed (based on indicated pressure dropping to near 0 psi)			
	9. Candidate evaluates impact on the plant due to both seals failed for the '1A' Recirc Pump.	Candidate concludes that the failure of the seals has resulted into drywell leakage and enters OT-101, High Drywell Pressure			
	10.(OT-101 Step 3.2) CHECK the following parameters for adverse trends: <ul style="list-style-type: none"> Recirc. Pump seals pressure lowering 	Candidate determines that the cause of rising drywell pressure is the failure of both 1A Recirc Pump seals			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	11.(OT-101 Step 3.3) Based on the parameter trends above, DIRECT the appropriate Attachment: <ul style="list-style-type: none">Recirc. Pump seals – Att. 1	Candidate determines Attachment 1 should be performed to address plant condition			
	12. (OT-101, Att. 1 steps 1 and 1.1) IF both seals on a Recirc. Pump have failed, THEN PERFORM the following: PERFORM Crew Update for OT-112 entry.	Candidate performs Crew Update for OT-112 entry			
*	13.(OT-101, Att. 1 step 1.1) TRIP applicable pump.	Candidate Trips the '1A' Recirc Pump by depressing the ASD Trip Pushbutton (PB43-102A) or taking the 13.2 kV Breaker (11-BUS-03) Handswitch to "Stop"			
*	14.(OT-101, Att. 1 step 1.3) CLOSE pump discharge valve HV-043-*F031A(B), DISCHARGE A(B).	Candidate closes HV-043-1F031A as indicated by Red light off and Green light lit			
*	15.(OT-101, Att. 1 step 1.4) CLOSE seal purge valve HV-046-*15A(B), SEAL PURGE.	Candidate closes HV-046-115A as indicated by Red light off and Green light lit			
*	16.(OT-101, Att. 1 step 1.5) CLOSE pump suction valve HV-043-*F023A(B), SUCTION A(B).	Candidate closes HV-043-1F023A as indicated by Red light off and Green light lit			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____.

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: START A REACTOR RECIRCULATION PUMP

JPM Number: LOJPM3121

Revision Number: 000

Task Number and Title: 2020010101 Place Recirculation System in Service

2020030101 Secure a Recirculation Pump

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

Safety Function (1-9) 1 (Reactivity Control)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S43.1.A, Start Up of Recirculation System, Rev 71

ARC-MCR-111 A-1, A RECIRC Pump Seal Stage HI/LO Flow, Rev 1

ARC-MCR-111 A-2, 1A RECIRC Pump Seal Leakage HI Flow, Rev 1

OT-101, High Drywell Pressure, Rev 37

OT-112, Unexpected, Unexplained Change in Core Flow, Rev 55

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 30 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. '1A' Recirculation Pump tripped due to ASD setpoint programming error.
2. The cause has been found and corrected.
3. Reactor power is currently at ~ 25%, ready for startup of '1A' RRP.
4. S43.1.A, Start Up of Recirculation System, is complete up to and including step 4.3.6.
5. ST-6-043-391-1, "Reactor Recirculation Single Loop Operation Temperature and Flow Check," was last performed 2 minutes ago. It has been reviewed and temperatures are satisfactory by SSV.

INITIATING CUE:

You have been directed by Shift Supervision to start up '1A' Reactor Recirculation Pump in accordance with S43.1.A.



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

RCIC MANUAL SLOW START USING FIC-49-1R600

JPM NUMBER: LOJPM3015

REVISION NUMBER: 002

DATE: _____

Developed By:	_____	_____
	Instructor	Date
Validated By:	_____	_____
	SME or Instructor	Date
Reviewed By:	_____	_____
	Operations Representative	Date
Reviewed By:	_____	_____
	EP Representative	Date
Approved By:	_____	_____
	Training Department	Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure S49.1.D Rev: 42
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0015 Rev. 7. The purpose of this revision is to reformat in accordance with the new JPM template and to ensure agreement with latest procedure revision.	08/30/13
001	Minor revision for procedural compliance, and remove prerequisite steps from JPM section VIII.	10/20/15
002	Revised to new JPM standard and added prerequisites satisfied	8/04/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

RCIC started using the Manual Slow Start section of S49.1.D and placed in full flow with a discharge pressure at least 70 psig greater than reactor pressure, and a pump flowrate of 600 gpm with the controller in AUTO.

V. SIMULATOR SETUP:

1. Reset simulator to IC-3, or another IC if JPM was validated in the respective IC.

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

2. Align RCIC for automatic operation.

VI. INITIAL CONDITIONS:

1. LGS Unit 1 is in OPCON 1
2. A RCIC Full Flow Test is planned for Post-Maintenance testing
3. ST-6-060-390-1, Suppression Pool Temperature Check, is currently being performed by a second operator
4. S49.9.A, Routine Inspection of RCIC System, has been performed
5. Vibration Monitoring System is in service
6. Steam Leak Detection System is not known to be INOP
7. An EO and RP Tech are on station, and the Unit 1 RCIC room is posted
8. S49.1.D, RCIC System Full Flow Functional Test, prerequisites are satisfied

VII. INITIATING CUE :

You are directed by Shift Supervisor to place Unit 1 RCIC in full flow test for a 15 minute PMT using S49.1.D, by the manual slow start method using FIC-49-1R600 to obtain discharge pressure at least 70 psig greater than reactor pressure, and a pump flowrate of 600 gpm with the controller in AUTO.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. OBTAIN current revision of S49.1.D. CUE: Provide M/U copy of S49.1.D to candidate, with prerequisites signed-off.	Current revision of S49.1.D obtained.			
	2. VERIFY all prerequisites satisfied.	Prerequisites are verified and checked off as complete.			
	3. VERIFY procedure being performed on correct unit/train	N/A			
	4. IF Vibration Monitoring System is available, THEN VERIFY in service.	N/A			
	5. PERFORM the following:	N/A			
	5a. ENSURE HV-55-*F071, "HPCI/RCIC Flush Line to Suppression Pool" (TEST OUTBOARD), closed.	HV-55-1F071 is verified closed.			
	5b. ENSURE HV-55-*F008, "Test Loop Shutoff" (TEST ISOL), closed.	HV-55-1F008 is verified closed.			
	5c. ENSURE HV-49-*F022, "RCIC Test Loop Isolation" (TEST ISOL), is closed.	HV-49-1F022 is verified closed.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	6. PERFORM the following to open HV-055-*F011, "HPCI/RCIC PP. Test Return to C.S.T. (CONDENSATE RETURN)".	N/A			
*	6a. PLACE HS-55-*11 in OPEN at panel *0C647	HS-55-111 placed in OPEN			
	6b. WHEN HV-55-*F011 is full open THEN PLACE HS-55-*11 in STOP.	When HV-55-1F011 indicates full open (red light on, green light off) HS-55-111 placed in STOP.			
	7. START *0P219, "Barometric Condenser Vacuum Pump" (VACUUM PUMP).	10P219 Vacuum Pump is running as indicated by Red Light lit and Green Light out.			
*	8. OPEN HV-50-*F046, "RCIC Lube Oil Cooling Water Supply" (COOLING WATER).	HV-50-1F046 is open.			
	9. MONITOR Suppression Pool temperature per ST-6-060-390-*, Suppression Pool Temperature Check.	N/A Per Initial Conditions ST-6-060-390-1 is currently being performed by a second operator.			
	10. IF required to limit Suppression Pool temperature any time during this procedure, THEN PLACE Suppression Pool Cooling Mode of RHR System in service per S51.8.A, Suppression Pool Cooling Operation. CUE: If requested, inform operator Suppression Pool Cooling is not required.	N/A			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	11. INFORM HP of changing radiological conditions due to RCIC system start.	HP is informed of Unit 1 RCIC start.			
*	12. PLACE FIC-49-*R600, "RCIC Pump Discharge Flow Controller" (FL), in "MANUAL" AND SET to 0%.	FIC-49-1R600 M/A selector switch repositioned to "M". Depress FIC-49-1R600 "CLOSE" detent pushbutton until controller output indicating 0%.			
*	13. OPEN HV-50-*F045, "RCIC Steam Supply" (INLET).	HV-50-1F045 is OPEN.			
	14. PERFORM the following to start RCIC turbine:	N/A			
*	14a. Slowly RAISE the output of FIC-49-*R600 until turbine speed begins to raise as indicated on SI-50-*01-1, "Turbine Speed" (S).	FIC-49-1R600 OPEN detent pushbutton is depressed until speed rises as indicated on SI-50-101-1.			
*	14b. WHEN speed begins to increase, THROTTLE OPEN HV-49-*F022, "RCIC Full Flow Shutoff" (TEST ISOL).	HV-49-1F022 handswitch is placed in OPEN and then Pull to Stop and repeated until valve indicates desired flow.			
*	14c. Slowly INCREASE output of FIC-49-*R600, FL, to greater than 2200 rpm as indicated on SI-50-*01-1, "Turbine Speed" (S).	FIC-49-1R600 OPEN detent pushbutton is depressed until speed rises to greater than 2200 rpm as indicated on SI-50-101-1.			
	15. IF HV-49-*F022 will not open, THEN PERFORM the following: LOWER output of FIC-49-*R600, "RCIC Pump Discharge Flow Controller" (FL), to approximately 2500 rpm. THROTTLE OPEN HV-49-*F022.	N/A			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: If the candidate is unable to establish 600 GPM due to a partially throttled HV-49-1F022 and the candidate recognizes that the valve needs to be throttled further open and requests permission to do this, it is acceptable to grant permission.					
*	16. Slowly RAISE output of FIC-49-*R600 to approximately 600 gpm AND MATCH setpoint to actual flow, THEN PLACE FIC-49-*R600 in "AUTO".	Depress FIC-49-1R600 "OPEN" detent to achieve 400 to 700 gpm as indicated on FI-49-1R600. Flow controller is adjusted such that when the controller is switched to AUTO, flowrate changes less than 100 gpm. M/A selector switch in AUTO.			
*	17. THROTTLE HV-49-*F022, "RCIC Full Flow Test" (TEST ISOL) AND ADJUST FIC-49-*R600, as necessary, to maintain pump discharge pressure at least 70.3 psig over reactor pressure AND pump flow rate of 600 pm.	Maintain pump discharge pressure as indicated on PI-49-1R601 at least 70 psig over reactor pressure as indicated on PI-49-1R602 by adjusting HV-49-1F022 as necessary while maintaining pump flow 550 to 650 gpm on FIC49-1R600.			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: RCIC MANUAL SLOW START USING FIC-49-1R600

JPM Number: LOJPM3015

Revision Number: 002

Task Number and Title: TPO-2170070201 Conduct RCIC System Full Flow Functional Test

K/A Number and Importance:	217000	A4.01	3.7/3.7
	217000	A4.03	3.4/3.3
	217000	A4.04	3.6/3.6

Safety Function (1-9) 2 (Reactor Water Inventory Control)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S49.1.D, RCIC System Full Flow Functional Test and Turbine Oil Priming, Rev. 42

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

Testing Method: ☐ Simulate ☐ Perform

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

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. LGS Unit 1 is in OPCON 1
2. A RCIC Full Flow Test is planned for Post-Maintenance testing
3. ST-6-060-390-1, Suppression Pool Temperature Check, is currently being performed by a second operator
4. S49.9.A, Routine Inspection of RCIC System, has been performed
5. Vibration Monitoring System is in service
6. Steam Leak Detection System is not known to be INOP
7. An EO and RP Tech are on station, and the Unit 1 RCIC room is posted
8. S49.1.D, RCIC System Full Flow Functional Test, prerequisites are satisfied

INITIATING CUE:

You are directed by Shift Supervisor to place Unit 1 RCIC in full flow test for a 15 minute PMT using S49.1.D, by the manual slow start method using FIC-49-1R600 to obtain discharge pressure at least 70 psig greater than reactor pressure, and a pump flowrate of 600 gpm with the controller in AUTO.



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

MAIN TURBINE BYPASS VALVE EXERCISING

JPM Number: LOJPM3083

REVISION NUMBER: 000

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:

Procedure <u>ST-6-001-761-1</u>	Rev: <u>28</u>
Procedure _____	Rev: _____
Procedure _____	Rev: _____
Procedure _____	Rev: _____
Procedure _____	Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM supersedes LLOJPM0083 Rev. 3. Revised to new template and to align with latest procedure revision.	10/31/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

Bypass Valve #1 tested successfully as directed by ST-6-001-761-1, Main Turbine Bypass Valve Exercising

V. SIMULATOR SETUP:

1. Reset simulator to IC-3, or another IC if JPM was validated in the respective IC.

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

VI. INITIAL CONDITIONS:

1. Unit 1 is at 99% power.
2. No other testing is in progress on Unit 1.
3. ST-6-001-761-1, Main Turbine Bypass Valve Exercising is complete up to section 4.3.

VII. INITIATING CUE:

You have been directed by the CRS to continue performance of ST-6-001-761-1, Main Turbine Bypass Valve Exercising.



Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Obtain M/U copy of ST-6-001-761-Main Turbine Bypass Valve Exercising CUE: Candidate is given M/U copy of ST-6-001-761-Main Turbine Bypass Valve Exercising	Candidate obtains M/U copy of ST-6-001-761-Main Turbine Bypass Valve Exercising Test			
	2. [ST-6-001-761-1 4.3.1] RECORD "AS FOUND" positions of all valves listed in Attachment 1, Independent Verification Of Restoration (IVOR).	Record "0" or "closed" position for all valves, at panel 10C670, listed in Attachment 1			
	3. [ST-6-001-761-1 4.3.2] VERIFY all 9 BPV's are closed.	All 9 Bypass Valves are closed			
	4. [ST-6-001-761-1 4.3.3] PERFORM the following for Bypass Valve #1	N/A			
	4a. SELECT TESTS	At 10C653 DEHC HMI panel, TESTS selected (Blue)			
	4b. SELECT VALVE TESTS	VALVE TESTS selected (Blue)			
	4c. SELECT BPV TESTS	BPV TESTS selected (Blue)			
*	4d. SELECT #1 BPV for test at the VALVE TEST SELECTION window.	#1 Bypass Valve selected for test at the VALVE TEST SELECTION window (Blue)			
*	4e. VERIFY the correct BPV selected for test is indicated on the test window	#1 Bypass Valve selected (BPV-1 Blue)			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	4f. DEPRESS OPEN TREND button, OR TREND all 9 BPVs.	OPEN TREND button depressed			
*	4g. DEPRESS START button to initiate opening test	START button depressed			
	4h. DEPRESS PAUSE button if necessary, AND THEN DEPRESS CONTINUE button to resume test	N/A			
*	4i. VERIFY #1 Bypass Valve opens AND recloses	Candidate verifies #1 Bypass Valve opens and recloses			
	4j. IF #1 BPV remains opened and fails to reclose, THEN SELECT CANCEL AND VERIFY Bypass Valve Closes	Candidate verifies #1 Bypass Valve opens and recloses			
	4k. VERIFY BYPASS VALVE OPEN annunciator on 106 MAIN STEAM clears.	106 D-4, BYPASS VALVE OPEN, annunciator cleared.			
	4l. SAVE the Trend file, if required CUE: Saving the Trend file is not req'd	N/A			
	4m. IF trend file saved, THEN ENTER a comment in the Additional Action/Test Comments section noting the file name AND location.	N/A			
	4n. WHEN plant conditions are stable, THEN PROCEED to next BYPASS VALVE.	N/A			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: MAIN TURBINE BYPASS VALVE EXERCISING

JPM Number: LOJPM3083

Revision Number: 000

Task Number and Title: 2480090201 Perform Bypass Valve Exercise Test

K/A Number and Importance: 241000 A4.06 3.9/3.9

Safety Function (1-9) 3 (Reactor Pressure Control)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): ST-6-001-761-Main Turbine Bypass Valve Exercising, Rev28

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 15 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. Unit 1 is at 99% power.
2. No other testing is in progress on Unit 1.
3. ST-6-001-761-1, Main Turbine Bypass Valve Exercising is complete up to section 4.3.

INITIATING CUE:

You have been directed by the CRS to continue performance of ST-6-001-761-1, Main Turbine Bypass Valve Exercising.



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

SHUTDOWN COOLING FLOW ADJUSTMENTS

JPM Number: LOJPM3515

REVISION NUMBER: 000

DATE: _____

Developed By:	_____	_____
	Instructor	Date
Validated By:	_____	_____
	SME or Instructor	Date
Reviewed By:	_____	_____
	Operations Representative	Date
Reviewed By:	_____	_____
	EP Representative	Date
Approved By:	_____	_____
	Training Department	Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:

Procedure <u>S51.8.B</u>	Rev: <u>80</u>
Procedure <u>ARC MCR 011 B-4</u>	Rev: <u>4</u>
Procedure _____	Rev: _____
Procedure _____	Rev: _____
Procedure _____	Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM supersedes LLOJPM0515 Rev. 9. Revised to new template and to align with latest procedure revision.	10/31/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

Additional cooling provided to the '1A' RHR Heat Exchanger.

Following confirmation of the RHRSW High Radiation alarm, '1A' RHR pump is tripped and '1A' RHR Heat Exchanger is isolated.

V. SIMULATOR SETUP:

1. Reset the simulator to IC-_____ ('1A' RHR in Shutdown Cooling) and make the manipulations below or reset the simulator to the prepared exam IC and verify the conditions below.

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

2. Adjust HV-C-51-103A ('1A' RHR Heat Exchanger Outlet Bypass POS) to 100%
3. Ensure HV-51-1F015A (Shutdown Cooling Return Valve) is full open
4. Close HV-51-1F003A (Heat Exchanger Outlet)
5. Throttle HV-C-51-1F048A (Heat Exchanger Bypass) closed to obtain 9000 gpm flow
6. Verify 51-1031A and 51-10181 Condensate Transfer valves closed
7. Verify HV-51-1F007A, Min Flow Valve is closed and de-energized
8. Verify DAS Screen set to '1A' SDC Loop
9. Verify PMS SDC Monitor is active
10. Apply Robust Barriers (mousetraps) to the following:

HV-43-1F023A, RECIRC SUCTION

HV-43-1F023B, RECIRC SUCTION

HV-51-1F027A, SUPP POOL SPRAY

HV-51-1F027B, SUPP POOL SPRAY

HV-51-1F040, LETDOWN TO RW

HV-51-1F049, LETDOWN TO RW

HV-51-1F024A, SUPP POOL CLNG

HV-51-1F006B, SUCTION A

HV-51-1F008, SHUTDOWN COOLING
SUCTION (OUTBOARD)

HV-51-1F009, SHUTDOWN COOLING
SUCTION (INBOARD)

HV-51-1F-15A, SHUTDOWN COOLING
INJECTION (OUTBOARD)

HV-51-1F048A. HEAT EXCH BYPASS

1AP202, '1A' RHR Pump Handswitch

0AP506, '0A' RHRSW Pump Handswitch

HV-51-1F014A, RHRSW INLET

HV-51-1F068A, RHRSW OUTLET

HV-51-1F006, SUCTION B

11. Prepare a copy of S51.8.B marked up completed to step 4.4.23.6
12. Establish the Malfunction **MRM019A**, U1 RHR SW Return Hdr Rad Mon fails to 500 cpm on Automatic Trigger #1 or other available trigger if performing this JPM in an exam set of JPMs. This Trigger will be activated when HIC51-103A Controller Output meter reads less than or equal to 15%.



VI. INITIAL CONDITIONS:

1. '1A' RHR has been placed in service for Shutdown Cooling with Reactor Coolant temperature at 125°F as read on XI-36-101 TE-51-1N004A
2. '0A' RHRSW pump is in service providing flow to '1A' RHR Heat Exchanger
3. Reactor level is being maintained at ~80" as read on LI-42-1R605
4. HV-C-51-103A, RHR Heat Exchanger Outlet Bypass (POS), is full open and additional cooling is required to maintain reactor coolant temperature within the 110°F to 130°F band
5. The Unit 1 Reactor Operator is performing ST-6-107-640-1, Rx Vessel Temperature and Pressure Monitoring
6. RHR flow band is not restricted by GP-6.1

VII. INITIATING CUE:

The CRS has directed you to continue performing S51.8.B, at step number 4.4.23.6, to provide additional cooling to reactor coolant



Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Candidate obtains copy of S51.8.B completed up to and including step 4.4.23.5 CUE: Candidate is given a copy of S51.8.B, Shutdown Cooling/Reactor Coolant Circulation Operation Start-Up And Shutdown marked up completed to and including step 4.4.23.5.	Candidate obtains marked up copy of S51.8.B and determines additional cooling is required.			
	2. [4.4.23.6] IF additional cooling is required, THEN PERFORM the following:	N/A			
*	2a. [4.4.23.6.a] OPEN HV-C-51-*F048A, HEAT EXCH BYPASS.	OPEN HV-C-51-1F048A, red light lit, and green light out			
*	2b. [4.4.23.6.b] OPEN HV-51-*F003A, OUTLET.	OPEN HV-51-1F003A, red light lit, and green light out			
*	2c. [4.4.23.6.c] CLOSE HV-C-51-*03A, POS.	CLOSE HV-C-51-103A, "0" position indicated			
EVALUATORS NOTE: THE ALTERNATE PATH PORTION OF THE JPM BEGINS IN THE NEXT STEP WITH THE FOLLOWING INDICATIONS: <ul style="list-style-type: none"> • Insert MRM019A, U1 RHR SW Return Hdr Rad Mon fails to 500 cpm • The following steps include actions from the ARC-MCR 011-B-4 Annunciator (RHRSW HI Radiation) 					
	3. Respond to ARC MCR 011 B-4, SERV WTR B (RHRSW HI RADIATION)	ARC MCR 011 B-4, SERV WTR B (RHRSW HI RADIATION) referenced.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	4. Verify the high radiation condition on RR-0R615A panel 10C667	Observe RHRSW rad recorder RR-0R615A and determine increasing trend			
	5. [ARC MCR 011 B-4] <u>IF</u> an actual high radiation condition is suspected, <u>THEN</u> : CUE: If asked, report Chemistry has confirmed that a hi rad condition exist.	Determine recorder response is due to an actual increasing radiation condition			
*	5a. [ARC MCR 011 B-4] Trip associated RHR pump <u>AND</u> Isolate the shell side of HX by closing or ensuring closed the following:	'1A' RHR Pump handswitch taken to STOP (Green Flag)			
*	5b. HV-51-*F047A	HV-51-1F047A keylock switch taken to CLOSE, (Green light on, Red light off).			
*	5c. <u>AND</u> HV-51-*F003A	HV-51-1F003A keylock switch taken to CLOSE, (Green light on, Red light off).			
	5d. <u>AND</u> HV-C-51-*03A	HV-C-51-103A ensured closed (0% OPEN)			
	5d. <u>AND</u> HV-51-*82A with HS-51-*82A (309/238' U/1)	Operator directed to ensure HV-51-182A closed			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____

JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: SHUTDOWN COOLING FLOW ADJUSTMENTS

JPM Number: LOJPM3515

Revision Number: 000

Task Number and Title: 2031010101 Place RHR in Shutdown Cooling Operation, Monitor and Secure

K/A Number and Importance: 205000 K1.15 3.5/3.6

Safety Function (1-9) 4 (Heat Removal From the Core)Admin Category (A1-4) N/ALevel of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S51.8.B, Shutdown Cooling / Reactor Coolant Circulation Operation Start-up and Shutdown, Rev 080

ARC-MCR-011-B4-, RHRSW Hi Radiation, Rev 004

Actual Testing Environment: ☐ Simulator ☐ Control Room ☐ In-Plant ☐ OtherTesting Method: ☐ Simulate ☐ PerformEstimated Time to Complete: 15 minutes Actual Time Used: _____ minutes**EVALUATION SUMMARY:**Were all the Critical Elements performed satisfactorily? ☐ Yes ☐ NoThe operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ UnsatisfactoryComments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. '1A' RHR has been placed in service for Shutdown Cooling with Reactor Coolant temperature at 125°F as read on XI-36-101 TE-51-1N004A
2. '0A' RHRSW pump is in service providing flow to '1A' RHR Heat Exchanger
3. Reactor level is being maintained at ~80" as read on LI-42-1R605
4. HV-C-51-103A, RHR Heat Exchanger Outlet Bypass (POS), is full open and additional cooling is required to maintain reactor coolant temperature within the 110°F to 130°F band
5. The Unit 1 Reactor Operator is performing ST-6-107-640-1, Rx Vessel Temperature and Pressure Monitoring
6. RHR flow band is not restricted by GP-6.1

INITIATING CUE:

The CRS has directed you to continue performing S51.8.B, at step number 4.4.23.6, to provide additional cooling to reactor coolant.



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

PLACING SAFEGUARD PIPING FILL SYSTEM IN SERVICE

JPM Number: LOJPM3118

REVISION NUMBER: 000

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
 Procedure S52.1.C Rev: 11
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
 Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This is a New JPM	08/15/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

Safeguard Piping Fill System in service with both Fill Pumps and feedwater lines filled

V. SIMULATOR SETUP

1. Reset the simulator to an IC that does not require feedwater in service, or an IC if JPM was validated in the respective IC.

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

VI. INITIAL CONDITIONS:

1. S52.1.C prerequisites have been performed

VII. INITIATING CUE:

Shift Supervision directs you to place the Safeguard Piping Fill System in service per S52.1.C, "Operation of Safeguard Piping Fill System" to fill the Feedwater Lines.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Obtain current revision of M/U S52.1.C, Operation of Safeguard Piping Fill System. CUE: Candidate is given a copy of S52.1.C, Operation of Safeguard Piping Fill System with prerequisites completed.	Candidate reviews M/U copy of S52.1.C, Operation of Safeguard Piping Fill System.			
	2. [S52.1.C 4.1.1] VERIFY all prerequisites satisfied	Prerequisites verified complete.			
	3. [S52.1.C 4.1.2] VERIFY procedure being performed on correct unit/train	Candidate verifies procedure being performed on correct unit/train			
	4. [S52.1.C 4.2] IF required PERFORM S52.1.C (COL), Equipment Alignment For Safeguard Fill System For Operation. CUE: S52.1.C(COL) is not required	N/A			
	5. [S52.1.C 4.3] ENSURE the following Core Spray Pump Supp Pool Suct valves are open: <ul style="list-style-type: none"> HV-52-*F001A HV-52-*F001B HV-52-*F001C HV-52-*F001D 	Core Spray Pump Supp Pool Suction valves HV-52-1F001A thru 1F001D are verified open. (Red Light lit, Green Light out)			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	6. [S52.1.C 4.4] START the following pumps.	N/A			
*	6a. [S52.1.C 4.4.1] *AP256, "Fill Pump A"	Fill Pump 1AP256 started (Red Light lit Green Light out)			
*	6b. [S52.1.C 4.4.2] *BP256, "Fill Pump B"	Fill Pump 1BP256 started (Red Light lit Green Light out)			
*	7. [S52.1.C 4.5] IF system is required to fill the feedwater lines, THEN OPEN the following valves; as appropriate: <ul style="list-style-type: none">• HV-41-*30A• HV-41-*30B• HV-41-*33A• HV-41-*33B	Safeguard Piping PCIVs open (Red Light lit Green Light out) <ul style="list-style-type: none">• HV-41-130A• HV-41-130B• HV-41-133A• HV-41-133B			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: PLACING SAFEGUARD PIPING FILL SYSTEM IN SERVICE

JPM Number: LOJPM3118

Revision Number: 000

Task Number and Title: 2000950501 (SE-10) Actions After a LOCA Signal

K/A Number and Importance: 290001 K3.01 4.0/4.1

Safety Function (1-9) 5 (Containment Integrity)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S52.1.C, Operation of Safeguard Piping Fill System Rev 011

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

Testing Method: ☐ Simulate ☐ Perform

Estimated Time to Complete: 15 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. S52.1.C prerequisites have been performed

INITIATING CUE:

Shift Supervision directs you to place the Safeguard Piping Fill System in service per S52.1.C, "Operation of Safeguard Piping Fill System" to fill the Feedwater Lines.

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

DIESEL GENERATOR FAST START FROM THE MCR

JPM Number: LOJPM3130

REVISION NUMBER: 003

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

N/A
EP Representative

N/A
Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure ST-6-092-318-1 Rev: 55
Procedure S92.2.N Rev: 34
Procedure ARC MCR 123 D14 D-1 Rev: 0
Procedure ARC BOP 1DC514 D-1 Rev: 2
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

SME / Instructor

Date

SME / Instructor

Date

SME / Instructor

Date



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0130 Rev. 2. Revised to new template and to align with latest procedure revision. Changed from D11 D/G to D14 D/G.	10/17/13
001	Revised to align with latest procedure revisions. Deleted Low Jacket Water Pressure indication from EO field report. Previous revision included both High Jacket Water Temperature indication as well as Low Jacket Water Pressure but did not include any indication of a leak. High Jacket Water Temperature alone is an appropriate reason to secure the Diesel Generator with actual temperature greater than the auto trip setpoint of 195 degrees F.	1/17/13
002	Revised to align with the latest procedure revisions.	10/11/15
003	Aligned to new JPM format and verified procedure revisions and changed alarm condition to Lube Oil Filter dP High.	10/24/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

D14 DG is synchronized to the bus and secured from service following high Lube Oil Filter Differential Pressure.

V. SIMULATOR SETUP INSTRUCTIONS:

1. This JPM can be run from any Simulator IC.
2. Build trigger to activate 2 minutes after D14 DG ≥ 200 kW (DGZWMD \geq 1311) to toggle Annunciator 123 D-1, D14 D-G TROUBLE, to ON.

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

3. Start D14 EDG
4. Insert Remote RSW397, "ESW Loop B Service Water Isolated?"
5. Change Service Water Placards for 11-1013 and 11-2013 to indicate closed

VI. INITIAL CONDITIONS:

1. ST-6-092-318-1, D14 Diesel Generator Fast Start Operability Test Run, is complete up to and including Step 4.5.14.
2. An Equipment Operator is standing by at D14 D/G to support Diesel Generator operation.

VII. INITIATING CUES:

You are directed by the CRS to continue with ST-6-092-318-1, D14 Diesel Generator Fast Start Operability Test Run.



Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Provide the candidate with a marked up copy of ST-6-092-318-1 completed up to and including Step 4.5.14	N/A			
*	2. [ST-6-092-318-1 4.5.15] PLACE 125-11807/SS, DIESEL GEN 14, SYNC, to "ON," using Sync Switch handle, at Panel 1DC661	125-11807/SS, DIESEL GEN 14, SYNC, placed to "ON," using Sync Switch handle, at Panel 1DC661			
	3. [ST-6-092-318-1 4.5.16] VERIFY Synchroscope is rotating with both lights Lit fully bright at 180° <u>AND not</u> Lit at 0°	Synchroscope S/EAS-4 verified rotating with both lights Lit fully bright at 180° <u>AND not</u> Lit at 0°			
	4. [ST-6-092-318-1 4.5.17] OBSERVE change in D/G frequency by placing 165-DG501/CS, SPEED GOVERNOR, to "RAISE" <u>AND</u> to "LOWER	165-DG501/CS rotated to "RAISE," F/DG501-2 (HERTZ) rises. 165-DG501/CS rotated to "LOWER," F/DG501-2 (HERTZ) lowers			
	5. [ST-6-092-318-1 4.5.18] OBSERVE change in D/G voltage by placing 170-DG502/CS, VOLTAGE REGULATOR, to "RAISE," <u>AND</u> to "LOWER."	170-DG502/CS rotated to "RAISE," V/1-EAS-4 (INCOMING) rises. 170-DG502/CS rotated to "LOWER," V/1-EAS-4 (INCOMING) lowers			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	6. [ST-6-092-318-1 4.5.19] ADJUST 165-DG501/CS, SPEED GOVERNOR, so Synchroscope is rotating slowly in FAST (CW) direction	165-DG501/CS, SPEED GOVERNOR adjusted so that Synchroscope S/EAS-4 is rotating slowly in FAST direction			
*	7. [ST-6-092-318-1 4.5.20] ADJUST 170-DG502/CS, VOLTAGE REGULATOR, so INCOMING Voltage is slightly higher than RUNNING Voltage	170-DG502/CS, VOLTAGE REGULATOR, adjusted so that V/1-EAS-4 (INCOMING) indicates between 0 to 5 volts greater than V/R-EAS-4			
*	8. [ST-6-092-318-1 4.5.21] WHEN Synchroscope is within 3° before 12 o'clock position rotating slowly in FAST (CW) direction, THEN CLOSE 152-11807/CS GENERATOR Breaker, at Panel 1DC661	D14 DG Output Breaker closed			
	9. [ST-6-092-318-1 4.5.22] Immediately RAISE load to 200 to 300 KW by placing 165-DG501/CS, SPEED GOVERNOR, to "RAISE."	165-DG501/CS, SPEED GOVERNOR, rotated to "RAISE until W/DG501-2 (AC KILOWATTS) indicates between 200 to 300 KW			
	10. [ST-6-092-318-1 4.5.23] RAISE reactive load to 100 to 150 KVAR by placing 170-DG502/CS, VOLTAGE REGULATOR, to "RAISE."	170-DG502/CS, VOLTAGE REGULATOR, rotated to "RAISE" until VAR/DG5012 (AC KILOVARS) indicates between 100 to 150 KVAR			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	11. [ST-6-092-318-1 4.5.24] PLACE 125-11807/SS, DIESEL GEN 14, SYNC, to "OFF"	125-11807/SS, DIESEL GEN 14, SYNC, placed in "OFF."			
EVALUATORS NOTE: 2 minutes after D14 D/G Load exceeds 200 kW, "D14 D-G TROUBLE" will alarm and the alternate path will begin.					
	12. RESPOND to ARC-MCR-123 D14 D1, "D14 D-G TROUBLE"	Annunciator reported to CRS			
	12a. REFER to ARC-MCR-123 D14 D-1, D14 D-G TROUBLE	ARC-MCR-123 D14 D-1, "D14 D-G TROUBLE" referenced			
*	12b. DISPATCH Equipment Operator to investigate Trouble Alarm CUE: Equipment Operator reports local alarm is Lube Oil Filter Differential Pressure Hi, ARC- BOP-1DC514 D-1. Current Filter dP is 16 psid UP SLOW	DISPATCH Equipment Operator to investigate Trouble Alarm			
	13. DETERMINE D14 DG should be shutdown with the given filter dP condition.	Review ARC and execute Operator Action #2, "IF engine is under test, THEN shutdown engine AND investigate cause of high filter dP."			
EVALUATORS NOTE: The following steps may be performed from memory or by performing S92.2.N, Shutdown of Diesel Generators, Section 4.2, Rapid Shutdown Due To Alarm Or Abnormal Condition, per precaution 3.21 of ST-092-318-1 IF Diesel needs to be secured rapidly due to alarm OR abnormal condition THEN Diesel to be secured using guidance from S92.2.N, shutdown Of The Diesel Generators.					



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	13a. [S92.2.N 4.2.1] PLACE Diesel Generator Breaker to "TRIP" <u>AND</u> "PULL-TO-LOCK"	Diesel Generator Breaker placed to "TRIP" <u>AND</u> "PULL- TO-LOCK"			
*	13b. [S92.2.N 4.2.2] PLACE Diesel Generator Control Switch 101-DG501/CS to "STOP" <u>AND</u> "PULL-TO-LOCK"	Diesel Generator Control Switch 101- DG501/CS placed to "STOP" <u>AND</u> "PULL- TO-LOCK"			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: DIESEL GENERATOR FAST START FROM THE MCR

JPM Number: LOJPM3130

Revision Number: 003

Task Number and Title: TPO-2640020101 Manually Startup, Load and monitor a Diesel Generator

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

Safety Function (1-9) 6 (Electrical)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): ST-6-092-318-1 D14 Diesel Generator Fast Start Operability Test Run, Rev. 55
S92.2.N, Shutdown of Diesel Generators Rev. 34
ARC MCR 123 D14 D-1, D14 D-G Trouble, Rev 0
ARC BOP 1DC514 D-1, Lube Oil Filter Differential Pressure High, Rev 2

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

Testing Method: ☐ Simulate ☒ Perform

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

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. ST-6-092-318-1, D14 Diesel Generator Fast Start Operability Test Run, is complete up to and including Step 4.5.14.
2. An Equipment Operator is standing by at D14 DG to support Diesel Generator operation.

INITIATING CUE STATEMENT:

You are directed by the CRS to continue with ST-6-092-318-1, D14 Diesel Generator Fast Start Operability Test Run.



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

SUPPLY RECW TO THE DRYWELL COOLERS

JPM Number: LOJPM3028

REVISION NUMBER: 001

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure S13.6.D Rev: 15
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0028 Rev. 0. Revised to new template and to align with latest procedure revision.	10/15/13
001	This SEG is revised to new 3/16 SEG format template, including any procedure revisions.	08/05/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

RECW aligned to the 'A' Drywell Chilled Water loop per S13.6.D, RECW Operation With Loss Of Drywell Chilled Water.

V. SIMULATOR SETUP INSTRUCTIONS:

1. Reset simulator to IC-3
2. Scram the Reactor
3. Trip both Recirc Pumps
4. Allow FWLC to transfer to startup level control
5. Shutdown RWCU Per S44.2.A
6. Build a trigger to toggle Remote Function **RPC306** to CLOSE. (closes feed breakers per S13.6.D, step 4.2.5)
7. Hang information tags on the following valves:
 - HV-51-1F080A, RHR Sample Line Downstream Isolation (SAMPLE OUTBOARD) ISO
 - HV-51-1F080B, RHR Sample Line Downstream Isolation (SAMPLE OUTBOARD) ISO
 - HV-41-1F085, Main Steam Line Outboard Sample (DRAIN SAMPLE OUTBOARD) ISO
 - HV-43-1F020, Recirc Sample Line Outboard Isolation (SAMPLE) ISO

VI. INITIAL CONDITIONS:

- 1) Unit 1 is in OPCON 3.
- 2) DW Chilled Water has been lost due to trips on both Drywell Chiller Units.
- 3) DW temperature is 150°F and rising.
- 4) The CRS has entered OT-101, and T-102.
- 5) Maximizing Drywell Cooling is being directed by TRIPS
- 6) RWCU has been shutdown per S44.2.A, Reactor Water Cleanup Shutdown.
- 7) Administrative Clearances have been applied for valves in S13.6.D, section 4.2.4.
- 8) An EO is briefed and in the field with a copy of S13.6.D.

VII. INITIATING CUE:

You are directed by Shift Supervision to align RECW operation to cool the drywell using the 'A' Loop per S13.6.D, beginning at step 4.2.2.

- Locked Valve Log entries have been authorized for required beaker closures



Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Obtain a current revision of S13.6.D, RECW Operation With Loss of Drywell Chilled Water. CUE: Candidate is given a copy of S13.6.D, RECW Operation With Loss of Drywell Chilled Water.	Candidate demonstrates ability (actual or discuss) to locate the correct procedure.			
	2. [S13.6.D Step 4.2.1] SHUTDOWN RWCU system per S44.2.A, Reactor Water Cleanup Shutdown.	RWCU shutdown per initial conditions			
*	3. [S13.6.D Step 4.2.2] CLOSE HV-13-*02, Cooling Water to Reactor Building Isolation (SUPPLY ISOL).	Handswitch for HV-13-102 taken to close and valve verified to close			
	4. [S13.6.D Step 4.2.3] IF loss of instrument air prohibits closure of HV-13-*02, SUPPLY ISOL, in step 4.2.2, THEN CLOSE 13-*039, "RECW Header Valve to RWCU Non-Regen Heat Exchanger."	N/A			
	5. [S13.6.D Step 4.2.4] Block CLOSE the following sample point isolation valves <ul style="list-style-type: none"> • HV 51 *F080A • HV 51 *F080B • HV 41 *F085 • HV 43 *F020 • 023-1246 CUE: Administrative Clearances have been applied for valves in S13.6.D, section 4.2.4.	N/A (Info is provided in Initial Conditions)			

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: When operator requests the breakers in the following step to be closed, activate trigger associated with remote function RPC306 to close the breakers.					
*	6. [S13.6.D Step 4.2.5] UNLOCK AND CLOSE the following breakers: <ul style="list-style-type: none"> • D*14-R-C-15 (124A) • D*14-R-C-19 (124B) • D*14-R-C-16 (125A) • D*14-R-C-20 (125B) CUE: After confirmation of 124A(B) and 125A(B) closed (Trigger 1 activated) report the following breakers closed: <ul style="list-style-type: none"> • D114-R-C-15 • D114-R-C-19 • D114-R-C-16 • D114-R-C-20 	Candidate directs EO to close following breakers: <ul style="list-style-type: none"> • D114-R-C-15 • D114-R-C-19 • D114-R-C-16 • D114-R-C-20 			
	7. [S13.6.D Step 4.2.6] ENSURE indication for the valves is received in MCR	Indication (Green Lights) received for 124A(B) and 125A(B)			
	8. [S13.6.D Step 4.2.7] IF required THEN BYPASS isolations per GP-8.5.	N/A			
*	9. [S13.6.D Step 4.2.8] PLACE HSS-87-*21A(B), Loop Drywell Water Source Mode Switch (LOOP), in "RE CLG WTR" for loop to be supplied by RECW AND VERIFY the following:	HSS-87-121A placed in RE CLG WTR position for LOOP A (Momentarily- spring returns to center).			
	9a. Red indicating lights RECW IN AND RECW OUT lit.	RECW IN and OUT red lights verified lit			
	9b. Green indicating lights CHLD WTR IN AND CHLD WTR OUT lit.	CHLD WTR IN and OUT green lights verified lit			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: SUPPLY RECW TO THE DRYWELL COOLERS

JPM Number: LOJPM3028

Revision Number: 001

Task Number and Title: 2080040401, Line Up RECW System to Supply Drywell Chilled Water System

K/A Number and Importance: 400000 A2.01 3.3/3.4

Safety Function (1-9) 5 (*Containment Control*)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S13.6.D, RECW Operation With Loss Of Drywell Chilled Water, Rev. 15

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

Testing Method: ☐ Simulate ☐ Perform

Estimated Time to Complete: 15 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

- 1) Unit 1 is in OPCON 3.
- 2) DW Chilled Water has been lost due to trips on both Drywell Chiller Units.
- 3) DW temperature is 150°F and rising.
- 4) The CRS has entered OT-101, and T-102.
- 5) Maximizing Drywell Cooling is being directed by TRIPS
- 6) RWCU has been shutdown per S44.2.A, Reactor Water Cleanup Shutdown.
- 7) Administrative Clearances have been applied for valves in S13.6.D, section 4.2.4.
- 8) An EO is briefed and in the field with a copy of S13.6.D.

INITIATING CUE:

You are directed by Shift Supervision to align RECW operation to cool the drywell using the 'A' Loop per S13.6.D, beginning at step 4.2.2.

- Locked Valve Log entries have been authorized for required beaker closures



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

MANUALLY INITIATE A CONTROL ROOM RADIATION ISOLATION

JPM Number: LOJPM3024

REVISION NUMBER: 001

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure S78.8.A Rev: 17
Procedure ARC-MCR-002 A-1 Rev: 1
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0024 Rev. 12. Revised to new template and aligned with latest procedure revision.	05/31/15
Rev001	This JPM revised to latest revision of the JPM template and S78.8.A	12/12/16

Date of Revision - refers to date revision was released for approval



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Reset the Simulator to IC-3 (If JPM is being used in a JPM set, another IC may be used provided it support the operation of CREFAS)
2. Ensure the "A" Control Room Supply and Return fans are in "RUN," and the "B" Control Room Supply and Return fans are in "AUTO."

V. TASK STANDARD:

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.

VI. INITIAL CONDITIONS:

1. Control Room HVAC is in the normal operating mode per S78.1.A
2. The Control Room Emergency Fresh Air Supply System is lined up for automatic operation per S78.1.B.
3. Keys for the key lock hand switches are available.

VII. INITIATING CUE:

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

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Obtain current revision of S78.8.A, Manual Initiation of Control room Radiation or Chlorine/Toxic Chemical Isolation. CUE: Once the trainee demonstrates the ability to locate the current revision of the procedure, provide him/her a copy.	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			
	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			
	4. ENSURE keys for keylock handswitches HS-78-017A,C (RESET), are available.	Keys for keylock handswitches HS-78-017A, C (RESET) are available.			
EVALUATORS NOTE: Examinee determines that S78.8.A, Section 4.2 is to be used to initiate an "A" SUBSYSTEM "A" ISOLATION for maintenance.					
	5. [S78.8.A 4.2] IF no radiation isolation has been initiated, THEN ENSURE alignment as follows:	N/A			
	5a. [S78.8.A 4.2.1] 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"			

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	5b. [S78.8.A 4.2.1] 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. [S78.8.A 4.2.2.1] 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 00-C681.			
*	7. [S78.8.A 4.2.2.2] 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 00-C681.			
EVALUATORS NOTE: The following 2 steps will cause 3 annunciators: 002 VENT A1, A2, and B2					
*	8. [S78.8.A 4.2.3.1] 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 00-C681.			
*	9. [S78.8.A 4.2.3.2] 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 00-C681.			
*	10. [S78.8.A 4.2.4.1] 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 00-C681.			
*	11. [S78.8.A 4.2.4.2] PLACE Control Room Isolation Valve Reset Keylock switch HS-78-017C (RESET C) to "AUTO".	Reset Keylock switch HS-78- 017C (RESET C) is placed in "AUTO" at 00-C681.			
*	12. [S78.8.A 4.2.5.1] DEPRESS AND RELEASE pushbutton portion of Trip Switch HSS-78-017A (TRIP A).	Switch HSS-78-017A (TRIP A) pushbutton is depressed and released at 00-C681.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	13. [S78.8.A 4.2.5.2] 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 00-C681.			
	14. [S78.8.A 4.2.6] RECORD CREFAS run time in appropriate log. CUE: Another Operator will log the CREFAS Run Time Data	N/A			
	15. [S78.8.A 4.2.7] ENSURE HI RAD ISLN CHAN A, C amber lights are lit.	HI RAD ISLN CHAN A AND C amber lights are lit on 00-C681.			
	16. [S78.8.A 4.2.8] VERIFY "CONTROL ROOM RADIATION ISOLATION INITIATED" annunciator alarmed at 002 VENT A-1.	Annunciator window A-1, "CONTROL ROOM RADIATION ISOLATION INITIATED," on 002 VENT, is in alarm.			
	17. [S78.8.A 4.2.9] VERIFY "CONTROL ROOM ISOLATION NOT COMPLETE" annunciator is not alarmed at 002 VENT A-3, after 25 seconds.	Annunciator window A-3, "CONTROL ROOM ISOLATION NOT COMPLETE," on 002 VENT, is not alarmed 25 seconds after the isolation is initiated.			
	18. [S78.8.A 4.2.10] ENSURE 0A(B)V127, EMERGENCY AIR FAN A(B), is running.	0AV127, EMERGENCY AIR FAN A, is running.			
	19. [S78.8.A 4.2.11] ENSURE 0A(B)V116, CONTROL ROOM AIR SUPPLY FAN A(B), running.	0AV116, SUPPLY FAN A, is running.			
	20. [S78.8.A 4.2.12] ENSURE 0A(B)V121, CONTROL ROOM AIR RETURN FAN A(B), running.	0AV121, RETURN FAN A, is running.			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: MANUALLY INITIATE A CONTROL ROOM RADIATION ISOLATION

JPM Number: LOJPM3024

Revision Number: 001

Task Number and Title: TPO-2881030401 Manually Initiate Control Room Radiation or Chlorine/Toxic Chemical Isolation

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

Safety Function (1-9) 9 (Radioactivity Release)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 2.5

Suggested Testing Environment: Simulator

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

Reference(s): S78.8.A, Manual Initiation of Control room Radiation or Chlorine/Toxic Chemical Isolation, Rev 17.

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

Testing Method: ☐ Simulate ☒ Perform

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

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. Control Room HVAC is in the normal operating mode per S78.1.A
2. The Control Room Emergency Fresh Air Supply System is lined up for automatic operation per S78.1.B.
3. Keys for the key lock hand switches are available.

INITIATING CUE:

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



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

BYPASSING A CONTROL ROD FROM RMCS

JPM Number: LOJPM2226

REVISION NUMBER: 000

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure S73.0.E Rev: 18
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This LOJPM is revised from LLOJPM0226 Rev006 to new standards and procedure revisions.	08/10/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

Unit ____ Control Rod 18-31 is bypassed from RMCS, and RDCS is reset

V. SIMULATOR SETUP

1. None

VI. INITIAL CONDITIONS:

On Unit ____:

1. Control Rod 18-31 has drifted out
2. Control Rod 18-31 was fully inserted, and isolated.
3. Tech Spec 3.1.3.1 has been referenced
4. Control Rod 18-31 was declared INOP
5. 'RDCS INOP' alarm on ARC MCR *08 E-4 has annunciated
6. RDCS "INOPERABLE" LED is Lit on RDCS Status section at *0C616
7. The LED for HCU 18-31 on The Rod Drive Control System Analyzer - Fault Location Map is lit

VII. INITIATING CUE:

Shift Supervision directs you to bypass Control Rod 18-31 from the Unit ____ RMCS, and reset RDCS using S73.0.E, Bypassing/Unbypassing a Control Rod From The Reactor Manual Control System.



Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Per S73.0.E, Bypassing/Unbypassing a Control Rod from the Reactor Manual Control System, Bypassed Rod Identity switches are labeled X4, X3, X2, X1, X0 and Y4, Y3, Y2, Y1, Y0. A switch in UP position corresponds to '1', and DOWN position corresponds to '0'				
1. Candidate obtains 73.0.E, Bypassing/Unbypassing a Control Rod from the Reactor Manual Control System CUE: Candidate is given a copy of S73.0.E, Bypassing/Unbypassing a Control Rod from the Reactor Manual Control System.	Candidate obtains copy of S73.0.E.			
* 2. [S73.0.E 4.2.1] REFER TO S73.0.E, Attachment 1 AND PLACE BYPASSED ROD IDENTITY switches in position corresponding to binary coordinates for Control Rod 18-31 at *0C616. CUE: Switches X2, X1, Y3, Y0 are in UP position, and remaining switches are in the down position.	Binary coordinates for control rod 18-31 identified as: X = 00110 Y = 01001 Switches aligned: X4, down Y4, down X3, down Y3, up X2, up Y2, down X1, up Y1, down X0, down Y0, up			
3. [S73.0.E 4.2.2] OBTAIN SSV Permission to bypass the Rod CUE: SSV has granted permission for Control Rod 18-31 Bypass.	SSV permission requested to bypass Control Rod 18-31.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	4. [S73.0.E 4.2.3] PLACE BYPASSED Switch in UP in position at *0C616 panel. CUE: Bypass Switch is in the Up Position	BYPASSED Switch in UP position			
*	5. [S73.0.E 4.2.4] IF RDCS is INOP, as indicated by "INOPERABLE" LED Lit on RDCS Status section at *0C616 THEN DEPRESS "RESET" pushbutton in RDCS STATUS section of analyzer card for several seconds AND RELEASE. CUE: RDCS INOP LED and HCU 18-31 LED both extinguish	"RESET" pushbutton in RDCS STATUS section of analyzer card for several seconds AND RELEASE.			
	6. [S73.0.E 4.2.5] VERIFY ROD BYPASS light Lit on the RDCS STATUS section of the ROD SELECT MODULE at *0C603 panel CUE: The RO reports, "The ROD BYPASS light is lit on the *0C603 "Reactor Control Console."	Request from MCR status of ROD BYPASS light Lit on the RDCS STATUS section of the ROD SELECT MODULE at *0C603 panel			
	7. [S73.0.E 4.2.6] VERIFY RDCS INOPERATIVE annunciator clear on *08 REACTOR (E-4)	Candidate calls MCR to verify RDCS INOPERATIVE annunciator clear on *08 REACTOR (E-4)			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____

JPM SUMMARY**Operator's Name:** _____**Job Title:** ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER**JPM Title:** BYPASSING A CONTROL ROD FROM RMCS**JPM Number:** LOJPM2119**Revision Number:** 000**Task Number and Title:** 2140050401, Bypass A ROD From RMCS**K/A Number and Importance:** 201002 – Reactor Manual Control System A2.04 3.2/3.1**Safety Function (1-9)** 1 (*Reactivity Control*)**Admin Category (A1-4)** N/A**Level of Difficulty (1-5)** 3**Suggested Testing Environment:** In-Plant**Alternate Path:** ☐ Yes ☒ No **SRO Only:** ☐ Yes ☒ No **Time Critical:** ☐ Yes ☒ No**Reference(s):** S73.0.E, Bypassing/Unbypassing a Control Rod from the Reactor Manual Control System. Rev 18

ARC-MCR-*08 E-4, RDCS INOPERATIVE

Actual Testing Environment: ☐ Simulator ☐ Control Room ☐ In-Plant ☐ Other**Testing Method:** ☐ Simulate ☐ Perform**Estimated Time to Complete:** 15 minutes **Actual Time Used:** _____ minutes**EVALUATION SUMMARY:**Were all the Critical Elements performed satisfactorily? ☐ Yes ☒ NoThe operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory**Comments:** _____

_____**Evaluator's Name:** _____ (Print)**Evaluator's Signature:** _____ **Date:** _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

On Unit ____:

1. Control Rod 18-31 has drifted out
2. Control Rod 18-31 was fully inserted, and isolated.
3. Tech Spec 3.1.3.1 has been referenced
4. Control Rod 18-31 was declared INOP
5. 'RDCS INOP' alarm on ARC MCR *08 E-4 has annunciated
6. RDCS "INOPERABLE" LED is Lit on RDCS Status section at *0C616
7. The LED for HCU 18-31 on The Rod Drive Control System Analyzer - Fault Location Map is lit

INITIATING CUE:

Shift Supervision directs you to bypass Control Rod 18-31 from the Unit ____RMCS, and reset RDCS using S73.0.E, Bypassing/Unbypassing a Control Rod From The Reactor Manual Control System.



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

T-239 DEFEATING HIGH RPV LEVEL INTERLOCKS

JPM Number: LOJPM2273

REVISION NUMBER: 000

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date

Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure T-239 U/1 Rev: 0
Procedure T-239 U/2 Rev: 0
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

SME / Instructor

Date

SME / Instructor

Date

SME / Instructor

Date



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This is a New JPM	11/01/16

Date of Revision - refers to date revision was released for approval



IV. TASK STANDARD:

The high RPV level interlocks defeated for the Unit ____ 'B' RFPT, and the HPCI system per T-239, Defeating RFPT, HPCI and RCIC High RPV Level Interlocks, completed sat.

V. SIMULATOR SETUP

1. None

VI. INITIAL CONDITIONS:

1. Unit ____RPV level cannot be determined
2. RPV flooding is required

VII. INITIATING CUE:

Shift Supervision directs you, per T-239, "Defeating RFPT, HPCI and RCIC High RPV Level Interlocks" to defeat the high RPV level interlocks on Unit ____ for the ____B' RFPT, and the HPCI system.



Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

*

Denotes critical steps

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM.

Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
<p><i>For In-Plant T-200 JPMs, include the following:</i></p> <p>NOTE:</p> <p>IF this JPM is the first of multiple T-200 series JPMs being performed by a single candidate</p> <p>THEN steps #1 and #2 apply.</p> <p>OTHERWISE mark steps #1 and #2 as N/A</p> <p>AND provide the following to the candidate :</p> <p>a. INITIATING CUE(S)</p> <p>b. CUE: "You are now in possession of the T-239 equipment container. It contains all tools and equipment required by the procedure. You are to simulate their use during performance of the procedure."</p> <p>c. PROCEDURE COPY</p>				
<p>1. Obtain current revision of T-239, Defeating RFPT, HPCI and RCIC High RPV Level Interlocks for Unit # ____.</p> <p>CUE: Candidate is given a copy of T-239, Defeating RFPT, HPCI and RCIC High RPV Level Interlocks, when knowledge of the correct location of procedure is demonstrated/described.</p>	<p>Candidate demonstrates ability (actual or discuss) to locate T-239, Defeating RFPT, HPCI and RCIC High RPV Level Interlocks.</p>			
<p>2. Obtain required tools.</p> <ul style="list-style-type: none"> • Insulated screwdriver • Holding screwdriver • Flashlight • Roll of electrical tape <p>CUE: You have tools identified.</p>	<p>Tools obtained.</p>			



ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: This JPM requires the candidate to defeat the high RPV level trips for 'B' RFPT and HPCI system only. Therefore the following T-239 steps are N/A <ul style="list-style-type: none"> • Section 4.1 step 4.1.1 'A' RFPT and • Section 4.1 step 4.1.3 'C' RFPT and • Section 4.3 RCIC 				
* 3. [T-239 4.1.2] PERFORM the following at panel *C612, Bay A (AER) to defeat high RPV level trip of "B" RFPT (ATTACHMENT 1). <ul style="list-style-type: none"> • LIFT • AND TAPE lead connected to FFF5-3 CUE: Lead from FFF5-3 lifted and taped.	At panel *C612, Bay A (AER) Lead from FFF5-3 lifted and taped.			
4. [T-239 4.1.4] WHEN the respective RFPT high RPV level trip(s) defeated is complete, THEN NOTIFY Main Control Room.	MCR notified the "B" RFPT high level trip defeated per T-239.			
* 5. [T-239 4.2.1] PERFORM the following at panel *C620, (AER) (ATTACHMENT 2). <ul style="list-style-type: none"> • LIFT • AND TAPE lead connected to FFF5-2 CUE: Lead from FFF5-2 lifted and taped.	At rear of panel *C620, (AER) Lead from FFF5-2 lifted and taped.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
6.	[T-239 4.2.2] At Panel *0C647, PRESS E41A-S25, "RPV High Water Level" (Rx LEVEL HIGH RESET) Reset Pushbutton AND VERIFY white Rx LEVEL HIGH RESET light not Lit. CUE: PRO reports "E41A-S25, RPV High Water Level" reset pushbutton has been depressed and white Rx LEVEL HIGH RESET light not Lit.	Contact MCR and request E41A-S25, "RPV High Water Level" Reset Pushbutton depressed and white Rx LEVEL HIGH RESET light not Lit.			
7.	[T-239 4.2.3] At Panel *0C647, VERIFY HPCI TURB TRIP ISOL ENERGIZED DS37 status light not lit CUE: PRO reports "HPCI TURB TRIP ISOL ENERGIZED DS37 status light is not lit"	Contact MCR and request DS37 status light not lit at panel *0C647			
8.	[T-239 4.2.4] WHEN the HPCI high RPV level trip is defeat is complete, THEN NOTIFY Main Control Room.	MCR notified HPCI high level trip defeated per T-239			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: T-239 DEFEATING HIGH RPV LEVEL INTERLOCKS

JPM Number: LOJPM2273

Revision Number: 000

Task Number and Title: 2001340401 (T-239) Defeat the RFP, HPCI, RCIC high level trips

K/A Number and Importance: 295031 EA1.04 4.3/4.2

EA1.12 3.9/4.1

Safety Function (1-9) 2 (Reactor Water Inventory Control)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: In-Plant

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

Reference(s): T-239 U/1, Defeating RFPT, HPCI and RCIC High RPV Level Interlocks Rev 0

T-239 U/2, Defeating RFPT, HPCI and RCIC High RPV Level Interlocks Rev 0

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

Testing Method: ☐ Simulate ☐ Perform

Estimated Time to Complete: 15 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. Unit ____RPV level cannot be determined
2. RPV flooding is required

INITIATING CUE:

Shift Supervision directs you, per T-239, "Defeating RFPT, HPCI and RCIC High RPV Level Interlocks" to defeat the high RPV level interlocks on Unit _____ for the ____B' RFPT, and the HPCI system.



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

START ESW PUMP PER SE-1

JPM Number: LOJPM2258

REVISION NUMBER: 002

DATE: _____

Developed By:

Instructor

Date

Validated By:

SME or Instructor

Date

Reviewed By:

Operations Representative

Date

Reviewed By:

EP Representative

Date

Approved By:

Training Department

Date



Note: This LGS format satisfies the TQ-JA-150 Format

I. JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 9 through 13 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure SE-1 Rev: 73
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0258 Rev. 4. Revised to new template and to align with latest procedure revision. This revision changes this JPM to an Alternate Path.	10/7/13
001	Revised to new template and aligned for Equipment Operator use	10/01/15
002	This SEG is revised to new 3/16 SEG format template, including any procedure revisions	10/24/16

Date of Revision - refers to date revision was released for approval

IV. TASK STANDARD:

'0C' ESW Pump Breaker closed from controls at D23 Switchgear.

V. INITIAL CONDITIONS:

1. The Main Control Room has been evacuated.
2. SE-1 has been entered and Remote Shutdown Panel transfer switches have been positioned to Emergency
3. D12, D13, D21, D22, and D23 Safeguard Buses are energized from their normal sources.
4. D11 Safeguard Bus is being powered from the D11 Diesel Generator.
5. An Equipment Operator performing running checks for D11 D/G reports that there is no indication of ESW flow through the D11 D/G Heat Exchangers.

VI. INITIATING CUE:

Shift Supervision has directed you to start '0A' ESW Pump per section 4.5 of SE-1 beginning at step 4.5.3.

Information for Evaluator's Use:

Any **UNSAT** requires written comments on respective step.

★

Denotes critical steps

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

Some operations that are performed from outside 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 JPM Start Time clock starts when the candidate acknowledges the initiating cue.



VII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Obtain current revision of SE-1. CUE: When candidate demonstrates the ability to obtain current revision of procedure, provide a copy of SE-1.	Current revision of SE-1 (can be obtained at RSP)			
	2. [SE-1 4.5.3] IF 'A' ESW Pump is not running, THEN perform the following:	N/A			
EVALUATOR NOTE: Alternate path starts here. 'A' ESW Pump will fail to start from RSP handswitch.					
	2a. [SE-1 4.5.3.1] START 0AP548, "A" ESW Pump" (PUMP A).	Candidate simulates placing 'A' ESW Pump switch in START (CS red flagged)			
	2b. [SE-1 4.5.3.2] VERIFY 0AP548, PUMP A, running. CUE: When 'A' ESW Pump control switch is placed in START, inform the candidate: <i>"The green light above the switch is on, red light is off."</i> (CS red flagged)	Candidate recognizes pump is not running. Note: Candidate may place handswitch back in Normal after Stop. This is not critical.			
	3. [SE-1 4.5.3.3] IF 'A' ESW will not function from the RSP, THEN PERFORM the following to start 'C' ESW Pump from D23 Switchgear:	N/A			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	3a. [SE-1 4.5.3.3.a] PLACE 152-11708/CST, "Test Switch" ESW C Pump OCP548 to "PULL TO LOCK"	Candidate simulates placing 152-11708/CST to TRIP (rotating 90 deg CCW) and PULL TO LOCK			
EVALUATOR NOTE: The GE-75 key required for transfer switch HSS-11-095 is an alternate remote shutdown key on remote shutdown key ring obtained for SE-1 at the RSP.					
*	3b. [SE-1 4.5.3.3.b] PLACE HSS-11-095, "Handswitch For MCR or Local Control of 'C' ESW Pump," to "EMERGENCY"	Candidate simulates placing HSS-11-095, "Transfer Switch" to "EMERGENCY"			
*	3c. [SE-1 4.5.3.3.c] PLACE 152-11708/CST, to "CLOSE" CUE: "Breaker closing sound can be heard, the red light is lit, the green light is out and ammeter indicates starting current value decaying to running value."	Candidate simulates placing 152-11708/CST, to "CLOSE" (push in then turn) Candidate recognizes that 'C' ESW Pump feeder breaker is closed.			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

Job Title: ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER

JPM Title: START ESW PUMP PER SE-1

JPM Number: LOJPM2258

Revision Number: 002

Task Number and Title: 2000410501, (SE-1) Control Room Abandonment (RO)
2000160404, Manual S/U of Pumps from Emergency Switchgear Room (EO)

K/A Number and Importance: 295016 AA1.04 3.1/3.2

Safety Function (1-9) 8 (Plant Service Systems)

Admin Category (A1-4) N/A

Level of Difficulty (1-5) 3

Suggested Testing Environment: In-Plant

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

Reference(s): SE-1, Remote Shutdown, Rev. 73

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

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: 15 minutes Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE
INDIVIDUAL BRIEFING SHEET**

INITIAL CONDITIONS:

1. The Main Control Room has been evacuated.
2. SE-1 has been entered and Remote Shutdown Panel transfer switches have been positioned to Emergency.
3. D12, D13, D21, D22, and D23 Safeguard Buses are energized from their normal sources.
4. D11 Safeguard Bus is being powered from the D11 Diesel Generator.
5. An Equipment Operator performing running checks for D11 D/G reports that there is no indication of ESW flow through the D11 D/G Heat Exchangers.

INITIATING CUE:

Shift Supervision has directed you to start '0A' ESW Pump per section 4.5 of SE-1 beginning at step 4.5.3.



Exelon Generation **LIMERICK GENERATING STATION**
SIMULATOR EVALUATION GUIDE

CODE NO:	SEG-2007E	REV NO:	002
AUTHOR:	T. A. BYERS	APPROXIMATE RUN TIME:	65 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	1/06/17
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: Todd Byers/S/ Date: 1/04/17
Training Instructor - Signature

Reviewed By: N/A for ILT NRC Date: N/A
Program (ILT or LOR) Lead - Signature

Reviewed By: A. W. Hightower/S/ Date: 1/05/17
EP (as appropriate) - Signature

Reviewed By: N/A Date: N/A
RE (as appropriate) - Signature

Approval: Brian Devine/S/ Date: 1/06/17
OPS Manager - Signature

Approved For Use: Daniel Semeter/S/ Date: 1/06/17
Training Manager - Signature



Appendix D

Scenario Outline

Form ES-D-1

Facility: Limerick 1 & 2

Scenario No.: SEG-2007E

Rev 2

Op-Test No.: 1

Examiners: _____

Operators: _____

Initial Conditions:Unit 1 is at 90% power. Unit 2 is at 100% power.**Turnover:**

Withdraw Control Rods per ReMA and raise Recirc flow to return to 100% Reactor power

'1B' EHC Pump is blocked for pump replacement. Repairs are scheduled to be complete in two (2) hours. Maintain 100% power and support PMT of '1B' EHC pump when it is returned to operations.

Event No.	Malfunction Number	Event Type*	Event Description
1.	None	R-RO	Raise Power with Control Rods
2.	MRD016E (46-15)	C-RO TS-SRO	Control Rod (46-15) uncoupled (Abnormal)
3.	MAD149E	C-RO C-PRO	'1N' SRV fails open / closes when Rx power lowered to <90 % (Abnormal)
4.	MV1231D MRH172D	C-RO C-PRO TS-SRO	Inadvertent Div 4 LOCA Signal (Abnormal) '1D' RHR Pump fails to auto start
5.	MRR441	C-PRO	Small leak in Drywell (Abnormal)
6.	MMS067	M-ALL	Large Steam Leak in Drywell
7.	MRH600B	C-PRO	'1B' RHR Pump Trips (Malfunction)
8.	MRH573A	C-PRO	HV-51-1F024A Thermal Overload condition (Malfunction)
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			



I. QUANTITATIVE ATTRIBUTES

A. ILT

Target Quantitative Attributes (Per Scenario; See ES-301Section D.5.d)	ACTUAL NUMBER
1. Malfunctions after EOP entry (1-2)	2
2. Abnormal events (2-4)	4
3. Major transients (1-2)	1
4. EOPs entered/requiring substantive actions (1-2)	2
5. EOP contingencies requiring substantive actions (0-2)	1
6. EOP based Critical tasks (2-3)	2

Review TQ-AA-151 attachment 5 and ES-301-5 for individual position requirements for scenario and scenario set



- II. **PURPOSE:** Systematically evaluate individual and team performance to identify areas for improvement. Critical Tasks and Assessment Items from this evaluation guide are to be used to assess crew and individual performance and as input into a 4.0 Crew Critique Process.

III. **SIMULATOR EVALUATION GUIDE OBJECTIVES:**

- A. The following evaluation objectives apply to the Crew (C), Shift Manager (SM), Control Room Supervisor (S), Unit Reactor Operator / Plant Reactor Operator (R), or Incident Assessor / Shift Technical Advisor (A) as indicated in the following categories.
1. The general condition for each of the evaluation objectives will be "Given the plant conditions and sequence of events in the Simulator Evaluation Guide (SEG)".
 2. The general acceptable evaluation objective criteria for each of the evaluation objectives will be "To perform effectively as an individual and contribute to successful crew performance in accordance with appropriate reference plant procedures and Operations Expectations, Fundamentals and Strategies".
 3. Specific UNSAT evaluation objective criteria will be consistent with TQ-AA-155, Conduct of Simulator Training and Evaluation with applicable forms and job aids.
 4. During performance of this Simulator Evaluation Guide, the individuals and crew should satisfactorily demonstrate the following overall procedure and plant control objectives:
 - Direct and perform actions per ON-104, Control Rod Problems.
 - Direct and perform actions per OT-101, Drywell High Pressure
 - Direct and perform actions per OT-104, Unexpected/Unexplained Positive or Negative Reactivity Insertion.
 - Direct and perform actions per OT-114, Inadvertent Opening of a Relief Valve
 - Direct and perform actions per SE-10, LOCA
 - Direct and perform actions per OT-102, Reactor High Pressure
 - Direct and perform actions per T-101, RPV Control
 - Direct and perform actions per T-102, Primary Containment Control
 - Direct and perform actions per T-112, Emergency Blowdown

**IV. RECORD OF TEMPORARY CHANGES:**

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	LORT Approval	Action Tracking	Revision Date

V. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (e.g for conversion of LSTS to LLORSEG format).

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
Rev000	This is a reformat to the new SEG Evaluation template. This replaces LSES2007 Rev 9. Deleted '1N' SRV failing open and added HV-51-1F024A Thermal Overload.	10/28/13
Rev001	Revised to new template, and control rod drift	9/2/15
Rev002	Revised to new template, changed to control rod uncoupled, and open SRV response	7/22/16

Date of Revision - refers to date revision was released for approval

**SCENARIO EVENT AND EVALUATION SUMMARY:**

Events One and Two: As the crew assumes responsibility for the shift, they are directed to withdraw Control Rods and adjust Recirc flow per the ReMA and return the reactor to 100% power. During the power ascension and as Control Rod 46-15 is being withdrawn, a "Rod Overtravel" alarm will annunciate, and Control Rod 46-15 will become uncoupled.

Evaluation: To evaluate the crews ability to withdraw Control Rods per a ReMA, and when the 'Rod Overtravel' alarms, identify an uncouple Control Rod, implement ON-104, Control Rod Problems, and OT-104, Unexpected/ Unexplained Positive or Negative Reactivity Insertion, isolate the Control Rod (46-15) and evaluate Tech Specs for the INOP Control Rod.

Event Three: When the Control Rod has been fully inserted as directed by the ON procedure, and Tech Specs are evaluated for the Control Rod being INOP, the '1N' SRV will inadvertently open. The SRV will close when reactor power is lowered to ~90%.

Evaluation: To evaluate the crews' response to an open SRV. The crew will enter and execute OT-114, Inadvertent Opening Of A Relief Valve. The crew will identify that when reducing reactor power to ~90%, per the OT procedure, the SRV closes. The crew will then evaluate the plants response to the now closed SRV.

Event Four: After the SRV is closed, an inadvertent Division 4 LOCA signal will occur. In conjunction with the inadvertent LOCA signal, the '1D' RHR Pump will fail to auto start.

Evaluation: To evaluate the crews response to use MCR instrumentation and determine the Division 4 LOCA signal is inadvertent. The crew will identify the cause of the Division 4 LOCA signal to be an excess flow check valve actuation.

The crew will recognize a reactor power increase and that HPCI is running and injecting into the RPV, and isolate the HPCI system. The crew will also identify the D14 EDG running unloaded, the '1D' Core Spray Pump running, and the RWCU system that isolated on the LOCA signal.

The CRS will determine the required Tech Spec Actions for systems that are unavailable due to the LOCA signal, including the '1D' RHR Pump which failed to auto start on the LOCA signal.

**SCENARIO EVENT AND EVALUATION SUMMARY cont'd:****Events Five
and Six:**

When actions for the inadvertent LOCA signal are complete, a gradually increasing coolant leak in the drywell will develop requiring the plant to shutdown. Following Plant shutdown a large steam leak into the Drywell will occur which will eventually require a T-112, Emergency Blowdown be performed.

Evaluation:

To evaluate the crews response to increasing drywell pressure and temperature, including the initial execution of OT-101, Drywell High Pressure, and eventually a plant shutdown and execution of T-101, RPV Control, and T-102, Primary Containment Control.

**Event Seven
and Eight:**

The '1B' RHR Pump, which was placed in service when the SRV opened, trips on a time delay after the plant is shutdown, and when the crew transitions to the 'A' Loop of RHR for containment cooling, the HV-51-1F024A, 'A' Loop RHR Test Return Valve, will trip on a Thermal Overload condition.

Evaluation:

To evaluate the crew's response to the tripped '1B' RHR Pump and to transition the '1A' RHR Pump when directed to re-direct from Suppression Pool Spray to Drywell Spray. As the crew re-directs to 'A' RHR for Drywell Spray they will manually open the HV-51-1F024A valve when a thermal overload trip is identified.

**Termination
Criteria:**

The scenario may be terminated when an Emergency Depressurization has been performed, Drywell Spray is in service, control rods inserted and reactor level is restored.



VI. REFERENCES

A. Training Procedures

1. TQ-LG-150, Limerick Operator Training Programs
2. TQ-AA-151, ILT Certification and NRC Examination Development and Administration
3. TQ-AA-155, Conduct of Simulator Training and Evaluation

B. Annunciator Response Cards (ARC)

1. 002 D-4, B CONTROL STRUCTURE CHILLER OUT OF SERVICE
2. 002 A-1, CONTROL ROOM RADIATION ISOLATION
3. 004 B-1, B DRYWELL CHILLER TRIP/FAILED TO START
4. 004 B-4, DIV I/II RRCS CHANNEL ACTIVATED
5. 107 H-2, REACTOR HI/LO LEVEL
6. 107 F-2, DRYWELL HI / LO PRESS
7. 108 F-5, ROD OVERTRAVEL
8. 110 B-1, SRV/HEAD VENT VALVE LEAKING
9. 110 B-2, SAFETY RELIEF VALVE OPEN
10. 112 H-1, RWCU PUMP SUCTION LO FLOW
11. 112 C-5, DRYWELL EQUIP DRN TK/FLR DRN SUMP LEAKAGE HI FLOW
12. 112 E-5, EXCESS FLOW CHECK VALVE OPERATED 10C218
13. 113 B-5, CORE SPRAY LINE INTERNAL BREAK
14. 114 C-2, REACTOR LO-LO LEVEL
15. 114 D-1, DIV 4 NSSSS MSIV INITIATED
16. 114 C-2, REACTRO LO-LO LEVEL
17. 114 D-1, DIV 4 NSSSS MSIV INITIATED
18. 115 H-3, REACTOR LO-LO-LO LEVEL
19. 115 D-1, DIV 4 CORE SPRAY AUTO START
20. 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH
21. 118 C-2, 1B INSTRUMENT AIR HDR LO PRESS

C. System Procedures (S)

1. S73.1.A, Normal Operation of the Reactor Manual Control system
2. S51.8.A App. 1, Placing RHR SP Cooling in Service During a Plant Event
3. S55.2.A, HPCI Shutdown From Automatic or Manual Initiation
4. S12.1.A App. 2, RHR Service Water System Dual Loop Startup Hard Card
5. S78.7.A, Control Room HVAC System Restoration from an Isolation
6. S87.1.A App. 1, Startup of Standby/Tripped Drywell Chiller Hard Card
7. S91.6.B App. 1, Transferring House Loads to S/U Buses Hard Card

D. General Procedures (GP)

1. GP-3, Normal Plant Shutdown
2. GP-5, Steady State Operations

Off Normal Procedures (ON)

3. ON-104, Control Rod Problems

E. Operating Transient Procedures (OT)

1. OT-101, High Drywell Pressure
2. OT-102, Reactor High Pressure
3. OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition
4. OT-114, Inadvertent Opening of a Relief Valve
5. OT-200, Operations Transient Hard Cards



- F. Event Procedures (E)
- G. Special Event Procedures (SE)
 - 1. SE-10, LOCA
- H. Surveillance Test and Routine Test Procedures (ST and RT)
 - 1. ST-6-107-730-1, Control Rod Coupling Check
- I. Technical Specifications and TRM (TS)
 - 1. 3.1.3.1, Control Rod Operability
 - 2. 3.1.3.6, Control Rod Drive Coupling
 - 3. 3.3.3, Emergency Core Cooling System Actuation Instrumentation 3.5.1, ECCS – Operating
 - 4. TRM 3.4.4, Reactor Coolant System – Chemistry
 - 5. 3.5.1, Emergency Core Cooling Systems
- J. Transient Response Implementation Procedures (T-100 series)/SAMPs
 - 1. T-101, RPV Control
 - 2. T-102, Primary Containment Control
 - 3. T-112, Emergency Blowdown
- K. TRIP 200 Series Procedures
 - 1. T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation
- L. EP-AA-1008, Limerick, Radiological Emergency Plan Annex for Limerick Generating Station
- M. Administrative Procedures
 - 1. OP-AA Procedures
 - a. OP-AA-1, Conduct of Operations
 - b. OP-AA-20, Conduct of Operations Process Description
 - c. OP-AA-101-111-1003, Operations Department Standards and Expectations
 - d. OP-AA-101-113, Operations Fundamentals
 - e. OP-AA-101-113-1006, 4.0 Crew Critique Guidelines
 - f. OP-AA-103-102-1001, Strategies For Successful Transient Mitigation
 - g. OP-AA-106-101-1006, Operational Decision Making Process
 - 2. OP-LG Procedures
 - a. OP-LG-101-111-1000, Licensed Operator Duties
 - b. OP-LG-102-106, Operator Response Time Program at Limerick
 - c. OP-LG-103-102-1000, Human Performance Continuing Good Practices
 - d. OP-LG-103-102-1002, Strategies for Successful Transient Mitigation
 - e. OP-LG-108-101-1001, Simple Quick Acts / Transient Acts
- N. Current Shift Night Orders Forced Outage Plan
- O. INPO Significant Operating Experience Reports (SOER), Significant Event Reports (SER) and INPO Event Reports (IER)
 - 1. IER-L1 11-3, Weaknesses in Operator Fundamentals
 - 2. SER 3-05, Weakness in Operator Fundamentals
 - 3. SOER 10-02, Engaged Thinking Organizations
 - 4. INPO 15-004, Operator Fundamentals



VII. PREBRIEF INSTRUCTIONS

Unit 2 is in OPGON 1 at 100% power

Unit 1 is in OPGON 1 at 90% power

Specific Plant Conditions are as Follows:

- Reactor power reduced to 90% due to Control Rod pattern adjustment

Inoperable/Out of Service Equipment and Estimated Time of Return (ETR):

- '1B' EHC pump is blocked for replacement
- Repairs are scheduled to be complete in 2 hours

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Raise Reactor power to 100%
- Continue replacement of '1B' EHC pump and perform PMT when complete

Documents Provided:

- ReMA and Control Rod Move Sheet (with control rod steps 1-16 signed off)
- GP-5 Attachment 1 (signed off to step 2.6)
- S73.1.A, Normal Operation of the Reactor Manual Control System



VIII. DIRECTIONS FOR EVALUATION PREPARATION

A. INITIAL PREPARATION

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete TQ-AA-155, Operator Training Programs Attachment 02, Evaluated Scenario Administration Checklist.
	Complete TQ-LG-201-0113, Limerick Training Department Simulator Examination Security Actions Checklist

B. SIMULATOR SETUP

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to the Pre-loaded Cycle IC developed for the Evaluation OR Reset the simulator to designated base load IC-3 AND Load scenario file SEG2007E Rev002.scn <ul style="list-style-type: none">• Verify that all Malfunctions, Remotes, Overrides, Annunciators and Triggers are properly loaded OR <ul style="list-style-type: none">• Manually enter the Malfunctions, Remotes, Overrides, Annunciators and Triggers per the Scenario Generator Screen Shots:
	Simulator Operator (Driver) perform the following: <ul style="list-style-type: none">• Momentarily place simulator in RUN• Ensure reactor power is at 90%• Acknowledge and clear all spurious alarms• Place the simulator back into FREEZE• Place INFO tag on '1B' EHC Pump with handswitch in PTL



C. MALFUNCTION/REMOTE/OVERRIDE/ANNUNCIATORS FUNCTION TIME TABLE

Interventions Summary

Hide Malfunctions - 8 Hide Remotes - 9 Hide Overrides - 2 Show Annunciators - 0

Malfunction Summary

Mal ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MRD016E	46-15	Control Rod Failure, Uncoupled	True	True				
MRH172D		RHR Pump 1D Fails to Auto Start	True	True				
MAD149E		Relief Valve (F013N) Fails (Fails Oper: Mechanical)	False	True		00:00:15		1
MV231D		Instrument Line Break Downstream of XV42-1F045D	False	True		00:00:15		2
MRR441		Small Coolant Leak in Drywell (0-100%)	0.00	15.00000	00:05:00	00:00:15		3
MMS067		Steam Leak in Drywell (0-5000 gpm)	0.00	2000.000	00:08:00	00:02:00		4
MRH600B		RHR Pump 1BP202 Elect Fault	FALSE	TRUE		00:05:00		4
MRH573A		HV51-1F024A Fails due to Thermal OVLD	False	True				4

☐ Timer Pause [Delete All](#) **Active** Pending

Remotes Summary

Rem ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
RRE14B		Refuel Floor To SGTS Isolation damper SGD76-206-3	CLOSE	CLOSE				
RRE156		Unit 2 Refuel Floor Isol Sw HS76-281A	RESET	RESET				
RRE157		Unit 2 Refuel Floor Isol Sw HS76-281B	RESET	RESET				
RRM032		SPE & MVP Rad Monitor RE-160 Skid 10S408 Enable	DISABLE	DISABLE				
RPR061		APRM Channel 1 Gain Adjustment Factor	8754	8754				
RPR063		APRM Channel 3 Gain Adjustment Factor	8650	8650				
RPR062		APRM Channel 2 Gain Adjustment Factor	8600	8600				
RPR064		APRM Channel 4 Gain Adjustment Factor	8300	8300				
RAD216		Safety Relief Valve F013N Fuse	IN	OUT				6

☐ Timer Pause [Clear List](#) **Active** Pending

Override Summary


Tag ID	Description	Position / Target	Actual Value	Override Value	Rmptime	Actime	Dactime	Trig
42-12606/CS	Main Turb EHC Pump 1BP113 Ind Lamps	GREEN	ON	OFF				
42-12605/CS	Main Turb EHC Pump 1BP113 Ind Lamps	RED	OFF	OFF				

☐ Timer Pause [Delete All](#) **Active** Pending



D. EVENT TRIGGERS ASSIGNMENT

1. Timers should be used on event triggers where possible for time validation
2. Timing of event triggers may be altered by the Lead Evaluator (or designee)
3. Verify triggers are actuated automatically as designed or manually initiate the trigger when the initiating action has occurred.
4. Inform Lead Evaluator (or designee) of expected plant response prior to actuation of each trigger.
5. Trigger #1 is manually initiated at Lead Evaluator (or designee) direction after the crew assumes responsibility for operation.

	TRIGGER / TIME	MALFUNCTION / EVENT	DESCRIPTION
	1	Manual	Initiates '1N' Safety Relief Valve fails open
	2	Manual	XV-42-1F045D Instrument Line break / '1D' RHR Pump failure to Auto Start
	3	Manual	Small coolant leak in Drywell
	4	Auto / ZRPS1SDN	RMS to SHUTDOWN Initiates Drywell Steam Leak / '1B' RHR pp trip
	5	N/A	N/A
	6	Manual	'1N' Safety Relief Valve Fuse removed

Event Trigger Builder / Viewer

Favorites Triggers

Trigger #	Trigger Text
1	
2	
3	
4	ZRPS1SDN
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Operators:

Arithmetic:

- * Multiplication
- / Division
- + Addition
- Subtraction

Relational:

- > Greater than
- >= Greater than or equal
- < Less than
- <= Less than or equal
- == Equal to
- != Not equal to

Logical:

- && And
- || Or
- ! Not

Other:

- [Open Paren
-] Close Paren

Trigger Now Clear Clear All Accept Exit

**E. EQUIPMENT REPORTS AND LEAD EVALUATOR (OR DESIGNEE) OPERATIONS**

1. This table section is moved and now integrated with Assessment of Crew Performance to facilitate simulator Operator and Instructor observation of crew activities related to simulator operation and instructor intervention.
2. Scripted Activity Reports should be followed with adherence to Operations Communication standards of performance.
3. The T-200 procedure reference book should be used for familiarity of reports to aid in operator prompting and expected communications.
4. The Lead Evaluator (or designee) should be informed if any event is not reported as scripted due to lack of Operator request.
5. The Standard Equipment Operator Response Times are per **Attachment 1**
6. A record of communications from the MCR and to the MCR will be maintained by the Simulator Operator using **Attachment 2**.
7. The OCOEE Simulator Operator Station P&IDs, Floor Plans and Panels must be used by the Simulator Operator as reference information when making reports to the MCR for plant parameters which are not driven by a communications script. Examples include: ARMs, Blowout Panel status, Reactor Building Area Temperatures and Pressures, RMMS, Turbine Enclosure parameters etc.



IX. CREW CRITICAL TASKS

- A. Critical Tasks are based on the current Crew Critical Task List revision, NUREG 1021 and TQ-AA-150 requirements.

1. **T-102.1 Spray the Drywell per T-225.**

K/A	295024	EA1.11	4.2/4.2
K/A	295028	EA1.01	3.8/3.9
K/A	295028	EA1.04	3.9/4.0

Standard: When Drywell temperature and pressure are on the SAFE side of curve PC/P-2, spray the Drywell before exceeding 340°F or 55 psig.

SAT/UNSAT

2. **T-102.2 Perform emergency blowdown per T-112.**

K/A	295024	EA1.08	3.9/3.9
K/A	295024	EA2.04	3.9/3.9

Standard: When Suppression Pool Pressure cannot be maintained below the Pressure Suppression Pressure (PC/P-3) curve and before Drywell pressure exceeds 55 psig, open 5 SRVs.

SAT/UNSAT

3. **OT-114.1 Close the stuck open relief valve.**

K/A	239002	A2.03	4.1/4.2
-----	--------	-------	---------

Standard: Close the open SRV by directing removal of the fuses for the open SRV, or by reducing turbine inlet pressure per OT-114.

SAT/UNSAT

**X. ASSESSMENT OF CREW PERFORMANCE DURING CONDUCT OF THE DYNAMIC SIMULATOR EVALUATIONS:**

- A. Conduct the Simulator Evaluation Session per TQ-AA-155, Conduct of Simulator Training and Evaluation, Attachment 02, Evaluated Scenario Administration Checklist
- B. Assessment of Crew and Individual performance shall be consistent with OP-AA-20, Conduct of Operations Process Description
- C. Where possible record the time and position responsible for performance of each task or assessment item
- D. Items not performed as expected **SHALL** be discussed in the post performance crew critique
- E. During the performance of the evaluation, the Simulator Evaluators shall **MAINTAIN** notes of observations and information consistent with the timeline
- F. Assessment items with the ⌚ symbol indicate a time critical standard for performance
- G. Assessment items with the ⚡ symbol indicate a Probabilistic Risk Assessment (PRA) association with the task
- H. The Simulator Operator will respond with scripted or proceduralized responses when requested by the MCR operators with Procedure completion times requested per **Attachment 1**
- I. The Simulator Operator will also maintain a timeline and record of all reports and requests issued by the MCR personnel with response provided by the simulator operator using **Attachment 2**
- J. Shaded items do not require assessment for ILT Evaluations. The CRS may be requested to complete the Shift ED forms and determine the EAL classification at the completion of the scenario.



**This Page
Intentionally
Blank**



1/2. EVENTS 1 – 2 RAISE POWER / CONTROL ROD UNCOUPLED (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
1/2.	EVENTS 1 – 2 RAISE POWER / CONTROL ROD UNCOUPLED (Abnormal)	
Lead Evaluator (or designee) Notes: As the RO withdraws control rods per the ReMA "Rod Overtravel" will alarm indicating a control rod has failed its coupling check. ON-104 will be referenced and the operator will perform a second attempt to verify the coupling check. When the second attempt fails the control rod will be declared Inoperable, fully inserted and isolated.		
Note: [ST-6-107-730-1 4.3.4] If a coupling check is signed off in ReMA/Control Rod Move Sheets, THEN copy of ReMA is normally attached to ST-6-107-730-1		
	Withdraw control rods IAW ReMA and S73.1.A (14-47)	RO
	[S73.1.A 4.3.3] SELECT the control rod to be withdrawn	RO
	[S73.1.A 4.3.4] VERIFY correct rod position on four rod display	RO
	[S73.1.A 4.3.7] Simultaneously DEPRESS Withdraw and Continuous Withdraw pushbuttons to withdraw control rod	RO
	[S73.1.A 4.3.8] VERIFY proper RDCS light sequence for control rod withdraw	RO
	[S73.1.A 4.3.10] WHEN control rod is located two notches before target position RELEASE Withdraw and Continuous Withdraw pushbuttons (Note: Student may hold continuous withdraw to notch position 48 as permitted by Note 4 on Page 8 of S73.1.A)	RO
	[S73.1.A 4.3.11] VERIFY the SETTLE light Lit AND THEN extinguishes after ~ 6.1.sec.	RO
	[S73.1.A 4.3.12] IF control rod settles short of target position, THEN PLACE the control rod in target position using single notch withdraw per Section 4.2	RO
	[S73.1.A 4.3.13] VERIFY control rod has been withdrawn to target position at Four Rod Display	RO
	[S73.1.A 4.3.14] IF control rod is positioned to notch position 48, THEN PERFORM an overtravel check per ST-6-107-730-1, Control Rod Coupling Check	RO
	Select next rod in sequence, repeat previous steps (46-15)	RO

**1/2. EVENTS 1 – 2 RAISE POWER / CONTROL ROD UNCOUPLED (Abnormal)****Simulator Operator Instructions:**

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

If RE's contacted for support for uncoupled control rod:

report: "A Reactor Engineer is on the way to assist with a Recovery ReMA".

At time 5 min after floor personnel are dispatched to isolate HCU (46-15),

DELETE malfunction MRD016E for (46-15) and

report: Valves 047-1-03-46-15 and 047-1-05-46-15 valves are closed for HCU (46-15).

OR

report: ON-104 step 2.5.6.5 is complete for Unit 1 HCU 46-15.

Manually actuate **Trigger # 1** when directed by Lead Evaluator, to initiate '1N'SRV to fail open.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
1/2.	EVENTS 1 – 2 RAISE POWER / CONTROL ROD UNCOUPLED (Abnormal)	
Lead Evaluator (or designee) Notes: ON-104, Control Rod Problems section 1.5 Control Rod(s) Uncoupled, will be entered when the operator gets annunciator 108 F-5, ROD OVERTRAVEL.		
	Respond to <ul style="list-style-type: none">• 108 F-5, ROD OVERTRAVEL	RO
	Report alarm and notify SRO that control rod (46-15) may be uncoupled	RO
	Enter ON-104, Control Rod Problems (Abnormal)	SRO
	[ON-104 2.5.6] IF reactor power is greater than 25%, then perform the following: <ul style="list-style-type: none">- Insert the rod to position 46- Withdraw the control rod to 48 and attempt a coupling check	RO
	[ON-104 2.5.6.3] IF coupling check unsuccessful DECLARE control rod INOP and continue	RO
	[ON-104 2.5.6.4] Fully continuously INSERT the control rod and MAINTAIN insert signal for 10 seconds	RO
	[ON-104 2.5.6.5] DISARM directional control valves by closing 047-1-03-46-15 and 047-1-05-46-15 vlvs	RO
	Demand P-1 Edit (after rod settles at 00)	RO
	Contact RE for assistance	SRO
	Enter T.S. 3.1.3.6 action 2.b – Control Rod Drive Coupling and T. S. 3.1.3.1 action B.2.b. – Control Rod Operability for Control Rod (46-15)	SRO



3. EVENT - 3 '1N' SRV INADVERTENTLY OPEN (Abnormal)

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger # 1** when directed by Lead Evaluator, to initiate '1N'SRV to fail open.

IMPORTANT

DRIVER NOTE: When Reactor power reduction initiated
Manually **DELETE MAD149E** at <90% APRM power, to simulate closure of the '1N' SRV.

***** OT-114 directs a GP-4 Shutdown if SRV remains open at 85% power *****

At time 5 min if requested to pull fuses per OT-114, Attachment 1:
Manually actuate **Trigger #6** to remove fuses for '1N' SRV



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	EVENT - 3 '1N' SRV INADVERTENTLY OPEN (Abnormal)	
Lead Evaluator (or designee) Notes: The '1N' SRV will inadvertently open. The crew will enter and execute OT-114 for the open SRV. Two loops of Suppression Pool Cooling will be placed in service (Six minute requirement per OP-LG-102-106) and reactor power will be reduced to 85%. Since the SRV closes prior to reaching 85% reactor power, a GP-3 Shutdown will be performed.		
	Reference ARCs <ul style="list-style-type: none"> • 110 B-1, SRV/HEAD VENT VALVE LEAKING • 110 B-2, SAFETY RELIEF VALVE OPEN 	RO/PRO
	Recognize '1N' SRV open (confirming indications)	PRO
	Enter OT-114, Inadvertent Opening Of A Relief Valve, and perform Immediate Operator Actions (Abnormal)	SRO
⌚	[OT-114 IOA] Place both loops Suppression Pool Cooling in service	PRO
	[S51.8.A App. 1 1.1] START selected RHRSW loop per S12.1.A	PRO
	[S12.1.A App.2 1.3] <ul style="list-style-type: none"> • OPEN HV-51-1F014A, HEAT EXCHANGER INLET • Throttle OPEN HV-51-1F068A for 18 to 20 seconds 	PRO
	[S12.1.A App.2 1.4] <ul style="list-style-type: none"> • OPEN HV-51-1F014B, HEAT EXCHANGER INLET • Throttle OPEN HV-51-1F068B for 18 to 20 seconds 	PRO
	[S12.1.A App.2 1.5] VERIFY PI-51-105A-1, HX DISCH, indicates system static pressure greater than or equal to 15 psig	PRO
	[S12.1.A App.2 1.6] VERIFY PI-51-105B, HX DISCH, indicates system static pressure greater than or equal to 15 psig	PRO
	[S12.1.A App.2 1.8] ENSURE 0A-V543 OR 0C-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A App.2 1.9] ENSURE 0B-V543 OR 0D-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A App.2 1.10] START 0A(C)P506, RHRSW PUMP	PRO



3. EVENT - 3 '1N' SRV INADVERTENTLY OPEN (Abnormal)

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

IMPORTANT

DRIVER NOTE: When Reactor power reduction initiated
Manually **DELETE MAD149E** at <90% APRM power, to simulate closure of the '1N' SRV.

***** OT-114 directs a GP-4 Shutdown if SRV remains open at 85% power *****

At time 5 min if requested to pull fuses per OT-114, Attachment 1:
Manually actuate **Trigger #6** to remove fuses for '1N' SRV



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	EVENTS - 3 '1N' SRV INADVERTENTLY OPEN (Abnormal)	
	[S12.1.A App.2 1.11] THROTTLE HV-51-1F068A to the maximum obtainable position without exceeding 11,000 gpm on FI-51-*R602A(B) while maintaining pump disch pressure (PI-12-001A-1) between 75 psig to 85 psig	PRO
	[S12.1.A App.2 1.12] START 0B(D)P506, RHRSW PUMP	PRO
	[S12.1.A App.2 1.13] THROTTLE HV-51-1F068B to the maximum obtainable position without exceeding 11,000 gpm on FI-51-*R602A(B) while maintaining pump disch pressure (PI-12-001B) between 75 psig to 85 psig	PRO
	[S51.8.A App.1 1.4] (Repeated for A Loop and B Loop) START 1A(B) P202 RHR Pump	PRO
	[S51.8.A App.1 1.5] (Repeated for A Loop and B Loop) Throttle OPEN HV-51-1F024A(B) "RHR Pump Full Flow Test Return" AND MAINTAIN flow indicated on FI-51-1R603A(B) between 8000 to 8500 gpm	PRO
	[S51.8.A App.1 1.6] (Repeated for A Loop and B Loop) CLOSE HV-C-51-1F048A(B) HEAT EXCH BYPASS	PRO
	[OT-114 3.1] DISPATCH EO to attempt SRV closure by pulling fuses using OT-114 Attachment 1 for PSV-41-1F013N	PRO
	[OT-114 3.2] REDUCE Reactor power to 85% per RMSI	RO
	[OT-114 3.3] Establish Suppression Pool Temperature as Critical Parameter	SRO
	CRS briefs stuck open SRV and contingency plans	SRO
	Crew trends Suppression Pool temperatures	PRO
	Crew identifies '1N' SRV closed during power reduction	PRO/RO
	CRS directs to perform a GP-3 Plant shutdown	SRO



4. EVENT - 4 INADVERTANT DIV 4 LOCA SIGNAL / '1D' RHR PUMP FAILS

Simulator Operator Instructions

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 10 min after FSSV or EO action requested for SE-10 Floor Actions
Load **All SE-10 Floor Actions with Time Delays Scenario** and
report: "SE-10 Floor Actions for Div 4 are complete"



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4. EVENT - 4 INADVERTANT DIV 4 LOCA SIGNAL / '1D' RHR PUMP FAILS		
Lead Evaluator (or designee) Notes: An instrument line downstream of excess flow check valve XV-42-1F045D breaks resulting in a DIV 4 LOCA signal. As a result DIV 4 ECCS systems are designed to start on the reactor level low signal. ('1D' Core Spray Pump will start, but the '1D' RHR Pump will fail to start on the LOCA signal). HPCI will also start and inject into the vessel, and D14 EDG will start, but the output breaker will not close. Also, DIV 4 shunt trips will result in trips of various BOP systems i.e. RWCU will isolate.		
	Reference appropriate ARC: <ul style="list-style-type: none"> 002 A-1, CONTROL ROOM RADIATION ISOLATION 002 D-4, B CONTROL STRUCTURE CHILLER OUT OF SERVICE 004 B-1, B DRYWELL CHILLER TRIP/FAILED TO START 004 B-4, DIV I/II RRCS CHANNEL ACTIVATED 107 H-2, REACTOR HI/LO LEVEL 112 H-1, RWCU PUMP SUCTION LO FLOW 112 E-5, EXCESS FLOW CHECK VALVE OPERATED 10C218 113 B-5, CORE SPRAY LINE INTERNAL BREAK 114 C-2, REACTOR LO-LO LEVEL 114 D-1, DIV 4 NSSSS MSIV INITIATED 115 D-1, DIV 4 CORE SPRAY AUTO START 115 H-3, REACTOR LO-LO-LO LEVEL 118 C-2, 1B INSTRUMENT AIR HDR LO PRESSURE 	PRO/RO
	Recognize Div 4 LOCA signal using MCR instrumentation i.e. LOCA white lights lit on DIV 4 ECCS panels	PRO
	Enter SE-10, LOCA (Abnormal)	SRO
	[SE-10 3.2] PLACE to "RESET": <ul style="list-style-type: none"> 43-22422/CS, "Div. IV Non SFGD Instr. Panel" (INST AC 202 CONTROL PNL), on *DC661. 	PRO
	Dispatch Equipment Operator to perform SE-10-1 field actions	PRO
	Recognize/report HPCI running and injecting	PRO
	Enter OT-104, Unexpected/Unexplained Positive or Negative Reactivity Insertion. (Abnormal)	SRO
	[OT-104 IOA] Reduce power to pre-transient power levels or below, using core flow	RO
	[OT-104 Attach #2] Recognize power rise due to HPCI injection and is NOT required	PRO
	[OT-104 Attach #2] TRIP HPCI per S55.2.A	PRO



4. EVENT - 4 INADVERTANT DIV 4 LOCA SIGNAL / '1D' RHR PUMP FAILS

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 5 min after requested to respond to Excess Flow Check Valve Panel 10C218, and
report: At panel 10C218, Excess Flow Check Valve XV-42-1F045D is indicating CLOSED.
All other Excess Flow Valves indicate open.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4. EVENT - 4 INADVERTANT DIV 4 LOCA SIGNAL / '1D' RHR PUMP FAILS		
Lead Evaluator (or designee) Notes: S55.2.A, HPCI Shutdown From Automatic Or Manual Initiation, directs how restore the HPCI System after the system is no longer required for operation at the 10C647 panel.		
	[S55.2.A 4.2] DEPRESS and RELEASE HPCI SEAL IN reset pushbutton, and verify SEAL IN light remains Lit	PRO
	[S55.2.A 4.5.1] DEPRESS and RELEASE HPCI Manual Isolation (ISOLATION) pushbutton.	PRO
	[S55.2.A 4.5.2] VERIFY HV-55-1F003, HPCI Steam Line Outboard Isolation (OUTBOARD), closes.	PRO
	[S55.2.A 4.5.1] VERIFY HPCI turbine comes to rest as indicated by SI-56-161, HPCI Turbine speed, (S)	PRO
	[S55.2.A 4.5.6] ENSURE 10P216, Barometric Condenser Vacuum Pump, (VACUUM PUMP), operating.	PRO
	[S55.2.A 4.5.7] ENSURE 10P213, Auxiliary Oil Pump (AUX OIL PUMP), operating.	PRO
	[ARC MCR 112 E-5] Recognize excess flow check valve actuated and send an operator to investigate at 10C218 local panel.	PRO/RO
	[ARC MCR 002 A-1] Recognize partial CR HVAC RAD isolation and reset the isolation per S78.7.A	PRO
Lead Evaluator (or designee) Notes: S78.7.A, Control Room HVAC System Restoration From An Isolation, directs to reset the partial isolation due to a temporary loss of power, at the MCR 00C681 panel.		
	[S78.7.A 4.3.1] PLACE the desired following Control Room Isolation Valve Reset Keylock Switches to "RESET" <ul style="list-style-type: none"> • HS-78-017D, RESET D 	PRO
	[S78.7.A 4.3.2] ENSURE the desired following Control Room Isolation Valve Trip Switches to "NOR" <ul style="list-style-type: none"> • HSS-78-017D, TRIP D 	PRO



4. EVENT - 4 INADVERTANT DIV 4 LOCA SIGNAL / '1D' RHR PUMP FAILS

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger # 3** when directed by Lead Evaluator, to initiate Small Coolant Leak in the Drywell.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4. EVENT - 4 INADVERTANT DIV 4 LOCA SIGNAL / '1D' RHR PUMP FAILS		
	[S78.7.A 4.3.3] PLACE the desired Control Room Isolation Valve Reset Keylock Switches to "AUTO" <ul style="list-style-type: none"> HS-78-017D, RESET D 	PRO
	Recognize D14 D/G is running and send an EO to perform running checks	PRO
	[ARC MCR 004 B-1] Recognize loss of '1B' Drywell Chiller	PRO
	Enter OT-101 on rising Drywell Pressure	SRO
	[OT-101, 3.1] ESTABLISH Drywell pressure as a Critical Parameter	Crew
	[OT-101 Att 3 2] IF the Drywell Chiller is tripped PLACE a Drywell Chiller in-service using S87.1.A Appendix 1.	PRO
	[S87.1.A App1 2.1] PLACE 1BK111 Drywell Chiller (CHILLER) to STOP (Green Flagged).	PRO
Lead Evaluator (or designee) Notes: S87.1.A, Appendix 1, Startup Of Standby/Tripped Drywell Chilled Water Hardcard, directs to restart the Drywell Chilled Water System due to a temporary loss of power, at the MCR 10C681 panel.		
	[S87.1.A App1 2.2 and 2.3] PLACE DW Chilled water pumps 1A-P161 and 1B-P161 to STOP.	PRO
	[S87.1.A App1 4.0] PLACE 1BK111, "D/W Chiller" (CHILLER) for oncoming Drywell Chiller in "START."	PRO
	[S87.1.A App1 4.0] ENSURE 1A-P161 and 1B-P161 in RUN.	PRO
	Recognize '1D' RHR Pump failed to Auto start on LOCA signal	PRO
	Manually start of '1D' RHR Pump (Malfunction)	PRO
	Recognize RWCU is Out of Service and contact Chemistry to perform conductivity sampling per TRM 3.4.4	PRO
	Direct Chemistry to perform sampling for Containment Leak Detector INOP	PRO
	Determine Tech Spec LCO's: 3.5.1.c.2 HPCI and '1D' LPCI (8 hours) TRM 4.4.4.c RWCU (4 hour sampling) 3.3.3 action 30 for Div 4 ECCS instrumentation (applicant explains method of identifying instrument(s) and which components affected)	SRO

**5/6. EVENTS 5 - 6 LEAKS IN THE DRYWELL****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger #3** when directed by Lead Evaluator, to initiate Small Coolant Leak in the Drywell.

Ensure **Trigger #4** automatically actuates when RMS taken to SHUTDOWN, to initiate Steam Leak in the Drywell



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5/6.	EVENTS 5 - 6 LEAKS IN THE DRYWELL	
EVALUATORS NOTE: A coolant leak will develop in the Drywell. The coolant leak will result in a plant shutdown. Once the reactor is shutdown the operators will continue to address the containment parameters.		
	Reference ARCs: <ul style="list-style-type: none"> • 112 C-5, DRYWELL EQUIP DRN TK/FLR DRN SUMP LEAKAGE HI FLOW • 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH • 107 F-2, DRYWELL HI / LO PRESS 	RO/PRO
	Re-enter and execute OT-101 on rising Drywell pressure	RO
	[OT-101 3.1] ESTABLISH Drywell pressure as a Critical Parameter	SRO
	[OT-101 3.3] Perform OT-101 Attach #4	PRO
	[OT-101, Att. 4] ENSURE Main Steam Line sample valves closed HV-041-(1F084 and 1F085)	PRO
	[OT-101, Att. 4] ENSURE Recirc sample valves closed HV-043-(1F019 and 1F020)	PRO
	[OT-101, Att. 4] (at panel 10C602) PRO secures and isolates RWCU (time permitting) <ul style="list-style-type: none"> • SECURE operating RWCU pump(s) (Already secured) • ENSURE the following valves closed: <ul style="list-style-type: none"> • HV-C-044-1F033 using HC-044-1R606, FL • HV-44-1F001, INBD • HV-44-1F004, OUTBD • HV-44-1F100, BOTTOM HEAD DRAIN • HV-44-1F105, INLET FLOW • ENSURE Main Steam Line drains closed <ul style="list-style-type: none"> • HV-41-1F016, Steam Drain (INBD) • HV-41-1F019, Steam Drain (OUTBD) 	PRO
	Direct GP-4 rapid plant shutdown (time permitting)	SRO
	Transfer House Loads per S91.6.B (time permitting)	PRO
Lead Evaluator (or designee) Notes: S91.6.B Appendix 1, Transferring House Loads To S/U Buses Hard Card, directs the operator to perform the following at panel 10C654, for the 11 Aux Bus and the 12 Aux Bus. (time permitting)		



5/6. EVENTS 5 - 6 LEAKS IN THE DRYWELL

Simulator Operator Instructions

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Ensure **Trigger # 4** automatically actuates when RMS taken to SHUTDOWN, to initiate Steam Leak in the Drywell



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5/6.	EVENTS 5 - 6 LEAKS IN THE DRYWELL	
	[S91.6.B APPENDIX 1] PLACE "BKR SYNC" switch, in "ON" for the selected 11(12) Aux Bus Start-up feeder breaker.	PRO
	[S91.6.B APPENDIX 1] ENSURE INCOMING AND RUNNING voltmeter read less than 8 volts difference.	PRO
	[S91.6.B APPENDIX 1] CLOSE the selected 11(12) Aux Bus Start-up feeder breaker.	PRO
	[S91.6.B APPENDIX 1] VERIFY the associated Aux feeder BKR is tripped.	PRO
	[S91.6.B APPENDIX 1] PLACE "BKR SYNC" switch in "OFF".	PRO
	[S91.6.B APPENDIX 1] FLAG 11 (12) Aux Bus BKR control switches to correspond to actual Brk position.	PRO
	Reduce Recirc Flow to Minimum (time permitting)	RO
	Manually scram reactor before DW pressure reaches 1.68 psig	RO
	Place Mode Switch to Shutdown	RO
	[T-101 RC-6] Insert SRMs AND IRMs	RO
	Enter/Re-enter T-102 and T-101 when Drywell pressure exceeds 1.68 psig	SRO
	[OT-101 3.5] Trip both Recirc pumps when Drywell pressure exceeds 1.68 psig	RO
	[T-101 RC/Q-2] Ensure Turbine trip and Gen lockout	PRO
	[T-101 RC/L-7] Restore and maintain RPV level between +12.5" and +54"	PRO
	[T-101 RC/P-1] Stabilize RPV pressure below 1096 psig	PRO
	[T-101 RC-5] Verify isolations for RPV level <+12.5" and >1.68 psig Drywell pressure	PRO/RO



5/6. EVENTS 5 - 6 LEAKS IN THE DRYWELL

Simulator Operator Instructions

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Ensure **Trigger # 4** automatically actuates when RMS taken to SHUTDOWN, to initiate Steam Leak in the Drywell



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5/6. EVENTS 5 - 6 LEAKS IN THE DRYWELL		
EVALUATORS NOTE: When the plant is shutdown a steam leak into the drywell occurs. The crew will enter and execute T-102, Primary Containment Control and utilize RHR system to spray the Suppression Pool and Drywell.		
	Establish Suppression Pool Temperature as a Critical Parameter	CRS
	CRS directs depressurizing reactor to 600 psig to reduce leak input	SRO
	[OT-200 Att. 11] Depressurizes to 600 psig using EHC	RO
Lead Evaluator (or designee) Notes: OT-200 Attachment 11, EHC Pressure Control during a Plant Event Hard Card directs the operator to control Rx pressure using the EHC System at panel 10C653.		
	[OT-200 Attach 11] ENSURE PRESSURE CONTROL screen is selected.	PRO/RO
	[OT-200 Attach 11] ENSURE MANUAL RATE button is selected (blue).	PRO/RO
	[OT-200 Attach 11] ENTER desired TARGET RATE (1.0 psig is recommended for transients).	PRO/RO
	[OT-200 Attach 11] SELECT "ENTER".	PRO/RO
	[OT-200 Attach 11] ENTER desired TARGET PRESSURE setpoint.	PRO/RO
	[OT-200 Attach 11] SELECT "ENTER".	PRO/RO
	[OT-200 Attach 11] SELECT "GO".	PRO/RO
	[T-102 DW/T-5] When Drywell temperature exceeds 145 °F, as indicated on panel 10C601, verify DWCW Head Tank level, then bypass isolations and maximize Drywell cooling (time permitting)	PRO

**7/8. EVENTS 7 – 8 '1B' RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 5 min after requested to investigate the trip of the '1B' RHR Pump
report: "The '1B' RHR Pump breaker has tripped on 'B' Phase Overcurrent."

At Lead Evaluators discretion, **IF** DW Spray has been initiated with '1A' RHR and PSP is NOT
being approached. **THEN** trip '1A' RHR Pump.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7/8.	EVENTS 7 – 8 '1B' RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD	
EVALUATOR NOTE: The following steps are performed as directed by T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation.		
	[T-102 PC/P-7] BEFORE Supp Pool pressure reaches 7.5 psig Spray the Suppression Pool per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation	PRO
	Recognize '1B' RHR pump trips (Malfunction)	PRO
	Investigate trip of '1B' RHR pump	PRO
	[T-225 4.2.4] ENSURE the following valves open: <ul style="list-style-type: none"> HV-51-1F047A(B), "1A(B) RHR Htx Shell Side Inlet Vlv" (INLET) HV-51-1F003A(B), "1A(B) RHR Htx Shell Side Outlet Vlv" (OUTLET) HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS) 	PRO
	[T-225 4.2.5] OPEN HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B)) AND OBTAIN flow of 8,000 to 8,500 gpm as indicated on FI-51-1R603A(B), FL	PRO
	Recognize HV-51-1F024A, "1A RHR Pp Full Flow Test Return Vlv" tripped on thermals and requires to be manually opened	PRO
	Override HV-51-1F024A thermals by holding handswitch, HS-51-1F024A, in the OPEN position (Malfunction)	PRO
	[T-225 4.2.6] OPEN HV-51-1F027A(B), "1A(B) RHR Supp Pool Spray Line PCIV" (SUPP POOL SPRAY)	PRO

**7/8. EVENTS 7 – 8 '1B' RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At Lead Evaluators discretion, **IF** DW Spray has been initiated with '1A' RHR and PSP is NOT being approached. **THEN** trip '1A' RHR Pump.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7/8.	EVENTS 7 – 8 ‘1B’ RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD	
EVALUATOR NOTE: The following steps are normally performed as directed by S12.1.A, RHR Service Water System Startup as directed from T-225. For this scenario RHRSW should have been placed in service for the open SRV (Event 2). If required reference page 23 of this SEG for RHRSW being placed in service.		
	[T-225 4.2.8] PLACE RHR Service Water Pump for RHR Heat Exchanger to be used in service per S12.1.A, RHR Service Water System Startup	PRO
	[T-225 4.2.9] CLOSE HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS)	PRO
	[T-102 PC/P-12] WHEN SAFE side of the Pressure Suppression Pressure (PSP) curve (Curve PC/P-3) cannot be maintained, enter T-112	CRS
	[T-112 EB-7] IF low press ECCS auto starts, prevent injection from core Spray and LPCI pumps NOT required for core cooling.	CRS/PRO
	[T-112 EB-12] DIRECT Open all 5 ADS valves	CRS
	[T-112 EB-12] PERFORM Open all 5 ADS valves (Critical Task)	RO/PRO
	[T-102 PC/P-10] –or– [T-102 DW/T-8] Spray the Drywell per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation	PRO
	[T-225 4.5.1] ENSURE HV-51-1F004A(B), "1A(B) RHR Pump Suction PCIV" (SUCTION A(B)), open	PRO
	[T-225 4.5.2] ENSURE the following valves closed: <ul style="list-style-type: none"> HV-51-1F006A(B), "1A(B) RHR Pp S/D Clg Suct Intertie Vlv" (SUCTION A(B)) HV-51-1F015A(B), "1A(B) Shutdown Clg Injection PCIV" (OUTBOARD A(B)) HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD A(B)) HV-51-1F017A(B), "1A(B) RHR LPCI Inj PCIV" (OUTBOARD A(B)) 	RO/PRO



7/8. EVENTS 7 – 8 '1B' RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD

Simulator Operator Instructions

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7/8.	EVENTS 7 – 8 '1B' RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD	
	[T-225 4.5.4] ENSURE the following valves open: <ul style="list-style-type: none"> • HV-51-1F047A(B), "1A(B) RHR Htx Shell Side Inlet Vlv" (INLET) • HV-51-1F003A(B), "1A(B) RHR Htx Shell Side Outlet Vlv" (OUTLET) • HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS) 	PRO
	[T-225 4.5.5] TRIP Reactor Recirc Pumps	PRO
	[T-225 4.5.6] REMOVE Drywell Cooling Fans from service by placing all 16 Drywell Cooler Fan switches to "OFF"	PRO
	[T-225 4.5.7] IF Drywell High Pressure AND LOCA signals are present, THEN GO TO step 4.5.11	PRO
	[T-225 4.5.11] OPEN HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B)), AND OBTAIN flow of 9,250 to 10,500 gpm as indicated on FI-51-1R603A(B), FL	PRO
	[T-225 4.5.12] OPEN only one loop HV-51-1F021A(B), "1A(B) RHR Cntmt Spray Line Inboard PCIV" (INBOARD)	PRO
	[T-225 4.5.13] REQUEST SSV verify drywell temperature AND drywell pressure are on SAFE side of Drywell Spray Initiation Limit Curve per T-102, Primary Containment Control OR SAMP-1, RPV and Primary Containment Flooding Control	PRO
	[T-225 4.5.14] Throttle OPEN only one loop HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD) to initiate spray AND OBSERVE raising flowrate as indicated on FI-51-1R603A(B), FL.	PRO
	[T-225 4.5.15] MONITOR Drywell pressure.	PRO
	[T-225 4.5.16] (Critical Task) Throttle OPEN HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD) AND Fully CLOSE HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv", (SUPP POOL CLG A(B)) AND OBTAIN flow of 9,250 to 10,500 gpm as indicated on FI-51-1R603A(B), FL	PRO

**7/8. EVENTS 7 – 8 '1B' RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD****Simulator Operator Instructions**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 10 min after FSSV or EO action requested for SE-10 Floor Actions

Load **All SE-10 Floor Actions with Time Delays Scenario** and

report: The status of individual resets as requested OR when all resets are timed out

report: All SE-10 Floor Actions are complete



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7/8.	EVENTS 7 – 8 ‘1B’ RHR PUMP TRIP / HV-51-1F024A THERMAL OVERLOAD	
	[T-225 4.5.18] CLOSE HV-C-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Valve" (HEAT EXCHANGER BYPASS).	PRO
EVALUATORS NOTE: The following steps are from SE-10, LOCA.		
	Recognize LOCA signal when RPV pressure drops below 455 psig	Crew
	Enter SE-10, LOCA	Crew
	[SE-10 3.1] PLACE the following to "CLOSE" <ul style="list-style-type: none"> 52-20224/CS, "D*24 Safeguard L.C. D*24-G-D MCC Bkr" (SAFEGUARDS B), on *BC661 52-20124/CS, "D*14 Safeguard L.C. D*14-G-D MCC Bkr" (SAFEGUARDS A), on *AC661. 	RO
	[SE-10 3.2] PLACE to "RESET": <ul style="list-style-type: none"> 43-22322/CS, "Div. III Non SFGD Instr. Panel" (INST AC 201 CONTROL PNL), on *CC661 	RO
	Dispatch Equipment Operator to perform SE-10-1 field actions	PRO
	Restore RPV Level to +12.5" to 54" with Condensate and/or Low Pressure ECCS	RO/PRO
<p>EVALUATORS NOTE: The scenario may be terminated when an Emergency Depressurization has been performed, Drywell Spray is in service, control rods inserted and reactor level is restored. After the scenario is terminated, direct the SRO to make the highest EAL classification for the scenario.</p> <p>EAL Classification NOT Applicable during ILT NRC initial exams as determined by Lead Examiner.</p> <p>EAL: FA-1 declaration due to: (RC.3.1 and RC.3.2)</p> <ul style="list-style-type: none"> Drywell pressure > 1.68 psig <p>AND</p> <ul style="list-style-type: none"> Drywell pressure rise is due to RCS leakage 		



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
	<p>Rough Log(s) Maintained by the crew with the following items noted:</p> <ul style="list-style-type: none">• Rod (46-15) uncoupled• '1N' SRV• DIV 4 LOCA• '1D' RHR Pump failed to auto start• Reactor Scram• ATWS• 1.68 Drywell Pressure• RPV Level < +12.5" and Drywell Pressure > 1.68 psig Isolations verified• HV-51-1F024A thermal overload• '1B' RHR Pump Trip• FA-1 declaration due to: (RC.3.1 and RC.3.2, or RC.4.2)<ul style="list-style-type: none">• Drywell pressure > 1.68 psig <p>AND</p> <ul style="list-style-type: none">• Drywell pressure rise is due to RCS leakage <p>OR</p> <ul style="list-style-type: none">• Emergency RPV Depressurization is required	Crew
	<p>Critique any instances where fundamentals were not properly adhered to, and whether in-the-moment coaching was provided by Supervision. Provide examples of effective Leadership and areas for improvement.</p>	SM

**Attachment 1
Simulator Operator Response Times**

Procedure	Performance	Response Time (Minutes)
T-209	Injection from the Standby Liquid Control Storage Tank with the RCIC System	45
T-212	Bypassing SQUIB Valves for SLC Injection	19
T-215	De-energization of Scram Solenoids	7
T-216	Manual Isolation and Vent of Scram Air Header	7
T-217	RPS/ARI Reset and Backup Method of Draining Scram Discharge Volume	17
T-219	Maximizing CRD Cooling Water Header Flow during ATWS Conditions	23
T-221	MSIV Isolation Bypass Procedure	11
T-225	Startup and Shutdown of Suppression Pool and Drywell Spray Operations	8
T-240	Maximizing CRD flow after Shutdown During Emergency Conditions	8
T-245	RPV Injection from RHR S/D Cooling	12
T-248	Injection from SLC Test Tank to RPV	15
T-251	Establish a HPCI Injection flow Path VIA Feedwater Only	6
T-270	Terminate and Prevent Injection into the RPV	7
T-290	Instrumentation Available for T-103 SAMP-2	5
S46.7.A (4.2.1)	Control Rod Drive Hydraulic System Operation Following Reactor Scram (Securing CRD flow to the Reactor - Close 46-1F060, CRD Water Pressure Control Station Inlet Valve)	7
SE-10-1 Resets and Floor action	Breaker Reset Following LOCA (Also reset ARMs, RHRSW Rad Monitor and RDCS)	10

FSSV: _____

Page 48 of 49

XI. CREW PREBRIEF INSTRUCTIONS

Unit 2 is in OPCON 1 at 100% power

Unit 1 is in OPCON 1 at 90% power

Specific Plant Conditions are as Follows:

- Reactor power reduced to 90% due to Control Rod pattern adjustment

Inoperable/Out of Service Equipment and Estimated Time of Return (ETR):

- '1B' EHC pump is blocked for replacement
- Repairs are scheduled to be complete in 2 hours

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Raise Reactor power to 100%
- Continue replacement of '1B' EHC pump and perform PMT when complete

Documents Provided:

- ReMA and Control Rod Move Sheet
- GP-5 Attachment 1
- S73.1.A, Normal Operation of the Reactor Manual Control System



CODE NO:	SEG-5006E	REV NO:	000
AUTHOR:	T. A. BYERS	APPROXIMATE RUN TIME:	70 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	1/06/17
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: Todd Byers/S/ Date: 1/04/17
Training Instructor - Signature

Reviewed By: N/A for ILT NRC Date: N/A
Program (ILT or LOR) Lead - Signature

Reviewed By: A. W. Hightower/S/ Date: 1/05/17
EP (as appropriate) - Signature

Reviewed By: N/A Date: N/A
RE (as appropriate) - Signature

Approval: Brian Devine/S/ Date: 1/06/17
OPS Manager - Signature

Approved For Use: Daniel Semeter/S/ Date: 1/06/17
Training Manager - Signature

Appendix D
Scenario Outline
Form ES-D-1

Facility: Limerick 1 & 2 Scenario No.: SEG-5006E Rev 0 Op-Test No.: 1

Examiners: _____	Operators: _____
_____	_____
_____	_____
_____	_____

Initial Conditions:

Unit 1 is at 100 % power. Unit 2 is at 100 % power.

Turnover:

Maintain 100% Reactor power
Place '1C' SLC Pump in Automatic Injection Mode per S48.1.A, Standby Liquid Control
System Set-Up For Normal Operation, step 4.7 in preparation of a 1B SLC System Outage
Window.

Event No.	Malfunction Number	Event Type*	Event Description
1.	MSL198B C41-S1C	N-PRO TS-SRO	Align '1C' SLC Pump for automatic operation
2.	MPR020C	C-RO	#3 APRM fails upscale (Malfunction)
3.	MRR430A	R-RO C-PRO TS-SRO	'1A' Reactor Recirc Pump shaft seizure resulting in Recirc Pump trip (Abnormal)
4.	MFH563C	C-PRO	Low Pressure FWH Level Transient (Abnormal)
5.	MPR003A	C-RO	Core Power Oscillations
6.	MFV252A MRR440A	M-ALL	LOCA Inside Containment (T-111)
7.	MRC457B	C-PRO	RCIC controller in AUTO failure (Malfunction)
8.	MAD148D	C-PRO	'1M' SRV fails to open (Malfunction)
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

**I. QUANTITATIVE ATTRIBUTES****A. ILT**

Target Quantitative Attributes (Per Scenario; See ES-301Section D.5.d)	ACTUAL NUMBER
1. Malfunctions after EOP entry (1-2)	2
2. Abnormal events (2-4)	2
3. Major transients (1-2)	1
4. EOPs entered/requiring substantive actions (1-2)	2
5. EOP contingencies requiring substantive actions (0-2)	2
6. EOP based Critical tasks (2-3)	4

Review TQ-AA-151 attachment 5 and ES-301-5 for individual position requirements for scenario and scenario set



- II. **PURPOSE:** Systematically evaluate individual and team performance to identify areas for improvement. Critical Tasks and Assessment Items from this evaluation guide are to be used to assess crew and individual performance and as input into a 4.0 Crew Critique Process.

III. **SIMULATOR EVALUATION GUIDE OBJECTIVES:**

- A. The following evaluation objectives apply to the Crew (C), Shift Manager (SM), Control Room Supervisor (S), Unit Reactor Operator / Plant Reactor Operator (R), or Incident Assessor / Shift Technical Advisor (A).
1. The general condition for each of the evaluation objectives will be "Given the plant conditions and sequence of events in the Simulator Evaluation Guide (SEG)".
 2. The general acceptable evaluation objective criteria for each of the evaluation objectives will be "To perform effectively as an individual and contribute to successful crew performance in accordance with appropriate reference plant procedures and Operations Expectations, Fundamentals and Strategies".
 3. Specific UNSAT evaluation objective criteria will be consistent with TQ-AA-155, Conduct of Simulator Training and Evaluation with applicable forms and job aids.
 4. During performance of this Simulator Evaluation Guide, the individuals and crew should satisfactorily demonstrate the following overall procedure and plant control objectives:
 - Direct and perform actions per OT-104, Unexpected, Unexplained Positive or Negative Reactivity Insertion
 - Direct and perform actions per OT-112, Unexplained/Unexpected Change in Core Flow
 - Direct and perform actions per T-101, RPV Control
 - Direct and perform actions per OT-101, Drywell High Pressure
 - Direct and perform actions per T-102, Primary Containment Control
 - Direct and perform actions per T-111, Level Restoration/Steam Cooling
 - Direct and perform actions per T-112, Emergency Blowdown

**RECORD OF TEMPORARY CHANGES:**

- B. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- C. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- D. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	LORT Approval	Action Tracking	Revision Date

IV. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (e.g for conversion of LSTS to LLORSEG format).

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
Rev000	Initial Issue of Simulator Evaluation Guide Template to revised LSES 5006	07/15/16

Date of Revision - refers to date revision was released for approval

**SCENARIO EVENT AND EVALUATION SUMMARY:**

Event One: Shortly after the crew has assumed responsibility, they will be required to align the '1C' SLC Pump for automatic operation, using S48.1.A, Standby Liquid Control System Set-Up For Normal Operation, and remove the '1B' SLC Pump from service.

Evaluation: Evaluate the crew's ability to perform the procedure and place equipment in service and to evaluate the CRSs ability to apply Tech Spec 3.1.5. for the SLC Pump being removed from service.

Event Two: Shortly after the evolution of placing the '1C' SLC Pump in standby service, APRM #3 will fail upscale.

Evaluation: Evaluate the crew's response to the plant for the failed APRM, reference Tech Spec 3.3.1 and place the inoperable APRM in the BYPASS position.

Event Three: After the failed APRM issue is resolved, the '1A' Recirc Pump shaft will seize resulting in a Recirc Pump trip and reduction in core flow and reactor power.

Evaluation: To evaluate the crew's ability to address the sudden change in reactor power by entering and executing OT-104, Unexpected/ Unexplained Positive or Negative Reactivity Insertion, and OT-112, Unexpected/ Unexplained Change In Core Flow, for the tripped Recirc Pump. The crew will isolate the failed Recirc Pump and insert Control Rods to exit the Restricted Region of the Power/Flow Map. The crew will also execute GP-5 to stabilize the plant.

Event Four: As the crew is recovering from the tripped Recirc Pump and attempting to exit the
and Five: Restricted Region of the Power/flow Map a low pressure FWH level transient will occur requiring re-entry into OT-104. As the crew addresses the transient Thermal Hydraulic Instabilities (THI) will occur.

Evaluation: To evaluate the crew's ability to diagnose the positive reactivity addition from the loss of FWH while in the Restricted Region of the Power/Flow Map and to detect/suppress core THI, by monitoring LPRM, APRM and period meters to detect indications for signs of core THI. The crew will shutdown the plant due to the Thermal Hydraulic Instabilities.

SCENARIO EVENT AND EVALUATION SUMMARY cont'd

Event Six: After the reactor is shutdown, a Feedwater line break will occur resulting in a loss of all feedwater to the RPV followed by a progressively rising RPV coolant leak into the drywell.

Evaluation: To evaluate the crew's ability to take appropriate actions to control RPV level using T-101, RPV Control, and eventually T-111, Level Restoration/Steam Cooling. The crew will start ECCS Pumps in preparation to maintain RPV level following an RPV Emergency Blowdown. Also to maintain Containment parameters, enter T-102, Primary Containment Control and, as RPV level drops due to the loss of high pressure feed, enter T-112, Emergency Blowdown to assure adequate core cooling with the low pressure injection systems.

Event Seven: During reactor RPV level restoration the RCIC flow controller will fail in automatic.

Evaluation: To evaluate the PROs response to the RCIC system failure and diagnose that RCIC is available only when manual control is taken.

Event Eight: As RPV level decreases to -161" the crew performs the T-112, Emergency Blowdown allowing low pressure ECCS systems to maintain RPV level. To accomplish the blowdown, five ADS valves are selected to be opened, however the '1M' SRV will fail to open from the handswitch, and require an alternate SRV be opened to ensure 5 SRVs are opened.

Evaluation: Evaluate the crew's ability to identify failure of the '1M' SRV to open, and open a non-ADS valve to ensure 5 SRV's are open.

Termination Point: The scenario may be terminated when the Emergency Blowdown is complete, RPV level is restored to normal band with ECCS systems and Containment Spray is in service.

**V. REFERENCES****A. Training Procedures**

1. TQ-LG-150, Limerick Operator Training Programs
2. TQ-AA-151, ILT Certification and NRC Examination Development and Administration
3. TQ-AA-155, Conduct of Simulator Training and Evaluation

B. Annunciator Response Cards (ARC)

1. 102 F-1, 1C FEEDWATER HEATER HI LEVEL
2. 102 F-2, 2C FEEDWATER HEATER HI LEVEL
3. 102 G-4, FW HTRS 1&2 HI-HI LEVEL LP HTR STRING ISOLATION
4. 107 A-3, SLCS PUMP AUTO-START STATUS TROUBLE
5. 107 H-2, REACTOR HI/LO LEVEL
6. 107 I-2, VIBRATION ALARM ALERT
7. 108 A-4, OPRM TRIPS ENABLED
8. 108 B-3, APRM UPSCALE TRIP/INOP
9. 108 F-3, ROD OUT BLOCK
10. 108 B-4, APRM UPSCALE
11. 108 A-3, OPRM PRE-TRIP
12. 108 I-4, STANDBY LIQUID SQUIB VALVE LOSS OF CONTINUITY
13. 108 I-1, 1A/1B/1C STANDBY LIQUID PUMP MOTOR OVERLOAD/LOSS OF POWER
14. 111 B-1, 1A RECIRC ASD TRIPPED
15. 111 B-2, 1A RECIRC ASD MAJOR FAILURE
16. 111 D-2, 1A RECIRC PUMP MOTOR HI VIBRATION
17. 111 E-2, 1A RECIRC ASD 13 KV BKR TRIP

C. System Procedures (S)

1. S48.1.A, Standby Liquid Control System Set-up For Normal Operation.
2. S12.1.A, RHR Service Water System Startup.

D. General Procedures (GP)

1. GP-5 App. 2, Rx Maneuvering Without Shutdown

E. Off Normal Procedures (ON)**F. Operating Transient Procedures (OT)**

1. OT-104, Unexpected, Unexplained Positive or Negative Reactivity Insertion
2. OT-112, Unexpected/Unexplained Change in Core Flow
3. OT-101, Drywell High Pressure

G. Event Procedures (E)**H. Special Event Procedures (SE)**

1. SE-10, LOCA

I. Surveillance Test and Routine Test Procedures (ST and RT)

**REFERENCES cont'd**

- J. Technical Specifications and TRM (TS)
 - 1. 3.4.1.1.a
 - 2. 3.1.5
 - 3. 3.3.1
 - 4. 3.3.6
 - 5. 3.7.3.a
- K. Transient Response Implementation Procedures (T-100 series)/SAMPs
 - 1. T-101, RPV Control
 - 2. T-102, Primary Containment Control
 - 3. T-111, Level Restoration/Steam Cooling
 - 4. T-112, Emergency Blowdown
- L. TRIP 200 Series Procedures
 - 1. T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions
 - 2. T-225, Startup And Shutdown Of Suppression Pool And Drywell Spray Operation
- M. EP-AA-1008, Limerick, Radiological Emergency Plan Annex for Limerick Generating Station
- N. Administrative Procedures
 - 1. OP-AA Procedures
 - a. OP-AA-1, Conduct of Operations
 - b. OP-AA-20, Conduct of Operations Process Description
 - c. OP-AA-101-111-1003, Operations Department Standards and Expectations
 - d. OP-AA-101-113, Operations Fundamentals
 - e. OP-AA-101-113-1006, 4.0 Crew Critique Guidelines
 - f. OP-AA-106-101-1006, Operational Decision Making Process
 - 2. OP-LG Procedures
 - a. OP-LG-101-111-1000, Licensed Operator Duties
 - b. OP-LG-102-106, Operator Response Time Program at Limerick
 - c. OP-LG-103-102-1000, Human Performance Continuing Good Practices
 - d. OP-LG-103-102-1002, Strategies for Successful Transient Mitigation
 - e. OP-LG-108-101-1001, Simple Quick Acts / Transient Acts
- O. Current Shift Night Orders Forced Outage Plan
- P. INPO Significant Operating Experience Reports (SOER), Significant Event Reports (SER) and INPO Event Reports (IER)
 - 1. IER-L1 11-3, Weaknesses in Operator Fundamentals
 - 2. SER 3-05, Weakness in Operator Fundamentals
 - 3. SOER 10-02, Engaged Thinking Organizations
 - 4. INPO 15-004, Operator Fundamentals



VI. PREBRIEF INSTRUCTIONS

Unit 2 is in OPCON 1 at 100 % power

Unit 1 is in OPCON 1 at 100 % power

Specific Plant Conditions are as Follows:

- None

Inoperable/Out of Service Equipment and Estimated Time of Return (ETR):

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Place '1C' SLC Pump in Automatic Injection Mode per S48.1.A, Standby Liquid Control System Set-Up For Normal Operation, step 4.7 in preparation of a '1B' SLC System Outage Window.
- An EO has been Pre-briefed and is available in the field.

Documents Provided:

- S48.1.A, Standby Liquid Control System Set-Up For Normal Operation

**VII. DIRECTIONS FOR EVALUATION PREPARATION****A. INITIAL PREPARATION**

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete TQ-AA-155, Operator Training Programs Attachment 02, Evaluated Scenario Administration Checklist.
	Complete TQ-LG-201-0113, Limerick Training Department Simulator Examination Security Actions Checklist

B. SIMULATOR SETUP

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to the Pre-loaded Cycle IC developed for the Evaluation OR Reset the simulator to designated base load IC-3 AND Load scenario file SEG5006E Rev000.scn <ul style="list-style-type: none">• Verify that all Malfunctions, Remotes, Overrides, Annunciators and Triggers are properly loaded OR <ul style="list-style-type: none">• Manually enter the Malfunctions, Remotes, Overrides, Annunciators and Triggers per the Scenario Generator Screen Shots:
	Simulator Operator (Driver) perform the following: <ul style="list-style-type: none">• Momentarily place simulator in RUN• Acknowledge and clear all spurious alarms• Place the simulator back into FREEZE• Place appropriate tags and equipment in required condition / status.

C. MALFUNCTION/REMOTE/OVERRIDE/ANNUNCIATORS FUNCTION TIME TABLE

Interventions Summary

Hide Malfunctions - 9

Hide Remotes - 8

Show Overrides - 1

Show Annunciators - 1

Malfunction Summary

Mal ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MSL198B		SLC Pump 1B Loss of Control Power	False	False				
MPR020C		APRM Channel 3 Fails to Selected Value	100.1009	125.0000	00:00:10	00:00:15		2
MPR430A		Reactor Recirculation Pump 1A Seizure	False	True		00:00:15		3
MPR003A		In-Phase Core Power Oscillations	0.00	23.00000	00:04:00	00:01:00		5
MPR440A		Recirculation Loop A Rupture	0.00	1.500000	00:10:00	00:03:00		6
MFw252A		FW Line A Break Inside Primary Containment	0.00	100.0000	00:01:00	00:02:00		6
MRC457B		ROIC Flow Controller Fails Low	True	True				
MAD148D		Relief Valve (F013M) Fails (Closed)	True	True				
MFH563C		Feedwater Heater 11C Level Sensing Line Fails High	False	True		00:01:00	00:00:25	4

☐ Timer Pause

Delete All

Active Pending

Remotes Summary

Rem ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Trig
RRE148		Refuel Floor To SGTS Isolation damper SGD76-206-3	CLOSE	CLOSE			
RRE156		Unit 2 Refuel Floor Isol Sw HS76-281A	RESET	RESET			
RRE157		Unit 2 Refuel Floor Isol Sw HS76-281B	RESET	RESET			
RRM032		SPE & MVP Rad Monitor RE-160 Skid 10S408 Enable	DISABLE	DISABLE			
RPR061		APRM Channel 1 Gain Adjustment Factor	8654	8654			
RPR063		APRM Channel 3 Gain Adjustment Factor	8570	8570			
RPR062		APRM Channel 2 Gain Adjustment Factor	8710	8710			
RPR064		APRM Channel 4 Gain Adjustment Factor	8490	8490			

☐ Timer Pause

Clear List

Active Pending

Interventions Summary

Show Malfunctions - 9

Show Remotes - 8

Hide Overrides - 1

Hide Annunciators - 1

Override Summary

Tag ID	Description	Position / Target	Actual Value	Override Value	Rmptime	Actime	Dactime	Trig
C41-S1C	1C Standby Liquid Control Pump Ind Lamps	CONTINUITY	ON	OFF				1

☐ Timer Pause

Delete All

Active Pending

Annunciator Summary

Window	Description	Tagname	Override Type	OVal	AVal	Actime	Dactime	Trig
I4	Standby Liquid Squib Valve Loss of Continuity	108 REACTOR I4	ON	ON	OFF			1

☐ Timer Pause


Delete All

Active Pending



D. EVENT TRIGGERS ASSIGNMENT

1. Timers should be used on event triggers where possible for time validation
2. Timing of event triggers may be altered by the Lead Evaluator (or designee)
3. Verify triggers are actuated automatically as designed or manually initiate the trigger when the initiating action has occurred.
4. Inform Lead Evaluator (or designee) of expected plant response prior to actuation of each trigger.
5. Trigger #1 is manually initiated at Lead Evaluator (or designee) direction after the crew assumes responsibility for operation.

	TRIGGER / TIME	MALFUNCTION / EVENT	DESCRIPTION
	1	Manual	Remove power from XV-48-1F004C
	2	Manual	Initiates APRM #3 Upscale
	3	Manual	Initiates '1A' Recirc Pump trip
	4	Auto / ZDIB1(3864) ZDIB1(3858)	HV-043-1F031A or 1F023A to Close Initiates Low Pressure FWH Level Transient
	5	Auto / FWZR607R <= 20852	Total Steam Flow reduced to 10 Mlbm/hr Initiates THI
	6	Auto / ZRPS1SDN	RMS to SHUTDOWN Initiates Feedwater Line rupture / DW leak

Event Trigger Builder / Viewer

Favorites Triggers

Trigger #	Trigger Text
1	
2	
3	
4	ZDIB1(3864) ZDIB1(3858)
5	FWZR607R <= 20852
6	ZRPS1SDN
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Operators:

Arithmetic:

- * Multiplication
- / Division
- + Addition
- Subtraction

Relational:

- > Greater than
- >= Greater than or equal
- < Less than
- <= Less than or equal
- = Equal to
- != Not equal to

Logical:

- && And
- || Or
- ! Not

Other:

- { Open Paren
- } Close Paren

Trigger Now Clear Clear All Accept Exit



E. EQUIPMENT REPORTS AND LEAD EVALUATOR (OR DESIGNEE) OPERATIONS

1. Scripted Activity Reports should be followed with adherence to Operations Communication standards of performance.
2. The T-200 procedure reference book should be used for familiarity of reports to aid in operator prompting and expected communications.
3. The Lead Evaluator (or designee) should be informed if any event is not reported as scripted due to lack of Operator request.
4. The Standard Equipment Operator Response Times are per Attachment 1
5. A record of communications from the MCR and to the MCR will be maintained by the Simulator Operator using **Attachment 2**.
6. The OCOEE Simulator Operator Station P&IDs, Floor Plans and Panels should be used by the Simulator Operator as reference information when making reports to the MCR for plant parameters which are not driven by a communications script. Examples include: ARMs, Blowout Panel status, Reactor Building Area Temperatures and Pressures, RMMS, Turbine Enclosure parameters etc.

**X. CREW CRITICAL TASKS**

- A. Critical Tasks are based on the current Crew Critical Task List revision, NUREG 1021 and TQ-AA-150 requirements.

1. **T-111.4 Inhibit Automatic ADS**
K/A 218000 A2.06 4.2/4.3

Standard: Prevent automatic initiation of ADS prior to exceeding -129" reactor level and ADS logic being completed.

SAT/UNSAT

- 2.a **T-112.1 Perform emergency blowdown per T-112.**
K/A 295031 EA1.07 3.7/3.7
K/A 295031 EA2.04 4.6/4.8

Standard: When RPV level drops below TAF, open 5 SRV's.

SAT/UNSAT

OR

- 2.b **T-102.2 Perform emergency blowdown per T-112.**
K/A 295024 EA1.08 3.9/3.9
K/A 295024 EA2.04 3.9/3.9

Standard: When Suppression Pool Pressure cannot be maintained below the Pressure Suppression Pressure (PC/P-3) curve and before Drywell pressure exceeds 55 psig, open 5 SRVs.

SAT/UNSAT

3. **T-111.3 Maintain RPV level greater than the TAF.**
K/A 295031 EA1.01 4.4/4.5
K/A 295031 EA1.02 4.5/4.5
K/A 295031 EA1.05 4.3/4.3
K/A 295031 EA1.11 4.1/4.1
K/A 295031 EA1.12 3.9/4.1

Standard: Operate injection systems to maintain reactor level greater than the TAF or enter T-112, perform an emergency blowdown, and when pressure permits, inject with low pressure ECCS to restore RPV level above TAF.

SAT/UNSAT

**CREW CRITICAL TASKS cont'd****4. T-102.1 Spray the Drywell per T-225.**

K/A	295024	EA1.11	4.2/4.2
K/A	295028	EA1.01	3.8/3.9
K/A	295028	EA1.04	3.9/4.0

Standard: When Drywell temperature and pressure are on the SAFE side of curve PC/P-2, spray the Drywell before exceeding 340°F or 55 psig.

SAT/UNSAT

**XI. ASSESSMENT OF CREW PERFORMANCE DURING CONDUCT OF THE DYNAMIC SIMULATOR EVALUATIONS:**

- A. Conduct the Simulator Evaluation Session per TQ-AA-155, Conduct of Simulator Training and Evaluation, Attachment 02, Evaluated Scenario Administration Checklist
- B. Assessment of Crew and Individual performance shall be consistent with OP-AA-20, Conduct of Operations Process Description
- C. Where possible record the time and position responsible for performance of each task or assessment item
- D. Items not performed as expected **SHALL** be discussed in the post performance crew critique
- E. During the performance of the evaluation, the Simulator Evaluators shall **MAINTAIN** notes of observations and information consistent with the timeline
- F. Assessment items with the ⌚ symbol indicate a time critical standard for performance
- G. Assessment items with the ⚡ symbol indicate a Probabilistic Risk Assessment (PRA) association with the task
- H. The Simulator Operator will respond with scripted or proceduralized responses when requested by the MCR operators with Procedure completion times requested per **Attachment 1**
- I. The Simulator Operator will also maintain a timeline and record of all reports and requests issued by the MCR personnel with response provided by the simulator operator using **Attachment 2**

**1. EVENT – 1 PLACE '1C' SLC PUMP IN AUTOMATIC INJECTION MODE****Simulator Operator Instructions:**

Inform Floor Instructor prior to each event trigger

An EO has been Pre-briefed and is available in the field for the SLC evolution.

At time 1 min when requested to power down the '1B' SLC Pump insert malfunction MSL198B and

report: Feed breaker for '1B' SLC Pump, D124-R-C-34 is opened.

When requested by RO to remove fuse 2 and fuse 3 from C640 panel per S48.1.A step 4.7.2 and 4.7.3, manually actuate **Trigger # 1** to remove power to C41-S1C XV-048-1F004C Squib Valve, and alarm 108 I-4, Standby Liquid Squib Valve Loss Of Continuity.

Ensure annunciator 108 I-4, Standby Liquid Squib Valve Loss Of Continuity cleared when fuses re-installed, per step 4.7.10 and 4.7.11 of S48.1.A

When requested by RO to install fuse 2 and fuse 3 from C640 panel per S48.1.A step 4.7.10 and 4.7.11, **DELETE - C41-S1C '1C' SLC Pump Indicating Lamps**

AND DELETE - Annunciator Override 108 Reactor I4 (Standby Liquid Squib Valve Loss of Continuity).



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
1.	EVENT – 1 PLACE ‘1C’ SLC PUMP IN AUTOMATIC INJECTION MODE	
Lead Evaluator (or designee) Notes: The crew will be directed to align the ‘1C’ SLC Pump for automatic injection per S48.1.A, Standby Liquid Control System Set-up For Normal Operation, section 4.7. When the 1B SLC Pump is de-energized, annunciator 108 I-1, 1A/1B/1C STANDBY LIQUID PUMP MOTOR OVERLOAD/LOSS OF POWER will be received.		
	[S48.1.A 4.7.1] Direct EO to open ‘1B’ SLC Pump Feed (D124-R-C-34)	PRO
	SRO references Tech Spec 3.1.5 action a for only one pump and corresponding explosive valve OPERABLE	SRO
	[S48.1.A 4.7.2/3] REMOVE fuse F2 and F3 in panel 10C640 (AER) to disarm XV-48-1F004C	PRO
	[S48.1.A 4.7.4/5] OBTAIN key for 1CP208 SLC Injection Pump and PLACE 1CP208 control switch to “NORM” position	PRO
	[S48.1.A 4.7.6] VERIFY annunciator 107 A-3 SLCS PUMP AUTO-START STATUS TROUBLE alarmed	PRO
	[S48.1.A 4.7.7] VERIFY “OVERRIDE (amber) light not Lit	RO
	[S48.1.A 4.7.8] PLACE SS-48-104C-1 switch to “ENABLE” position	RO
	[S48.1.A 4.7.9] VERIFY annunciator 107 A-3 SLCS PUMP AUTO-START STATUS TROUBLE clears	RO/PRO
	[S48.1.A 4.7.10/11] INSTALL fuse F2 and F3 in panel C640 to arm XV-48-1F004C	RO
	The CRS References Tech Spec 3.1.5 and determines 2 SLC pumps and corresponding explosive valves are operable.	SRO



2. EVENT – 2 APRM # 3 FAILS UPSCALE (Malfunction)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

Manually actuate **Trigger # 2** when requested by Lead Evaluator, to initiate APRM #3 Upscale

At time 5 min after FSSV or EO action requested to investigate #3 APRM failure,
report: "Unit 1, APRM #3 shows an internal failure on the ODA."

Manually actuate **Trigger # 3** when requested by Lead Evaluator, to initiate '1A' Recirc Pump trip.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2.	EVENT – 2 APRM # 3 FAILS UPSCALE (Malfunction)	
Lead Evaluator (or designee) Notes: The RO will identify APRM #3 fails upscale as the annunciator alarms. THE ODA on 10C603 panel will show APRM #3 upscale with all other APRMs reading normal.		
	Reference appropriate ARC: <ul style="list-style-type: none">• 108 B-3, APRM UPSCALE TRIP/INOP• 108 F-3, ROD OUT BLOCK• 108 B-4, APRM UPSCALE	RO/PRO
	[ARC MCR 108 B-3] Determine APRM #3 ODA has upscale trip with 'TRIP' message on display header	RO
	CRS directs bypassing APRM #3	SRO
	[ARC MCR 108 B-3] RO places #3 APRM in BYPASS	RO
	Reference Tech Spec 3.3.1 and 3.3.6 and determines that the requirement of 3 APRMs is met.	SRO
	Reset annunciators on panel 108	RO



3. EVENT – 3 '1A' REACTOR RECIRC PUMP SHAFT SIEZURE (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

At time 5 min when FSSV or EO directed to respond to investigate '1A' Recirc Pump trip
report: The '1A' ASD feed breaker is tripped. There is nothing that is obvious wrong with it.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	EVENT – 3 ‘1A’ REACTOR RECIRC PUMP SHAFT SEIZURE (Abnormal)	
Lead Evaluator (or designee) Notes: The ‘1A’ Reactor Recirc Pump will experience a shaft seizure resulting in a trip of the ‘1A’ ASD. OT-104, Unexpected/Unexplained Positive or Negative Reactivity Insertion is normally entered during a reactivity addition event, and directs entry into OT-112, Unexpected/Unexplained Change in Core Flow, due to Recirc Pump trip.		
	Reference ARCs as appropriate: <ul style="list-style-type: none"> • 111 B-1, 1A RECIRC ASD TRIPPED • 111 B-2, 1A RECIRC ASD MAJOR FAILURE • 111 D-2, 1A RECIRC PUMP MOTOR HI VIBRATION • 111 E-2, 1A RECIRC ASD 13 KV BKR TRIP • 107 H-2, REACTOR HI/LO LEVEL • 107 I-2, VIBRATION ALARM ALERT • 108 A-4, OPRM TRIPS ENABLED 	RO/PRO
	[OT-104, 3.1] Enter OT-104 Unexpected/Unexplained Positive or Negative, Reactivity Insertion and directs entering OT-112	SRO
	[ARC-MCR 111 B-2/D-2] Enter OT-112, Unexpected/Unexplained Change in Core Flow	SRO
	[OT-112, 3.1] Direct <u>IF</u> both Reactor Recirc Pumps trip, <u>THEN</u> manually SCRAM the reactor	RO
	[OT-112, 3.2] DIRECT RO to monitor for core THI indications <ul style="list-style-type: none"> • APRM flux level oscillations • APRM and LPRM signal changes from random to periodic variations • Period meter display strong positive to negative swings 	SRO
	[OT-112, 3.4] <u>IF</u> reactor power was $\geq 80\%$ RTP prior to the Recirc Pump trip, <u>THEN</u> INSERT 8 control rods per RMSI.	SRO/RO
	[OT-112, 3.5] Direct OT-112, Att. 1 for trip of a Recirc Pump	SRO
	[OT-112, Att.1 step 2.0] CLOSE HV-043-1F031A, “A Recirc Pump Disch Vlv” (DISCHARGE A) <u>OR</u> HV-043-1F023A, “A Recirc Pump Suction Vlv” (SUCTION A) for tripped Recirc Pump.	PRO

3. EVENT – 3 '1A' REACTOR RECIRC PUMP SHAFT SIEZURE (Abnormal)**Simulator Operator Instructions:**

Inform Floor Instructor prior to each event trigger

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	EVENT – 3 ‘1A’ REACTOR RECIRC PUMP SHAFT SIEZURE (Abnormal)	
	[OT-112, Att.1 step 3.0] <u>IF</u> Recirc Pump discharge isolation valve is <u>not</u> required to be closed AND approximately 5 minutes have elapsed, THEN OPEN HV-043-1F031A, “A Recirc Pump Disch Vlv” (DISCHARGE A) OR HV-043-1F023A, “A Recirc Pump Suction Vlv” (SUCTION A) for tripped Recirc Pump	PRO
	[OT-112, Att.1 step 4.0] Limit speed of operating Recirc Pump to <1510 rpm	RO
	[OT-112, Att.1 step 5.0] <u>IF</u> possible, THEN Maintain flow in operating loop such that total core flow is >40 Mlb/hr	RO
	[OT-112, Att.1 step 6.0] (If time permits) PERFORM S43.2.A, Shutdown of a Recirculation Pump, to ensure tripped Recirc pump is properly shutdown	RO
	[OT-112, Att.1] (If time permits) SELECT the new MCPR limit for SLO using S38.1.L / ENSURE Reactor Engineering enters new MCPR limit into PMS Computer.	RO
	[OT-112, Att.1 step 8.0] NOTIFY Chemistry that power change of greater than 15% occurred in less than one hour (Tech Spec 3.4.5)	RO
	[OT-112, 3.9] ENTER GP-5, Appendix 2, Rx Maneuvering Without Shutdown	CRS
	[OT-112, 3.6] PERFORM OT-112, Att. 3 to confirm operation in the authorized region of the Power/Flow Map	SRO
	[OT-112, 3.7] DEMAND a P-1 edit AND determine whether a Thermal Limit violation exists	RO/SRO
	[OT-112, 3.8] <u>IF</u> any Thermal Limit violations exist, THEN ENTER GP-14	SRO
	[OT-112, 3.11] CONSIDER reportability of Rx power excursion AND REFER to Discussion Step 6.17	SRO



3. EVENT – 3 '1A' REACTOR RECIRC PUMP SHAFT SEIZURE (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

Ensure **Trigger # 4** automatically actuates when either HV-043-1F031A or HV-043-1F023A is closed to initiate a low pressure FWH level transient



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	EVENT – 3 ‘1A’ REACTOR RECIRC PUMP SHAFT SIEZURE (Abnormal)	
	[OT-112, Att. 3] Direct RO to insert control rods to exit restricted region of power/flow map (~45%)	SRO
	Insert control rods IAW RMSI to reduce power to exit restricted region	RO
	[OT-112 3.10.1] (time permitting) ENSURE , within 4 hrs. ST-6-107-889-1, Thermal Limits Determination For Single Recirc Loop Operation, has been performed.	SRO
	[OT-112 3.10.4/3.10.2] (time permitting) ENSURE ST-6-043-321-1, Daily Jet Pump Operability Verification For Single Recirc Loop Operation, and shiftly check sections of ST-6-107-590-*, Daily Surveillance Log/OPCONS 1, 2, 3, performed.	SRO
	Reference Tech Spec 3.4.1.1.a.1 for Single Loop Operations (time permitting) With one reactor coolant system recirculation loop not in operation: 1. Within 4 hours: a. Place the recirculation flow control system in the Local Manual mode, and, b. Reduce THERMAL POWER to $\leq 74.9\%$ of RATED THERMAL POWER, and, c. Limit the speed of the operating recirculation pump to less than or equal to 90% of rated pump speed, and d. Verify that the differential temperature requirements of Surveillance Requirement 4.4.1.1.5 are met if THERMAL POWER is $\leq 30\%$ of RATED THERMAL POWER or the recirculation loop flow in the operating loop is $\leq 50\%$ of rated loop flow, or suspend the THERMAL POWER or recirculation loop flow increase. 2. Within 6 hours, change APRM and Rod Block setpoints for Single Loop Ops	SRO



4. EVENT – 4 LOW PRESSURE FWH LEVEL TRANSIENT

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

At time 5 min when FSSV or EO directed to respond to investigate '1C' and '2C'
Feedwater Heater High Level

report: The '1C' Low Pressure FWH Levels have returned to normal.

Ensure **Trigger # 5** automatically actuates when reactor power decreased to ~65% as designated by Main Steam Total Flow, to initiate In-Phase Core Power Oscillations

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4.	EVENT – 4 LOW PRESSURE FWH LEVEL TRANSIENT	
Lead Evaluator (or designee) Notes: During the power reduction the 1C Low Pressure Feedwater heater (FWH) String will experience a level transient that will cause a temporary high high level condition of the string. This condition will initiate an automatic isolation of the FWH String. The condition will clear and the crew is expected to identify that the isolation is no longer required to go to completion and take actions to stop the closure and re-open the isolation valves.		
	Reference ARCs as appropriate: <ul style="list-style-type: none"> • 102 F-1, 1C FEEDWATER HEATER HI LEVEL • 102 F-2, 2C FEEDWATER HEATER HI LEVEL • 102 G-4, F/W HTRS 1&2 HI-HI LEVEL LP HTR STRING ISOLATION 	PRO
	[ARC MCR 102 G-4] Verify L.P. F/W HTR string inlet AND outlet valve HV-06-101C AND HV-06-102C close	PRO
	[ARC MCR 102 G-4] IF low pressure heater string isolation is occurring THEN Enter OT-104, (positive reactivity insertion) and maintain power below pre-transient value.	SRO/RO
	[ARC MCR 102 G-4] Attempt to reset alarms on MCR panel 102.	PRO
	[ARC MCR 102 G-4] IF alarm clears, AND the MOV's are still in mid position, THEN : <ol style="list-style-type: none"> Pull to stop HS-006-101C AND HS-006-102C. Re-open HV-006-101C AND HV-006-102C. 	PRO



5. EVENT – 5 THERMAL HYDRAULIC INSTABILITIES (THI) (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

Ensure **Trigger # 5** automatically actuates when reactor power decreased to ~65% as designated by Total Steam Flow, to initiate In-Phase Core Power Oscillations

Ensure **Trigger # 6** automatically actuates when RMS is taken to SHUTDOWN, to initiate Feedwater Line break and drywell leak.

IMPORTANT NOTE:

DELETE malfunction **MPR003A**, In-Phase Core Power Oscillations, on reactor scram.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5.	EVENT – 5 THERMAL HYDRAULIC INSTABILITIES (THI) (Abnormal)	
Lead Evaluator (or designee) Notes: The core is operating in the RESTRICTED REGION of the Power/Flow Map due to the Recirc Pump trip where there is an increased potential for core THI. The RO will identify indications of THI using LPRM, APRM and SRM period meter indications. The OPRM System enabled region is APR Simulated Thermal Power (STP) \geq 29.5% AND Recirc Drive Flow <60%.		
	Reference ARCs <ul style="list-style-type: none"> • 108 A-4, OPRM TRIPS ENABLED • 108 A-3, OPRM PRE-TRIP • 108 F-3, ROD OUT BLOCK 	RO
	[OT-104 Attach # 8] RO identifies abnormal swings on APRMs indications due to signal growth by two or more times than initial levels, and with APRM flux level oscillations exceeding 10% peak-to-peak.	RO
	Notify CRS THI identified	RO
	Direct manual scram	SRO
	PLACE Reactor Mode Switch in “SHUTDOWN”	RO
	Recognize/report indications for scram; <ul style="list-style-type: none"> • Scram annunciators for auto RPS actuation • White scram lights extinguished 	RO
	Enter T-101, RPV Control	SRO
	[T-101 RC-6] Insert SRM and IRM detectors	RO
	[T-101 RC/Q-1] Verify all control rods inserted	RO
	[T-101 RC/Q-2] Ensure turbine trip and gen lockout	PRO
	[T-101 RC/L-7] Restore and maintain RPV level between +12.5” AND +54”	RO
	[T-101 RC/L-7] Ensure RCIC start and injection on RPV Level <-38”	PRO
	[T-101 RC/P-13] Stabilize RPV press below 1096 psig.	RO



6/7. EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/7.	EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE	
Lead Evaluator (or designee) Notes: After the plant is scrammed a rupture of the 'A' Feedwater line occurs followed by a progressively rising RPV coolant leak into the drywell. The operator will identify the Feedwater line break as RPV level decreases and Primary Containment pressure rises.		
	Recognize RPV level decreasing and Drywell pressure increasing	RO/PRO
	Recognize 'A' FW Line Break	RO
	Attempt to isolate 'A' Feedwater Line	RO
	Report rising drywell pressure, and RPV level lowering	RO/PRO
	Enter and execute OT-101, Drywell High Pressure, as drywell pressure rises	SRO
	[OT-101 3.1] ESTABLISH Drywell pressure as a Critical Parameter	PRO
	Enter T-102, Primary Containment Control, and Re-enter T-101, Reactor Control, on 1.68# Drywell Pressure	SRO
	Verify Isolations complete for >1.68 psig drywell press. and RPV level <12.5"	RO/PRO
	Secure from depressurization	PRO
	Evaluate closing MSIV's to conserve RPV inventory	SRO
	[T-101 RC/L-12] Enter T-111 on lowering RPV level	SRO
	[T-111 LR-5] Manually inhibit auto ADS (Critical Task)	PRO
	[T-111 LR-6] Maximize RPV Injection with CRD per T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions	RO
	[T-111 LR-6] Maximize RPV Injection using RCIC	PRO
	Identify RCIC flow controller in AUTO failed	PRO
	Direct to operate RCIC in Manual mode	SRO
	[T-111 LR-7] Start SLC Pumps	RO
	[T-111 LR-8] Start 2 or more subsystems (ie. C & D RHR Pumps)	PRO
	Identify RPV level decreasing – approaching LOCA -129"	Crew

6/7. EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE**Simulator Operator Instructions:**

Inform Floor Instructor prior to each event trigger

At time 8 min after FSSV or EO action requested for T-240 field actions (Insert **RCR019** to open 'B' CRD Pump discharge valve) and

report: Field actions for T-240 are complete and standby pump ready for start.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/7.	EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE	
	Enter SE-10, LOCA when RPV level <-129"	Crew
	[SE-10 3.1] PLACE the following to "CLOSE" <ul style="list-style-type: none"> 52-20224/CS, "D*24 Safeguard L.C. D*24-G-D MCC Bkr" (SAFEGUARDS B), on *BC661 52-20124/CS, "D*14 Safeguard L.C. D*14-G-D MCC Bkr" (SAFEGUARDS A), on *AC661. 	RO
	[SE-10 3.2] PLACE to "RESET": <ul style="list-style-type: none"> 43-22322/CS, "Div. III Non SFGD Instr. Panel" (INST AC 201 CONTROL PNL), on *CC661 43-22422/CS, "Div. IV Non SFGD Instr. Panel" (INST AC 202 CONTROL PNL), on *DC661. 	RO
	Dispatch Equipment Operator to perform SE-10-1 field actions	PRO
	[SE-10 4.3] Maintain ECCS for injection IF Low Pressure ECCS is not required to restore RPV level, THEN ALIGN per SSV direction.	SRO
	Re-start of '1A' CRD Pump following LOCA and maximize using T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions	RO
	Restart '1A' and '1C' SLC Pumps following LOCA	RO
	[T-240 4.2] Fully OPEN HV-46-1F003, "Drive Water Pressure Control" (DRIVE WATER PRESSURE), at 10C603 (Main Control Room). [identify no power available]	RO
	[T-240 4.3] OPEN FV-C-46-1F002A(B), "Flow Control," at 10C603 (Main Control Room) using FC-46-1R600, "Rod Drive Flow Controller" (FL), in "MANUAL" to maximize CRD flow, while maintaining greater than 1,200 psig as indicated on PI-46-108A(B), "CRD Pump Discharge" (252-T6-200).	RO
	[T-240 4.4] OPEN 46-1F045, "CRD Pumps Suction Filter Bypass Valve" (EO)	RO
	[T-240 4.5] If additional CRD flow required place second CRD Pump in Service	RO
	Trend RPV Level to TAF	RO/PRO



6/7. EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/7.	EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE	
EVALUATORS NOTE: The following steps are directed from T-102 to address the rise in Containment pressure. T-225, Startup and Shutdown of Suppression Pool (Section 4.2) and Drywell Spray Operation (Section 4.5) is used to control containment pressure.		
	[T-102 PC/P-7] DIRECT before Supp Pool pressure reaches 7.5 psig Spray the Suppression Pool per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation	SRO
	[T-225 4.2.1] ENSURE HV-51-1F004A(B), "1A(B) RHR Pump Suction PCIV" (SUCTION A(B)), open	PRO
	[T-225 4.2.2] ENSURE the following valves closed: <ul style="list-style-type: none"> • HV-51-1F006A(B), "1A(B) RHR Pp S/D Clg Suct Intertie Vlv" • HV-51-1F015A(B), "1A(B) Shutdown Clg Injection PCIV" • HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" • HV-51-1F017A(B), "1A(B) RHR LPCI Inj PCIV" 	PRO
	[T-225 4.2.3] IF RHR pump not running THEN start 1A(B)P202 "RHR Pump"	PRO
	[T-225 4.2.4] ENSURE the following valves open: <ul style="list-style-type: none"> • HV-51-1F047A(B), "1A RHR Htx Shell Side Inlet Vlv" (INLET) • HV-51-1F003A(B), "1A RHR Htx Shell Side Outlet Vlv" (OUTLET) • HV-C-51-1F048A(B), "1A RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS) 	PRO
	[T-225 4.2.5] OPEN HV-51-1F024A(B), "1A RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A AND OBTAIN flow of 8,000 to 8,500 gpm as indicated on FI-51-1R603A, FL.	PRO
	[T-225 4.2.6] OPEN HV-51-1F027A(B), "1A RHR Supp Pool Spray Line PCIV" (SUPP POOL SPRAY).	PRO
	[T-225 4.2.8] PLACE RHR Service Water Pump for RHR Heat Exchanger to be used in service per S12.1.A, RHR Service Water System Startup.	PRO



6/7. EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/7.	EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE	
	[T-225 4.2.9] CLOSE HV-C-51-1F048A(B), "1A RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS).	PRO
	[T-225 4.2.10] IF more spray flow is required, THEN REDUCE flow through Full Flow Test line by throttling closed HV-51-1F024A(B), "1A RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A).	PRO
EVALUATORS NOTE: The following steps are performed as directed by S12.1.A, RHR Service Water System Startup.		
	[S12.1.A 4.1.4/5 or App1 1.3] <ul style="list-style-type: none"> OPEN HV-51-1F014A(B), HEAT EXCHANGER INLET. Throttle OPEN HV-51-1F068A(B) for 18 to 20 seconds. 	PRO
	[S12.1.A 4.1.6(7) or App1 1.4] VERIFY PI-51-105A-1(B), HX DISCH, indicates system static pressure greater than or equal to 15 psig.	PRO
	[S12.1.A 4.1.8 or App1 1.4] IF the HI RAD AND/OR HI Pump Discharge pressure trips need to be bypassed AND the required actions of ODCM Part 1 Control 3.1.1 have been met for the INOPERABLE RHRSW Radiation Monitor, THEN PLACE HSS-12-002A(B), PUMP TRIP BYPASS, in "BYPASS."	PRO
	[S12.1.A 4.2.1.1 or App1 1.6] IF 'A' Loop pump (0A(C)-P506) is to be placed in service, THEN ENSURE 0A-V543 OR 0C-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A 4.2.1.2 or App1 1.7] IF 'B' Loop pump (0B(D)-P506) is to be placed in service, THEN ENSURE 0B-V543 OR 0D-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A 4.2.2 or App1 1.8] START 0A(B),(C,D)P506, RHRSW PUMP.	PRO
	[S12.1.A 4.2.3 or App1 1.9] THROTTLE HV-51-1F068A(B) to the maximum obtainable position without exceeding 11,000 gpm on FI-51-*R602A(B) while maintaining pump disch pressure (PI-12-001A-1(B) between 75 psig to 85 psig.	PRO



6/7. EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/7.	EVENTS 6 - 7 '1A' FEEDWATER LINE RUPTURE / RCIC CONTROLLER FAILURE	
EVALUATORS NOTE: The following steps are performed as directed by T-225 section 4.5 to spray the Drywell.		
	[T-225 4.5.3] IF RHR pump not running THEN START 1A(B)P202 "RHR Pump."	PRO
	[T-225 4.5.4] ENSURE the following valves open: <ul style="list-style-type: none"> • HV-51-1F047A(B), "1A(B) RHR Htx Shell Side Inlet Vlv" (INLET) • HV-51-1F003A(B), "1A(B) RHR Htx Shell Side Outlet Vlv" (OUTLET) • HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS) 	PRO
	[T-225 4.5.5] TRIP Reactor Recirc Pumps.	PRO/RO
	[T-225 4.5.6] REMOVE Drywell Cooling Fans from service by placing all 16 Drywell Cooler Fan switches to "OFF."	PRO/RO
	[T-225 4.5.7] IF Drywell High Pressure AND LOCA signals are present, THEN GO TO T-225 step 4.5.11.	PRO
	[T-225 4.5.11] OPEN HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B)), AND OBTAIN flow of 9,250 to 10,500 gpm as indicated on FI-51-1R603A(B), FL.	PRO
	[T-225 4.5.12] OPEN only one loop HV-51-1F021A(B), "1A(B) RHR Cntmt Spray Line Inboard PCIV" (INBOARD).	PRO
	[T-225 4.5.13] REQUEST SSV verify drywell temperature AND drywell pressure are on SAFE side of Drywell Spray Initiation Limit Curve per T-102, Primary Containment Control OR SAMP-1, RPV and Primary Containment Flooding Control.	PRO/SRO
	[T-102 PC/P-9] DIRECT to Spray the Drywell per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation (Critical Task)	SRO
	[T-225 4.5.14] Throttle OPEN only one loop HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD) to initiate spray AND OBSERVE raising flowrate as indicated on FI-51-1R603A(B), FL.	PRO



8. EVENT – 8 ‘1M’ SRV FAILS TO OPEN (Malfunction)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
8. EVENT – 8 ‘1M’ SRV FAILS TO OPEN (Malfunction)		
Lead Evaluator (or designee) Notes: As RPV level drops to -161" the crew will enter and execute T-112, Emergency Blowdown to rapidly depressurize the RPV. SRVs are the preferred mechanism to discharge steam. As the operator opens 5 SRVs the ‘1M’ SRV will fail to open. As the crew identifies the failed SRV, another SRV will be opened until a total of 5 SRVs are open.		
	[T-111 LR-10] When RPV level drops to -161 inches, or when the safe side of the PSP curve cannot be maintained enter T-112 (Critical Task)	SRO
	Enter T-112, Emergency Blowdown	SRO
	[T-112 EB-12] DIRECT Open all 5 ADS valves	SRO
R	[T-112 EB-12] PERFORM Open all 5 ADS valves (Critical Task)	PRO
	Recognize that the ‘1M’ SRV failed to open (Malfunction)	PRO
	The CRS directs to open additional non ADS SRVs until a total of 5 ADS/SRVs are open	SRO
	[T-111 LR-20] Maximize RPV injection using all available systems subsystems and alt subsystems EXCEEDING pump NPSH and vortex limits if necessary.	Crew
	Restore RPV Level restored above TAF (Critical Task)	Crew
	[T-111 LR-2] When RPV level above -161" exit T-111 and re-enter T-101 at RC/L-1	SRO
	Restore RPV Level to +12.5" to 54" with ECCS	RO/PRO
<p>EVALUATORS NOTE: The scenario may be terminated when the Emergency Blowdown is complete, RPV level is restored to normal band with ECCS systems and Containment Spray in service. After the scenario is terminated, direct the SRO to make the highest EAL classification for the scenario.</p> <p>EAL Classification NOT Applicable during ILT NRC initial exams as determined by Lead Examiner.</p> <p>EAL: FA-1 declaration due to: (RC.3.1 and RC.3.2 –OR- RC4.2)</p> <ul style="list-style-type: none"> • Drywell pressure > 1.68 psig <p>AND</p> <ul style="list-style-type: none"> • Drywell pressure rise is due to RCS leakage <p>OR</p> <ul style="list-style-type: none"> • Emergency RPV Depressurization is required 		

Attachment 1 Simulator Operator Response Times

Procedure	Performance	Response Time (Minutes)
T-209	Injection from the Standby Liquid Control Storage Tank with the RCIC System	45
T-212	Bypassing SQUIB Valves for SLC Injection	19
T-215	De-energization of Scram Solenoids	7
T-216	Manual Isolation and Vent of Scram Air Header	7
T-217	RPS/ARI Reset and Backup Method of Draining Scram Discharge Volume	17
T-219	Maximizing CRD Cooling Water Header Flow during ATWS Conditions	23
T-221	MSIV Isolation Bypass Procedure	11
T-225	Startup and Shutdown of Suppression Pool and Drywell Spray Operations	8
T-240	Maximizing CRD flow after Shutdown During Emergency Conditions	8
T-245	RPV Injection from RHR S/D Cooling	12
T-248	Injection from SLC Test Tank to RPV	15
T-251	Establish a HPCI Injection flow Path VIA Feedwater Only	6
T-270	Terminate and Prevent Injection into the RPV	7
T-290	Instrumentation Available for T-103 SAMP-2	5
S46.7.A (4.2.1)	Control Rod Drive Hydraulic System Operation Following Reactor Scram (Securing CRD flow to the Reactor - Close 46-1F060, CRD Water Pressure Control Station Inlet Valve)	7
SE-10-1 Resets and Floor action	Breaker Reset Following LOCA (Also reset ARMs, RHRSW Rad Monitor and RDCS)	10





**This Page
Intentionally
Blank**

XII. CREW PREBRIEF INSTRUCTIONS

Unit 2 is in OPCON 1 at 100 % power

Unit 1 is in OPCON 1 at 100 % power

Specific Plant Conditions are as Follows:

- None

Inoperable/Out of Service Equipment and Estimated Time of Return (ETR):

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Place '1C' SLC Pump in Automatic Injection Mode per S48.1.A, Standby Liquid Control System Set-Up For Normal Operation, step 4.7 in preparation of a '1B' SLC System Outage Window.
- An EO has been Pre-briefed and is available in the field.

Documents Provided:

- S48.1.A, Standby Liquid Control System Set-Up For Normal Operation



CODE NO:	SEG-7016E	REV NO:	002
AUTHOR:	T. A. BYERS	APPROXIMATE RUN TIME:	75 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	1/06/17
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: Todd Byers/S/ Date: 1/05/17
Training Instructor - Signature

Reviewed By: N/A for ILT NRC Date: N/A
Program (ILT or LOR) Lead - Signature

Reviewed By: A. W. Hightower/S/ Date: 1/05/17
EP (as appropriate) - Signature

Reviewed By: N/A Date: N/A
RE (as appropriate) - Signature

Approval: Brian Devine/S/ Date: 1/06/17
OPS Manager - Signature

Approved For Use: Daniel Semeter/S/ Date: 1/06/17
Training Manager - Signature



Appendix D

Scenario Outline

Form ES-D-1

Facility: Limerick 1 & 2Scenario No.: SEG-7016ERev 002 Op-Test No.: 1

Examiners: _____

Operators: _____

Initial Conditions:Unit 1 is at 100% power. Unit 2 is at 100% power.**Turnover:**

- Maintain 100%.

Event No.	Malfunction Number	Event Type*	Event Description
1.	MFW001	R-RO C-PRO TS-SRO	HWC System Failure (Abnormal)
2.	VIC104C8 MFW250A MFW246A	C-RO C-PRO	'1C' RFP Min Flow Valve fails open, resulting in RFP Hi Pump Vibration (Abnormal)
3.	MCW481A MCW486B	C-PRO	'1A' TECW Pump trip '1B' TECW fails to auto start (Abnormal)
4.	MVI234C	C-RO TS- SRO	Reactor High Pressure Transmitter Failure (Abnormal)
5.	MRP029D MSL559 MRP407C	M-ALL	ATWS The ATWS is mitigated by the insertion of control rods via T-215. (Major)
6.	MRD024	C-RO	RDACS Inoperative after reactor shutdown (Malfunction)
7.	MMT002 MEH108	C-PRO C-RO	Turbine Trip / Bypass Valves Fail Closed (Malfunction)
8.	MRSW600A MRSW600C	C-PRO	'0A' or '0C' RHRSW Pump Trips (Malfunction)
(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			

**I. QUANTITATIVE ATTRIBUTES****A. ILT**

Target Quantitative Attributes (Per Scenario; See ES-301Section D.5.d)	ACTUAL NUMBER
1. Malfunctions after EOP entry (1-2)	2
2. Abnormal events (2-4)	4
3. Major transients (1-2)	1
4. EOPs entered/requiring substantive actions (1-2)	2
5. EOP contingencies requiring substantive actions (0-2)	1
6. EOP based Critical tasks (2-3)	4

Review TQ-AA-151 attachment 5 and ES-301-5 for individual position requirements for scenario and scenario set



- II. **PURPOSE:** Systematically evaluate individual and team performance to identify areas for improvement. Critical Tasks and Assessment Items from this evaluation guide are to be used to assess crew and individual performance and as input into a 4.0 Crew Critique Process.

III. **SIMULATOR EVALUATION GUIDE OBJECTIVES:**

- A. The following evaluation objectives apply to the Crew (C), Shift Manager (SM), Control Room Supervisor (S), Unit Reactor Operator / Plant Reactor Operator (R), or Incident Assessor / Shift Technical Advisor (A) as indicated in the following categories.
1. The general condition for each of the evaluation objectives will be "Given the plant conditions and sequence of events in the Simulator Evaluation Guide (SEG)".
 2. The general acceptable evaluation objective criteria for each of the evaluation objectives will be "To perform effectively as an individual and contribute to successful crew performance in accordance with appropriate reference plant procedures and Operations Expectations, Fundamentals and Strategies".
 3. Specific UNSAT evaluation objective criteria will be consistent with TQ-AA-155, Conduct of Simulator Training and Evaluation with applicable forms and job aids.
 4. During performance of this Simulator Evaluation Guide, the individuals and crew should satisfactorily demonstrate the following overall procedure and plant control objectives:
 - Direct and perform actions per ON-102, Air Ejector Discharge or Main Steam Line High Radiation.
 - Direct and perform actions per ON-117, Loss of TECW
 - Direct and perform actions per OT-100, Reactor Low Level
 - Direct and perform actions per OT-104, Unexpected-Unexplained Positive or Negative Reactivity Insertion.
 - Direct and perform actions per OT-117, RPS Failures
 - Direct and perform actions per GP-5, App. 2, Planned Rx Maneuvering Without Shutdown.
 - Direct and perform actions per T-270, Terminate And Prevent Injection Into The RPV
 - Direct and perform actions per T-101, RPV Control
 - Direct and perform actions per T-102, Primary Containment Control
 - Direct and perform actions per T-117, Level/Power Control



IV. RECORD OF TEMPORARY CHANGES:

- A. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
- C. All Pen & Ink Changes shall be in accordance with TQ-AA-223

Temp Change #	Date of Change	Purpose of Change	Lead Approval	Action Tracking	Revision Date

V. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
- B. The description of the Revision should adequately indicate how the training content of the Revision has changed.
- C. The description of the Revision should also include previous format reference and number and previous template used (e.g for conversion of LSTS to LLORSEG format).

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
Rev000	This was originally used as 2012 ILT Cert Scenario #3 (This scenario was designated as the spare and was not used).	8/12/13
Rev001	Revised to template with changes including RPS Pressure transmitter failure and RHRSW Pumps trip	8/15/15
Rev002	Revised to new template, removed APRM failure, added TECW Pump failure(s), reordered first 4 events, and changed initial power from 80% to 100%.	10/08/16

Date of Revision - refers to date revision was released for approval

**SCENARIO EVENT AND EVALUATION SUMMARY:**

Event One: Shortly after the crew has taken responsibility of the shift, the HWC system will fail such that the Hydrogen Flow Controller output will rise and the PLC will lock up. The MSL Rad Monitor alarms will be received due to excess Hydrogen injection.

Evaluation: Evaluate the crews' response to the HWC malfunction including actions taken per ON-102, Air Ejector Discharge Or Main Steam Line High Radiation and T-103, Secondary Containment Control. The crew will reduce power and will trip the HWC System as well as reference Tech Specs due to excessive H₂ injection.

Event Two: After the crew has taken Tech Spec actions for HWC, the '1C' RFP Min Flow Valve will fail open causing '1C' RFP injection rate to lower with indications of high vibrations on the '1C' RFP. Also, the '1A' and '1B' RFPs will increase injection to the vessel to maintain RPV level.

Evaluation: Evaluate the crew's response to the '1C' RFP Min Flow Valve failing open and to secure the '1C' RFP, and isolate the minimum flow valve. The crew will execute OT-104, Unexpected/ Unexplained Positive or Negative Reactivity Insertion and reduce total Feedwater less than 13 Mlb/hr per GP-5.

Event Three: After the '1C' RFP is secured and reactor power lowered, the in-service '1A' TECW Pump will inadvertently trip, with the '1B' TEWC Pump failing to auto start.

Evaluation: Evaluate the crew's response to identify the TECW Pump failure, enter and execute ON-117, Loss of TECW, manually start the '1B' TECW Pump, and monitor Condensate Pump and Air Compressor temperatures.

Event Four: After the crew has started the '1B' TECW Pump an RPS reactor pressure transmitter
and Five: fails upscale. The failed RPS instrument will result in a failed RPS channel (Will fail to de-energize). As a result of the RPS channel failure a manual full scram is required. On the scram the Control Rods will fail to insert, resulting in an ATWS.

Evaluation: Evaluate the crews' ability to address the failed pressure transmitter and implement OT-117, RPS Failures, and respond to a failure of the reactor to manually scram, and subsequent ATWS. The crew will be evaluated on their ability to implement T-101, RPV Control and T-117, Level/Power Control, and the initial level lowering per T-270, Terminate And Prevent Injection Into The RPV. Complicating the event, the SLC discharge line will rupture in the DW.

**SCENARIO EVENT AND EVALUATION SUMMARY: cont'd**

Event Six: After the Mode Switch is taken to shutdown, RDSCS will become inoperative and prevent manual insertion of control rods.

Evaluation: Evaluate the crew's ability to recognize the failure of RDSCS and call out for floor assistance in resetting RDSCS in the AER. Once RDSCS is reset, the crew is expected to manually insert control rods to help mitigate the ATWS condition.

Event Seven: After level is lowered and pressure has been stabilized, the Main Turbine will begin to experience vibration caused by Thrust Bearing failure. The Thrust Bearing failure will eventually cause a Main Turbine trip. Along with the turbine trip, the Bypass Valves will fail to maintain RPV pressure requiring RPV pressure stabilization using SRVs, resulting in a rise in Suppression Pool temperature.

Evaluation: Evaluate the crews' ability to respond to a Main Turbine trip while maintaining reactor pressure control by manual operation of SRVs. The crew will perform a second lowering of reactor level per T-270, to less than -161" and maintain level between -186" to -161" as Suppression Pool temperature exceeds 110 deg F.

Event Eight: Also, after the Main Turbine Trip, the first started '0A' Loop RHRSW Pump will fail to start from the MCR.

Evaluation: To identify the trip of the lead RHRSW Pump and place the alternate pump in service in the '0A' RHRSW loop.

Termination Criteria: The scenario is terminated when RPV level has been maintained -186" to -161", followed by Control Rods inserted per T-215, De-energizing Of Scram Solenoids.



VI. REFERENCES

A. Training Procedures

1. TQ-LG-150, Limerick Operator Training Program
2. TQ-AA-151, ILT Certification and NRC Examination Development and Administration
3. TQ-AA-155, Conduct of Simulator Training and Evaluation

B. Annunciator Response Cards (ARC)

1. 101 E-5, CONDENSATE FILTERDEMIN TROUBLE
2. 104 D-4, CONDENSATE PUMPS DISCHARGE HEADER LO PRESS
3. 104 D-5, CONDENSATE PUMPS DISC SAMPLE STATION TRB
4. 105 J-5, TBWD PREALARM TROUBLE
5. 107 I-1, MAIN STEAM LINE HIGH-HIGH RADIATION
6. 107 D-5, FWLCS Trouble
7. 107 G-1, REACTOR HIGH PRESSURE TRIP
8. 107 I-2, VIBRATION ALARM ALERT
9. 107 I-3, VIBRATION ALARM DANGER
10. 108 E-4, RDCS INOPERATIVE
11. 109 F-1, 1 MAIN STEAM LINE DIV 1 RAD MONITOR HI/DNSC
12. 109 F-2, 1 MAIN STEAM LINE DIV II RAD MONITOR HI/DNSC
13. 109 B-5, TURBINE ENCL AREA HI RADIATION
14. 118 G-3, TURB BLDG COOLING WATER HTX OUT LO PRESS
15. 118 A-1, SERVICE AIR COMPRESSOR TROUBLE
16. 118 B-1, 1A INST AIR COMPRESSOR TROUBLE
17. 118 C-1, 1B INST AIR COMPRESSOR TROUBLE
18. 127 I-1, 1 UNIT HWC SYSTEM TROUBLE
19. 127 F-4, OFFGAS H2 ANALYZER HI-HI-H2

C. System Procedures (S)

1. S12.1.A, RHR Service Water System Startup
2. S51.8.A, Placing RHR Suppression Pool Cooling in service

D. General Procedures (GP)

1. GP-5 Appendix 2, Planned Reactor Maneuvering Without Shutdown

E. Off Normal Procedures (ON)

1. ON-102, Air Ejector or Main Steam Line High Radiation
2. ON-117 Loss Of TECW

F. Operating Transient Procedures (OT)

1. OT-104, Unexpected-Unexplained Positive or Negative Reactivity Insertion
2. OT-117, RPS Failures
3. OT-100, Reactor Low Level

G. Event Procedures (E)

H. Special Event Procedures (SE)

1. SE-10, LOCA



- I. Surveillance Test and Routine Test Procedures (ST and RT)
- J. Technical Specifications and TRM (TS)
 - 1. TS 3.11.2.5
 - 2. TS 3.3.1
- K. Transient Response Implementation Procedures (T-100 series)
 - 1. T-101, RPV Control
 - 2. T-102, Primary Containment Control
 - 3. T-103, Secondary Containment Control
 - 4. T-117, ATWS Level Control
- L. TRIP 200 Series Procedures
 - 1. T-215, De-energization of Scram Solenoids
 - 2. T-221, MSIV Isolation Bypass Procedure
 - 3. T-251, Establish a HPCI Injection Path Via Feedwater Only
 - 4. T-270, Terminate and Prevent Injection into the RPV
 - 5. T-290, Instrumentation Available For T-103/SAMP-2
- M. EP-AA-1008, Limerick, Radiological Emergency Plan Annex for Limerick Generating Station
- N. Administrative Procedures
 - 1. OP-AA Procedures
 - a. OP-AA-1, Conduct of Operations
 - b. OP-AA-20, Conduct of Operations Process Description
 - c. OP-AA-101-111-1003, Operations Department Standards and Expectations
 - d. OP-AA-101-113, Operations Fundamentals
 - e. OP-AA-101-113-1006, 4.0 Crew Critique Guidelines
 - f. OP-AA-106-101-1006, Operational Decision Making Process
 - 2. OP-LG Procedures
 - a. OP-LG-101-111-1000, Licensed Operator Duties
 - b. OP-LG-101-111-1002, Time Critical Operator Actions
 - c. OP-LG-103-102-1000, Human Performance Continuing Good Practices
 - d. OP-LG-103-102-1002, Strategies for Successful Transient Mitigation
 - e. OP-LG-108-101-1001, Simple Quick Acts / Transient Acts
- O. Current Shift Night Orders Forced Outage Plan
- P. INPO Significant Operating Experience Reports (SOER), Significant Event Reports (SER) and INPO Event Reports (IER)
 - 1. IER-L1 11-3, Weaknesses in Operator Fundamentals
 - 2. SER 3-05, Weakness in Operator Fundamentals
 - 3. SOER 10-02, Engaged Thinking Organizations
 - 4. INPO 15-004, Operator Fundamentals



VII. PREBRIEF INSTRUCTIONS

Unit 2 is in OPGON 1 at 100% power

Unit 1 is in OPGON 1 at 100% power

Specific Plant Conditions are as Follows:

- Operation per GP-5, Steady State Operations

Inoperable/Out of Service Equipment and Estimated Time of Return (ETR):

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Maintain 100%.

Documents Provided:

- None



VIII. DIRECTIONS FOR EVALUATION PREPARATION

A. INITIAL PREPARATION

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete TQ-AA-155, Operator Training Programs Attachment 02, Evaluated Scenario Administration Checklist.
	Complete TQ-LG-201-0113, Limerick Training Department Simulator Examination Security Actions Checklist

B. SIMULATOR SETUP

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to the Pre-loaded Cycle IC developed for the Evaluation OR Reset the simulator to designated base load IC-3 AND Load scenario file SEG7016E Rev002.scn <ul style="list-style-type: none">• Verify that all Malfunctions, Remotes, Overrides, Annunciators and Triggers are properly loaded OR <ul style="list-style-type: none">• Manually enter the Malfunctions, Remotes, Overrides, Annunciators and Triggers per the Scenario Generator Screen Shots:
	Simulator Operator (Driver) perform the following: <ul style="list-style-type: none">• Momentarily place simulator in RUN• Acknowledge and clear all spurious alarms• Place the simulator back into FREEZE• Place appropriate tags and equipment in required condition / status.



C. MALFUNCTION/REMOTE/OVERRIDE/ANNUNCIATORS FUNCTION TIME TABLE

Interventions Summary

Hide Malfunctions - 15 **Hide Remotes - 8** **Show Overrides - 0** **Show Annunciators - 0**

Malfunction Summary

Mal ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MFw001		HwC System Excess H2 Injection and PLC Lockup	False	True				1
MFw250A		Reactor Feedpump C Min Flow Recirc Valve Fails Open	False	True		00:00:15		2
MFw246A		Reactor Feedpump C Trip	False	True		00:10:00		2
MCw486B		TECW Pump B Fails to Auto Start	Fails	Fails				
MCw481A		TECW Pump A Trips (Magnetic Overload)	False	True		00:00:15		3
MV1234C		Reactor Vessel Pressure Transmitter (RPS) N0788 Fails High	False	True		00:00:15		4
MRD024		Rod Drive Control System Failure	False	True		00:06:30		5
MMT002		TBWD Turbine Thrust Failure - MILS	8.999948	50.00000	00:04:00	00:11:00		5
MRR029D		RPS Fails to Scram Channel B	True	True				
MSL559		SLC Injection Line Rupture Inside the Drywell	True	True				
MRR407C		BOTH RRCS Divisions ARI Fails to Initiate	True	True				
MEH108		Turbine Bypass Valves Fail to Selected Value (0-100%)	-5.00000	20.00000	00:05:00	00:16:00		5
MRSw600A		RHR Service Water Pump OAP506 Elect Fault	TRUE	TRUE			00:00:01	6
MRSw600C		RHR Service Water Pump OCP506 Elect Fault	TRUE	TRUE			00:00:01	7
VIC104C8		1C RFPT Pump Imbalance at Probe 104C08	2.900000	10.00000	00:08:00	00:00:15		2

☐ Timer Pause **Delete All** **Active** **Pending**

Remotes Summary


Remf ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Trig
RRE148		Refuel Floor To SGT5 Isolation damper SGD76-206-3	CLOSE	CLOSE			
RRE156		Unit 2 Refuel Floor Isol Sw HS76-281A	RESET	RESET			
RRE157		Unit 2 Refuel Floor Isol Sw HS76-281B	RESET	RESET			
RRM032		SPE & MVP Rad Monitor RE-160 Skid 105408 Enable	DISABLE	DISABLE			
RPR061		APRM Channel 1 Gain Adjustment Factor	.8654	.8654			
RPR063		APRM Channel 3 Gain Adjustment Factor	.8570	.8570			
RPR062		APRM Channel 2 Gain Adjustment Factor	.8710	.8710			
RPR064		APRM Channel 4 Gain Adjustment Factor	.8490	.8490			

☐ Timer Pause **Clear List** **Active** **Pending**



D. EVENT TRIGGERS ASSIGNMENT

1. Timers should be used on event triggers where possible for time validation
2. Timing of event triggers may be altered by the Lead Evaluator (or designee)
3. Verify triggers are actuated automatically as designed or manually initiate the trigger when the initiating action has occurred.
4. Inform Lead Evaluator (or designee) of expected plant response prior to actuation of each trigger.
5. Trigger #1 is manually initiated at Lead Evaluator (or designee) direction after the crew assumes responsibility for operation.

	TRIGGER / TIME	MALFUNCTION	DESCRIPTION
	1.	Manual	Initiates HWC system lockup
	2.	Manual	Initiates '1C' RFP Min Flow Valve opens
	3.	Manual	Initiates '1A' TECW Pump trip
	4.	Manual	Initiates Rx Pressure Transmitter Failure
	5.	Auto / ZRPS1SDN	RMS TO SHUTDOWN Initiates TBWD failure and RDGS failure
	6.	Auto / ZSWRPCC	'C' RHRSW Pump CS to START Deactivates 'A' RHRSW failure
	7.	Auto / ZSWRPAC	'A' RHRSW Pump CS to START Deactivates 'C' RHRSW failure

Event Trigger Builder / Viewer

Favorites Triggers

Trigger #	Trigger Text
1	
2	
3	
4	
5	ZRPS1SDN
6	ZSWRPCC
7	ZSWRPAC
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Operators:

Arithmetic:

- * Multiplication
- / Division
- + Addition
- Subtraction

Relational:

- > Greater than
- >= Greater than or equal
- < Less than
- <= Less than or equal
- = Equal to
- != Not equal to

Logical:

- && And
- || Or
- ! Not

Other:

- { Open Paren
- } Close Paren

11

Trigger Now Clear Clear All Accept Exit

**E. EQUIPMENT REPORTS AND SIMULATOR INSTRUCTOR OPERATIONS**

1. Scripted Activity Reports should be followed with adherence to Operations Communication standards of performance.
2. The T-200 procedure reference book should be used for familiarity of reports to aid in operator prompting and expected communications.
3. The Lead Evaluator (or designee) should be informed if any event is not reported as scripted due to lack of Operator request.
4. The Standard Equipment Operator Response Times are per Attachment 1
5. A record of communications from the MCR and to the MCR will be maintained by the Simulator Operator using **Attachment 2**.
6. The OCOEE Simulator Operator Station P&IDs, Floor Plans and Panels should be used by the Simulator Operator as reference information when making reports to the MCR for plant parameters which are not driven by a communications script. Examples include: ARMs, Blowout Panel status, Reactor Building Area Temperatures and Pressures, RMMS, Turbine Enclosure parameters etc.

**IX. CREW CRITICAL TASKS**

- A. Critical Tasks are based on the current Crew Critical Task List revision, NUREG 1021 and TQ-AA-150 requirements.

1. T-117.1 Inhibit automatic ADS

K/A	295037	EA2.06	4.04.1
K/A	218000	EA4.04	4.1/4.1

Standard: Prevent automatic initiation of ADS

SAT/UNSAT

2. T-117.7 Terminate and prevent injection into the RPV.

K/A	295037	EK1.024.1/4.3
K/A	295037	EK3.034.1/4.5
K/A	295037	EA2.024.1/4.2

Standard: RPV level lowered below -50" by Terminating and Preventing injection into the RPV per T-270.

SAT/UNSAT

3. T-101.5 Implement T-215 to insert control rods.

K/A	295037	EA1.05	3.9/4.0
K/A	295037	EA2.05	4.2/4.3

Standard: Direct the performance of T-215 to operations personnel located outside the control room.

SAT/UNSAT

4. T-117.8 Maintain RPV level between -186 inches and the level to which it was intentionally lowered.

K/A	295037	EA2.01	4.2/4.3
K/A	295037	EA2.02	4.1/4.2

Standard: RPV level maintained between -186 inches and -161 inches after initially raising RPV level into the required band. Any deviations from the RPV level band DO NOT require an Emergency Blowdown per T-117.

SAT/UNSAT

**X. ASSESSMENT OF CREW PERFORMANCE DURING CONDUCT OF THE SIMULATOR EVALUATION GUIDE TRAINING:**

- A. Conduct the Simulator Evaluation Session per TQ-AA-155, Conduct of Simulator Training and Evaluation, Attachment 02, Evaluated Scenario Administration Checklist
- B. Assessment of Crew and Individual performance shall be consistent with OP-AA-20, Conduct of Operations Process Description
- C. Where possible record the time and position responsible for performance of each task or assessment item
- D. Items not performed as expected **SHALL** be discussed in the post performance crew critique
- E. During the performance of the evaluation, the Simulator Evaluators shall **MAINTAIN** notes of observations and information consistent with the timeline
- F. Assessment items with the ⌚ symbol indicate a time critical standard for performance
- G. Assessment items with the ⚡ symbol indicate a Probabilistic Risk Assessment (PRA) association with the task
- H. The Simulator Operator will respond with scripted or proceduralized responses when requested by the MCR operators with Procedure completion times requested per **Attachment 1**
- I. The Simulator Operator will also maintain a timeline and record of all reports and requests issued by the MCR personnel with response provided by the simulator operator using **Attachment 2**
- J. Shaded items do not require assessment for ILT Evaluations. The CRS may be requested to complete the Shift ED forms and determine the EAL classification at the completion of the scenario



**This Page
Intentionally
Blank**

**1. EVENT - 1 HYDROGEN WATER CHEMISTRY FAILURE (Abnormal)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate

Inform Floor Instructor prior to each event trigger

Manually actuate **Trigger # 1** when directed by Lead Evaluator to initiate HWC PLC Lockup

At time 5 min after FSSV or EO action requested to investigate HWC Panel 10C177,
report: The local alarm is HYDROGEN FLOW TO SETPOINT ERROR.

Manually actuate **Trigger # 2** when directed by Lead Evaluator to initiate '1C' RFP Min Flow Valve to fail open



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
1.	EVENT - 1 HYDROGEN WATER CHEMISTRY FAILURE (Abnormal)	
	Lead Evaluator (or designee) Notes: A HWC flow control valve failure causes H2 flow to increase into the suction of the RFPs and result in a lockup of the HWC system. The crew will identify the increased H2 flow and isolate the system by depressing HS-06-154 on the C673 panel.	
	Reference appropriate ARCs <ul style="list-style-type: none"> • 109 F-1, 1 MAIN STEAM LINE DIV 1 RAD MONITOR HI/DNSC • 109 F-2, 1 MAIN STEAM LINE DIV II RAD MONITOR HI/DNSC • 109 B-5, TURBINE ENCL AREA HI RADIATION • 127 I-1, 1 UNIT HWC SYSTEM TROUBLE • 107 I-1, MAIN STEAM LINE HIGH-HIGH RADIATION 	RO/PRO
	Dispatch EO to 10C177 panel to investigate H2 system	PRO
	[ARC MCR 109 F-2/107 I-1] Enter and execute ON-102, Air Ejector Discharge Or Main Steam Line High Radiation	SRO
	[ARC MCR 109 F-2/107 I-1] Enter T-103, Secondary Containment Control	RO/PRO
	[T-103 SCC-6] Direct performance of T-290 for available instrumentation	SRO
	[ON-102 2.2] Direct power reduction IAW GP-5, App.2 and RMSI to maintain air ejector discharge rad below HI HI Alarm setpoint and Main Steam Line Rad less than 1.5 X NFPB	SRO
	Perform power reduction IAW GP-5, App.2 and RMSI to maintain air ejector discharge rad below HI HI Alarm setpoint and Main Steam Line Rad less than 1.5 X NFPB (Reactivity)	RO
	Verify proper H2 and O2 flows and Offgas indications	PRO
	[ON-102 2.3] Trip HWC by depressing HS-06-154 on the 10C673 panel.	PRO
	Contact WWM for assistance	SRO
	[ON-102 2.6] Notify Chemistry for sampling	PRO
	Reference appropriate ARCs <ul style="list-style-type: none"> • 127 F-4, OFFGAS H2 ANALYZER HI-HI-H2 	PRO
	Monitor Rad / Hydrogen Levels in Offgas and MS Lines after HWC Trip	RO
	Reference TS 3.11.2.5 action a when Offgas H2 is >4%	SRO

**2. EVENT - 2 '1C' RFP MIN FLOW VALVE FAILS OPEN (Abnormal)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate

Inform Floor Instructor prior to each event trigger

If RFP still in service:

At time 3 min after FSSV or EO action requested to close 006-1007C

report: We can't get the '1C' RFP Min Flow Recirc Isolation valve closed. We have four operators attempting to close it now and it will not move even with wrenches.

Following trip of the RFP:

Manually close Min Flow block valve 006-1007C as requested, and Toggle **RFW178** to closed and verify P&ID indications show fully closed then,

report: Manual block 06-1007C closed.

DELETE malfunction **VIC104C8** '1C' RFPT vibration when '1C' RFP is tripped.

Manually actuate **Trigger # 3** when directed by Lead Evaluator to initiate TECW Pump trip.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2.	EVENT - 2 '1C' RFP MIN FLOW VALVE FAILS OPEN (Abnormal)	
Lead Evaluator (or designee) Notes: As the '1C' RFP Min Flow Recirc Vlv fails open, the DFWLCS will respond to a reduction in FW flow to the RPV and lower RPV level which raises speed of the RFPTs to control RPV level. The RO will identify '1C' RFP flow is lower than the other RFPs and identify indications of high vibrations on the '1C' RFP.		
	Reference appropriate ARCs: <ul style="list-style-type: none"> • 107 D-5, FWLCS TROUBLE • 101 E-5, CONDENSATE FILTERDEMIN TROUBLE • 104 D-4, CONDENSATE PUMPS DISCHARGE HEADER LO PRESS • 104 D-5, CONDENSATE PUMPS DISC SAMPLE STATION TRB • 107 I-2, VIBRATION ALARM ALERT • 107 I-3, VIBRATION ALARM DANGER 	RO/PRO
	Identify '1C' feedflow lowering on FI-06-1R604C	RO
	Recognize unexpected/unexplained drop in RPV level – enter OT-100, Reactor Low Level	SRO
	Recognize and report '1C' RFP Min Flow Valve is Open	RO
	[OT-100 step 2.2 IOA] IF drop in RPV level is due to loss of RPV injection, THEN REDUCE Rx power until Reactor Level is restored	RO
	Recognize vibration on '1C' RFP rising	RO/PRO
	[OT-100 3.1] Direct performance of OT-100 Attach #3 RFP Min-Flow Malfunction/Failure	RO
	[OT-100 Attach #3] Attempt to close '1C' RFP Min Flow Recirc Valve	PRO
	[OT-100 Attach #3] Direct EO to close 06-1007C, '1C' RFP min flow manual isolation valve	SRO
	[ARC MCR 107 I-3] Prior to exceeding 7 mils continuous vibration trip '1C' RFP	RO
	Direct Rx power reduction per RMSI until Total FW flow is <13Mlbm/hr (Reactivity)	RO
	[OT-100 ATT 1] Reduce Total FW flow <13Mlbm/hr per RMSI, if > 13Mlbm/hr	RO
	Contact Work Week Manager to investigate RFP Min Flow Valve going open	SRO
	Notify TSO and Power Team of power changes	SRO
	Notify Chemistry that surveillance required for power reduction	PRO



3. EVENT – 3 '1A' TECW PUMP TRIP / '1B' TECW PUMP FAILS IN AUTO (Abnormal)

Simulator Operator Instructions:

Respond to request for assistance as appropriate

Inform Floor Instructor prior to each event trigger

Manually actuate **Trigger # 3** when directed by Lead Evaluator to initiate TECW Pump trip.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	EVENT – 3 '1A' TECW PUMP TRIP / '1B' TECW PUMP FAILS IN AUTO (Abnormal)	
Lead Evaluator (or designee) Notes: The PRO will respond to alarm and identify the '1A' TECW Pump has tripped and the '1B' TECW Pump has failed to start in AUTO. If the PRO immediately manually starts the '1B' TECW Pump the air compressor Hi temperature alarms will not occur.		
OP-LG-103-102-1002 , Strategies For Successful Transient Mitigation, step 4.1.2.2.B, states, When automatic actions fail to occur as designed, operators are expected to place the system or component in the desired state, report completion of the manual action to the CRS, and follow-up with available procedural guidance.		
	Reference appropriate ARC: <ul style="list-style-type: none">• 118 G-3, TURB BLDG COOLING WATER HTX OUT LO PRESS• 118 A-1, SERVICE AIR COMPRESSOR TROUBLE• 118 B-1, 1A INST AIR COMPRESSOR TROUBLE• 118 C-1, 1B INST AIR COMPRESSOR TROUBLE	RO/PRO
	[ARC MCR 118 G-3] Verify low TECW header pressure using PI-14-106 at C655 panel	PRO
	[ARC MCR 118 G-3] Verify standby TECW Pump failed to auto start on lo header pressure	PRO
	[ARC MCR 118 G-3] Enter ON-117, Loss Of TECW	SRO
	[ON-117 2.1] Place alternate '1B' TECW Pump in service, per OP-LG-103-102-1002, Strategies For Successful Transient Mitigation.	PRO
	DISPATCH an operator to investigate tripping of '1A' TECW Pump, and status of '1B' TECW Pump	PRO
	[ON-117 2.6] DISPATCH an operator to monitor Instrument and Service Air Compressor temperatures	PRO
	[ON-117 2.8] MONITOR Condensate Pump bearing temperatures on PMS points	PRO

**4. EVENT - 4 RPS HIGH PRESSURE TRANSMITTER FAILURE (Abnormal)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

Manually actuate **Trigger # 4** at Lead Evaluators discretion to initiate RPS instrument failure.

At time 5 min after FSSV or EO action requested to investigate RPS Pressure Trip units in AER,

report: PIS-042-1N678B is indicating upscale.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4.	EVENT - 4 RPS HIGH PRESSURE TRANSMITTER FAILURE (Abnormal)	
Lead Evaluator (or designee) Notes: RPS reactor pressure transmitter (PIS-042-1N678B) fails upscale. The failed RPS instrument will result in a failed RPS channel (Will fail to de-energize).		
	Reference appropriate ARC: • 107 G-1, REACTOR HIGH PRESSURE TRIP	RO
	Verify Rx pressure normal with high RPS pressure transmitter alarm	RO
	Recognize failure to ½ scram on 'B' RPS and inform CRS	RO
	Dispatch an EO to investigate the Rx pressure transmitter	PRO/RO
	Enter OT-117, RPS Failures, for failure to ½ scram on 'B' RPS	SRO
	[OT-117 3.2.1] Direct inserting manual ½ scram on 'B1' Side	SRO
	Perform Arm and depress 'B1' RPS	RO
	Recognize failure to ½ SCRAM on 'B1' RPS	RO
	Direct Arm and depress 'B2'	SRO
	Perform Arm and depress 'B2' RPS	RO
	Recognize failure to ½ SCRAM on 'B2' RPS	RO
	Reference TS 3.3.1 action a. to identify minimum number of Rx pressure channels is 2 per trip system.	SRO
	[OT-117 3.2.1.1] Direct manual scram	SRO
	Insert 'A' Side RPS Manual SCRAM signals	RO
	Place the Reactor Mode Switch in SHUTDOWN	RO
	Recognize failure to scram	RO

**5. EVENT - 5 ATWS (Major)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

At time 11 min after FSSV or EO action requested for T-221, perform the following:
Toggle Remote Function **RTR051** to "**BYPASS**" and
report (via phone): T-221 is complete on Unit 1.

At time 7 min **OR** immediately if pre-staged for at least 7 minutes after FSSV or EO action requested for T-270, manually perform T-270 as follows:
Toggle Remote Functions **RTR220 through RTR227** to "**TEST**"
OR load the 7-minute T-270 file from the Ops Training Scenarios\Remotes folder and
report (via phone): Section 4.6 of T-270 is complete

At time 6 min after FSSV or EO action requested for implementation of T-251;
contact MCR: and have Operators verify that HV-055-1F006 indicates closed in the MCR
AND perform the following: **Toggle** Remote Function **RTR309** to "**OPEN**" and
report: T-251 is complete in the field



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5.	EVENT - 5 ATWS (Major)	
Lead Evaluator (or designee) Notes: As a result of the RPS channel failure a manual full scram is required. On the scram the Control Rods will fail to insert, resulting in an ATWS.		
	Enter T-101 on SCRAM condition with power above 4%	SRO
	[T-101 RC-6] Insert SRMs/IRMs	RO
	[T-101 RC/Q-5] Initiate RRCS (Malfunction)	RO
	Verify after 118 seconds after RRCS initiation SLC pumps start and inject	RO
	Manually attempt SLC injection including '1C' SLC Pump	RO
	Recognize/report SLC low discharge pressure	RO
	Direct securing SLC	SRO
	Secure SLC pumps	RO
	[T-101 RC/Q-8] Runback Recirc pumps to minimum with 28% runback pushbutton	RO
	[T-101 RC/Q-10] Trip both Recirc pumps at least 10 seconds apart	RO
	[T-101 RC/Q-12] Insert control rods manually with RWM bypassed per T-210	RO
	[T-101 RC/Q-13] Direct performance of T-213, Individual Control Rod Scram Solenoid De-energization, to personnel outside Main Control Room (MCR)	SRO
	[T-101 RC/Q-5] Direct performance of T-214, Manual Initiation Of ARI, to personnel outside Main Control Room (MCR)	SRO
	[T-101 RC/Q-13] (Critical Task) Direct performance of T-215, De-energization of Scram Solenoids to personnel outside Main Control Room (MCR)	SRO
	[T-101 RC/Q-13] Direct performance of T-216, Manual Isolation and Vent Of Scram Air Header to personnel outside Main Control Room (MCR)	SRO

**5. EVENT - 5 ATWS (Major)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

When requested to perform **T-221**, toggle remote function **RTR051** to **BYPASS** on an **11 minute delay**. When time has expired, call and report as complete.

At time 7 min **OR** immediately if pre-staged for at least 7 minutes after FSSV or EO action requested for T-270, manually perform T-270 as follows:

Toggle Remote Functions **RTR220 through RTR227** to **"TEST"**

OR load the 7-minute T-270 file from the Ops Training Scenarios\Remotes folder and **report (via phone):** Section 4.6 of T-270 is complete

At time 6 min after FSSV or EO action requested for implementation of T-251;

contact MCR: and have Operators verify that HV-055-1F006 indicates closed in the MCR

AND perform the following: **Toggle** Remote Function **RTR309** to **"OPEN"** and

report: T-251 is complete in the field



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5.	EVENT - 5 ATWS (Major)	
P	[T-101 RC/Q-19] (Critical Task) Inhibit Auto ADS	PRO
	[T-101 RC/Q-20] Direct performance of T-209, Injection From SLCS (SLC) Storage Tank With The RCIC System	SRO
	Stabilize RPV pressure	PRO
	Enter and execute T-117, Level/Power Control	SRO
	[T-101 RC/P-11] Direct performance of T-221, MSIV Isolation Bypass Procedure, to personnel outside Main Control Room (MCR)	SRO
	[T-117 LQ/7] Direct establish RPV level < -50 inches performing T-270	SRO
	Direct performance of Section 4.6 of T-270 to personnel outside Main Control Room (MCR) (Critical Task)	PRO
	[T-270 4.2.1] IF HPCI initiation signal is present, AND CANNOT be reset, THEN SHUTDOWN 10S211, "HPCI Turbine" as follows: DEPRESS AND RELEASE "Pushbutton For Manual Isolation", and ENSURE HV-55-1F003 closed	PRO
	[T-270 4.2.2] IF HPCI initiation signal is <u>not</u> present, THEN SHUTDOWN 10S211, "HPCI Turbine" as follows: Simultaneously DEPRESS AND HOLD HS-056-161, "Pushbutton for HPCI Turbine Trip (E41A-S19) (TURBINE TRIP) AND CLOSE HV-55-1F003, "HPCI Main Steam Supply Outbd PCIV (OUTBOARD)	PRO
	[T-270 4.4.1] ENSURE HV-06-138A, (BYPASS) is closed	RO
	[T-270 4.4.2] ENSURE LIC-06-138, (STARTUP BYPASS) in Manual and set to 0%	RO



5. EVENT - 5 ATWS (Major)

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5.	EVENT - 5 ATWS (Major)	
EVALUATORS NOTE: The crew, time permitted, during a high power ATWS, is expected to place RHRSW in service. The following steps are directed by S12.1.A, RHR Service Water System Startup followed by, S51.8.A, Suppression Pool Cooling Operation (Startup and Shutdown) and Level Control.		
	[T-270 4.4.3] ENSURE LIC-06-120, (PUMP BYPASS) in Manual and set to 0% at	RO
	[T-270 4.4.4] ENSURE FIC-M1-1R601A, B, C "A,B,C RFPT Speed Controller in Manual for all three RFPTs	RO
	[T-270 4.4.5] DEPRESS EMERGENCY STOP pushbutton for ALL AVAILABLE RFPTs at panel 10C603	RO
	[T-270 4.4.6] WHEN the emergency stop light goes out, THEN DEPRESS AUTO START pushbutton for ALL AVAILABLE RFPTs	RO
	[T-270 4.4.7] CLOSE HV-06-108A, "1A RFP Discharge"	RO
	[T-270 4.4.8] (following closure of HV-06-108A) CLOSE HV-06-108B, "1B RFP Discharge"	RO
	[T-270 4.4.9] (following closure of HV-06-108B) CLOSE HV-06-108C, "1C RFP Discharge"	RO
	Stabilize RPV level between -60" and -100"	RO
	[T-101 RC-5] Isolations verified for +12.5" and -38"	PRO
	[T-117 LQ/18] Direct performance of T-251, Establish A HPCI Injection Flow Path via Feedwater Only	SRO

**6/8 EVENTS 6 – 8 RDCS INOP/TURBINE TRIP/A LOOP RHRSW INOP (Malfunction)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

At time 5 min after FSSV or EO action requested to reset RDCS

DELETE MRD024 and toggle **RRD001** to **RESET** and

report: “RDCS has been reset in the AER”

DRIVER NOTE:

DO NOT reset RDCS following LOCA signal



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/8	EVENTS 6 – 8 RDCS INOP/TURBINE TRIP/A LOOP RHR SW INOP (Malfunction)	
EVALUATORS NOTE: When reactor power is lowered a RDCS failure will prevent control rod insertion.		
	Reference appropriate ARC: <ul style="list-style-type: none"> 105 J-5, TBWD PREALARM TROUBLE 108 E-4, RDCS INOPERATIVE 	PRO
	Recognize/report Pre- alarm for Main Turbine Thrust Bearing	PRO
	Recognize/report Main Turbine trip	PRO
	[T-101 RC/P-1] Stabilize Rx pressure with SRVs, 990-1096 psig (Malfunction)	PRO
	If RPV pressure rises above 1096 psig, re-enter T-101	SRO
	[T-101 RC/P-13] RFPTs are used to consume additional Steam. (108 valve closed with elevated Feedpump RPM) (Malfunction)	RO
	[T-101 RC/P-13] Consider using Mn Cond Hotwell Steam Spargers	RO
	Recognize and report RDCS INOP alarm	RO
	Direct to reset RDCS in AER (Malfunction)	RO
	When RDCS Reset in the MCR - manually inset control rods	RO
	Enter T-102, Primary Containment Control on Suppression Pool Temp > 95°F	SRO
	Establish Suppression Pool Temperature as a Critical Parameter	SRO
	[T-102 SP/T-2] Place Two Loops of Suppression Pool Cooling in service per S51.8.A	PRO
	START selected RHR Service Water Pump loop per S12.1.A, RHR Service Water System Startup	PRO
	[S12.1.A 4.1.4 or App #2 1.3/1.4] OPEN HV-51-1F014A(B), HEAT EXCHANGER INLET	PRO
	[S12.1.A 4.1.5 or App #2 1.3/1.4] Throttle OPEN HV-51-1F068A(B) for 18 to 20 seconds	PRO
	[S12.1.A 4.1.6(7) or App #2 1.5/1.6] VERIFY PI-51-105A-1(B), HX DISCH, indicates system static pressure greater than or equal to 15 psig	PRO

**6/8 EVENTS 6 – 8 RDCS INOP/TURBINE TRIP/A LOOP RHRSW INOP (Malfunction)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

At time 10 min after FSSV or EO action requested to perform SE-10 Floor Actions Load **All SE-10 Floor Actions with Time Delays** Scenario and,
report: status of individual resets as requested or when all resets are timed out **OR**
report: "All SE-10 Floor Actions are complete."

Perform T-215 following T-270 second lowering with RPV level -161" to -186"

Control Rods to be inserted by T-215 as follows: When directed by Lead Evaluator Call MCR and notify MCR control rod movement should occur and **DELETE MRP029D**

The **PURPOSE** of this SEG is to get to the T-270 second lowering. With Lead Evaluators permission, vary Bypass Valve malfunction **MEH108** so the crew achieves their objective.

DRIVER NOTE:

DO NOT reset RDCS following LOCA signal



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/8	EVENTS 6 – 8 RDCS INOP/TURBINE TRIP/A LOOP RHRSW INOP (Malfunction)	
	[S12.1.A 4.1.8 or App #2 1.7] IF the HI RAD AND/OR HI Pump Discharge pressure trips need to be bypassed AND the required actions of ODCM Part 1 Control 3.1.1 have been met for the INOPERABLE RHRSW Radiation Monitor, THEN PLACE HSS-12-002A(B), PUMP TRIP BYPASS, in "BYPASS"	PRO
	[S12.1.A 4.2.1 or App #2 1.8 / 1.9] START 0A(B,C,D)V543 Spray Pond Room Fan	PRO
	[S12.1.A 4.2.2 or App #1 1.10/1.12] START 0A(B,C,D)P506, RHRSW PUMP	PRO
	Recognize failure of either '0A' or '0C' RHRSW pump to Start (Malfunction)	PRO
	Start other RHRSW pump in 'A' loop	PRO
	[S12.1.A 4.2.3 or App #1 1.11/1.13] THROTTLE HV-51-1F068A(B) to the maximum obtainable position without exceeding 11,000 gpm on FI-51-1R602A(B) while maintaining pump discharge pressure (PI-12-001A-1(B)) between 75 psig to 85 psig	PRO
	[S51.8.A App #1 step 1.4] START 1A(B)P202, RHR Pump (PUMP)	PRO
	[S51.8.A App #1 step 1.5] OPEN HV-51-1F024A(B) "RHR Pump Full Flow Test Return" (SUPP POOL CLG), AND MAINTAIN flow indicated on FI-51-1R603A(B), "RHR Loop Flow" between 8000 to 8500 gpm	PRO
	[S51.8.A App #1 step 1.6] CLOSE HV-C-51-1F048A(B), HEAT EXCH BYPASS	PRO
	When SP temperature reaches 110 deg F DIRECT perform T-270 to lower level until -161, SRV closed or <4% power	SRO
	Perform T-270 to lower level until -161, SRV closed or <4% power (Critical Task)	PRO/RO

**6/8 EVENTS 6 – 8 RDACS INOP/TURBINE TRIP/A LOOP RHRSW INOP (Malfunction)****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

At time 10 min after FSSV or EO action requested to perform SE-10 Floor Actions Load **All SE-10 Floor Actions with Time Delays** Scenario and,
report: status of individual resets as requested or when all resets are timed out **OR**
report: "All SE-10 Floor Actions are complete."

Perform T-215 following T-270 second lowering with RPV level -161" to -186"

Control Rods to be inserted by T-215 as follows: When directed by Lead Evaluator Call MCR and notify MCR control rod movement should occur and **DELETE MRP029D**

The **PURPOSE** of this SEG is to get to the T-270 second lowering. With Lead Evaluators permission, vary Bypass Valve malfunction **MEH108** so the crew achieves their objective.

DRIVER NOTE:

DO NOT reset RDACS following LOCA signal



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/8	EVENTS 6 – 8 RDCS INOP/TURBINE TRIP/A LOOP RHR SW INOP (Malfunction)	
	Re-perform T-270 steps to Emergency Stop Reactor Feed Pumps	RO
	Re-inject with Feedwater when RPV level is < -161" (TAF) and stabilize level between -186" and -161"	RO
	[SE-10 3.1] PLACE the following to "CLOSE" <ul style="list-style-type: none"> 52-20224/CS, "D*24 Safeguard L.C. D*24-G-D MCC Bkr" (SAFEGUARDS B), on *BC661 52-20124/CS, "D*14 Safeguard L.C. D*14-G-D MCC Bkr" (SAFEGUARDS A), on *AC661. 	RO
	[SE-10 3.2] PLACE to "RESET": <ul style="list-style-type: none"> 43-22322/CS, "Div. III Non SFGD Instr. Panel" (INST AC 201 CONTROL PNL), on *CC661 43-22422/CS, "Div. IV Non SFGD Instr. Panel" (INST AC 202 CONTROL PNL), on *DC661. 	RO
	Dispatch Equipment Operator to perform SE-10-1 field actions	PRO
	Ensure ECCS Pumps other than '1A' and '1B' RHR remain shutdown	PRO
	RPV level restored and stabilized between -186 and -161 inches (Critical Task)	RO
	MCR notified of expected control rod movement and recognize all rods in due to T-215, De-energization Of Scram Solenoids (Critical Task)	RO
	Secure SLC Pumps that restart on LOCA Signal	RO
	Exit T-117 when all Control Rod in	SRO
	Isolations verified for -129" RPV level	PRO
	Stabilize level with the core covered after rod insertion to maintain the cooldown rate	RO
	Slowly raise Reactor Level Band 12.5" to 54"	RO



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
<p>EVALUATORS NOTE: The scenario is terminated when RPV level has been maintained –186" to –161", followed by Control Rods inserted per T-215, De-energizing Of Scram Solenoids. After the scenario is terminated, direct the SRO to make the highest EAL classification for the scenario.</p> <p>EAL Classification NOT Applicable during ILT NRC initial exams as determined by Lead Examiner.</p> <p>EAL: Alert (MA3) due to:</p> <ol style="list-style-type: none">1. Automatic or manual scram did not shutdown the reactor as indicated by Reactor Power > 4%. <p><u>AND</u></p> <ol style="list-style-type: none">2. Manual / ARI actions taken at the Reactor Console are not successful in shutting down the reactor as indicated by Reactor Power > 4%.		



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
	<ul style="list-style-type: none">• Rough Log(s) Maintained by the crew with the following items noted:• ON-102 entry• HWC tripped• '1C' RFP Min Flow Valve fails open• '1C' RFP manually tripped• RPV High Pressure Trip with failure to scram• OT-117 entry• ATWS• T-101 entry• T-200 Callouts:<ul style="list-style-type: none">• T-209• T-213• T-214• T-215• T-216• T-221• T-251• T-270• T-290• T-117 entry• Main Turbine Vibration/Trip• BPV failure• A or C RHRSW Pump Trip• LOCA signal• SE-10 entry/floor actions• Isolations verified for +12.5", -38", -129"• All rods in• Level restored above TAF• Alert (MA3) declaration due to ATWS with failure of auto and manual RPS and RRCS	Crew



Attachment 1

Simulator Operator Response Times

Procedure	Performance	Response Time (Minutes)
T-209	Injection from the Standby Liquid Control Storage Tank with the RCIC System	45
T-212	Bypassing SQUIB Valves for SLC Injection	19
T-215	De-energization of Scram Solenoids	7
T-216	Manual Isolation and Vent of Scram Air Header	7
T-217	RPS/ARI Reset and Backup Method of Draining Scram Discharge Volume	17
T-219	Maximizing CRD Cooling Water Header Flow during ATWS Conditions	23
T-221	MSIV Isolation Bypass Procedure	11
T-225	Startup and Shutdown of Suppression Pool and Drywell Spray Operations	8
T-240	Maximizing CRD flow after Shutdown During Emergency Conditions	8
T-245	RPV Injection from RHR S/D Cooling	12
T-248	Injection from SLC Test Tank to RPV	15
T-251	Establish a HPCI Injection flow Path VIA Feedwater Only	6
T-270	Terminate and Prevent Injection into the RPV	7
T-290	Instrumentation Available for T-103 SAMP-2	5
S46.7.A (4.2.1)	Control Rod Drive Hydraulic System Operation Following Reactor Scram (Securing CRD flow to the Reactor - Close 46-1F060, CRD Water Pressure Control Station Inlet Valve)	7
SE-10-1 Resets and Floor action	Breaker Reset Following LOCA (Also reset ARMs, RHRSW Rad Monitor and RDCS)	10



Attachment 2

Communications Log

FSSV: _____

[illegible]



**This Page
Intentionally
Blank**



XI. CREW PREBRIEF INSTRUCTIONS

Unit 2 is in OPCON 1 at 100% power

Unit 1 is in OPCON 1 at 100% power

Specific Plant Conditions are as Follows:

- Operation per GP-5, Steady State Operations

Inoperable/Out of Service Equipment and Estimated Time of Return (ETR):

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Maintain 100%.

Documents Provided:

- None