LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

ERP CLASSIFICATION AND REPORTING (TIME CRITICAL)

JPM Number: LOJPM3101

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 EP-AA-1008 Addendum 3	Rev: 002
Procedure EP-MA-114-100-F-01	Rev: P
Procedure EP-AA-112-100-F-01	Rev: Y
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 supersedes LLOJPM0101 Rev002. Revised to new template and to align with latest procedure revision.	09/26/16
Rev001	Revised to incorporate minor procedural and JPM changes	09/19/17

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

IV. TASK STANDARD:

1. Site Area Emergency 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 Site Area Emergency.

V. SIMULATOR SETUP

☐ Use existing IC Met Data

☒ Insert the following Met Data values:

RZZ002 MET Data Wind Direction (0-360) DEG AZIMUTH Target Value = 312.5

RZZ003 MET Data Wind Speed (0-100) MPH Target Value = 5.7

VI. INITIAL CONDITIONS:

The following station events and conditions exist on Unit 1:

1. Reactor power 100% in OPCON 1
2. A tornado with winds of 200 mph caused damage to the Unit 1 Reactor Enclosure, and structural failure of the Unit 1 Spent Fuel Pool (SFP).
3. The Unit 1 SFP wall has a large hole, approximately 5' above the fuel assemblies, and the water has drained from the Unit 1 Spent Fuel Pool to Radwaste.
4. The remaining Unit 1 SFP water is boiling, with the steam escaping the refuel floor through a breach.
5. Control Room ventilation has automatically placed itself in a radiation isolation flowpath, with the '0A' CREFAS fan running.
6. Health Physics dose assessment team reports that the projected offsite dose using computer dose model is as follows:
   - 150 mRem TEDE.
   - CDE Thyroid is expected to reach 380 mRem.
7. The Unit 1 and Unit 2 SFPs are separated.
8. LI-053-200A reads 4.5' down slow.
9. LI-053-200B reads 23.5' steady.
10. Refuel Floor has been isolated with SBGT in service
11. North Stack Radiation is 2.20 E+04 µCi/sec

VII. 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.

No prior classifications or notifications have been made. 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.

VIII. 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: ☒ HOT ☐ 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: ☐ UNUSUAL EVENT ☐ ALERT ☒ SITE AREA EMERGENCY ☐ GENERAL EMERGENCY Declared within 15 minutes of the JPM START TIME: DECLARATION TIME:			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
NOTE: Candidate may choose, in step 6, Scenario 3: Actual event report to facility alternate location, which is acceptable.					
*	6. Direct Shift Communicator to activate the ERO or make management only notifications	Everbridge activation: ☒ Scenario 1: Actual event report to facility ☐ Scenario 2: Management notification only ☐ Scenario 3: Actual event report to facility alternate location			
	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.				

	ELEMENT	STANDARDS	SAT	UNSAT	COMMENT NUMBER
EP-MA-114-100-F-01, STATE/LOCAL EVENT NOTIFICATION FORM					
	9. UTILITY MESSAGE NO.	"1" or equivalent entered			
	10. VERIFIED WITH	N/A	N/A		
	11. EMERGENCY DIRECTOR APPROVAL	Signature entered			
*	12. CALL STATUS:	Call Status marked ☒ THIS IS A DRILL			
*	13. AFFECTED STATION:	Affected Station marked for ☒ LIMERICK			
*	14. AFFECTED UNIT(S):	Unit(s) marked ☒ ONE ☐ TWO			
*	15. CLASSIFICATION:	Classification marked ☐ UNUSUAL EVENT ☐ ALERT ☒ SITE AREA EMERGENCY ☐ GENERAL EMERGENCY			
*	16. DECLARED AT:	Time entered Date entered			
	17. THIS REPRESENTS A/AN:	This Represents marked ☒ INITIAL DECLARATION ☐ ESCALATION ☐ NO CHANGE			
*	18. EMERGENCY ACTION LEVEL (EAL) NUMBER:	"RS1" entered Threshold 2.a.			

	ELEMENT	STANDARDS	SAT	UNSAT	COMMENT NUMBER
*	19. A BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT:	☒ A- Abnormal Rad Levels/ Radiological Effluent ☐ B- Fission Product Barrier Degradation ☐ C- System Malfunction ☐ D- Hazards and Other Conditions Affecting Plant Safety ☐ E- Independent Spent Fuel Storage Installation Malfunction ☐ F- Cold Shutdown/Refueling System Malfunctions			
*	20. RADIOLOGICAL RELEASE STATUS:	Release Status marked ☐ NO RELEASE ☒ AIRBORNE ☐ LIQUID ☐ 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: 312.5 (degrees) Wind Speed: 5.7 (MPH) **Attachment Values :** Wind Direction: 312.5 (degrees) Wind Speed: 5.7 (MPH)			
*	22. PROTECTIVE ACTION RECOMMENDATION (a or b) :	PAR Recommendation marked ☒ NOT Applicable ☐ PAR Recommendation			

	ELEMENT	STANDARDS	SAT	UNSAT	COMMENT NUMBER
	23. CONCLUSION	Conclusion marked ☒ 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: LOJPM3101 **Revision Number:** 001

Task Number and Title: TPO3440070302, Classify Emergency Events Requiring Emergency Plan Implementation

K/A Number and Importance: Generic 2.4.41 Importance 4.6

Safety Function (1-9) N/A .

Admin Category (A1-4) A4 *(Emergency Plan)*

Level 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 Addendum 3, LGS EMERGENCY ACTION LEVELS FOR LGS, Rev. 002
EP-MA-114-100-F-01, STATE/LOCAL EVENT NOTIFICATION FORM, Rev. P
EP-AA-112-100-F-01, SHIFT EMERGENCY DIRECTOR CHECKLIST, Rev Y
EP-AA-111-F-11, Limerick PAR Flowchart, Rev. A

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

Testing Method: ☐ Simulate ☒ Perform

Estimated 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:

The following station events and conditions exist on Unit 1:

1. Reactor power 100% in OPCON 1
2. A tornado with winds of 200 mph caused damage to the Unit 1 Reactor Enclosure, and structural failure of the Unit 1 Spent Fuel Pool (SFP).
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6. Health Physics dose assessment team reports that the projected offsite dose using computer dose model is as follows:
   - 150 mRem TEDE.
   - CDE Thyroid is expected to reach 380 mRem.
7. The Unit 1 and Unit 2 SFPs are separated.
8. LI-053-200A reads 4.5' down slow.
9. LI-053-200B reads 23.5' steady.
10. Refuel Floor has been isolated with SBGT in service
11. North Stack Radiation is 2.20 E+04 µCi/sec

INITIATING CUES: <u>This Task is Time Critical</u>

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

No prior classifications or notifications have been made. 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
TOWER 1	**T1DTULFA**	**T1.SP.U**	TOWER 1 270 FT WIND SPEED	6.3	**MPH**
	T1SPIFA	T1.SP.I	TOWER 1 175 FT WIND SPEED	5.7	MPH
	T12SPLFA	T1.SP.L	TOWER 1 30 FT WIND SPEED	4.6	MPH
	T1DRUFA	T1.DR.U	TOWER 1 270 FT WIND DIRECTION	314.5	DEG AZ
	T1DRIFA	T1.DR.I	TOWER 1 175 FT WIND DIRECTION	312.5	DEG AZ
	T1DRLFA	T1.DR.L	TOWER 1 30 FT WIND DIRECTION	311.1	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
TOWER 2	T2DTULFA	T2.SP.U	TOWER 2 304 FT WIND SPEED	6.1	MPH
	T2SPIFA	T2.SP.I	TOWER 2 159 FT WIND SPEED	5.5	MPH
	T22SPLFA	T2.SP.L	TOWER 2 30 FT WIND SPEED	4.1	MPH
	T2DRUFA	T2.DR.U	TOWER 2 304 FT WIND DIRECTION	321.4	DEG AZ
	T2DRIFA	T2.DR.I	TOWER 2 159 FT WIND DIRECTION	320.5	DEG AZ
	T2DRLFA	T2.DR.L	TOWER 2 30 FT WIND DIRECTION	318.9	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 AMBIEWNT 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

EVALUATE OVERTIME WORK REQUEST (RO)

JPM Number: LOJPM6704

REVISION NUMBER: 001

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 LS-AA-119 Rev: 12

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 2012 RO JPM A-1.1, Rev. 3. Revised to new template and to align with latest procedure revision.	09/11/14
Rev001	Revised to change status of time off between shifts and align with new JPM standard	09/28/17

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

IV. TASK STANDARD:

Review the work hour history and determines that overtime request will result in exceeding 10 CFR 26 Work Hour Limits.

V. INITIAL CONDITIONS:

1. You were on vacation from 9/1 to 9/22.
2. Shift supervision has presented you with the below proposed schedule.
3. Additionally shift supervision has proposed a 12 hour overtime shift: Sunday 10/07 0600-1800.

Sunday 9/23	**Monday 9/24**	**Tuesday 9/25**	**Wednesday 9/26**	**Thursday 9/27**	**Friday 9/28**	**Saturday 9/29**
1200-1800	0600-1800	0600-1800	0600-1400	0600-1400	0600-1400	0600-1400
Sunday 9/30	**Monday 10/1**	**Tuesday 10/2**	**Wednesday 10/3**	**Thursday 10/4**	**Friday 10/5**	**Saturday 10/6**
0600-1500	0600-2100	OFF	OFF	0600-1800	0800-1200	0600-2100

VI. INITIATING CUE:

Using the schedule provided:

1. Determine if your proposed work schedule meets work hour requirements, if not, list any and ALL restrictions that apply.
2. Determine if you can work the entire requested shift (Sunday 10/7 0600-1800), if not, list any and ALL restrictions that apply.
3. Document your conclusion on the Individual Briefing Sheet.

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. Provide to candidate, a copy of: • Individual Briefing Sheet	N/A			
	2. Candidate obtains LS-AA-119, Fatigue Management and Work Hour Limits. **CUE:** Provide copy of LS-AA-119, Fatigue Management and Work Hour Limits, when candidate demonstrates ability to obtain procedure.	Candidate obtains and reviews LS-AA-119, Fatigue Management and Work Hour Limits.			
*	3. [5.1.1] 10 CFR 26 Work Hour Limits. (The following limit applies regardless of unit status) At least a 10-hour break between successive work periods, or an 8-hour break when a break of less then 10-hours is necessary to accommodate a crew's scheduled transition between work schedules or shifts.	Candidate determines that he/she cannot work the requested shift on Sunday because • The required 10 hour break between work periods will not be met			
*	4. [5.1.1] 10 CFR 26 Work Hour Limits. (The following limit applies regardless of unit status) No more than 26 work hours in any 48 hours period.	Candidate determines that he/she cannot work the full requested shift on Sunday because • The additional hours will result in exceeding 26 hours in any 48 hours period.			

	*ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	5. [5.1.1] 10 CFR 26 Work Hour Limits. (The following limit applies regardless of unit status) A 34 hour break in any 9 day period (this limit may be incorporated into minimum days off requirements)	Candidate determines that previously worked schedule violation occurred due to not having a 34 hour break in a 9 day period. • The period [9/23 -10/01] did not have a 34 hour break			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____

Exelon Generation

JPM SUMMARY

Operator's Name:_____.

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

JPM Title: EVALUATE OVERTIME WORK REQUEST (RO)

JPM Number: LOJP6704 **Revision Number:** 001

Task Number and Title: 3420160302 Apply Administrative Procedure Requirements for Work Controls

K/A Number and Importance: G2.1.5 RO 2.9 SRO 3.9

Safety Function (1-9) N/A

Admin Category (A1-4) 1

Level of Difficulty (1-5) 2

Suggested Testing Environment: Classroom

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

Reference(s): NUREG 1123, Rev. 2 Supp. 1
LS-AA-119, Fatigue Management And Work Hour Limits, Rev. 12

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:

5. You were on vacation from 9/1 to 9/22.
6. Shift supervision has presented you with the below proposed schedule.
7. Additionally shift supervision has proposed a 12 hour overtime shift: Sunday 10/07 0600-1800.

Sunday 9/23	**Monday 9/24**	**Tuesday 9/25**	**Wednesday 9/26**	**Thursday 9/27**	**Friday 9/28**	**Saturday 9/29**
1200-1800	0600-1800	0600-1800	0600-1400	0600-1400	0600-1400	0600-1400
Sunday 9/30	**Monday 10/1**	**Tuesday 10/2**	**Wednesday 10/3**	**Thursday 10/4**	**Friday 10/5**	**Saturday 10/6**
0600-1500	0600-2100	OFF	OFF	0600-1800	0800-1200	0600-2100

INITIATING CUE:

Using the schedule provided:

1. Determine if your proposed work schedule meets work hour requirements, if not, list any and ALL restrictions that apply.
2. Determine if you can work the entire requested shift (Sunday 10/7 0600-1800), if not, list any and ALL restrictions that apply.
3. Document your conclusion below.

ANSWER: _____

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

REVIEW DRYWELL FLOOR DRAIN SUMP/EQUIPMENT DRAIN TANK LOGS AND DETERMINE COMPLIANCE WITH TS 3.4.3.2

JPM Number: LOJPM6708

REVISION NUMBER: 002

DATE: _____

Developed By:	_____ Instructor	_____ Date
Validated By:	_____ SME or Instructor	_____ Date
Reviewed By:	_____ Operations Representative	_____ Date
Reviewed By:	_____ EP Representative	_____ Date
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_____ 5. Initiating cues (and terminating cues if required) are properly identified.

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_____ 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-6-107-596-1 Rev: 28

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

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SME / Instructor Date

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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
Rev001	Revised to new template and to align with latest procedure revision.	06/22/16
Rev002	Revised to incorporate both RO and SRO requirements	9/21/17

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

IV. TASK STANDARD:

Review the data for Drywell Floor and Equipment Drain Tanks, determine that >2 gpm increase in leakage over a 24 hour period was exceeded on day 5, and identification of a math error on day 2. Also, Tech Spec 3.4.3.2 referenced for UNIDENTIFIED LEAKAGE.

Additionally, SRO identifies per T.S. 3.4.3.2, source of leakage be identified or to be in Hot S/D within next 12 hrs.

V. SIMULATOR SETUP

N/A

VI. INITIAL CONDITIONS:

1. Unit 1 is in OPCON 1
2. Unit 1 has been at 100% power for 179 days
3. FQRSH-61-112 is Operable

VII. INITIATING CUE:

Shift Supervision directs you to perform a peer check review for a completed ST-6-107-596-1, "Drywell Floor Drain Sump/Equipment Drain Tank Surveillance Log/OPCON 1, 2, 3". Perform this review, document discrepancies, and Tech Spec concerns, if any.

In addition, SROs identify all Tech Spec actions that apply for the condition, if any.

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 candidate with the following: • Individual Briefing Sheet • Completed ST-6-107-596-1, "Drywell Floor Drain Sump/ Equipment Drain Tank Surveillance Log/OPCON 1, 2, 3" • Unit 1 Tech Specs • Calculator	N/A			
2. Candidate reviews ST-6-107-596-1 for compliance	N/A			
3. *(Step 4.1.3)* FQRSH-61-112, (points 3 and 4 Hi alarm setpoints) have been determined available and FI-61-115, FLOOR, FL, and FI- 61-135, EQUIP, FL, are OPERABLE, therefore floor and equipment totalizer readings are available.	Candidate notes that FI-61-115, FLOOR, FL, and FI- 61-135, EQUIP, FL, are OPERABLE			
EVALUATORS NOTE: A math error has occurred on Attachment 2, Day 2. The candidate should identify the error however it will not change the outcome of the test and has no effect on actual drywell leakage.				
4. *(Attachment 2, Day 2 Log)* Total Leakrate is calculated by adding together each of the recorded values on Attachment 2, Table 1 (FI-61-115 Floor and FI-61-135 Equip) AND recorded as Total Leakrate (gpm) on Attachment 2, Table 1	Applicant verifies Total Leakrate calculations are for all Total Leakrate entries *(Candidate notes math error Day 2 Total Leakrate 1.3 gpm vice 2.3 gpm)*			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Roleplay as unit supervisor and acknowledge applicant report.					
*	5. *(Attachment 2, Day 5 Log)* Perform the following at 08:00, 16:00, **AND** 00:00: **IF** Total Leakrate is ≤ 25 gpm, **AND** FI-61-115 is ≤ 5 gpm **AND** FI-61-115 increase is ≤ 2 gpm from previous 00:00 reading **THEN** ENTER SAT **OTHERWISE** ENTER UNSAT on Attachment 2, Table 1, **AND NOTIFY** SSV	Candidate identifies on Day 5 that the 0800 floor drain reading is now 3.9 gpm. This is an increase of >2 gpm over the last 24 hours. Applicant notes this should not have been marked SAT. Candidate notes that they would notify SSV as Tech Spec actions may be required			
*	6. Tech Spec 3.4.3.2 Reactor coolant system leakage referenced.	Candidate references TS 3.4.3.2.f Reactor coolant system leakage shall be limited to 2 gpm increase in UNIDENTIFIED LEAKAGE over 24 – hour period			
EVALUATORS NOTE: This is the termination point for RO's. The remaining portion of this JPM is "SRO Only"					
*	7. SRO determines required action for Tech Spec 3.4.3.2 UNIDENTIFIED LEAKAGE	SRO identifies per TS 3.4.3.2 action e. The source of leakage must be identified within 4hrs. or be in HOT SHUTDOWN within next 12 hrs.			
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: Review Drywell Floor Drain Sump/Equipment Drain Tank Logs and Determine Compliance with TS 3.4.3.2

JPM Number: LOJPM6708 **Revision Number:** 002

Task Number and Title: 2990150101 Perform and Review Weekly Surveillance Logs

K/A Number and Importance: Generic 2.2.12 3.7/4.1

Safety Function (1-9) N/A

Admin Category (A1-4) 2

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator/Classroom

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

Reference(s): NUREG 1123, Rev. 2 Supp. 1
ST-6-107-596-1, Drywell Floor Drain Sump/Equipment Drain Tank Surveillance Log/OPCON 1,2,3, Rev. 28
LGS Unit 1 TS 3.4.3.2

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 OPCON 1
2. Unit 1 has been at 100% power for 179 days

.

INITIATING CUE:

Shift Supervision directs you to perform a peer check review for a completed ST-6-107-596-1, "Drywell Floor Drain Sump/Equipment Drain Tank Surveillance Log/OPCON 1, 2, 3". Perform this review, document discrepancies, and Tech Spec concerns, if any.

In addition, SROs identify all Tech Spec actions that apply for the condition, if any.

Document discrepancies, and Tech Spec concerns, if any.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

ADMINISTRATIVE ACTIONS FOR A THERMAL LIMIT VIOLATION

JPM Number: LOJPM6714

REVISION NUMBER: 001

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 GP-5 Appendix 2	Rev: 97
Procedure GP-14	Rev: 8
Procedure NF-AB-705	Rev: 10
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 LLOJPM0714 Rev. 1. Revised to new template and aligned using MFLCPR for Thermal Limit vs using FLLLP.	8/01/14
Rev001	JPM revised to new JPM template and procedure revision	10/24/16

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

IV. TASK STANDARD:

Candidate identifies MFLCPR is greater than 1.0 and a power reduction is required, using Control Rods only, in accordance with the Reactor Maneuvering Shutdown Instructions (RMSI), and GP-5, Appendix 2, until MFLCPR is less than 1.0

Additionally, SRO identifies per T.S. 3.2.3.b, corrective actions (Control Rods insertion per GP-14) must be taken within 15 minutes to restore MCPR to within required limit within 2 hours or Thermal Power reduced to < 25% of rated thermal power within the next 4 hours.

V. INITIAL CONDITIONS:

1. Reactor power is currently stable at ~ 99.8%.
2. During the previous shift, Reactor Engineering and Ops Management had authorized a Reactor power ascension using Control Rods and Recirc flow.
3. Reactor power was raised per GP-5, Appendix 2, from 90% following a Control Rod pattern adjustment.
4. Shift turnover has been completed, all required log entries have been completed and you have assumed shift duties.
5. The latest official 3D Monicore Periodic Log (P1) has been run to assess the recent Reactor power ascension with the following:
    - The Plant Process Computer (PPC) is OPERABLE
    - 3D Monicore (3DM) is OPERABLE
    - No Plant Monitoring System (PPC) or software testing is in progress.
    - The P-1 edit is <u>not</u> known to be invalid.
    - EOC-RPT system is operable
    - Turbine Bypass system is operable

VI. INITIATING CUE:

You are directed to review the official 3D Monicore Periodic Log (P1), and perform the following:

1. Verify Reactor Core Limits have been maintained during the recent power ascension **AND** if any Reactor Core Limit is **NOT** in compliance:

   a) Identify parameter(s), and enter the appropriate procedure(s)

   b) Identify required action(s) for the entered procedure(s)

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
NOTE: The 3D Monicore Periodic Log (P1) identifies MFLCPR greater than 1.0. MFLCPR is a Thermal Limit as specified in Tech Specs. GP-5, Appendix 2 references GP-14, Resolution of Thermal Limit Violations, to restore any Thermal Limit or FLLLP to less than the maximum valve listed in GP-14, Attachment 1. Also the candidate may request NF-AB-705, 3D Monicore-Troubleshooting for computer data validation.					
	1. Provide the candidate with the following: • Individual Briefing Sheet • 3D Monicore Periodic Log (P1).	N/A			
*	2. Candidate reviews the 3D Monicore Periodic Log (P1) to verify core limits (Thermal Limits and FLLLP are acceptable).	Candidate observes MFLCPR has exceeded the limit specified in GP-5. (All other core parameters are within their specified limits).			
*	3. Candidate communicates the condition of the core as indicated on the 3D Monicore Periodic Log (P1). **CUE:** If requested, provide candidate with GP-5, Appendix 2.	Candidate states the following concerning the condition of the core: • The core MFLCPR has exceeded the specified limit. (All other core parameters are within their specified limits).			
	4. Candidate determines GP-14 must be entered and references GP-14, Resolution of Thermal Limit Violations **CUE:** When requested, ensure available GP-14, Resolution of Thermal Limit Violations	Candidate reviews GP-14 prerequisites and **"NOTES"** prior to step 3.1 of GP-14.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	5. *(GP-14 3.1)* Immediately notify Shift Management and Reactor Engineering of any thermal limit OR FLLLP violation.	Immediately inform the following for the MFLCPR violation: • Shift Management • Reactor Engineers			
*	6. *(GP-14 3.2)* IF MFLCPR violation occurs **REDUCE** Reactor power using Control Rods only using RMSI **AND** GP-5 Appendix 2.	Candidate determines a Reactor power reduction is required with Control Rods only, using RMSI **AND** GP-5 Appendix 2 concurrently until core Thermal Limits and FLLLP are less than 1.000			
NOTE: This is the termination point for RO's only **CUE: (RO's only) - You have met the termination criteria for this JPM** **The remaining portion of this JPM is "SRO's only'** **Provide the SRO, with a copy of the following:** **1. NF-AB-705, 3D Monicore-Troubleshooting** **2. TECH SPECS, Unit 1**					
	7. *(GP-14 3.5)* Examine P-1 containing thermal limit violation for unexplained changes using NF-AB-705 for computer data validation **CUE:** Provide the SRO, copy of NF-AB-705, 3D Monicore-Troubleshooting	SRO candidate determines Core power, Flow, Control Rod pattern and LPRMs are consistent at power level and P-1 appears to be valid			
	8. *(GP-14 Note)* Reference Tech Spec 3.2.3.b to verify MCPR $\geq$ MCPR limit adjusted by MCPR(P) and MCPR(F) provided EOC-RPT system and Turbine Bypass system operable	Determine (from P-1) MCPR = 1.383 and MCPRLIM = 1.390 **1.383 is < 1.390** requiring action to be taken			

	*ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	9. *(Tech Spec)* Reference Tech Spec 3.2.3.b With MCPR < MCPR LIMIT corrective actions must be taken within 15 minutes to restore MCPR to within required limit within 2 hours or reduce Thermal Power to < 25% of rated thermal power within the next 4 hours.	Tech Spec 3.2.3.b, states corrective actions (Control Rods inserted per GP-14) must be taken within 15 minutes to restore MCPR to within required limit within 2 hours or Thermal Power reduced to < 25% of rated thermal power within the next 4 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: ADMINISTRATIVE ACTIONS FOR A THERMAL LIMIT VIOLATION

JPM Number: LOJPM6714 **Revision Number:** 001

Task Number and Title: 2830010101 Use Plant Computer
2953010101 Actions for GP-5, Intentional Power Drop

K/A Number and Importance: 295014 AA2.04 4.1 / 4.4
Generic 2.1.7 4.4 / 4.7

Safety Function (1-9) N/A

Admin Category (A1-4) 1

Level of Difficulty (1-5) 2

Suggested Testing Environment: Classroom

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

Reference(s): GP-5, Appendix 2, Rx Maneuvering Without Shutdown, Rev 97
GP-14, Resolution of Thermal Limit Violations, Rev 08
NF-AB-705, 3D Monicore-Troubleshooting Rev 10
Tech Specs, Unit 1

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. Reactor power is currently stable at ~ 99.8%.
2. During the previous shift, Reactor Engineering and Ops Management had authorized a Reactor power ascension using Control Rods and Recirc flow.
3. Reactor power was raised per GP-5, Appendix 2, from 90% following a Control Rod pattern adjustment.
4. Shift turnover has been completed, all required log entries have been completed and you have assumed shift duties.
5. The latest official 3D Monicore Periodic Log (P1) has been run to assess the recent Reactor power ascension with the following:
    - The Plant Process Computer (PPC) is OPERABLE
    - 3D Monicore (3DM) is OPERABLE
    - No Plant Monitoring System (PMS) or software testing is in progress.
    - The P-1 edit is not known to be invalid.
    - EOC-RPT system is operable
    - Turbine Bypass system is operable

INITIATING CUE STATEMENT:

You are directed to review the official 3D Monicore Periodic Log (P1), and perform the following:

1. Verify Reactor Core Limits have been maintained during the recent power ascension **AND** if any Reactor Core Limit is **NOT** in compliance:

    c) Identify parameter(s), and enter the appropriate procedure(s)

    d) Identify required action(s) for the entered procedure(s)

LIMERICK GENERATING STATION

JOB PERFORMANCE MEASURE

INDIVIDUAL BRIEFING SHEET

Document Required Actions: _____

1 PAGE 1

LIMERICK-1 CYCLE 17 SEQUENCE NO 8

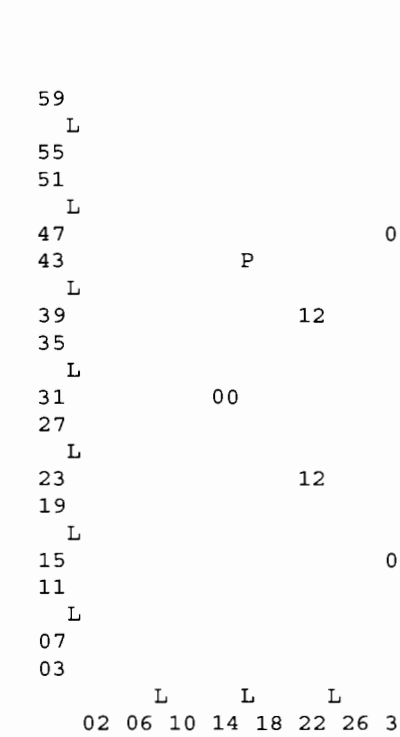
CORE PARAMETERS			3DM V6.59.06/P11E10		18-DEC-2017 14:30 CALCULATED
POWER	MWT	3507.5	PERIODIC LOG		18-DEC-2017 14:30 PRINTED
POWER	MWE	1175.6	AUTOMATIC		CASE ID FMLD1171218143010
FLOW	MLB/HR	99.636	CALC RESULTS		RESTART FMLD1171218123056
FPAPDR		0.864			LPRM SHAPE - FULL CORE
SUBC	BTU/LB	20.12	Keff	1.0083	
PR	PSIa	1058.33	XE WORTH %	-2.21	LOAD LINE SUMMARY
CORE	MWD/sT	19903.6	XE/RATED	0.991	CORE POWER 99.8%
CYCLE	MWD/sT	1505.2	AVE VF	0.459	CORE FLOW 99.6%
MCPR		1.383	FLLLP	0.884	LOAD LINE 100.0%

ALTERNATE INPUT : LG1_DLO_TBSIS_RPTIS_PRIS_OPTB.INP
CORRECTION FACTORS: MFLCPR= 1.001 MFLPD= 0.999 MAPRAT= 1.000 ZBB= 1.76 ft
OPTION: ARTS 2 LOOPS ON MANUAL FLOW MCPRLIM= 1.390 FCBB= N/A

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCMARG	LOC
1.005	43-16	0.863	47-20- 4	0.736	47-20- 4	0.025	15-42- 4
1.001	45-18	0.848	41-14- 4	0.723	41-14- 4	0.023	43-14- 4
0.954	41-14	0.847	51-20- 4	0.712	43-16- 4	0.019	47-22- 4
0.947	47-20	0.843	49-20- 4	0.712	45-18- 4	-0.050	49-24- 4
0.937	45-16	0.839	41-10- 4	0.711	45-20- 4	-0.052	47-18- 4
0.897	31-28	0.837	43-16- 4	0.709	47-22- 4	-0.140	39-14- 4
0.894	27-30	0.837	45-18- 4	0.706	43-14- 4	-0.167	37-12- 4
0.878	41-12	0.835	45-14- 4	0.705	49-20- 4	-0.209	43-18- 4
0.876	49-20	0.829	41-12- 4	0.702	45-16- 4	-0.235	41-16- 4
0.871	31-24	0.827	45-16- 4	0.698	47-18- 4	-0.412	45-24- 4

SEQ. A-2 C=MFLCPR D=MFLPD M=MAPRAT P=PCMARG *=MULTIPLE



NOTCH	REL PW	LOC	
	0.178	25	
00	0.387	24	
02	0.522	23	
04	0.633	22	
06	0.705	21	
08	0.763	20	
10	0.795	19	
12	0.812	18	
14	0.906	17	
16	0.931	16	
18	0.972	15	
20	1.008	14	
22	1.034	13	
24	1.079	12	
26	1.130	11	
28	1.167	10	
30	1.299	09	
32	1.385	08	
34	1.454	07	
36	1.526	06	
38	1.592	05	
40	1.603	04	<-
42	1.498	03	
44	1.193	02	
46	0.430	01	

CORE AVERAGE RADIAL POWER DISTRIBUTION

RING #	1	2	3	4	5	6	7	8
REL PW	1.334	1.356	1.262	1.225	1.222	1.292	1.007	0.418

1 PAGE 2

LIMERICK-1 CYCLE 17 INSTRUMENT READINGS/STATUS
CALIBRATED LPRM READINGS

SEQUENCE NO 8
18-DEC-2017 14:30 CALCULATED
18-DEC-2017 14:30 PRINTED
CASE ID FMLD1171218143010
LPRM SHAPE - FULL CORE

57D		16.7	0.0	21.8	20.6		
C		17.4	27.1	28.6	23.2		
B		16.6	31.8	33.4	24.7		
A		13.6	32.0	34.7	22.8		
49D	17.1	24.7	27.3	23.8	26.1	22.7	
C	19.6	37.0	40.1	35.1	37.7	30.2	
B	20.4	0.0	52.3	45.4	51.8	37.7	
A	18.7P	66.0	66.0	56.1	68.5	44.7	
41D	25.0	28.1	31.8	30.3	31.4	25.5	0.0
C	34.7	39.7	37.4	41.0	37.5	38.3	23.0
B	44.4	52.9	47.3	51.1	48.4	51.8	24.9
A	57.8	66.9	55.3	61.8	58.1	70.1	22.2
33D	25.3	26.4	31.3	29.5	30.1	23.8	21.7
C	36.6	36.3	42.3	43.2	40.6	34.3	27.9
B	47.8	46.9	53.9	55.7	51.6	44.4	32.6
A	61.6	54.7	64.6	0.0	62.0	53.8	34.3
25D	25.1	29.0	0.0	30.8	31.1	27.1	21.2
C	36.1	40.0	37.7	42.2	36.9	39.7	27.2
B	47.1	52.2	47.3	53.8	46.6	52.4	31.7
A	59.0	63.6	53.3	63.6	54.3*	67.5	31.9
17D	22.6	26.1	29.1	27.2	28.2C	24.6	16.5
C	0.0	39.1	39.9	37.3	39.4	36.9	17.4
B	34.6	52.0	51.6	47.3	53.0	49.6	16.5
A	39.1	67.9	63.0	54.0	64.7	65.0	13.8
09D		22.5	25.8	25.3	25.1	0.0	
C		29.3	37.1	37.2	34.6	19.7	
B		35.3	48.1	0.0	44.5	20.6	
A		39.5	59.5	64.0	56.8	19.0	
	08	16	24	32	40	48	56

OF TIPS NOT SCANNED: 9

FAILED SENSORS:
LPRM (8 SIGNALS FAILED)
817C 1649B 2425D 2457D
3209B 3233A 4809D 5641D
LPRM (0 PANACEA REJECTED)
OTHER SENSORS (0 TOTAL)
SUB RODS
NONE

T = TIP RUN RECOMMENDED
C = MFLCPR LOCATION
M = MAPRAT LOCATION
D = MFLPD LOCATION
P = PCMARG LOCATION
* = MULTIPLE LIMIT

CORE SUMMARY

INER	1.054				
CORE POWER	99.8%	CALC SUB FLOW	96.2%	DP MEAS PSI	14.890
CORE FLOW	99.6%	OPER SUB FLOW	-1.0%	DP CALC PSI	20.181
LOAD LINE	100.0%	FLOW BASIS	MEAS	FEEDWTR FLOW MLB/HR	15.30

APRM CALIBRATION

	1	2	3	4
READING	99.3	99.5	99.6	99.6
AGAF	1.005	1.003	1.002	1.002
APRM - %CTP	-0.5	-0.3	-0.2	-0.2

TIP RUNS RECOMMENDED
STRINGS: NONE

DRIVE FLOW	MLB/HR	32.47
FEEDWTR TEMP	Deg F	431.8
CORE AVG VOID FRACTION		0.459

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

AREA RAD MONITOR(s) FAIL DOWNSCALE

JPM Number: LOJPM6718

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 S27.1.A	Rev: 21
Procedure S27.10.A	Rev: 9
Procedure ARC-MCR-109 A-5	Rev: 2
Procedure Tech Specs Unit 1	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	8/01/17

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

IV. TASK STANDARD:

1. On the Individual Briefing Sheet, only the following downscale ARMs listed, including location and actions required:

Channel	Location	Action
9	Radwaste Cask Loading Area 22 Elev 217'	T-103 / SAMP referenced Have HP install a potable ARM in the vicinity of the inoperable monitor. Candidate may determine to reference S27.1.A step 4.3, or as a minimum: **(Plan to include)** 1) Place affected ARMs in "ZERO" position at Aux Equipment Room.
30	Steam Separator Area 15, Elev 352'	**Criticality ARMs** Inform HP to perform ST-0-027-640-1 Candidate may determine to reference S27.1.A step 4.3, or as a minimum: **(Plan to include)** 1) Place affected ARMs in "ZERO" position at Aux Equipment Room.
33	Pool Plug Laydown Area 11 Elev 352'	

2. For SRO, Tech Spec action(s) 3.3.7

   a) Tech Spec 3.3.7.1.b

   b) With one or more radiation monitoring channels inoperable, take action 71 requirements:

      (a) If fuel movement on-going install portable continuous monitor with the same alarm setpoint in vicinity of installed monitor.

      (b) If no fuel movement on-going perform surveys of monitored area with portable monitoring instrumentation at least once per 24 hrs.

V. SIMULATOR SETUP

N/A

VI. INITIAL CONDITIONS:

1. Unit 1 is at 100% power.
2. MCR received the following alarm:
   - ARC-MCR-109 A-5, Area Rad Monitors Downscale
3. No maintenance activities are currently being performed

VII. INITIATING CUE:

Shift Supervision directs you to identify which channel(s), channel number and location are in the downscale condition, and the action(s) required for the given condition.

In addition, SROs identify all Tech Spec actions that apply for the condition, if any.

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
Lead Evaluator (or designee) Notes: Provide Candidate with the following: • Individual Briefing Sheet, including Attachment #1 • ARC-MCR-109 A-5, 1 AREA RAD MONITORS DOWNSCALE • S27.10.A, Guidance for Addressing Area Radiation Monitor Alarms, and • S27.1.A, Operation Of The Area Radiation Monitoring System • Unit 1 Tech Specs (SROs only)					
	1. [ARC-MCR-109 A-5] Verify at Recorder RR-M1-1R600 which channel(s) (1-35) is in a downscale condition.	Candidate verifies channel 9, 30 and 33 from recorder are below downscale setpoint of .02 mr/hr.			
	2. [ARC-MCR-109 A-5] At Recorder RR-M1-1R600 press "ACK Alarm" key AND reset annunciator	ACK Alarm" key at Recorder RR-M1-1R600 pressed and annunciator reset.			
	3. [ARC-MCR-109 A-5] Obtain current revision of S27.10.A, Guidance for Addressing Area Radiation Monitor Alarms	Candidate obtains S27.10.A, Guidance for Addressing Area Radiation Monitor Alarms			
*	4. [ARC-MCR-109 A-5] **IF** two or more Fuel Pool criticality monitors are inoperable (channels 30, 31, 33), **THEN** have HP perform ST-0-027-640-1	Direct HP to perform ST-0-027-640-1			
	5. [S27.10.A 4.2] **IF** a high radiation alarm occurs, **AND** Radiation Protection has determined the alarm to be false **THEN USE** Attachment 1.	N/A			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	6. [S27.10.A 4.3] **IF** downscale alarm occurs that is known to be caused by maintenance activities, **THEN CONSIDER** defeating the alarm per S27.1.A, Operation Of The Area Radiation Monitoring System, procedure.	No maintenance activities currently being performed per Initial Conditions			
	7. [S27.10.A 4.3] **IF** other downscale alarm occurs, **THEN USE** Attachment 2.	Candidate references S27.10.A Attachment 2			
*	8. [S27.10.A Att #2] "T-103" SAMP-2 ARMS ARM Channels: 1, 2, 8, 9, 10, 11, 21, 22 For either Unit 1 or 2	Candidate directs to place channel 9, in zero			
*	9a. [S27.10.A Att #2] "T-103" SAMP-2 ARMS ARM Channels: 1, 2, 8, 9, 10, 11, 21, 22 For either Unit 1 or 2	Candidate directs HP to install a portable ARM in the vicinity of channel 9 (Radwaste Cask Loading Area 22 Elev 217')			
*	9b. [S27.10.A Att #2] Criticality ARM • RIS 30-M1-*K600 • RIS 31-M1-*K600 • RIS 33-M1-*K600	Candidate directs to place channel in zero: • 30, (Steam Separator Area 15, Elev 352') • 33, (Pool Plug Laydown Area 11 Elev 352')			
	10. [S27.10.A 4.6] **REFER** to S27.1.A, Operation Of The Area Radiation Monitoring System, to defeat the downscale alarm for the ARM that was placed in zero.	Candidate obtains S27.1.A, Operation Of The Area Radiation Monitoring System, procedure.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
Lead Evaluator (or designee) Notes This is the termination point for RO's. The remaining portion of this JPM is "SRO Only"					
*	11. Reference Tech Spec 3.3.7.1 for Spent Pool Criticality Monitors	Tech Spec 3.3.7.1.b With one or more radiation monitoring channels inoperable, take action 71 requirements: If fuel movement on-going install portable continuous monitor with the same alarm setpoint in vicinity of installed monitor If no fuel movement on-going perform surveys of monitored area with portable monitoring instrumentation at least once per 24 hrs.			
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 downscale ARMs

Channel	Location	Action
9	Radwaste Cask Loading Area 22 Elev 217'	T-103 / SAMP referenced Have HP install a potable ARM in the vicinity of the inoperable monitor. Candidate may determine to reference S27.1.A step 4.3, or as a minimum: **(Plan to include)** 1) Place affected ARMs in "ZERO" position at Aux Equipment Room.
30	Steam Separator Area 15, Elev 352'	**Criticality ARMs** Inform HP to perform ST-0-027-640-1 Candidate may determine to reference S27.1.A step 4.3, or as a minimum: **(Plan to include)** 1) Place affected ARMs in "ZERO" position at Aux Equipment Room.
33	Pool Plug Laydown Area 11 Elev 352'	

12. For SRO, Tech Spec action(s) 3.3.7

    a) Tech Spec 3.3.7.1.b

    b) With one or more radiation monitoring channels inoperable, take action 71 requirements:

        (a) If fuel movement on-going install portable continuous monitor with the same alarm setpoint in vicinity of installed monitor.

        (b) If no fuel movement on-going perform surveys of monitored area with portable monitoring instrumentation at least once per 24 hrs.

JPM SUMMARY

Operator's Name:_____.

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

JPM Title: AREA RAD MONITOR(s) FAIL DOWNSCALE

JPM Number: LOJPM6718 **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) _____

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): S27.1.A, Operation Of The Area Radiation Monitoring System, Rev 21
S27.10.A, Guidance for Addressing Area Radiation Monitor Alarms, Rev 9
ARC-MCR-109 A-5, 1 AREA RAD MONITORS DOWNSCALE, Rev 2
Unit 1 Tech Specs

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. MCR received the following alarm:
   - ARC-MCR-109 A-5, Area Rad Monitors Downscale
3. Attachment #1 contains ARM current and last burst readings from recorder RR-M1-1R600
4. No maintenance activities are currently being performed

INITIATING CUE:

Shift Supervision directs you to identify which channel(s), channel number and location are in the downscale condition, and the action(s) required for the given condition.

In addition, SROs identify all Tech Spec actions that apply for the condition, if any.

Channel	Location	Action

SROs, identify all Tech Spec actions that apply for the above condition, if any.

ATTACHMENT 1

Recorder RR-M1-1R600 last burst AND current values:

Channel	Reading from last burst print (mR/hr)	Readings following MCR alarm (mR/hr)
1	4.22	4.52
2	5.74	4.91
3	8.02	8.76
4	3.25	2.95
5	4.51	5.27
6	6.28	6.54
7	12.76	11.99
8	3.91	3.83
9	2.10	0.01
10	6.77	7.07
11	2.14	2.23
12	0.90	0.79
13	6.75	6.57
14	25.87	24.93
15	13.45	14.32
16	3.29	3.45
17	5.98	5.74
18	10.02	10.52
19	13.04	13.42
20	7.93	8.13
21	8.32	8.54
22	7.58	7.74
23	6.19	6.26
24	5.74	5.31
25	3.05	3.41
26	4.81	4.80
27	7.77	7.21
28	8.18	8.16
29	2.22	2.41
30	1.23	0.00
31	2.57	2.61
32	2.14	2.01
33	1.27	0.01
34	1.23	1.41
35	2.41	2.19

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

DETERMINATION OF ADEQUATE SHIFT STAFFING (SRO)

JPM Number: LOJPM6725

REVISION NUMBER: 001

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 OP-LG-101-111	Rev: 6
Procedure U/1 Tech Spec Table 6.2.2-1	Rev: NA
Procedure U/2 Tech Spec Table 6.2.2-1	Rev: NA
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.	11/12/14
Rev001	Revised to incorporate JPM and procedural revisions	9/15/17

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

IV. SIMULATOR SETUP INSTRUCTIONS

Simulator - N/A

V. TASK STANDARD:

1. Determine that the SM must take immediate action to ensure that the STA position is filled within 2 hours
2. Determine that one of the following must occur:
   a. The Unit 2 CRS assumes responsibility for both Units, or
   b. The Floor Supervisor assumes the role of Unit 1 CRS

VI. INITIAL CONDITIONS:

1. Both Units are in OPCON 1
2. A total of 4 SROs have the 1800-0600 shift, as follows:
   a. Shift Manager
   b. Unit 1 CRS (the only qualified STA)
   c. Unit 2 CRS
   d. Floor Supervisor
3. At 2000, the Unit 1 CRS suffers a stomach illness and is driven home

VII. INITIATING CUE:

Evaluate how the sudden absence of the Unit 1 CRS impacts the Tech Spec shift staffing requirements; determine the required actions. Document your findings on the Cue Sheet.

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
Lead Evaluator (or designee) Notes: Provide Candidate with the following: • Individual Briefing Sheet • OP-LG-101-111, Shift Staffing Requirements, when requested • Unit 1 Tech Specs, if requested • Unit 2 Tech Specs, if requested **Examinee may elect to perform the following Elements in the order he/she chooses.**					
	1. Review OP-LG-101-111 and/or Tech Specs for SRO shift staffing requirements.	Candidate reviews OP-LG-101-111 and/or Tech Specs to determine the minimum number of SROs required to satisfy staffing requirements, as follows: • 1 Shift Manager • 2 SROs • 1 STA (who can be any one of the SROs who is qualified as such)			
*	2. Determine the action required in response to the absence of a qualified STA.	Per the "Table Notations" of Tech Spec Table 6.2.2-1, the SM must immediately take action to ensure that the STA position is filled within 2 hours.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	3. Determine the action required in response to the absence of the Unit 1 CRS.	Determines that one of the following must occur in order to fill the Unit 1 CRS position: • Unit 2 CRS assumes responsibility for both Units, or • Floor Supervisor assumes the role of Unit 1 CRS			
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 (SRO)

JPM Number: LOJPM6725 **Revision Number:** 001

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: G 2.1.5 2.9 / 3.9

Level of Difficulty (1-5) 3

Safety Function (1-9) _____

Admin Category (A1-4) 1

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 006

Technical Specifications, Section 6.2.2 for Unit 1 and Unit 2

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. Both Units are in OPCON 1
2. A total of 4 SROs have the 1800-0600 shift, as follows:
   a. Shift Manager
   b. Unit 1 CRS (the only one who is qualified STA)
   c. Unit 2 CRS
   d. Floor Supervisor
3. At 2000, the Unit 1 CRS suffers a stomach illness and is driven home

INITIATING CUE:

Evaluate how the sudden absence of the Unit 1 CRS impacts the Tech Spec shift staffing requirements; determine the required actions. Document your findings on this Cue Sheet.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

AUTHORIZE A REACTOR MANEUVERING SHUTDOWN INSTRUCTION (RMSI) FOLLOWING A ROD PATTERN ADJUSTMENT

JPM Number: LOJPM6727

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 NF-LG-721-1005	Rev: 3
Procedure NF-LG-721-1005-F-01	Rev: 0
Procedure NF-AB-720-F-1	Rev: 1
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 was originally on the 2008 NRC Exam as SRO A1-1. It has been reformatted and modified to add an incorrect rod and a lower than acceptable core flow rate.	11/10/14
Rev001	Revised for Use	06/06/15
Rev002	Revised due to procedure revisions	9/17/17

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

IV. INSTRUCTIONS

1. Handouts required to be included with this JPM:
   a. 3D MONICORE PREDICTOR
   b. NF-LG-721-1005-F-01 Reactor Maneuvering Shutdown Instructions (RMSI)
   c. NF-LG-721-1005, Reactor Maneuvering Shutdown Instructions Preparation Guideline

V. TASK STANDARD:

The applicant should determine that the SRO should NOT authorize the Reactor Maneuvering Shutdown Instructions because of the following;

1. RMSI Flow Reduction Target is less than 60 Mlbm/hr, the limit established in NF-LG-721-1005.
2. Control Rod ID 30-25 is incorrect, the Control Rod ID should be 30-23.

VI. INITIAL CONDITIONS:

1. A rod pattern adjustment has just been completed.
2. The Reactor Engineer has handed you a new Reactor Maneuvering Shutdown Instruction (RMSI). The RMSI has been prepared and verified on 18rd of December 2017 by qualified reactor engineers, John Doe and Jim Miller.
3. The Reactor Engineer has also handed you the 3D MONICORE PREDICTOR results that have been used to develop the RMSI.

VII. INITIATING CUE:

You are directed to review the provided documents and sign for SRO AUTHORIZATION. If there are discrepancies that prevent your authorization of the RMSI, cite each of them on Cue Sheet.

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.

ANSWER KEY - DO NOT HAND-OUT TO CANDIDATE

Description: A rod pattern adjustment has just been completed. The Reactor Engineer has brought the new Reactor Maneuvering Shutdown Instructions (RMSI) to the control room and requested that the Shift Manager/CRS authorize (or activate) the new instructions. There is an incorrect rod on the sheet (30-23 should be 30-25). Additionally, core flow value of 58 Mlbm/hr is lower than allowed by NF-LG-721-1005 step 6.1.2.

JPM is designed to test the ability to determine that a new RMSI rod insertion sheet has been submitted for SRO approval with errors. The candidate will be provided the RMSI package and a 2D Monicore Predictor that shows one of the rods in the RMSI listed is incorrect and that core flow reduction value is lower than allowed.

The SRO signoff is on the RMSI cover sheet. The candidate may be cued as to the location to sign, as RE's are usually asked and will show the SRO where to sign.

Must be provided with the scanned P-1 predictor showing the rod pattern.

Fill out NF-LG-721-1005-F-01 with the Reactor Engineer signoff
Fill in Shutdown Sequence ID LG1C17SD-01.0
RE/QNE
2nd Verifier

Step	Rod ID	Target	
1	30-31	00	
2	14-47	00	
3	46-15	00	
4	46-47	00	
5	14-15	00	
6	30-39	00	
7	30-25	00	(incorrect rod – should be 30-23)
8	38-31	00	
9	22-31	00	
10	14-39	00	
11	46-23	00	
12	46-39	00	
13	14-23	00	

NA remaining blanks on rod sheet place NA in each column.

Cue is that a rod pattern exchange took place and the RE has provided the new RMSI for SRO approval signoff on page 1.

Candidate should identify the step 7 rod is incorrect.
Candidate should also identify that core flow value is lower than allowed by procedure.

VIII. PERFORMANCE CHECKLIST:

JPM Start Time _____

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Review the following: • RMSI • NF-LG-721-1005 • P-1 Predictor Log **CUE:** Provide the following to the candidate: • Individual Briefing Sheet • RMSI (NF-LG-721-1005-F-01) • NF-LG- 721-1005 • P-1 Predictor Log, to candidate.	Candidate reviews RMSI, NF-LG-721-1005 and P-1.			
*	2. Determine from the RMSI that Control Rod 30-25 is a mis-identified control rod.	Identify from the P-1 edit that control rod 30-25 should be 30-23.			
*	3. Determine from the RMSI that core flow is less than 60 Mlbm/hr.	Identify from NF-LG 721-1005 incorrect core flow value.			
*	4. SRO determines that RMSI is incorrect.	SRO lists errors on CUE sheet and does not sign off RMSI due to the errors.			
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: AUTHORIZE A REACTOR MANEUVERING SHUTDOWN INSTRUCTION (RMSI) FOLLOWING A ROD PATTERN ADJUSTMENT

JPM Number: LOJPM6727 **Revision Number:** 002

Task Number and Title: 3420030302, Review Results of Completed Surveillance Tests

K/A Number and Importance: G 2.1.37 4.3/4.6

Level of Difficulty (1-5) 2

Safety Function (1-9) N/A

Admin Category (A1-4) 1

Suggested Testing Environment: Simulator/Classroom

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

Reference(s): NF-LG-721-1005-F-01, Reactor Maneuvering Shutdown Instructions, Rev 0

NF-LG-721-1005, Reactor Maneuvering Shutdown Instructions Preparation Guideline, Rev 3

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. A rod pattern adjustment has just been completed.
2. The Reactor Engineer has handed you a new Reactor Maneuvering Shutdown Instruction (RMSI). The RMSI has been prepared and verified on 18rd of December 2017 by qualified reactor engineers, John Doe and Jim Miller.
3. The Reactor Engineer has also handed you the 3D MONICORE PREDICTOR results that have been used to develop the RMSI.

INITIATING CUE:

You are directed to review the provided documents and sign for SRO AUTHORIZATION. If there are discrepancies that prevent your authorization of the RMSI, cite each of them on Cue Sheet.

ANSWER Key:

1. RMSI is APPROVED
2. RMSI Not APPROVED: State the reason(s) for disapproval below:

Predictor 1 of 1

LIMERICK - 1
3D MONICORE
TRAINING only

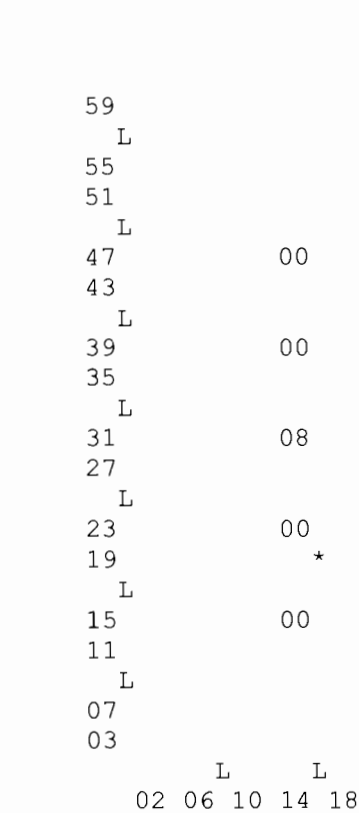
CORE PARAMETERS			3DM V6.58.15/P11.9		18-DEC-2017 14:54 CALCULATED
			PREDICTOR LOG		18-DEC-2017 14:54 PRINTED
POWER	MWT	1554.8			CASE ID FSFF1121817145401
FLOW	MLB/HR	58.000	CALC RESULTS		RESTART FMLS1121817143107
FPAPDR		1.052			FIT - FULL CORE
SUBC	BTU/LB	22.63	Keff	1.0061	
PR	PSIa	1056.10	XE WORTH %	-2.19	LOAD LINE SUMMARY
CORE	MWD/sT	18457.9	XE/RATED	1.092	CORE POWER 44.2%
CYCLE	MWD/sT	5387.1	AVE VF	0.484	CORE FLOW 58.0%
MCPR		2.533	FLLLP	0.548	LOAD LINE 63.0%
D EXP	MWD/sT	260.0			

CORRECTION FACTORS: MFLCPR= 1.250 MFLPD= 1.000 MAPRAT= 1.000 ZBB= 1.80 ft
OPTION: ARTS 2 LOOPS ON MANUAL FLOW MCPRLIM= 1.370 FCBB= N/A

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCMARG	LOC
0.679	21-16	0.465	17-18- 4	0.326	21-14- 5	*****	17-18- 4
0.679	15-22	0.465	19-16- 4	0.326	17-18- 4	*****	21-14- 5
0.668	17-20	0.460	21-16- 4	0.323	13-22- 5	*****	13-22- 5
0.668	19-18	0.460	19-18- 4	0.323	19-16- 4	*****	19-16- 4
0.628	17-16	0.458	17-16- 4	0.311	15-20- 4	*****	21-18- 4
0.626	15-18	0.456	15-44- 4	0.310	11-24- 4	*****	15-16- 4
0.626	23-14	0.456	21-18- 4	0.309	15-16- 4	*****	15-20- 4
0.578	13-24	0.428	15-20- 4	0.291	21-18- 4	*****	17-22- 4
0.556	13-20	0.411	21-14- 4	0.286	23-12- 4	*****	13-26- 5
0.553	19-14	0.409	15-22- 4	0.682	15-24- 5	*****	25-14- 5

C=MFLCPR D=MFLPD M=MAPRAT P=PCMARG *=MULTIPLE



NOTCH	CORE AVE REL PW	AXIAL LOC	
	0.120	25	
00	0.247	24	
02	0.382	23	
04	0.505	22	
06	0.600	21	
08	0.673	20	
10	0.738	19	
12	0.791	18	
14	0.891	17	
16	0.938	16	
18	1.005	15	
20	1.135	14	
22	1.184	13	
24	1.244	12	
26	1.302	11	
28	1.329	10	
30	1.392	09	
32	1.447	08	
34	1.484	07	
36	1.517	06	
38	1.557	05	
40	1.544	04	<-
42	1.422	03	
44	1.141	02	
46	0.414	01	

CORE AVERAGE RADIAL POWER DISTRIBUTION

RING #	1	2	3	4	5	6	7	8
REL PW	1.288	1.273	1.188	1.172	1.219	1.257	1.044	0.472

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

SECURE UNIT 1 HPCI FOLLOWING FULL FLOW FUNCTIONAL TEST

JPM Number: LOJPM3020

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 S55.1.D Rev: 46
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 LLOJPM0020 Rev. 6. Revised to new template and to align with latest procedure revision.	9/17/14
001	JPM revised to new JPM format and procedure changes	9/3/16
002	JPM revised to new procedure changes	8/14/17

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

IV. SIMULATOR SETUP INSTRUCTIONS:

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. Ensure marked-up to section 4.5 'System Restoration' copy of S55.1.D, HPCI System Full Flow Functional Test available with HPCI in full flow test, CST-to-CST, with 120 psig > Rx pressure, and flow controller in AUTO set at 5600 gpm.
3. Place RHR system in Suppression Pool Cooling

V. TASK STANDARD:

HPCI shutdown, per section 4.5, of S55.1.D, HPCI System Full Flow Functional Test.

VI. INITIAL CONDITIONS:

1. Unit 1 is at 100% power.
2. Unit 1 HPCI is operating in full flow test per S55.1.D.
3. RHR is in Suppression Pool Cooling
4. ST-6-060-390-1, Suppression Pool Temperature Check, is currently being performed by another operator.

VII. INITIATING CUE:

You are directed by Shift Supervision to shutdown Unit 1 HPCI, per S55.1.D.

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
Lead Evaluator (or designee) Notes: Provide candidate with the following: • Individual Briefing Sheet, and • M/U copy, to section 4.5, of S55.1.D, HPCI System Full Flow Functional Test					
	1. Obtain copy of S55.1.D, HPCI System Full Flow Functional Test **CUE:** Ensure copy of S55.1.D, HPCI System Full Flow Functional Test available marked-up to section 4.5, System Restoration	S55.1.D, HPCI System Full Flow Functional Test reviewed to section 4.5, System Restoration			
*	2. *[S55.1.D 4.5.1]* **ENSURE** FC-55-*R600 in "MANUAL".	FIC-55-1R600 placed in MANUAL.			
*	3. *[S55.1.D 4.5.2]* **WHEN** test is complete, **THEN LOWER** FC-55-*R600 until speed as indicated on SI-56-*61 is nominal 2,250 rpm.	Speed lowered using FIC-55-1R600 by depressing the "CLOSE" pushbutton in MANUAL until SI-56-161 indicates 2200 to 2300 RPM.			
	4. *[S55.1.D 4.5.3]* **IF** HV-55-*F071, "HPCI/RCIC Flush Line to Suppression Pool" (TEST OUTBOARD), was opened to establish flow path to Suppression Pool, **THEN CLOSE** HV-55-*F071, TEST OUTBOARD.	N/A			
*	5. *[S55.1.D 4.5.4]* **CLOSE** HV-55-*F008, "HPCI Test Loop Shutoff" (TEST ISOL).	HV-55-1F008 control switch taken to CLOSE.			

	*ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	6. *[S55.1.D 4.5.5]* Simultaneously **CLOSE** HV-55-*F001,"HPCI Steam Supply" (INLET) **AND**	HV-55-1F001 control switch taken to close			
*	6a. *[S55.1.D 4.5.5]* **DEPRESS AND HOLD** "Turbine Trip" (TURBINE TRIP) pushbutton until HV-55-*F001, INLET, is fully closed.	TURBINE TRIP pushbutton depressed until HV-55-*F001, INLET, is fully closed.			
*	7. *[S55.1.D 4.5.6]* **WHEN** HV-55-*F001, INLET, is fully closed, **THEN RELEASE** TURBINE TRIP pushbutton.	TURBINE TRIP pushbutton released when HV-55-1F001 is full closed.			
	8. *[S55.1.D 4.5.7]* **WHEN** SI-56-*61, "HPCI Turbine Speed" (S), is less than 1,200 rpm, **THEN VERIFY** *0P213, "Auxiliary Oil Pump" (AUX OIL PUMP) is running.	When SI-56-161 is between 0 and 1,200 rpm, 10P213 AUX OIL PUMP verified ON.			
	9. *[S55.1.D 4.5.8]* **VERIFY** FV-56-*12, "HPCI Turbine Stop Valve" (STOP), open.	FV-56-112 (STOP), OPEN.			
	10. *[S55.1.D 4.5.9]* **MONITOR** position of FV-56-*12 while *0P213, AUX OIL PUMP, is running.	FV-56-112 remains open while *0P213, AUX OIL PUMP, is running.			
	11. *[S55.1.D 4.5.10]* **VERIFY** HV-55-*F012, MIN FLOW, closed.	HV-55-1F012 CLOSED.			
	12. *[S55.1.D 4.5.11]* **ENSURE** HV-55-*F041, "HPCI Pump Suction from Suppression Pool" (SUPP POOL SUCTION) is closed.	HV-55-1F041 CLOSED.			

	*ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	13. *[S55.1.D 4.5.11]* **ENSURE** HV-55-*F042 "HPCI Pump Suction from Suppression Pool" (SUPP POOL SUCTION) is open.	HV-55-1F042 OPEN.			
	14. *[S55.1.D 4.5.11]* **ENSURE** HV-55-*F028, "HPCI Steam Drain Line Isolation" Valve (TRAP INBOARD), is open.	HV-55-1F028 OPEN.			
	15. *[S55.1.D 4.5.11]* **ENSURE** HV-55-*F029, "HPCI Steam Drain Line Isolation" (OUTBOARD TO COND), is open.	HV-55-1F029 OPEN.			
	16. *[S55.1.D 4.5.11]* **ENSURE** HV-55-*F011, "HPCI/RCIC Test Return to CST" (CONDENSATE RETURN), is closed.	HV-55-1F011 CLOSED.			
	17. *[S55.1.D 4.5.11]* **ENSURE** HV-55-*F004, "HPCI Pump Suction" (COND TK SUCTION) is open.	HV-55-1F004 OPEN.			
	18. *[S55.1.D 4.5.11]* **ENSURE** HV-55-*F008, "HPCI TEST Loop Shutoff (TEST ISOL), is closed.	HV-55-1F008 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: SECURE UNIT 1 HPCI FOLLOWING FULL FLOW FUNCTIONAL TEST

JPM Number: LOJPM3020 **Revision Number:** 002

Task Number and Title: 2060030101 Shutdown HPCI System Following Automatic or Manual Initiation

K/A Number and Importance: 206000 A4.04 3.7 / 3.7

Safety Function (1-9) 4 *(Heat Removal from Core)*

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): S55.1.D, HPCI System Full Flow Functional Test, Rev.46

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 at 100% power.
2. Unit 1 HPCI is operating in full flow test per S55.1.D.
3. RHR is in Suppression Pool Cooling
4. ST-6-060-390-1, Suppression Pool Temperature Check, is currently being performed by another operator.

INITIATING CUE:

You are directed by Shift Supervision to shutdown Unit 1 HPCI, per S55.1.D.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

PERFORM A GROUP III NSSSS ISOLATION RESET

JPM NUMBER: LOJPM3037

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

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-8 U/1	Rev: 18
Procedure GP-8.1 U/1	Rev: 16
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 LLOJPM0037 Rev. 4. The purpose of this revision is to reformat with the new JPM template and to ensure agreement with latest procedure revision.	10/8/13
001	Minor editorial and typo fixes and to ensure agreement with latest procedure revision.	10/27/14
002	*Note: Rev 002 had no description of revision*	
003	Minor editorial changes and updated for the deletion of GP-8.3 U/1	10/03/16
Rev004	Added noun names to CAC Valves	9/27/17

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

IV. SIMULATOR SETUP INSTRUCTIONS:

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. Insert Malf **MNS158A, MNS158B,** RWCU INBD AND OUTBD ISOLATION SIGNALS
3. Clear Malf **MNS158A, MNS158B**
4. Verify PPC displays indicate Group III isolation command = YES

V. TASK STANDARD STATEMENT:

S32 A and D pushbuttons depressed with all Blue and Green reset switches in CLOSE as indicated by PPC indicating Group III isolation command = NO.

VI. INITIAL CONDITIONS:

1. Reactor Water Cleanup isolated due to a spurious RWCU differential flow signal.
2. The instrument problem has been corrected.

VII. INITIATING CUE STATEMENT (Describe the task clearly):

The CRS has directed you to reset the Unit 1 Group III isolation.

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 GP-8 and GP-8.1 U/1. **CUE:** Provide candidate with a copy of GP-8 and GP-8.1.)	Current revision of GP-8 U/1 and GP-8.1 U/1 obtained.			
	2. Using GP-8 U/1 and/or GP-8.1U/1 determine all isolation signals are clear and an R1 reset is required.	Determine R1 reset is required (Signal J) and isolation signals are clear			
EVALUATORS NOTE: The sequence of placing Blue and Green switches to CLOSE is not critical.					
	(GP-8 U/1, 1.1.1.1) 3. **PLACE** HV-41-1F084, "Main Steam" DRAIN SAMPLE INBOARD to "CLOSE".	HV-41-1F084 switch in CLOSE position.			
	4. **PLACE** HV-51-1F040, "'A' RHR Drain to R/W outboard Isol. Vlv. (OUTBOARD)", to "CLOSE"	HV-51-1F040 switch in CLOSE position.			
	5. **PLACE** HV-51-1F079A, "A RHR Heat Exchanger" (SAMPLE INBOARD), to "CLOSE".	HV-51-1F079A switch in CLOSE position.			
	6. **PLACE** HV-51-1F079B, "B RHR Heat Exchanger" (SAMPLE INBOARD), to "CLOSE".	HV-51-1F079B switch in CLOSE position.			
*	7. **PLACE** SV-57-133, "Cont Atmos Sample" (ISOL A), to "CLOSE".	SV-57-133 switch in CLOSE position.			
*	8. **PLACE** SV-57-183, 191 "Cont Atmos Sample" (ISOL A), to "CLOSE".	SV-57-183, 191 switch in CLOSE position.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	9. **PLACE** SV-57-132, 134, 150, "Cont Atmos Sample" (ISOL B), to "CLOSE".	SV-57-132, 134, 150 switch in CLOSE position.			
*	10. **PLACE** SV-57-181, "Cont Atmos Sample" (ISOL B), to "CLOSE".	SV-57-181 switch in CLOSE position.			
	11. **PLACE** HV-41-1F085, "Main Steam" (DRAIN SAMPLE OUTBOARD), to "CLOSE".	HV -41-1F085 switch in CLOSE position.			
	12. **PLACE** HV-51-1F080A, "A RHR Heat Exchanger" (SAMPLE OUTBOARD), to "CLOSE".	HV-51-1F080A switch in CLOSE position.			
	13. **PLACE** HV-51-1F080B, "A RHR Heat Exchanger" (SAMPLE OUTBOARD), to "CLOSE".	HV-51-1F080B switch in CLOSE position.			
*	14. **PLACE** HS-57-187, "Atmosphere Sample" (SUPP POOL ISOL). to "CLOSE".	HS-57-187 switch in CLOSE position.			
*	15. **PLACE** HS-57-153 "Atmosphere Sample" (DRYWELL ISOL), to "CLOSE".	HS-57-153 switch in CLOSE position.			
	16. **PLACE** HV-43-1F019, "Recirc Sample" (INBOARD), to "CLOSE".	HV-43-1F019 switch in CLOSE position.			
	17. **PLACE** HV-43-1F020, "Recirc Sample" (OUTBOARD), to "CLOSE".	HV-43-1F020 switch in CLOSE position.			
*	*(GP-8 U/1, 1.1.1.2)* 18. **PRESS** B21-S32A **AND** B21-S32D.	B21-S32A and B21-S32D pushbuttons depressed.			

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	19. Verify Group III isolation reset per PPC.	Group III isolation signal not present on PPC screen "Containment Isol Valve Status".			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____

Exelon Generation

JPM SUMMARY

Operator's Name: _____

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

JPM Title: PERFORM A GROUP III NSSSS ISOLATION RESET

JPM Number: LOJPM3037 **Revision Number:** 004

Task Number and Title: 2040080401, Place RWCU System Back in Service Following a Group III Isolation

K/A Number and Importance: 223002 A4.03 3.6/3.5

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): GP-8 U/1 Rev. 18
GP-8.1 U/1 Rev. 16

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. Reactor Water Cleanup isolated due to a spurious RWCU differential flow signal.
2. The instrument problem has been corrected.

INITIATING CUE STATEMENT:

The CRS has directed you to reset the Unit 1 Group III isolation.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

RESETTING A 42% RECIRCULATION SYSTEM RUNBACK

JPM Number: LOJPM3119

REVISION NUMBER: 000

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 S43.0.B	Rev: 27
Procedure ARC MCR 111 A-5	Rev: 1
Procedure ARC MCR 112 A-5	Rev: 1
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 New JPM resets the 42% recirc runback with alternate path of loss of Recirc Pump cooling added.	8/1/17

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

IV. SIMULATOR SETUP INSTRUCTIONS:

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

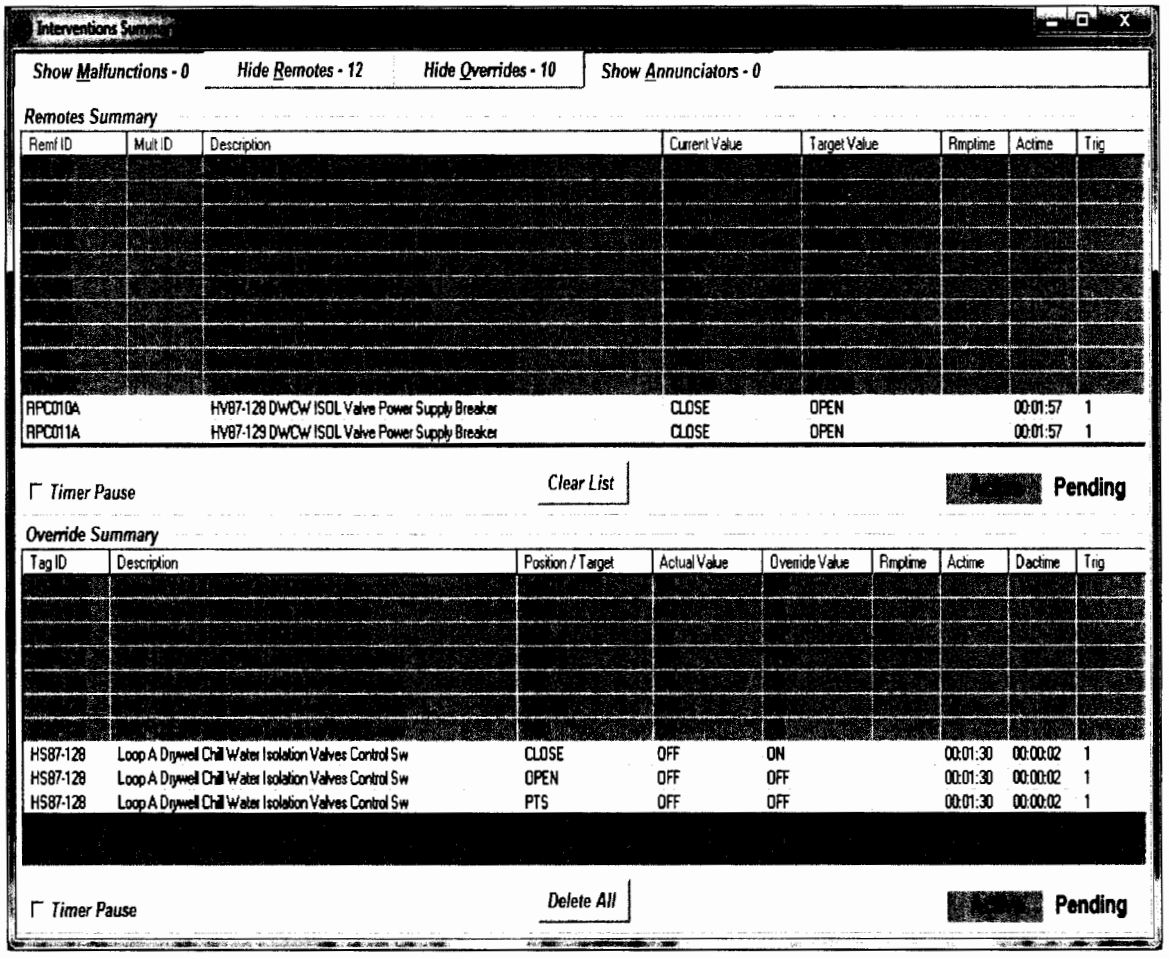
   NOTE: It is okay to use a similar IC to the IC listed above, provided the IC actually used is verified to be compatible with this and other JPMs that are scheduled to be run concurrently.

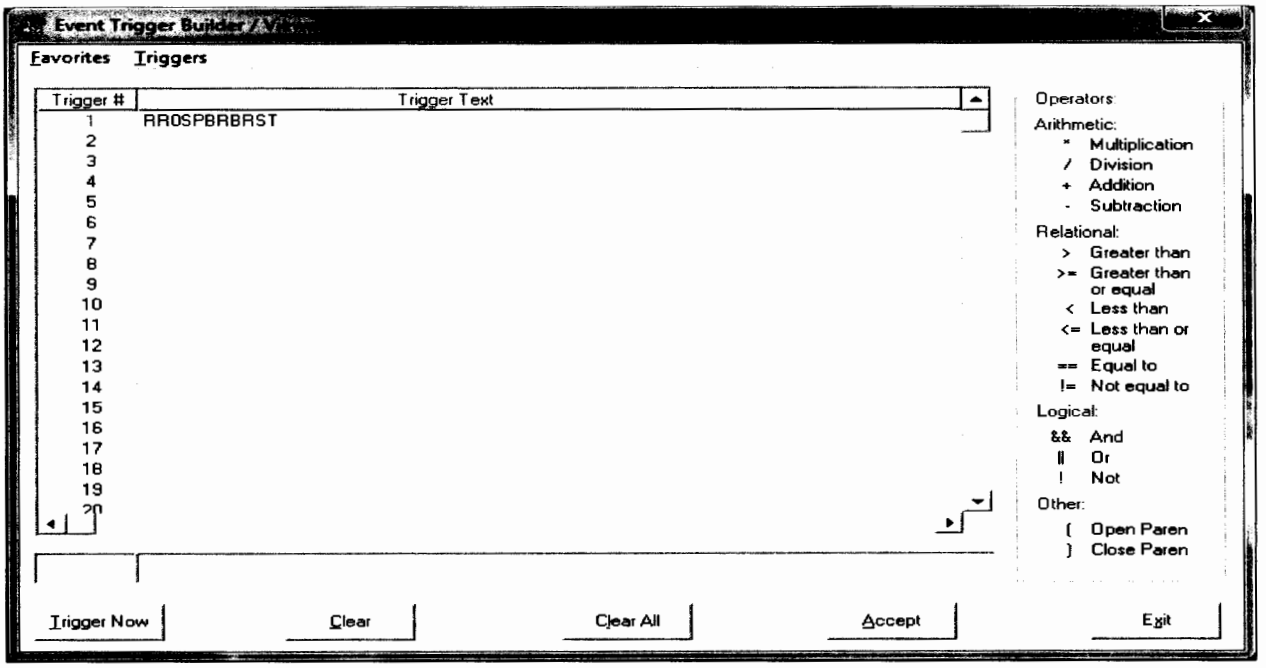
2. Insert Malfunction **MRR505A** with a deactivation time of 30 seconds.

3. Insert Malfunction **MRR506A** with a deactivation time of 30 seconds.

4. Ensure Rx power is < 75%

5. Insert the following.





V. TASK STANDARD:

Recirc Pump High Limit Runback reset and alternate DWCW loop selected for Recirc Motor Coolers.

VI. INITIAL CONDITIONS:

1. Unit 1 was at 100% power when the '1A' Condensate Pump tripped.
2. The plant received a 42% runback on both Reactor Recirculation Pumps.
3. '1A' Condensate Pump has been returned to service.
4. SS-043-105A(B), 1A(B) ASD Local/Remote Selector Switch has been verified to be in "REMOTE" at 10C042A(B)
5. No other Recirc Pump RUNBACK conditions exist at this time.

VII. INITIATING CUE:

You are directed by Shift Supervision to reset the 42% runback on the '1A' and '1B' Reactor Recirculation Pumps per S43.0.B and clear all system alarms.

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 S43.0.B, Resetting a Recirculation System Runback. **CUE:** Provide a current revision of S43.0.B.	Current revision of S43.0.B obtained.			
	2. *(S43.0.B 4.1.1)* **VERIFY** all prerequisites satisfied. **CUE:** If asked, say, "All Recirc Pump RUNBACK conditions have been corrected, per initiating conditions"	N/A			
	3. *(S43.0.B 4.1.2)* **VERIFY** procedure being performed on correct unit/train.	Verified Unit 1 Recirculation System			
	4. *(S43.0.B 4..2.1)* **VERIFY** that *A Recirc Pump motor speed demand is the same (+/- 5 rpm) as motor speed as indicated on XI-043-*3A, "ASD *A MCR HMI" on panel *0C626 **OR** XR-043-*01A "ASD *A Speed/Demand Recorder" at panel *0C602.	'1A' Recirc Pump motor speed demand is verified to be within +/- 5 rpm of speed indicated on XI-043-13A on 10C626 OR XR-043-101A recorder at 10C602.			
	5. *(S43.0.B 4.2.2)* **VERIFY** that *B Recirc Pump motor speed is the same (+/- 5 rpm) as motor speed as indicated on XI-043-*3B, "ASD *B MCR HMI" on panel *0C626 **OR** XR-043-*01B "ASD *B Speed/Demand Recorder" at panel *0C602.	'1B' Recirc Pump motor speed demand is verified to be within +/- 5 rpm of speed indicated on XI-043-13B on 10C626 OR XR-043-101B recorder at 10C602.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	EVALUATORS NOTE: Alternate Path will begin when PB-043-106, ASD Runback Reset is depressed. DWCW flow to the 'A' and 'B' Recirc pumps will be reduced initiating the 'Recirc Pump Winding Cooler Lo Flow' alarm (MCR-ARC 111/112 RECIRC A-5). The operator will verify the DWCW low flow condition and place the alternate DWCW loop is service per the ARC.				
*	6. *(S43.0.B 4.2.3)* **PRESS AND RELEASE** PB-043-*06 "ASD Runback Reset" at panel *0C602.	PB-043-106 "ASD Runback Reset" depressed and released.			
	7. *(S43.0.B 4.2.4)* **VERIFY** HIGH **AND** LOW LIMIT runback indication for both pumps light not lit at panel *0C602.	HIGH **AND** LOW LIMIT lights verified extinguished for 'A' and 'B' pumps on 10C602.			
	8. *(S43.0.B 4.2.5)* **VERIFY** the following annunciators clear: • ARC-MCR-*11 C4, *A RECIRC FLOW LIMIT • ARC-MCR-*12 C4, *B RECIRC FLOW LIMIT	111 C-4 and 112 C-4 annunciators cleared.			
	9. *(S43.0.B 4.2.6)* **PRESS** PB-043-*07A, "*A ASD Fault Reset" pushbutton two times to clear any applicable alarms.	PB-043-107A depressed twice to clear alarms.			
	10. *(S43.0.B 4.2.7)* **PRESS** PB-043-*07B, "*B ASD Fault Reset" pushbutton two times to clear any applicable alarms.	PB-043-107B depressed twice to clear alarms.			
	11. Respond to annunciators 111/112 RECIRC A-5 1A/B Recirc Pump Motor Winding Cooling Water Lo Flow	Acknowledge annunciators 111/112 RECIRC A-5, and reference ARCs for alarms			
	12. *(111 RECIRC A-5/112 CLEANUP A-5)* Verify low flow using FI-87-157A/B, on 10C681	Flow to Recirc Pumps A and B, using FI-87-157A/B, indicates low			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	13. *(111 RECIRC A-5)* Put alternate Drywell Chilled Water loop into service by placing HSS-087-151 in Loop A (Loop B) as required.	Alternate Loop DWCW (Loop B) placed in service, HSS-087-151 placed in Loop B			
*	14. *(112 CLEANUP A-5)* Put alternate Drywell Chilled Water loop into service by placing HSS-087-150 in Loop A (Loop B) as required	Alternate Loop DWCW (Loop B) placed in service, HSS-087-150 placed in Loop B			
	15. *(111 RECIRC A-5/112 CLEANUP A-5)* Monitor motor winding temperatures per S43.0.D	Candidate references S43.0.D to monitor Recirc Pump Motor Winding temperatures.			
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: RESETTING A 42% RECIRCULATION SYSTEM RUNBACK

JPM Number: LOJPM3911 **Revision Number:** 000

Task Number and Title: 2020070401 Reset a Recirc System Runback

K/A Number and Importance: 202001 A3.04 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: Simulator

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

Reference(s): S43.0.B, Resetting a Recirculation System Runback, Rev. 27.

ARC-MCR-111 A-5 1A Recirc Pump Motor Winding Cooling Water Lo Flow, Rev 1

ARC-MCR-112 A-5 1B Recirc Pump Motor Winding Cooling Water Lo Flow, Rev 1

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 was at 100% power when the '1A' Condensate Pump tripped.
2. The plant received a 42% runback on both Reactor Recirculation Pumps.
3. '1A' Condensate Pump has been returned to service.
4. SS-043-105A(B), 1A(B) ASD Local/Remote Selector Switch has been verified to be in "REMOTE" at 10C042A(B)
5. No other Recirc Pump RUNBACK conditions exist at this time.

INITIATING CUE:

You are directed by Shift Supervision to reset the 42% runback on the '1A' and '1B' Reactor Recirculation Pumps per S43.0.B and clear all system alarms.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

PLACING ALTERNATE RECW PUMP IN SERVICE

JPM Number: LOJPM3129

REVISION NUMBER: 003

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.A Rev: 10
Procedure ARC MCR 118 H-3 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 LLOJPM0129 Rev. 6. Revised to new template and to align with latest procedure revision. Made final JPM step for securing '1B' RECW Pump critical.	11/13/13
001	Minor format changes.	12/23/14
002	Revised to new JPM template and procedure revision	10/19/16
003	Minor format changes.	8/21/17

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

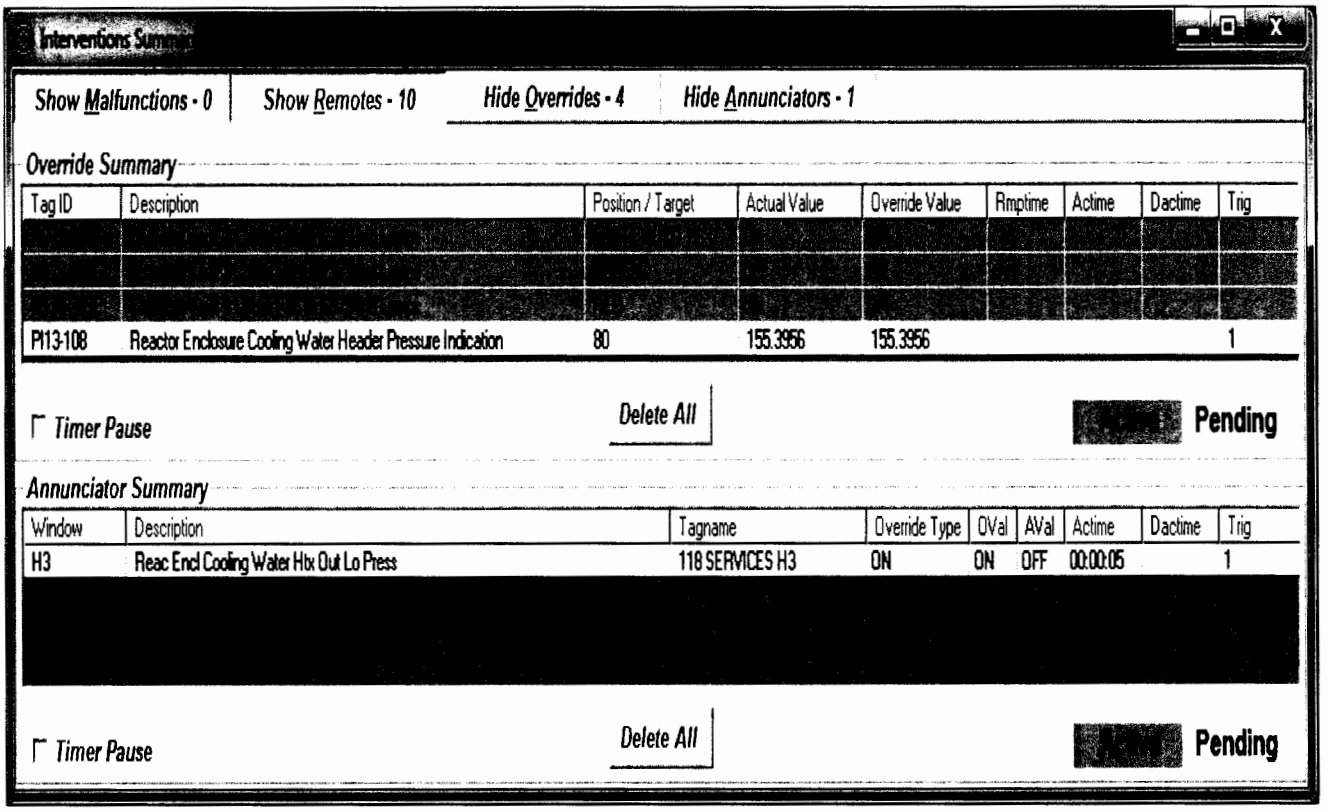
IV. SIMULATOR SETUP INSTRUCTIONS:

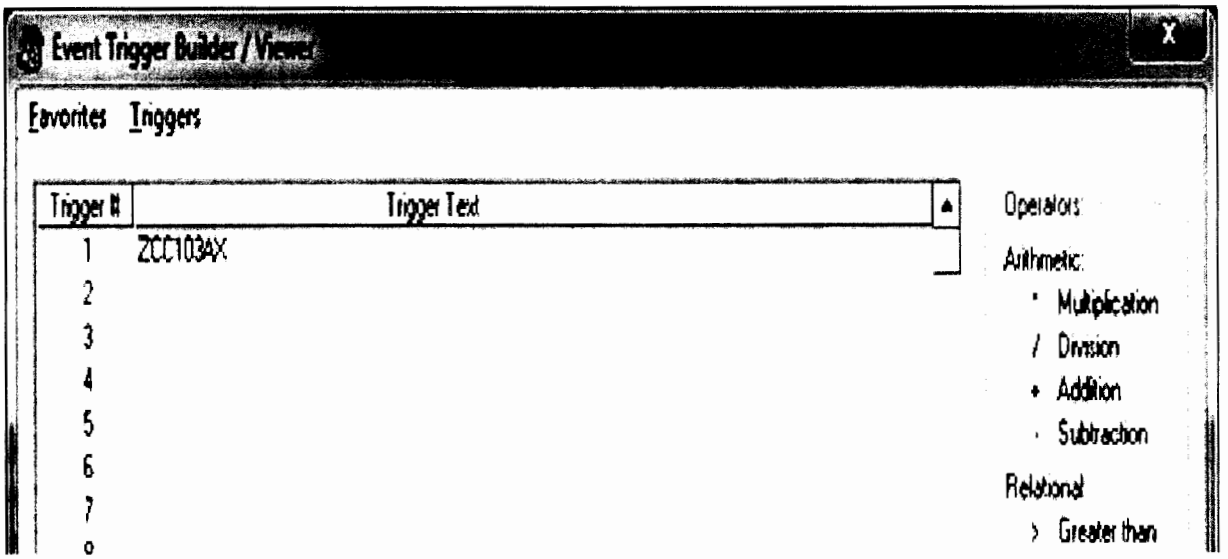
1. Reset simulator to IC-3, or another IC if JPM was validated in the respective IC.

   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. **INSERT** the following malfunctions on **Trigger_#1_**when '1A' RECW pump is secured.

   a. **DELETE** PI-13-108 Override when '1A' RECW pump is RESTARTED (instructor station P&ID can be used to determine pump status).





V. TASK STANDARD:

'B' RECW Pump shutdown and 'A' RECW Pump restarted.

VI. INITIAL CONDITIONS:

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

VII. INITIATING CUE:

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

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 S13.6.A, Placing Alternate RECW Pump in Service.	N/A			
	2. *(S13.6.A, 4.1)* **VERIFY** all prerequisites satisfied.	N/A Provided in Initiating Cue			
	3. *(S13.6.A, 4.2)* **VERIFY** procedure being performed on correct unit.	Verify on Unit 1			
	4. (S13.6.A, 4.3) **VERIFY** standby 13-1001B, "RECW Pump Suction Valve," open.	N/A Provided in Initiating Cue			
	5. *(S13.6.A, 4.4)* **VERIFY** standby 13-1005B, "RECW Pump Discharge Valve," open.	N/A Provided in Initiating Cue			
	6a. *(S13.6.A, 4.5)* **OPEN** standby 13-1003B, "RECW Pump Vent," until a steady stream is observed.	N/A Provided in Initiating Cue			
	6b. *(S13.6.A, 4.6)* **WHEN** a steady, solid stream of water flows, **THEN CLOSE** vent.	N/A Provided in Initiating Cue			
	7. *(S13.6.A, 4.7)* **ENSURE** standby 1BP210, "Rx Encl Pump" (PUMP) oil level is in green band.	N/A Provided in Initiating Cue			
*	8. *(S13.6.A, 4.8)* **START** standby 1BP210, "Rx Encl Pump" (PUMP) **AND PERFORM** the following:	HS-13-103B ("1B" RECW pump Handswitch) is taken to START.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	8a. **VERIFY** PI-13-106B, "RECW Pump Disch," is 160 to 180 psig. **CUE:** The EO reports that "1B" RECW pump discharge pressure is 175 psig.	"1B" RECW pump discharge pressure verified.			
	8b. **VERIFY** **no** excessive vibration **OR** noise at pump/motor. **CUE:** The EO reports that no excessive vibration or noise is noted for "1B" RECW pump.	"1B" RECW pump is verified to **not** have excessive vibration or noise.			
*	9. *(S13.6.A, 4.9)* **STOP** desired 1AP210, "RECW Pump" (Pump).	HS-13-103A ("1A" RECW pump Handswitch) is taken to "STOP"			
NOTE TO EVALUATOR AND DRIVER: Alternate path begins with next step. Trigger #1 automatically actuates when '1A' RECW Pump is secured to initiate RECW discharge pressure decreasing to 80 psig					
	10. **RESPOND** to "REAC ENCL COOLING WATER HTX OUT LO PRESS" alarm.	Alarm reported to CRS			
	11. **REFERENCE** ARC-MCR 118 H -3 "REAC ENCL COOLING WATER HTX OUT LO PRESS"	ARC for 118 H-3 "REAC ENCL COOLING WATER HTX OUT LO PRESS referenced.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	12. **VERIFY** low RECW Supply pressure using PI-13-108 at 10C655. **IF** EO at RECW pump is contacted: **CUE:** '1B' RECW Pump discharge pressure has dropped to 80 psig, and the pump is making excessive noise." **IF** CRS is contacted: **CUE:** The CRS directs you to take the required action to restore RECW and place any degraded equipment in a safe condition.	RECW low supply pressure (80 psig) verified at PI-13-108 at 10C655.			
EVALUTOR NOTE: The candidate may enter ON-113 for loss of RECW due to the low pressure condition. If this procedure is followed, step 2.6 will lead candidate back into S13.6.A to place the alternate pump in service.					
NOTE TO EVALUATOR AND DRIVER: When'1A' RECW pump is restarted, the PI-13-108 "RECW Supply Pressure" indication override is removed.					
*	13. **START** 1AP210, "RECW Pump" (PUMP)	HS-13-103A ("1A" RECW pump Handswitch) is taken to START.			
*	14. **STOP** 1BP210, "RECW Pump" (PUMP)	HS-13-103B ("1B" RECW pump Handswitch) is taken to "STOP"			
	15. VERIFY "RECW Pump Disch," is 160 to 180 psig on PI-13-108 on 10C655 and 118 H -3, REAC ENCL COOLING WATER HTX OUT LO PRESS is clear.	RECW Pump Disch," is 175 psig. and 118 H -3, REAC ENCL clear.			
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 ALTERNATE RECW PUMP IN SERVICE

JPM Number: LOJPM3129 **Revision Number:** 003

Task Number and Title: TPO-2080030101, Place Alternate RECW Pump in Service

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

Safety Function (1-9) 8 *(Plant Service System)*

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.A, Placing Alternate RECW Pump in Service, Rev.10

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

INITIATING CUE:

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

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

EHC PUMP OPERABILITY TEST

JPM Number: LOJPM3140

REVISION NUMBER: 000

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 RT-6-031-320-1 Rev: 27
Procedure ARC-MCR-107 G-2 Rev: 4
Procedure ARC-MCR-107 H-2 Rev: 3
Procedure OT-102 Rev: 27
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	8/1/17

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

IV. TASK STANDARD:

'1A' EHC Pump tested, upon securing '1A' EHC the operator responds to rising reactor pressure, entering OT-102, Reactor High Pressure and reduces reactor power to clear the High Pressure alarm. Investigation reveals the TSV #3 has failed closed causing the reactor high pressure. Operator further reduces reactor power to 88% as directed by OT-102.

V. SIMULATOR SETUP

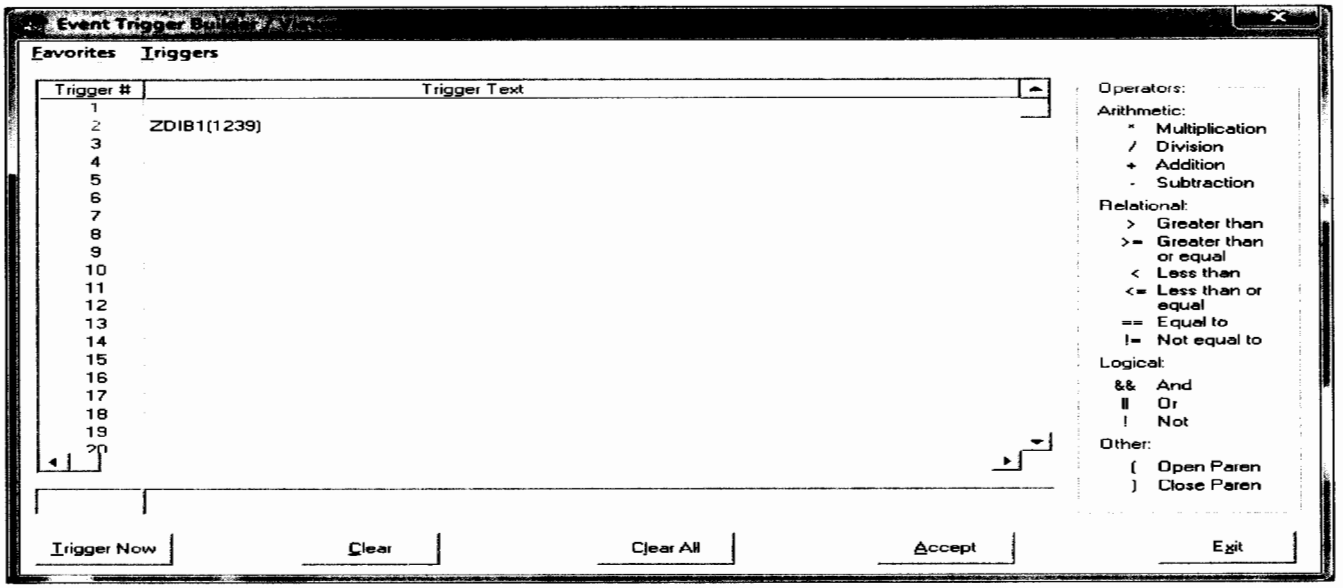
1. Reset simulator to IC-3, or another IC if JPM was validated in the respective IC.

   NOTE: It is acceptable 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.

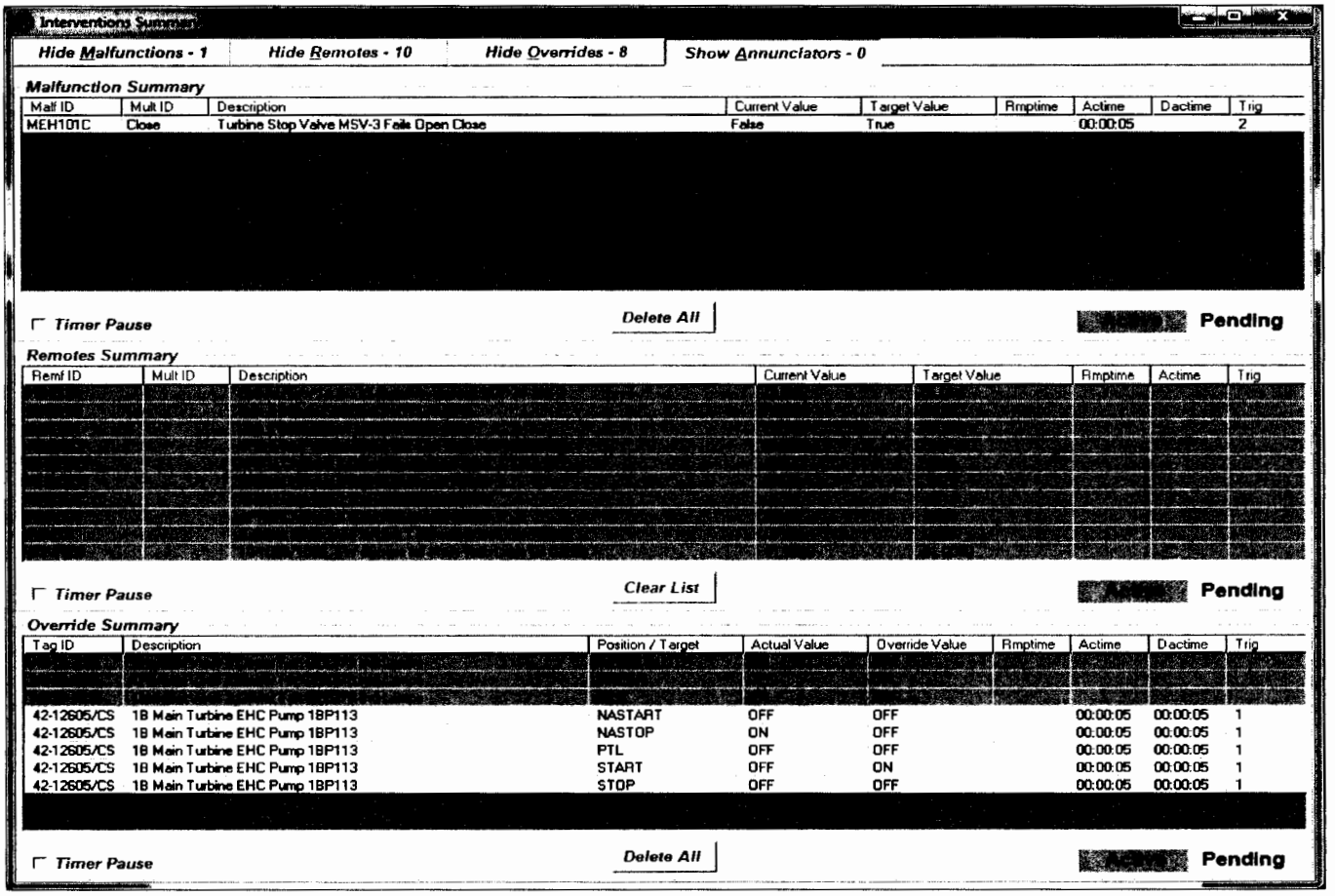
2. Ensure 1A EHC Pump in service

3. Build the following - manual trigger #1 to start the '1B' EHC Pump, and automatic trigger #2 to close the #3 TSV in 20 seconds after the '1A' EHC Pump is secured.

	TRIGGER / TIME	MALFUNCTION / EVENT	DESCRIPTION
	#1	Manual	Starts '1B' EHC Pump (local start)
	#2	Auto / ZDIB1(1239)	'1A' EHC Pump HS to STOP Initiates #3 TSV to close (20 sec T/D)



SIMULATOR SETUP cont'd



VI. INITIAL CONDITIONS:

1. 1AP113, '1A' EHC Pump is running.
2. 1BP113, '1B' EHC Pump is available.
3. An EO is located at the EHC Power Unit.
4. SSV permission has been given to start test.
5. U1 RO permission has been given to start test.

VII. INITIATING CUE:

Shift Supervision directs you perform RT-6-031-320-1, Unit 1 EHC Pump Operability/ Performance Check.

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 RT-6-031-320-1, EHC Pump Operability/ Performance Check. **CUE:** Candidate is given a copy of RT-6-031-320-1 when knowledge of the correct location of procedure is demonstrated.	Candidate obtains copy of RT-6-031-320-1			
	2. *(RT-6-031-320-1 4.1.1)* **VERIFY** all prerequisites of RT-6-031-320-1, section 2.0 are satisfied.	Prerequisites verified			
	3. *(RT-6-031-320-1 4.1.2)* **VERIFY** procedure being performed on unit 1.	Unit 1 verified			
	4. *(RT-6-031-320-1 4.2.1)* **OBTAIN** SSV permission to start test.	Permission provided in initial conditions			
	5. *(RT-6-031-320-1 4.2.2)* **OBTAIN** PRO/RO permission to start test.	Permission provided in initial conditions			
*	6. *(RT-6-031-320-1 4.2.3)* **IF** pump 1BP113 is currently running, **THEN PERFORM** Section 4.4 before Section 4.3.	Candidate determines section 4.3 is to be performed first			
	7. *(RT-6-031-320-1 4.2.4)* **CIRCLE** running pump	Candidate circles 1AP113			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	8. *(RT-6-031-320-1 4.3)* **RECORD** the following on Attach #1	N/A			
	8a. *(RT-6-031-320-1 4.3.1)* 1AP113 discharge pressure from PI-19-122, EHC PUMP DISCH PX, at panel 10C653.	Value of ~ 1600 psig recorded			
	8b. *(RT-6-031-320-1 4.3.2)* 1AP113 discharge pressure from EHC Pumps HMI (XI-031-104 on 10-C998) (330-T1-217). **CUE**: EO reports XI-031-104 PT3-A pressure of 1590 psig	Value of 1590 psig recorded			
	8c. *(RT-6-031-320-1 4.3.3)* 1AP113 discharge pressure from PI-M2-181, MANIFOLD PRESSURE, at EHC Power Unit (330-T1-217). **CUE:** EO reports PI-M2-181 pressure of 1575 psig	Value of 1575 psig recorded			
	9. *(RT-6-031-320-1 4.3.4)* **ENSURE** 1AP113 discharge pressure from 1500 to 1700 psig using S31.0.A, EHC Pump Pressure Compensator Adjustment, as required **AND ENTER** a note in the Additional Action/Test Comments section to annotate any adjustments.	Candidate determines pressure is within band			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	10. *(RT-6-031-320-1 4.3.5)* **RECORD** the following in Attachment 1 for 1AP113: - Pump discharge flow - Pump casing drain flow - Pump motor current **CUE:** EO reports Pump discharge flow (FM1-A) 25 GPM and Pump casing drain flow (FM2-A) 0.8 GPM	Candidate records discharge flow of 25 GPM and Casing Drain Flow of 0.8 GPM. Candidate records motor current of ~40 amps			
Lead Evaluator (or designee) Notes: Manual **Trigger <u>#1</u>** simulates start of '1B' EHC Pump from the field Auto **Trigger <u>#2</u>** initiates TSV #3 closes (T/D) when '1A' EHC Pump taken to STOP.					
	11. *(RT-6-031-320-1 4.3.6)* **ENSURE** pump control switch for 1BP113, EHC PUMP B, in "AUTO."	1BP113 verified to be in "AUTO"			
	12. *(RT-6-031-320-1 4.3.7)* **PRESS** HS-M2-1HFPMB PS-M2-1103 Solenoid Test Valve Switch pushbutton, at EHC Power Unit, **<u>AND</u> VERIFY** 1BP113 starts. **CUE: <u>Driver Trigger #1</u>** to start '1B' EHC PUMP following repeat back of direction to start the '1B' EHC Pump.	Candidate requests EO to perform step 4.3.7 to verify 1BP113 is running			
	13. *(RT-6-031-320-1 4.3.8)* **VERIFY** EHC HYD FLUID STANDBY PUMP RUNNING annunciator alarms, at panel 105 MAIN TURB.	105 H-2, EHC HYD FLUID STANDBY PUMP RUNNING annunciator acknowledged			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	14. *(RT-6-031-320-1 4.3.9)* **PLACE** EHC PUMP B, 1BP113 handswitch to "RUN," at panel 10C653.	1BP113 placed in "RUN"			
	15. *(RT-6-031-320-1 4.3.10)* **VERIFY** EHC HYD FLUID STANDBY PUMP RUNNING annunciator clears, at panel 105 MAIN TURB.	Annunciator reset and cleared			
	16. *(RT-6-031-320-1 4.3.11)* **IF** section 4.4 was performed first **THEN ENTER** N/A in initials blanks of steps 4.3.12 **AND** 4.3.13 **AND GO TO** Section 4.5, Otherwise, **CONTINUE**. **CUE:** 3 minutes of Pump Operation has occurred.	Candidate determines that section 4.4 not performed and continues in section 4.3.			
*	17. *(RT-6-031-320-1 4.3.12)* **PLACE** EHC PUMP A handswitch to "STOP," at panel 10C653, **AND VERIFY** pump stops.	1AP113 HS placed in "STOP"			
*	18. *(RT-6-031-320-1 4.3.13)* **PLACE** EHC PUMP A handswitch in "AUTO."	1AP113 HS placed in "AUTO"			
Lead Evaluator (or designee) Notes: Alternate Path begins with the next step.					
	19. Respond to annunciator 107 G-2, REACTOR HI PRESS and 107 H-2, REACTOR HI/LO LEVEL	Candidate responds to ARC-MCR 107 G-2, REACTOR HI PRESS			
	20. *(ARC-MCR 107 G-2)* Candidate verifies high pressure on PI-42-1R605 on 10C603	Candidate verifies high reactor pressure and enters OT-102, Reactor High Pressure			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	21. *(OT-102 2.1)* Candidate references OT-102, Reactor High Pressure and performs Immediate Operator Actions	Candidate reduces Reactor power in accordance with GP-5, Steady State Operations, **AND** Reactor Maneuvering Shutdown Instructions to maintain Reactor pressure less than 1053 psig.			
	22. *(OT-102 2.2)* **CONTROL** Reactor pressure Below 1053 psig with bypass valves using the jack, **OR** by reducing pressure set.	Candidate controls reactor pressure below 1053 psig.			
	23. Identify cause of reactor pressure increase	Candidate identifies #3 TSV closure has failed closed			
	24. *(OT-102 3.1)* **DIRECT** performance of appropriate Attachment based on cause of the pressure rise.	Candidate references OT-102, Attachment #2			
*	25. *(OT-102 Att#2)* **IF** a control valve **OR** stop valve closure caused the pressure rise **THEN REDUCE** Rx power to <88%	Reactor power reduced to <88% power in accordance with GP-5, Steady State Operations, **AND** Reactor Maneuvering Shutdown Instructions			
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: EHC PUMP OPERABILITY TEST

JPM Number: LOJPM3140 **Revision Number:** 000

Task Number and Title: 2480040101 Operate EHC Pumps

K/A Number and Importance: 241000 RO 3.5/ SRO 3.4

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): RT-6-031-320-1, EHC Pump Operability/Performance Check, Rev 027
ARC-MCR-107 G-2, Reactor High Pressure, Rev 4
ARC-MCR-107 H-2, Reactor Hi/Lo Level, Rev 3
OT-102, Reactor High Pressure Rev 027

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. 1AP113, '1A' EHC Pump is running.
2. 1BP113, '1B' EHC Pump is available.
3. An EO is located at the EHC Power Unit.
4. SSV permission has been given to start test.
5. U1 RO permission has been given to start test.

INITIATING CUE:

Shift Supervision directs you perform RT-6-031-320-1, Unit 1 EHC Pump Operability/ Performance Check.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

STANDBY GAS TREATMENT SYSTEM TRAIN SWAP

JPM Number: LOJPM3514

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 S76.8.C Rev: 7

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	08/01/17

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

IV. TASK STANDARD:

'B' SGTS Filter Train in service and 'A' SGTS Filter Train out of service.

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. Insert a Refuel Floor Secondary Containment Manual Isolation as follows:

   a. Perform the following:

   b. **PLACE** HS-76-181A and HS-76-181B to ISOL

   c. **DEPRESS** and **RELEASE** HS-76-181A and HS-76-181B PB

3. Ensure "A" SGTS in service with "A" Fan 0AV163, running through the "A" filter train (HV-076-11A AND HV-076-012A open)

4. Ensure "B" SGTS, 0BV163, in STBY (NOT running)

5. Place HS-076-013B in AUTO (HV-076-011B AND HV-076-012B, NOT open).

6. Reset alarms.

VI. INITIAL CONDITIONS:

1. A Refuel Floor Secondary Containment Isolation has been initiated
2. "A" SGTS Fan and Filter Train is in service

VII. INITIATING CUE:

Shift Supervision directs you to place the "B" SGTS Fan and Filter Train in service as directed by section 4.4 of S76.8.C, Swapping Of SGTS and RERS Fans With Secondary Containment Isolation Initiated.

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 S76.8.C, Swapping Of SGTS and RERS Fans With Secondary Containment Isolation Initiated. **CUE:** Candidate is given a copy of S76.8.C, Swapping Of SGTS and RERS Fans With Secondary Containment Isolation Initiated.	Candidate locates S76.8.C, Swapping Of SGTS and RERS Fans With Secondary Containment Isolation Initiated.			
	2. Candidate references proper section S76.8.C to swap from the A SGTS Filter Train to the B SGTS Filter Train to the B	Candidate references section 4.4 of S76.8.C			
*	3. *(S76.8.C 4.4.1)* **PLACE** "SGTS Filter Train Handswitch," HS-076-013B to "OPEN" position to manually start the "B" Train.	HS-076-013B placed to the "OPEN" position			
	4. *(S76.8.C 4.4.2)* **VERIFY** dampers HV-076-011B AND HV-076-012B, Filter Inlet and Outlet, indicate "OPEN" at panel 00C681.	HV-076-11B and HV-076-012B verified OPEN			
*	5. *(S76.8.C 4.4.3)* **PLACE** "B" SGTS Fan Handswitch," HS-076-040B, for 0B-V163 to the "AUTO" position at panel 00C681.	HS-076-040B placed in AUTO			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: S76.8.C, Swapping Of SGTS and RERS Fans With Secondary Containment Isolation Initiated steps 4.4.5 and 4.4.7 both state "**OR** as directed by SSV" If requested, role-play as SSV and state to candidate "Perform the procedure as written"					
	6. *(S76.8.C 4.4.4)* **VERIFY** "B" fan starts at panel 00C681.	"B" SGTS Fan running			
*	7. *(S76.8.C 4.4.5)* **PLACE** "A" SGTS Fan Handswitch, HS-076-041A, for 0A-V163 to the "STANDBY" position.	HS-076-041A placed in STANDBY			
	8. *(S76.8.C 4.4.6)* **VERIFY** "A" Fan stops at panel 00C681.	"A" SGTS Fan not running			
*	9. *(S76.8.C 4.4.7)* **PLACE** HS-076-013A to the "AUTO" position.	HS-076-013A placed in "AUTO"			
	10. *(S76.8.C 4.4.8)* **VERIFY** "A" SGTS Filter Train Dampers,"HV-076-011A AND HV-076-012A, Filter Inlet and Outlet, indicate "CLOSED" at panel 00C681.	HV-076-011A and HV-076-012A verified 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: STANDBY GAS TREATMENT SYSTEM TRAIN SWAP

JPM Number: LOJPM3514 **Revision Number:** 000

Task Number and Title: 2610040101 Lineup and place SGTS in service

K/A Number and Importance: 261000 A4.03 3.0/3.0

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): S76.8.C, Swapping Of SGTS and RERS Fans With Secondary Containment Isolation Initiated, 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. A Refuel Floor Secondary Containment Isolation has been initiated
2. "A" SGTS Fan and Filter Train is in service

INITIATING CUE:

Shift Supervision directs you to place the "B" SGTS Fan and Filter Train in service as directed by section 4.4 of S76.8.C, Swapping Of SGTS and RERS Fans With Secondary Containment Isolation Initiated.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

SUPPLYING POWER TO A 480 VAC NON-SAFEGUARD LOAD CENTER FROM ITS ALTERNATE SOURCE

JPM Number: LOJPM3525

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 S93.7.A Rev: 40
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.

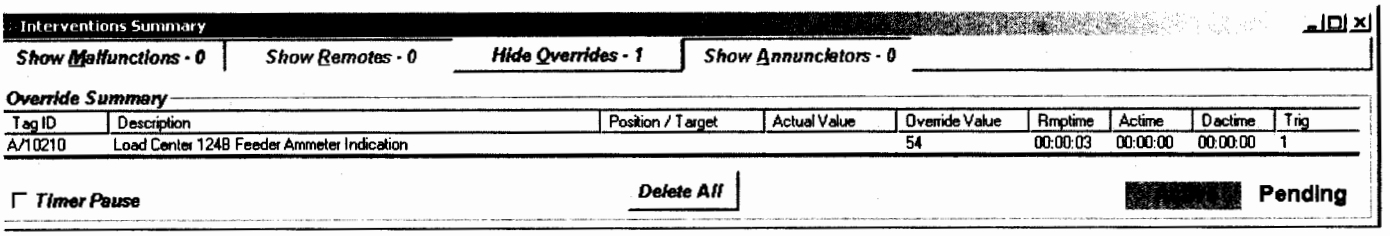
Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
000	This JPM replaces LLOJPM0525 Rev. 3. Revised to new template and to align with latest procedure revision. Changed cue so Operators must determine control power source (step 4.7).	9/17/13
001	Minor format changes.	12/23/14
002	No Data on revision	
003	JPM revised to reflect new JPM format and procedure changes	10/18/16
004	Minor format changes.	8/15/17

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

IV. SIMULATOR SETUP INSTRUCTIONS:

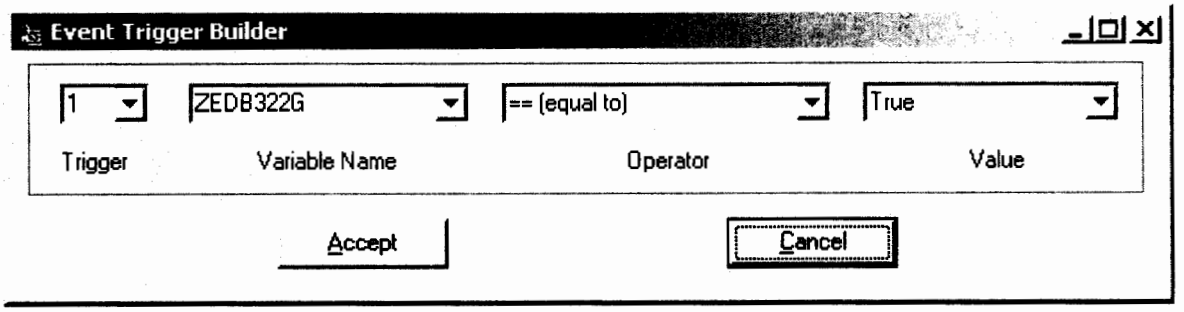
1. Reset simulator to any IC with 480 VAC Non-Safeguard power normally aligned.

2. Insert an override on Ammeter to 54 amps for 124B 480 VAC Load Center Transformer on Trigger 1 with a 3 second time delay as follows:



3. Create Trigger 1 from green indicating light on breaker 52-10322 (114B Breaker Green Lamp ON) as follows:

   NOTE: It is acceptable 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.



V. TASK STANDARD:

114B Load Center loads transferred to 124B Load Center through Tie Breaker and then restored to 114B Load Center.

VI. INITIAL CONDITIONS:

1. Shift Manager's Permission has been given to close 480 VAC Tie breaker.
2. Maintenance has been scheduled for the 114B Reactor Area Load Center Transformer.
3. Load on the 114B and 124B Load Centers has been minimized by placing alternate trains of components in service.
4. Loads have been minimized and/or de-energized to the lowest extent practical.
5. SSVN has determined that step 4.5 of S93.7.A will NOT be performed.

VII. INITIATING CUE:

Shift Supervision has directed you to supply the 114B Non-Safeguard Load Center from it's alternate source (124B Load Center) beginning with step 4.6 of S93.7.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
Lead Evaluator (or designee) Notes: Provide the following: • Individual Briefing Sheet • S93.7.A, Supplying Power To A 480VAC Non-Safeguard Load Center From Its Alternate Source					
	(S93.7.A, 4.6) 1. **IF** de-energizing transformers supplying Load Centers, **THEN ENSURE** control power for the affected load center(s) is aligned to the bus that will remain energized. Otherwise **CONTINUE** to step 4.7. **CUE:** If requested, 114B Load Center Transformer will be de-energized.	Verify 114B Transformer to be de-energized.			
	(S93.7.A, 4.6.1) 2. **CIRCLE** the desired source **AND MARK** those **not** aligned N/A **CUE:** If directed to select NON-PREFERRED source, report: "Control Power for the 114B-124B Load Center has been selected to NON-PREFERRED."	124B is circled. EO is directed to select NON-PREFERRED Source (124B).			
*	(S93.7.A, 4.7) 3. **PLACE** Tie Breaker control switch in "CLOSE" **AND HOLD OR DEPRESS** Tie Breaker "CLOSE" pushbutton at load center for TSC load centers 144D/244D only) **AND PERFORM** the following:	Breaker Control Switch 52-10342/CS taken to "CLOSE" AND held in "CLOSE" for 114B 480 Volt Load Center.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	3a. **PLACE** appropriate Bus Breaker control switch to "TRIP".	Bus Breaker 52-10322/CS placed in "TRIP".			
	3b. **WHEN** Tie breaker indicates closed, **AND** Main Breaker indicates tripped, **THEN RELEASE** Tie Breaker control switch.	Bus Breaker 52-10342/CS released.			
EVALUATOR NOTE: Alternate path starts here. Ammeter A10210 for 124B Load Center Ammeter Indication to 54 Amps should actuate on Trigger 1 (114B Breaker open).					
	(S93.7.A, 4.8) 4. **OBSERVE** ammeter associated with Load Center Bus which is now feeding intertied buses.	Ammeter for 124B is observed to be indicating 54 AMPS			
	(S93.7.A, 4.9) 5. **IF** 13 KV load exceeds specified amperage values, **THEN PERFORM** the following:	Operator determines 54 amps in excess of 50 amp load limit from attachment 2.			
EVALUATOR NOTE: REMOVE 124B LOAD CENTER AMMETER OVERRIDE					
*	5a. **CLOSE** opened Bus Breaker.	Bus Breaker 52-10322/CS placed in "CLOSE".			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____

Exelon Generation

JPM SUMMARY

Operator's Name:_____.

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

JPM Title: SUPPLYING POWER TO A 480 VAC NON-SAFEGUARD LOAD CENTER FROM ITS ALTERNATE SOURCE

JPM Number: LOJPM3525 **Revision Number:** 004

Task Number and Title: TPO-2623030401, Supply Power to 480 VAC Non-Safeguard Load Centers from Alternate Source

K/A Number and Importance: 262001 A4.05 3.3/3.3

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): S93.7.A, Supplying Power To A 480VAC Non-Safeguard Load Center From Its Alternate Source, Rev. 40

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 10 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. Shift Manager's Permission has been given to close 480 VAC Tie breaker.
2. Maintenance has been scheduled for the 114B Reactor Area Load Center Transformer.
3. Load on the 114B and 124B Load Centers has been minimized by placing alternate trains of components in service.
4. Loads have been minimized and/or de-energized to the lowest extent practical.
5. SSVN has determined that step 4.5 of S93.7.A will NOT be performed.

INITIATING CUE STATEMENT:

Shift Supervision has directed you to supply the 114B Non-Safeguard Load Center from it's alternate source (124B Load Center) beginning with step 4.6 of S93.7.A.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

START A CONDENSATE PUMP

JPM Number: LOJPM3530

REVISION NUMBER: 000

DATE: _____

Developed By:	_____ Instructor	_____ Date
Validated By:	_____ SME or Instructor	_____ Date
Reviewed By:	_____ Operations Representative	_____ Date
Reviewed By:	*N/A* 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 S05.1.B Rev: 21

Procedure ARC MCR 104 D-2 Rev: 2

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 New JPM supersedes LLOJPM0520 Rev. 1. To start a Condensate Pump and includes a hotwell level transmitter failure.	08/01/17

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

IV. TASK STANDARD:

Place 3rd Condensate Pump (1C Condensate Pump) in service and Hotwell Level Controller swapped to the B Transmitter.

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. Ensure '1A' and '1B' Condensate Pumps in service, with '1C' Condensate Pump ready to be placed in service.

3. Create Trigger # 1 to automatically actuate **MMC077B** "Hotwell Level Controller fails low" when '1C' Condensate Pump Discharge Valve is opened (GREEN light OFF).

VI. INITIAL CONDITIONS:

1. Unit 1 is at approximately 50% power.
2. GP-2, Normal Plant Startup, is in progress
3. '1A/B' Condensate Pumps are in service.
4. '1C' Condensate Pump has been secured for greater than 24 hours.
5. RO Briefed per step 2.4
6. An EO is standing by at the 1C Condensate Pump

VII. INITIATING CUE:

Shift Supervision directs you, per GP-2, Normal Plant Startup, to start the '1C' Condensate Pump, per S05.1.B, Placing Second And Third Condensate Pumps In Service.

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 S05.1.B, Placing Second And Third Condensate Pumps In Service. **CUE:** Candidate is given a copy of S05.1.B, Placing Second And Third Condensate Pumps In Service.	Candidate obtains S05.1.B, Placing Second And Third Condensate Pumps In Service.			
2. *(S05.1.B 4.3)* **OPEN** selected HV-05-*01A(B,C), Condensate Pump Suction" (SUCT).	HV-05-101C, Condensate Pump Suction (SUCT) is verified open.			
3. *(S05.1.B 4.4)* **ENSURE** selected HV-05-*02A(B,C), "Condensate Pump Discharge Vlv" (DISCH), closed.	HV-05-102C, Condensate Pump Discharge Vlv (DISCH), is verified closed.			
EVALUATORS NOTE: S05.1.B, Placing Second And Third Condensate Pumps In Service step 4.5 is performed locally at the Condensate Pump				
4. *(S05.1.B 4.5)* **PERFORM** S05.1.B section 4.5 locally at Condensate pump to be started: **CUE:** S05.1.B, section 4.5, is complete for the '1C' Condensate Pump.	N/A			
5. *(S05.1.B 4.6)* **ADJUST** FVC-05-*03, "Condensate Recirculation Control Valve," by adjusting FIC-06-*02, "Condensate Total Flow" COND RECIRC (FL) controller setpoint at panel *0C652 from 6,000 gpm to 7,500 gpm .	Verify FVC-05-103, "Condensate Recirculation Control Valve," is throttled to maintained flow rate of 7,500 gpm.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	6. *(S05.1.B 4.7.1)* **START** *A(B,C)P102, "Condensate Pump," as follows:	'1C' Condensate Pump HS-005-102C taken to START.			
*	7. *(S05.1.B 4.7.2)* **WHEN** starting current has decayed, **THEN** OPEN HV-005-*02A(B,C), "*A(B,C) Cond Pp Disch Vlv" (DISCH A (B,C):	After starting current has settled HV-005-102C, "1C Cond Pp Disch Vlv" (DISCH C) taken to OPEN:			
	8. *(S05.1.B 4.7.3)* **OBSERVE** the following on pump start:	N/A			
EVALUATORS NOTE: Alternate Path – Hotwell Level transmitter failure activates when '1C' Condensate Pump Discharge Valve is full OPEN. Annunciator MCR 104 COND D-2, HP COND HOTWELL HI/LO LEVEL, will alarm. Candidate may identify and respond to plant condition prior to receiving Hotwell HI/LO Level alarm and may proceed directly to step 12b. In this case JPM steps not performed prior to step 12b should be marked N/A					
	8a. *(S05.1.B 4.7.3)* HV-005-*02A(B,C), "*A(B,C) Cond Pp Disch Vlv" DISCH A(B,C), opens fully.	Observe HV-005-102C, "1C Cond Pp Disch Vlv" DISCH C, fully opens			
	8b. *(S05.1.B 4.7.3)* Pump ammeter settles out at nominal current level of other running pumps	Observe '1C' pump ammeter settles out at nominal current level of other running pumps.			
	8c. *(S05.1.B 4.7.3)* FV-C-05-*03, "Condensate Recirculation Control Valve" opens as required	Verify 7,500 gpm recirculation flow maintained.			
	9. *(S05.1.B 4.7.4)* **MONITOR** pump bearing **AND** motor winding temperatures on computer points F*111 through F*125 for 30 minutes **OR** until Temperature stabilize.	Computer points F1111 through F1125 monitored until temperatures stabilized.			
	10. *(ARC MCR 107 D-5)* Respond to MCR 107 D-5 FWLCS TROUBLE annunciator.	Candidate references Digital Feedwater Level Control Monitor to determine Make-Up/Reject error			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	10a. *(ARC MCR 104 D-2)* Respond to MCR 104 D-2, HP COND HOTWELL HI/LO LEVEL annunciator.	ARC referenced for MCR 104 COND D-2, HP COND HOTWELL HI/LO LEVEL			
	11. *(ARC MCR 104 D-2)* Verify proper operation of makeup/reject valves.	Makeup/reject valves verified to not be maintaining Hotwell level between 42.25 and 50.25 inches.			
	12. *(ARC MCR 104 D-2)* If valves are not responding to level. Switch to alternate level transmitter as follows:	N/A			
	12a. *(ARC MCR 104 D-2)* Place level controllers LIC-05-101 AND LIC-05-102 in MANUAL mode at 10C652.	Level controllers LIC-05-101 AND LIC-05-102 placed in MANUAL mode at 10C652.			
*	12b. *(ARC MCR 104 D-2)* Select alternate level transmitter (LT-05-101A OR LT-05 101B) using HS-05-101, "LEVEL CONTROL SEL," at 10C652.	Alternate level transmitter LT-05 101B selected using HS-05-101, "LEVEL CONTROL SEL," at 10C652.			
	12c. *(ARC MCR 104 D-2)* Place LIC-05-101 AND LIC-05-102 in AUTO mode, and slowly adjust setpoint to desired hotwell level value.	LIC-05-101 AND LIC-05-102 placed in AUTO mode, and setpoint slowly adjust to between 42.25 and 50.25 inches.			
	12d. *(ARC MCR 104 D-2)* If valves are still not controlling level, take manual control of makeup/reject level controller to maintain level between 42.25 and 50.25 inches.	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: START A CONDENSATE PUMP

JPM Number: LOJPM3530 **Revision Number:** 000

Task Number and Title: 2560030101 Start additional Condensate Pumps

K/A Number and Importance 256000 A3.02 3.0/2.9
A4.03 3.2/3.1

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

Admin Category (A1-4) _____

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S05.1.B Placing Second And Third Condensate Pump In Service, Rev 21
ARC-MCR-104 D-2, HP Cond Hotwell Hi/Lo Level, Rev 2

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 approximately 50% power.
2. GP-2, Normal Plant Startup, is in progress
3. '1A/B' Condensate Pumps are in service.
4. '1C' Condensate Pump has been secured for greater than 24 hours.
5. RO Briefed per step 2.4
6. An EO is standing by at the 1C Condensate Pump

INITIATING CUE:

Shift Supervision directs you, per GP-2, Normal Plant Startup, to start the '1C' Condensate Pump, per S05.1.B, Placing Second And Third Condensate Pumps In Service.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

INADVERTENT OPENING OF A RELIEF VALVE

JPM Number: LOJPM2204

REVISION NUMBER: 003

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 OT-114 Rev: 38
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 LLOJPM0204 Rev. 8. Revised to new template and to align with latest procedure revision.	10/28/14
001	JPM revised to incorporate changes in JPM template and OT-114	04/13/15
002	Revised to incorporate Pen and Ink Changes of #1513595-19/08	10/24/16
003	Revised to align with current revision of OT-114	10/04/17

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

IV. TASK STANDARD:

Four (4) fuses removed to close the SRV. Two (2) fuses removed from panel *0C631 and two (2) fuses removed from panel *0C628

V. INITIAL CONDITIONS:

1. LGS Unit ____ is in OPCON 3
2. PSV-41-___F013M is confirmed stuck open

VI. INITIATING CUE:

You are directed by Shift Supervision to pull fuses for PSV-41-*F013M as directed by OT-114.

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 OT-114 **CUE:** Provide a copy of OT-114	N/A			
*	2. Obtain Fuse Pullers **NOTE:** The operator can obtain fuse pullers (Electrical locker, maintenance shop, tool locker etc.) **CUE:** Once operator demonstrates ability to obtain fuse pullers, say "You have obtained fuse pullers."	Fuse pullers in hand			
EVALUATORS NOTE: **Steps 3 – 6** are to be completed when performing this JPM on **Unit 1**. **Steps 7 – 10** are to be completed when performing this JPM on **Unit 2**. Steps for the Unit **NOT** selected for this JPM may be marked N/A even though they are marked as critical steps.					
*	**UNIT 1 ONLY** 3. **PULL** Fuse 10-C628/B21C-F3M at panel 10C628 **CUE:** Fuse is pulled	Fuse 10-C628 B21C-F3M at panel 10C628 removed -ADS Valve B21-F013M			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	**UNIT 1 ONLY** 4. **PULL** Fuse 10-C628 B21C-F4M at panel 10C628 **CUE:** Fuse is pulled	Fuse 10-C628/B21C-F4M at panel 10C628 removed -ADS Valve B21-F013M			
*	**UNIT 1 ONLY** 5. **PULL** Fuse 10-C631 B21C-F7M at panel 10C631 **CUE:** Fuse is pulled	Fuse 10-C631/B21C-F7M at panel 10C631 removed -ADS Valve PSV-F013M			
*	**UNIT 1 ONLY** 6. **PULL** Fuse 10-C631 B21C-F8M at panel 10C631 **CUE:** Fuse is pulled	Fuse 10-C631/B21C-F8M at panel 10C631 removed -ADS Valve PSV-F013M			
EVALUATORS NOTE: **Steps 3 – 6** are to be completed when performing this JPM on **Unit 1**. **Steps 7 – 10** are to be completed when performing this JPM on **Unit 2**. Steps for the Unit **NOT** selected for this JPM may be marked N/A even though they are marked as critical steps.					
*	**UNIT 2 ONLY** 7. **PULL** Fuse 20-C628/B21C-F3M at panel 20C628 **CUE:** Fuse is pulled	Fuse 20-C628/B21C-F3M at panel 20C628 removed -ADS Valve PSV_41-2F013M			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	**UNIT 2 ONLY** 8. **PULL** Fuse 20-C628/B21C-F4M at panel 20C628 **CUE:** Fuse is pulled	Fuse 20-C628/B21C-F4M at panel 20C628 removed -ADS Valve PSV_41-2F013M			
*	**UNIT 2 ONLY** 9. **PULL** Fuse 20-C631/B21C-F7M at panel 20C631 **CUE:** Fuse is pulled	Fuse 20-C631/B21C-F7M at panel 20C631 removed -ADS Valve PSV_41-2F013M			
*	**UNIT 2 ONLY** 10. **PULL** Fuse 20-C631/B21C-F8M at panel 20C631 **CUE:** Fuse is pulled	Fuse 20-C631/B21C-F8M at panel 20C631 removed -ADS Valve PSV_41-2F013M			
CUE: (After all four fuses have been removed), 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: INADVERTENT OPENING OF A RELIEF VALVE

JPM Number: LOJPM2204 **Revision Number:** 001

Task Number and Title:

2000270501 (OT-114) Actions for Inadvertent Opening of an SRV (LO)

2990760504 Perform EO actions of OT-114 (NLO)

K/A Number and Importance: 239002 A2.03 4.1/4.1

Safety Function (1-9) 3.0

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): OT-114, INADVERTENT OPENING OF A RELIEF VALVE, Rev 038

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. LGS Unit ____ is in OPCON 3
2. PSV-41-___F013M is confirmed stuck open

INITIATING CUE:

You are directed by Shift Supervision to pull fuses for PSV-41-*F013M on Unit # _____ as directed by OT-114.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

MANUAL ISOLATION AND VENT OF THE SCRAM AIR HEADER

JPM Number: LOJPM2210

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 T-216 U/1 Rev: 18

Procedure T-216 U/2 Rev: 16

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 LLOJPM0210 Rev. 13. Revised to new template and to align with latest procedure revision.	10/11/14
001	Revision 001 has no description	10/01/16
002	Revised to fix minor typos and to align with latest procedure revision.	10/03/16
003	Revised to align with latest procedure revision	10/3/16

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

IV. TASK STANDARD:

Scram air header is depressurized.

V. INITIAL CONDITIONS:

1. Unit ____ is in an ATWS.

VI. INITIATING CUE:

Shift Supervision directs you to perform T-216 on Unit ___.

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
NOTE: **IF** this JPM is the ***first*** of multiple T-200 series JPMs being performed by a single candidate **THEN** steps #1 applies. **OTHERWISE** mark step #1 as N/A **AND** provide the following to the candidate : a. **INITIATING CUE(S)** b. **CUE:** "You are now in possession of the T-216 equipment container. It contains all tools and equipment required by the procedure. You are to simulate their use during performance of the procedure." c. **PROCEDURE COPY**					
	1. Obtain current revision of T-216, as well as necessary tools/equipment from Unit * T-200 cabinet in OSC: • 2 8" adjustable wrenches • 1 flashlight **CUE:** you have obtained the equipment	Obtain current revision of T-216 and tools from equipment locker			
*	2. **CLOSE** 47-*F095, "Air Supply to Scram Vlv Pilot Air Hdr" (402-R15-253/475-R17-253) (ATTACHMENT 1) **CUE:** The handwheel rotates and then comes to a stop	Air supply valve to the scram air header 47-*F095 handwheel rotated clockwise until the valve is closed			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	3. **CLOSE** RV-047-*01, "PI-*R-013, PT-47-*N052 CRD SCRAM VALVE PILOT AIR" on East side of instrument rack *0C213 (402-R15-253/475-R17-253) (ATTACHMENT 1 & 2) **CUE:** The handwheel rotates and then comes to a stop)	Root valve for PT-47-*N052 and PI-47-*R013 (handwheel rotated clockwise until the valve is closed)			
EVALUATORS NOTE: **Steps 4 – 5** are to be completed when performing this JPM on **Unit 1**. **Steps 6 – 7** are to be completed when performing this JPM on **Unit 2**. Steps for the Unit **NOT** selected for this JPM may be marked N/A even though they are marked as critical steps.					
*	4. **UNIT 1 ONLY** **REMOVE** test connection cap from IIV-047-101.1, "PT-1N052 CRD SCRAM VALVE PILOT AIR" on North side of instrument rack 10C213 (402-R15-253) (ATTACHMENT 1 & 2) **CUE**: "The cap rotates until it comes free from the end of the pipe."	Using the adjustable wrench, rotate the cap in the counter-clockwise (CCW) direction and remove the test connection cap downstream of the root valve for PT-1N052			
*	5. **UNIT 1 ONLY** **REMOVE** test connection cap from IIV-047-101.2, "PI-1R013 CRD SCRAM VALVE PILOT AIR" on South side of instrument rack 10C213 (402-R15-253) (ATTACHMENT 1 & 2) **CUE:** "The cap rotates until it comes free from the end of the pipe."	Using the adjustable wrench, rotate the cap in the counter-clockwise (CCW) direction and remove the test connection cap downstream of the root valve for PI-47-1R013			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	6. **UNIT 2 ONLY** **REMOVE** test connection cap from IIV-047-201.1, "PT-2N052 CRD SCRAM VALVE PILOT AIR" on North side of instrument rack 20C213 (475-R17-253) (ATTACHMENT 1 & 2) **CUE:** "The cap rotates until it comes free from the end of the pipe."	Using the adjustable wrench, rotate the cap in the counter-clockwise (CCW) direction and remove the test connection cap downstream of the root valve for PT-2N052			
*	7. **UNIT 2 ONLY** **REMOVE** test connection cap from IIV-047-201.2, "PI-2R013 CRD SCRAM VALVE PILOT AIR" on South side of instrument rack 20C213 (475-R17-253) (ATTACHMENT 1 & 2) **CUE:** "The cap rotates until it comes free from the end of the pipe."	Using the adjustable wrench, rotate the cap in the counter-clockwise (CCW) direction and remove the test connection cap downstream of the root valve for PI-2R013			
	8. **WHEN** RV-047-*01, "PI-*R013, PT-*N052 CRD SCRAM VALVE PILOT AIR" will be opened, **THEN NOTIFY** MCR that control rod movement should occur	Main Control Room notified			
*	9. **OPEN** RV-047-*01, "PI-*R013, PT-*N052 CRD SCRAM VALVE PILOT AIR" on East side of instrument rack *0C213 **CUE:** "The handwheel rotates and then comes to a stop. You can hear air escaping from the test connections."	Root valve for PT-__N052 and PI-___ R013 handwheel rotated counter-clockwise (CCW) until the valve is open			
	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: Manual Isolation and Vent of the Scram Air Header

JPM Number: LOJPM2210 **Revision Number:** 003

Task Number and Title: 2000550501, (T-216) Manually Isolate and Vent Scram Air Header (RO)
2000310504, Perform Manual Isolation and Vent of Scram Air Header (EO)

K/A Number and Importance:	212000	A4.17	4.1/4.1
	295037	EA1.05	3.9/4.0

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-216 Manual Isolation and Vent of Scram Air Header U/1 Rev. 18
T-216 Manual Isolation and Vent of Scram Air Header U/2 Rev. 16

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. Unit ____ is in an ATWS.

INITIATING CUE STATEMENT:

Shift Supervision directs you to perform T-216 on Unit ___.

LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE

ALTERNATE INJECTION FROM THE FIRE SYSTEM

JPM Number: LOJPM2260

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 T-244 U/2 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 JPM supersedes LLOJPM0260 Rev. 7. Revised to new template and to align with latest procedure revision.	10/12/16
001	Revised with latest procedure revision.	10/02/17

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

IV. TASK STANDARD:

Hoses connected and valves aligned per T-244 U/2, Alternate Injection From The Fire System

V. SIMULATOR SETUP

N/A

VI. INITIAL CONDITIONS:

1. Unit 2 reactor level is low and injection is being established.
2. Reactor pressure is 50 psig.

VII. INITIATING CUE:

Shift Supervision directs you to perform T-244 for Unit 2 to supply Fire Water to raise reactor water level.

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
	For In-Plant T-200 JPMs, include the following: **NOTE:** **IF** this JPM is the ***first*** of multiple T-200 series JPMs being performed by a single candidate **THEN** steps #1 and #2 apply. **OTHERWISE** mark steps #1 and #2 as N/A **AND** provide the following to the candidate : a. **INITIATING CUE(S)** b. **CUE:** "You are now in possession of the T-244 U/2 equipment container. It contains all tools and equipment required by the procedure. You are to simulate their use during performance of the procedure." c. **PROCEDURE COPY**				
	1. Obtain current revision of T-244 U/2, Alternate Injection From The Fire System **CUE:** Candidate is given a copy of T-244 U/2 when knowledge of the correct location of procedure is demonstrated.	Candidate demonstrates ability (actual or discuss) to locate T-244 U/2.			
*	2. Obtain necessary Tools/Equipment from Unit 2 T-225/T-244 Hose Storage Locker (475-R17-253), BL-840 key required. **CUE:** You have the necessary tools/equipment in your possession.	Tools obtained.			
	3. *[T-244 4.1]* **PERFORM** the following in 475-R17-253 (Attachment 1):	N/A			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	4. *[T-244 4.1.1]* **CONNECT** hose at 51-2179 "2A RHR Fire Protection Crosstie Drain Valve" **AND ROUTE** to drain. **CUE:** End of hose is connected to 51-2179	Hose connected between 51-2179 "2A" RHR Fire Protection Crosstie Drain Vlv **AND routed** to drain.			
	4a. *[T-244 4.1.2]* **CYCLE** 51-2179 open **AND** closed to ensure pipe drained.	51-2179 cycled open and closed.			
	5. *[T-244 4.1.3]* **CONNECT** hose at 22-2430 "Fire Protection/RHR Interconnection Drn Vlv" **AND ROUTE** to drain **CUE:** End of hose is connected to 22-2430.	Hose connected between 22-2430 "Fire Protection/RHR Interconnection Drn Vlv **AND routed** to drain			
	5a. *[T-244 4.1.4]* **CYCLE** 22-2430 open **AND** closed to ensure pipe drained.	22-2430 cycled open and closed.			
*	6. *[T-244 4.1.5]* **CONNECT** hose to fitting downstream of 22-2429, Fire Protection/RHR Interconnection Isolation Valve." **CUE:** End of hose is connected to 22-2429.	Fire hose is connected to 22-2429.			

	ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
*	7. *[T-244 4.1.6]* **CONNECT** other end of hose to fitting downstream of 51-2178, "RHR/Fire Protection Interconnection Isolation Valve." **CUE:** End of hose is connected to 51-2178.	Hose is connected from 22-2429 to 51-2178.			
*	8. *[T-244 4.1.7]* **OPEN** 22-2429 **CUE:** Valve handwheel rotates several turns and then comes to a stop.	22-2429 turned full counter-clockwise			
*	9. *[T-244 4.1.8]* **UNLOCK** AND **OPEN** 51-2178 **CUE:** Valve handwheel rotates several turns and then comes to a stop.	51-2178, using LV-200, unlocked and open (turned full counterclockwise)			
	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: ALTERNATE INJECTION FROM THE FIRE SYSTEM

JPM Number: LOJPM2260 **Revision Number:** 001

Task Number and Title: (T-244) Alternate Injection From The Fire System

K/A Number and Importance: 295031 EA1.08 3.8/3.9

Safety Function (1-9) __2__ *(Reactor Water Inventory Control)*

Admin Category (A1-4) __N/A__

Level of Difficulty (1-5) __2.0__

Suggested Testing Environment: In-Plant

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

Reference(s): T-244 U/2 Alternate Injection From The Fire System, Rev018

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 reactor level is low and injection is being established.
2. Reactor pressure is 50 psig.

INITIATING CUE:

Shift Supervision directs you to perform T-244 for Unit 2 to supply Fire Water to raise reactor water level.

CODE NO:	SEG-2159E	REV NO:	000
AUTHOR:	T. BYERS	APPROXIMATE RUN TIME:	60 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	12/01/17
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: T. A. Byers/S/ Date: 11/20/17
Training Instructor - Signature

Reviewed By: N/A for NRC ILT Date: N/A
LORT Lead Instructor - Signature

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

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

Approval: Bill Martin/S/ Date: 11/30/17
OPS Manager - Signature

Approved For Use: Dan Semeter/S/ Date: 12/01/17
Training Manager - Signature

Appendix D **Scenario Outline** **Form ES-D-1**

Facility: Limerick 1 & 2 Scenario No.: SEG-2159E Rev 0 Op-Test No.: 1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions:
Unit 1 Reactor Power is 100%
Unit 2 Reactor Power is 100%

Turnover:
Perform ST-6-077-310-1, Drywell Unit Cooler Hydrogen Mixing System Operability Test Run

Critical Tasks:
1. Trip and isolate Recirc Pump
2. Manually Scram the Reactor
3. Spray the Drywell
4. Perform Emergency Blowdown per T-112

Event No.	Malfunction Number	Event Type*	Event Description
1	None	N-PRO	Perform Drywell Unit Cooler Hydrogen Mixing System Operability Test Run
2	MFW246A MFW552C	C-RO C-PRO	Trip of '1C' RFP with discharge check valve stuck open
3	MCR547 MRD016C	C-RO TS-SRO	Running CRD Pump Trip HCU accumulator Trouble for HCU 18-47
4	MRR433B MRR434B	C-PRO R-RO TS-SRO	Sequential failures of '1B' Recirc Pump Seals
5	MMS067	M-All	Steam leak in the Drywell
6	MRP029C	C-RO	RPS 'A' fails to scram (ARI successful)
7	MPC476	C-PRO	Downcomer break results in Suppression Pool pressure equalizing with Drywell pressure requiring blowdown on Pressure Suppression Curve
8	HS-51-F016A or HS-51-F016B	C-PRO	First Drywell spray method selected will be un-successful requiring use of other train

* **(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor**

A. ILT

Target Quantitative Attributes (Per Scenario; See ES-301Section D.5.d)		ACTUAL NUMBER
1.	Malfunctions after EOP entry (1-2)	3
2.	Abnormal events (2-4)	3
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.	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 GP-5 Appendix 3, Unintentional Drop In Power.
- Direct and perform actions per ON-107, Control Rod Drive System Problems.
- Direct and perform actions per OT-100, Reactor Low Level
- Direct and perform actions per OT-101, Drywell High Pressure
- Direct and perform actions per SE-10, LOCA
- 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	New SEG	8/15/17

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

SCENARIO EVENT AND EVALUATION SUMMARY:

Event One: When the crew assumes responsibility for the shift, the PRO will commence performance of ST-6-077-310-1,"Drywell Unit Cooler Hydrogen Mixing System Operability Test".

Evaluation: Evaluate the PRO's ability to perform the ST and the CRS ability to provide oversite during the evolution.

Event Two: Shortly after the PRO completes the switch lineup for the ST, the '1C' RFP Turbine will trip and the pump discharge check valve will stick open. This will lead to lowering Rx water level and require the crew to lower power and manually close the feed pump discharge valve.

Evaluation: Evaluate the crew's ability to recognize the RFP Turbine trip and failure of the discharge check valve to close. Evaluate crew's execution of OT-100 for lowering Rx level and reduce Rx power. The crew is expected to lower power such that total FW flow is less than 13 Mlbm/hr. The crew should manually close the '1C' RFP discharge valve.

Event Three: When the plant has been stabilized following the power reduction for the RFP trip, the running CRD Pump trips as a result of a clogged suction filter. Also a CRD accumulator trouble alarm is received.

Evaluation: Evaluate the crew's ability to recognize and respond to the tripped CRD Pump. The crew is expected to execute ON-107, Control Rod Drive System Problems, and take actions required by Tech Spec 3.1.3.5.

Event Four: Following the restart of the CRD Pump, a sequential failure of both the Reactor Recirc Pump Seals will occur for the 1B Reactor Recirc Pump.

Evaluation: To evaluate the crews response to increasing drywell pressure and temperature, including the initial execution of OT-101, Drywell High Pressure, and tripping and isolating the '1B' Reactor Recirc Pump.

Event Five and Six and Seven: Following the isolation of the '1B' Reactor Recirc Pump, a steam leak into the drywell will occur requiring a plant shutdown. On the shutdown a failure of the "A" side of RPS to de-energize will occur. Also, following the Reactor Scram, a downcomer break will occur resulting in Suppression Pool pressure rising faster, and exceeding the Pressure Suppression Curve.

Evaluation: To evaluate the crews ability to diagnose and respond to the rising Drywell pressure condition. To evaluate the ability of the RO to use alternate means (ARI) to shut the reactor down. To evaluate the ability of the SRO to direct actions from T-101 and T-102 to mitigate the leak and direct the PRO to spray the Suppression Pool and the Drywell per T-225. To evaluate the PRO and SRO's ability to recognize the rising Suppression Pool pressure and implement T-112 Emergency Blowdown when the safe side of the PC/P curve cannot be maintained. The PRO will open 5 ADS SRVs to blowdown the reactor to the Suppression Pool.

SCENARIO EVENT AND EVALUATION SUMMARY cont'd:

Event Eight: To control the Drywell pressure and temperature increase, Drywell spray operation will be required. The first Drywell spray method selected by the crew will be un-successful (either HV-051-1F016A or HV-051-1F016B will fail to open) requiring use of other train to spray the drywell.

Evaluation: To evaluate crews ability to re-direct the unaffected RHR train to Drywell Spray.

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-AA-150, 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
   4. TQ-LG-150, Limerick Operator Training Program

B. Annunciator Response Cards (ARC)
   1. 101 F-5, 1A,1B,1C, RFPT BEARING DRAIN OIL HI TEMP
   2. 101 G-2, LEFM TROUBLE
   3. 101 I-1, 1C RFPT CONTROLLER TROUBLE
   4. 101 I-2, RFPT GOVERNOR TROUBLE
   5. 102 C-1, 1C RFPT TRIP
   6. 107 I-2, VIBRATION ALERT
   7. 107 I-3, VIBRATION DANGER
   8. 107 F-2, DRYWELL HI/LO PRESS
   9. 107 D-5, FWLC TROUBLE
   10. 107 H-2, REACTOR HI/LO LEVEL
   11. 108 G-1, 1A/1B CRD WATER PUMP TRIP
   12. 108 G-3, 1A/1B CRD PUMP SUCTION LO PRESS
   13. 108 H-3, CRD PUMP SUCTION FILTER HI DP
   14. 108 H-4, CRD CHARGING WATER LO PRESS
   15. 108 F-1, CRD ACCUMULATOR TROUBLE
   16. 109 F-1/ F-2 1 MAIN STEAM LINE DIVISION 1 RAD MONITOR HI/DOWNSCALE
   17. 111/112 B-3, 1A/B RECIRC ASD MINOR FAILURE
   18. 112 A-1, 1B RECIRC PUMP SEAL STAGE HI/LO FLOW
   19. 112 A-2, 1B RECIRC PUMP SEAL LEAKAGE HI FLOW
   20. 112 C-5, DRYWELL EQUIPMENT DRAIN TANK/FLOOR DRAIN SUMP LEAKAGE HI FLOW
   21. 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH
   22. 127 I-1, 1 UNIT HWC SYSTEM TROUBLE

C. System Procedures (S)
   1. S06.2.A U/1, Shutdown Reactor Feed Pump from Standby Condition
   2. S12.1.A, RHR Service Water System Startup.
   3. S46.1.A, Control Rod Drive Hydraulic System Startup

D. General Procedures (GP)
   1. GP-4, Rapid Plant Shutdown to Hot Shutdown
   2. GP-5, Appendix 2, Rx Maneuvering Without Shutdown
   3. GP-5 Appendix 3, Unintentional Drop In Power.

E. Off Normal Procedures (ON)
   1. ON-107, Control Rod Drive System Problems.

F. Operating Transient Procedures (OT)
   1. OT-100, Reactor Low Level
   2. OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition
   3. OT-101, High Drywell Pressure
   4. OT-112, Unexpected/Unexplained Change in Core Flow

G. Event Procedures (E)

H. Special Event Procedures (SE)
   1. SE-10, LOCA

I. Surveillance Test and Routine Test Procedures (ST and RT)
   1. ST-6-077-310-1, Drywell Unit Cooler Hydrogen Mixing System Operability Test Run.

J. Technical Specifications and TRM (TS)
   1. TRM 3.3.7.13 – Feedwater Flow Instrumentation
   2. 3.4.5 – Specific Activity
   3. 3.1.3.5 – Control Rod Scram Accumulators
   4. 3.4.1.1 – Recirculation Loops

K. Transient Response Implementation Procedures (T-100 series)/SAMPs
   1. T-101, RPV Control
   2. T-102, Primary Containment Control
   3. T-112, Emergency Blowdown

L. TRIP 200 Series Procedures
   1. 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. SOER 10-02, Engaged Thinking Organizations
   2. INPO 15-004, Operator Fundamentals

VII. PREBRIEF INSTRUCTIONS

- Unit 1 is at 100% power
- Unit 2 is 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:

- Perform Drywell Unit Cooler Hydrogen Mixing System Operability Test

Documents Provided:

- ST-6-077-310-1, Drywell Unit Cooler Hydrogen Mixing System Operability Test Run.

VIII. DIRECTIONS FOR EVALUATION PREPARATION

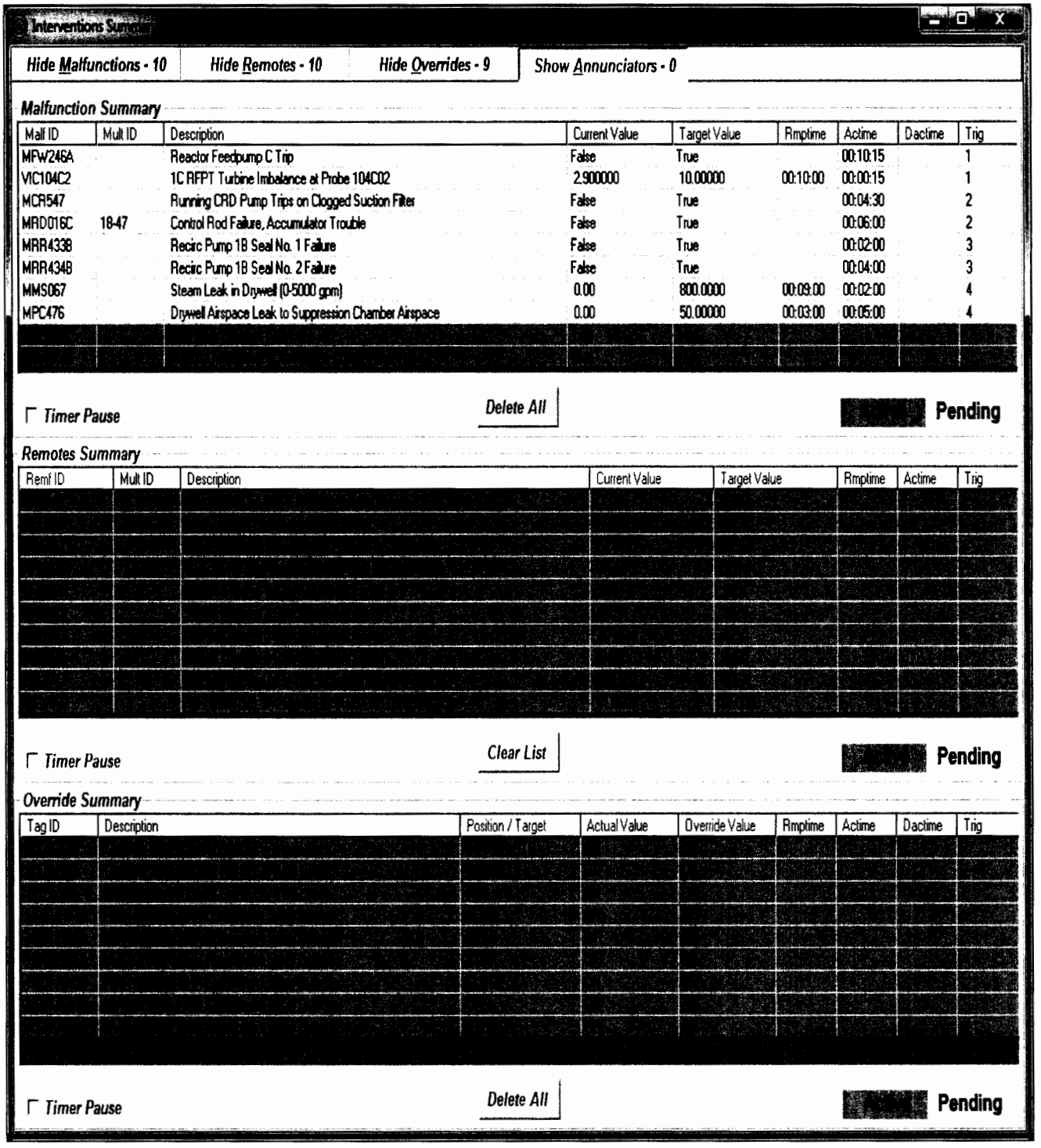
A. INITIAL PREPARATION

✔	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 **IC** developed for the Evaluation OR Reset the simulator to designated base load IC AND Load scenario file **SEG2159E Rev000.scn** • Verify that all Malfunctions, Remotes, Overrides, Annunciators and Triggers are properly loaded **OR** • Manually enter the Malfunctions, Remotes, Overrides, Annunciators and Triggers per the Scenario Generator Screen Shots:
	Simulator Operator (Driver) perform the following: • Momentarily place simulator in RUN • Acknowledge and clear all spurious alarms • Place the simulator back into FREEZE • Provide copy of ST-6-077-310-1, Drywell Unit Cooler Hydrogen Mixing System Operability Test.

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



Interventions Summary

Hide Malfunctions - 10 | Hide Remotes - 10 | Hide Overrides - 9 | Show Annunciators - 0

Malfunction Summary

Malf ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MFW246A		Reactor Feedpump C Trip	False	True		00:10:15		1
VIC104C2		1C RFPT Turbine Imbalance at Probe 104C02	2.900000	10.00000	00:10:00	00:00:15		1
MCR547		Running CRD Pump Trips on Clogged Suction Filter	False	True		00:04:30		2
MRD016C	18-47	Control Rod Failure, Accumulator Trouble	False	True		00:06:00		2
MRR433B		Recirc Pump 1B Seal No. 1 Failure	False	True		00:02:00		3
MRR434B		Recirc Pump 1B Seal No. 2 Failure	False	True		00:04:00		3
MMS067		Steam Leak in Drywell (0-5000 gpm)	0.00	800.0000	00:09:00	00:02:00		4
MPC476		Drywell Airspace Leak to Suppression Chamber Airspace	0.00	50.00000	00:03:00	00:05:00		4

Timer Pause | Delete All | Pending

Remotes Summary

Remf ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Trig

Timer Pause | Clear List | Pending

Override Summary

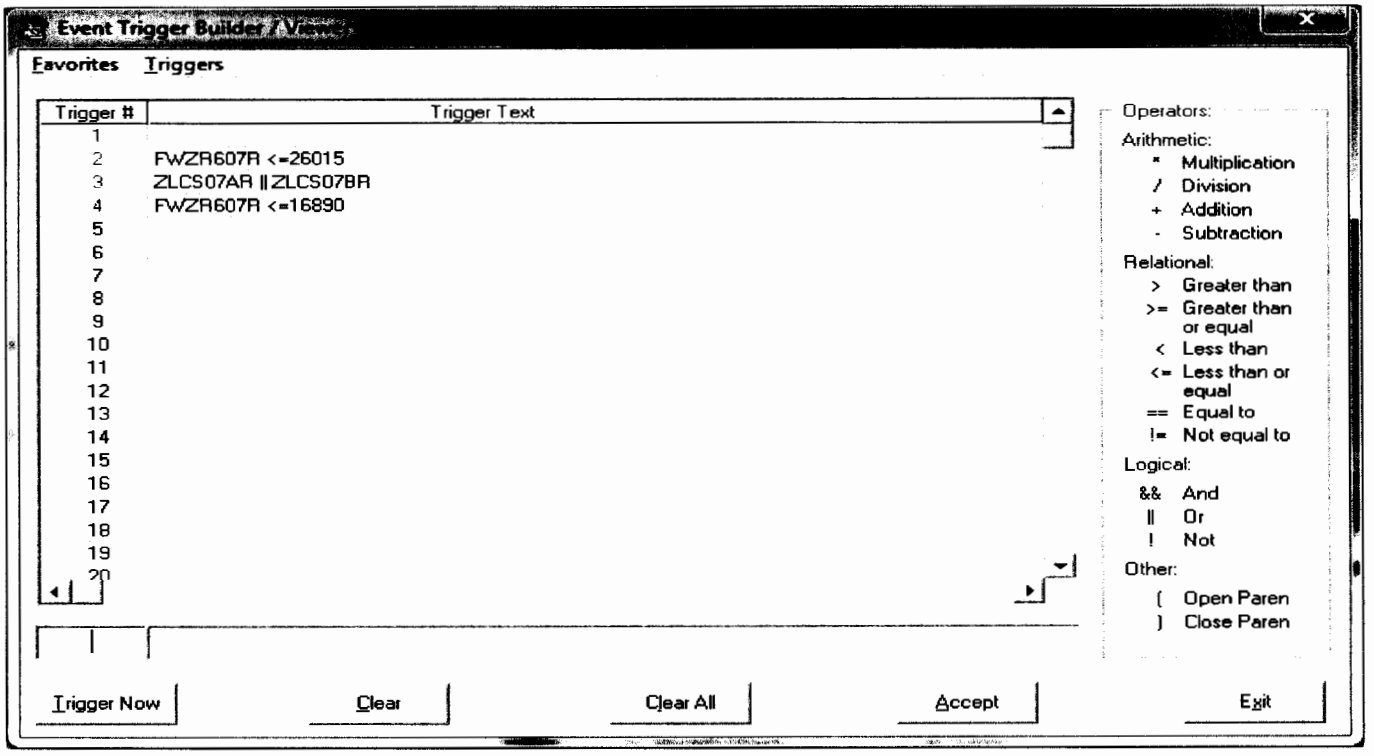
Tag ID	Description	Position / Target	Actual Value	Override Value	Rmptime	Actime	Dactime	Trig

Timer Pause | Delete All | 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 '1C' Reactor Feed Pump Rising vibrations and timed trip.
	2	Auto / FWZR607R <=26015	Total steam flow ≤ 13.1 Mlbm/hr Initiates clogged CRD Suction Filter and HCU accumulator trouble.
	3	Auto / ZLCS07AR II ZLCS07BR	'1A' or '1B' CRD Pump Handswitch to start Initiates sequential failures of the '1B' Reactor Recirc Pump seals.
	4	Auto / FWZR607R<=16890	Total steam flow ≤ 8.5 Mlbm/hr Initiates steam leak into the Drywell and leak between the Drywell and the Suppression Pool air spaces.



E. EQUIPMENT REPORTS AND SIMULATOR INSTRUCTOR 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. OT-101.1 If both shaft seals on a Reactor Recirculation Pump have failed, trip and isolate the pump.

K/A	295010	AK3.04	3.5/3.8
K/A	295010	AA2.02	3.8/3.9

Standard: Trip the applicable Reactor Recirculation Pump, close the pump discharge valve, seal purge valve, and suction valve to isolate the reactor coolant leakage into the Drywell.

SAT/UNSAT

2. T-101.7 Manually Scram the reactor

K/A	212000	A4.01	4.6/4.6
K/A	295015	AA1.02	4.0/4.2

Standard: When any Reactor Protection System (RPS) setpoint is exceeded, then manually SCRAM the reactor. If a manual SCRAM is inserted prior to a monitored RPS parameter exceeding its setpoint, then the intent of this standard is met.

SAT/UNSAT

3. T-102.1 Spray the Drywell per T-225.

K/A	295012	AA2.01	3.2/4.2
K/A	295010	AK2.01	3.2/3.3
K/A	295010	AA1.07	3.2/3.4

Standard: Before Drywell temperature reaches 340°F, with Drywell temperature and pressure on the SAFE side of the Drywell Spray Initiation Limit curve and Suppression Pool level below 37.4 feet, then spray the Drywell per T-225 before exceeding 340°F.

SAT/UNSAT

4. T-102.2 Perform emergency blowdown per T-112.

K/A	295012	AA2.01	3.8/3.9
K/A	295010	AA1.05	3.1/3.4

Standard: When Drywell temperature cannot be restored and maintained below 340°F or Suppression Pool pressure cannot be maintained below the Pressure Suppression Pressure (PSP) curve, then enter T-112 and perform an emergency blowdown by opening five Safety Relief Valves (SRVs).

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.

1. EVENT - 1 DRYWELL UNIT COOLER OPERABILITY TEST

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. EVENT - 1	**DRYWELL UNIT COOLER OPERABILITY TEST**	
Lead Evaluator (or designee) Notes: Crew will perform the ST-6-077-310-1, Drywell Unit Cooler Hydrogen Mixing System Operability Test Run.		
	Obtain copy of ST-6-077-310-1, Drywell Unit Cooler Hydrogen Mixing System Operability Test Run.	PRO
	[ST-6-077-310-1 4.3.1] **RECORD** "AS FOUND" position of all switches/valves listed on Attachment 1.	PRO
	[ST-6-077-310-1 4.3.3] **ALIGN** switches for the following at panel 10C681, to OFF, and **ENSURE** fans not running. • 1A1V212 "A1 Drywell Unit Cooler Fan" (A1) • 1A2V212 "A2 Drywell Unit Cooler Fan" (A2) • 1B1V212 "B1 Drywell Unit Cooler Fan" (B1) • 1B2V212 "B2 Drywell Unit Cooler Fan" (B2) • 1G1V212 "G1 Drywell Unit Cooler Fan" (G1) • 1G2V212 "G2 Drywell Unit Cooler Fan" (G2) • 1H1V212 "H1 Drywell Unit Cooler Fan" (H1) • 1H2V212 "H2 Drywell Unit Cooler Fan" (H2)	PRO
	[ST-6-077-310-1 4.3.4] **START** the following fans and **RECORD** start time: • 1A2V212 "A2 Drywell Unit Cooler Fan" (A2) • 1B2V212 "B2 Drywell Unit Cooler Fan" (B2) • 1G2V212 "G2 Drywell Unit Cooler Fan" (G2) • 1H2V212 "H2 Drywell Unit Cooler Fan" (H2)	PRO
Lead Evaluator (or designee) Notes: The scenario may proceed to the next event ('1C' RFP trip) when directed by the Lead Evaluator during the Drywell Unit Cooler Hydrogen Mixing System Operability Test Run.		

2. EVENT - 2 '1C' RFP TRIP

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

Manually actuate **Trigger # 1** when requested by Lead Evaluator, to trip the for the '1C' Rx Feed Water Pump ('1C' RFP).

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2. EVENT - 2 '1C' RFP TRIP		
Lead Evaluator (or designee) Notes: The crew will recognize vibration on the '1C' RFPT and failure of the discharge check valve to close, when tripped. The crew will execute OT-100 for lowering Rx level and reduce Rx power. The crew is expected to lower power such that total FW flow is less than 13 Mlbm/hr. The crew will manually close the '1C' RFP discharge valve		
	Reference appropriate ARC: • 107 I-2 VIBRATION ALERT	RO/PRO
	Recognize vibration on '1C' RFP	PRO
	Develop plan to reduce/remove load on '1C' RFP	SRO
	Reference appropriate ARC: • 111/112 B-3, 1A/B RECIRC ASD MINOR FAILURE • 101 F-5, 1A,1B,1C, RFPT BEARING DRAIN OIL HI TEMP • 107 D-5, FWLC TROUBLE • 107 H-2, REACTOR HI/LO LEVEL • 101 G-2, LEFM TROUBLE • 101 I-1, 1C RFPT CONTROLLER TROUBLE • 101 I-2, RFPT GOVERNOR TROUBLE • 102 C-1, 1C RFPT TRIP • 127 I-1, 1 UNIT HWC SYSTEM TROUBLE • 109 F-1, F-2 1 MAIN STEAM LINE DIVISION 1 RAD MONITOR HI/DOWNSCALE	PRO/RO
	Recognize and report '1C' RFP tripped	RO
	[ARC-MCR-107 H-2] Enter and execute OT-100, Reactor Low Level, **IF** Reactor water level is low and unexpected or unexplained	SRO/RO
	[OT-100 (Immediate Operator Action)] **IF** drop in level caused by RFP trip **THEN** immediately **REDUCE** Rx power to 85% (use of PB-43-105, Loss of FWP 63%)	RO
	[ARC-MCR-102 C-1] **IF** Rx power was reduced as a result of RFPT trip, **THEN** enter GP-5 Appendix 2, Rx Maneuvering Without Shutdown.	RO
	[ARC-MCR-102 C-1, OT-100 Attach #1, **OR** GP-5 App 2 p.2 Note 6] With only two RFPs IN SERVICE Rx power should be limited such that total FW flow does not exceed 13 Mlbm/hr	RO
	[ARC-MCR-102 C-1] Dispatch appropriate personnel and/or EO to determine the cause of the RFPT trip.	PRO/RO

2. EVENT - 2 '1C' RFP TRIP

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

When '1C' RFP trips **DELETE VIC104C2**, '1C' RFPT vibration.

At time 10 min after FSSV or EO action requested to investigate the '1C' RFP trip:
report: The cause of the '1C' RFP trip is unknown at this time. Maintenance is on their way to support troubleshooting.

At time 5 min If action requested, from FSSV or EO to check/re-align HWC (HWC currently aligned to the '1A' and '1B' RFP),
report: HWC is not aligned to '1C' RFP.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2. EVENT - 2 '1C' RFP TRIP		
	Identify '1C' RFP Discharge Check Valve is stuck open **(Malfunction)**	PRO
	Close the '1C' RFP Discharge Valve to stop reverse feedwater flow	RO/PRO
	[GP-5 App #2 Note 11] **IF** Rx power changes of >15% RTP occur in less than one hour, **THEN** Chemistry must be informed of Rx power change.	PRO/RO
	Enter OT-100, Reactor Low Level	SRO
	[OT-100, 3.1] **DIRECT** performance of OT-100 Attachment #1	SRO
	Enter OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition	SRO
	[OT-104 3.3] **DETERMINE** correct Power/Flow Map, determine Core flow and VERIFY plant is operating in authorized region of Power/Flow Map.	SRO
	[ARC-MCR-107 D-5] Respond in accordance with S06.1.H U/1, Responding To Alarms And Selected Events At The Feedwater Level Control System Operator Station.	RO
	[ARC-MCR-102 C-1] Refer to S06.2.A U/1, Shutdown Reactor Feed Pump from Standby Condition	RO
	[ARC-MCR-102 C-1] Refer to S06.8.H, Startup, Shutdown and Operation of the Hydrogen Water Chemistry System	RO
	Dispatch EO to align Hydrogen Water Chemistry to operating RFPs	PRO/RO
	Notify Transmission System Operator (TSO) and Power Team Generation Dispatch of reactor power reduction	PRO/RO
Lead Evaluator (or designee) Notes: The scenario may proceed to the next event after LEFM has been swapped to Venturi, or as directed by Lead Evaluator.		
	[ARC-MCR-101- G-2] Perform S06.7.B U/1, Operation of the LEFM System. Swap from LEFM to Venturi Section 4.2	RO/PRO
	Chemistry notified of power changes TS 3.4.5.c	PRO
	Enter TRM 3.3.7.13, (LEFM) Action a. a. With the Leading Edge Flow Meter system inoperable, restore the required instrumentation to OPERABLE status within 72 hours. Otherwise, reduce power to < 3458 MWt within the next two hours.	SRO
	SRO contacts Work Week Manager for support	SRO

3. EVENT - 3 CRD PUMP TRIP / HCU ACCUMULATOR TROUBLE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

Ensure **Trigger # 2** automatically actuates when total steam flow is < 13.1 Mlbm/hr to trip the '1A' CRD Pump on clogged suction filter.

At time 6 min after FSSV or EO action requested to bypass CRD suction
DELETE malfunction **MRC547** and,
report: Unit 1 CRD suction filter is bypassed (046-1F045 is open).

At time 5 min after FSSV or EO action requested to inspect HCU for accumulator trouble
report: The accumulator pressure for HCU 18-47 is reading 950 psig.

After '1A' CRD Pump restarted:
DELETE malfunction **MRD016C**, Accumulator trouble alarm

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3. EVENT - 3 CRD PUMP TRIP / HCU ACCUMULATOR TROUBLE		
Lead Evaluator (or designee) Notes: The running CRD Pump trips as a result of a clogged suction filter, and a CRD accumulator trouble is received. The crew will recognize and respond to the tripped CRD Pump. The crew is expected to execute ON-107, Control Rod Drive System Problems, and take actions required by Tech Spec 3.1.3.5.		
	Reference appropriate ARC: • 108 G-1, 1A/1B CRD WATER PUMP TRIP • 108 G-3, 1A/1B CRD PUMP SUCTION LO PRESS • 108 H-3, CRD PUMP SUCTION FILTER HI DP • 108 H-4, CRD CHARGING WATER LO PRESS • 108 F-1, CRD ACCUMULATOR TROUBLE • 107 I-2, VIBRATION ALERT • 107 I-3, VIBRATION DANGER	RO/PRO
	Determine '1A' Control Rod Drive Pump tripped on low suction pressure	RO
	[ARC-MCR-108 G-1] Enter ON-107, Control Rod Drive System Problems.	SRO/RO
	[ARC-MCR-108 G-3] Refer to ON-107, Control Rod Drive System Problems and verify suction valve line-up per S46.1.A	SRO/RO
	[ARC-MCR-108 F-1] Dispatch Equipment Operator (EO) to inspect Unit 1 HCU 18-47 for accumulator trouble alarm	RO/PRO
	[ON-107 Att #2 step 2.a.] Direct field EO to **OPEN** 046-1F045 "Pump Suction Filter Bypass" **AND START** pump.	CRS/RO
	[ON-107 Att #2 step 2.b.] **START** 1AP158, "Rod Drive Pump" (PUMP) using HS-046-108A at 10-C603.	RO
Lead Evaluator (or designee) Notes: Procedure S46.1.A, Control Rod Drive Hydraulic System Startup, will be used to verify CRD parameters.		
	ENSURE FI-046-1R605, "Cooling Water Flow" (FL), from 50 to 63 gpm.	RO
	VERIFY PDI-046-1R603, "Cooling Water Differential Pressure" (Delta PX) from 10 to 25 psi.	RO
	ENSURE PDI-046-1R602, "Drive Water Differential Pressure" (Delta PX) from 255 to 265 psi.	PRO/RO

3. EVENT - 3 CRD PUMP TRIP / HCU ACCUMULATOR TROUBLE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

At time _8 min_ after FSSV or EO action requested to bypass CRD suction
DELETE malfunction **MRC547** and,
report: _Unit 1 CRD suction filter is bypassed (046-1F045 is open)._

At time _5 min_ after FSSV or EO action requested to inspect HCU for accumulator trouble
report: _The accumulator pressure for HCU 18-47 is reading 950 psig._

After '1A' CRD Pump restarted:
DELETE malfunction **MRD016C**, Accumulator trouble alarm

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	**EVENT - 3 CRD PUMP TRIP / HCU ACCUMULATOR TROUBLE**	
	VERIFY the following parameters of started Rod Drive Pump: • 108 G-3, 1A/1B CRD PUMP SUCTION LO PRESS, alarm cleared • Normal pump motor running current on A/*1803-2 (A/*1703-2), "Rod Drive Pump Ammeter," (AM) at *0-C603	RO
	VERIFY CRD Accumulator Trouble annunciator clear at 108 F-1, CRD Accumulator Trouble	RO
	Contact Work Week Manager for support	SRO
	Enter Tech Spec 3.1.3.5 **IF** one CRD scram accumulator is inoperable, **THEN PERFORM** the following within 8 hours: • **RESTORE** the inoperable accumulator to operable **OR DECLARE** associated control rod inoperable. • **IF** restoration is **not** completed, **THEN TAKE** action to be in at least HOT SHUTDOWN within the next 12 hours.	SRO
Lead Evaluator (or designee) Notes: The scenario may proceed to the next event (Recirc Pump Seal failure) after the CRD Pump is re-started and the SRO has determined Tech Spec implications.		

4. EVENT - 4 RECIRC PUMP SEAL FAILURES

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

Ensure **Trigger # 3** automatically actuates when CRD Pump restarted to initiate Recirc Pump Seal failures

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4.	**EVENT - 4 RECIRC PUMP SEAL FAILURES**	
	Lead Evaluator (or designee) Notes: A sequential failure of both the Reactor Recirc Pump Seals will occur for the '1B' Reactor Recirc Pump. The crews will respond to increasing drywell pressure and temperature, including the initial execution of OT-101, Drywell High Pressure, and tripping and isolating the '1B' Reactor Recirc Pump.	
	Reference appropriate ARCs: • 112 A-1, 1B RECIRC PUMP SEAL STAGE HI/LO FLOW • 112 A-2, 1B RECIRC PUMP SEAL LEAKAGE HI FLOW	RO/PRO
	Recognize failure of '1B' Recirc Pump Seal No. 1	RO/PRO
	Establish monitoring of '1B' Recirc Pump Seal No. 2 as Critical Parameter	SRO
	Recognize failure of '1B' Recirc Pump Seal No. 2	RO
	Crew enters OT-101, High Drywell Pressure,on rising Drywell Pressure	Crew
	[OT-101 3.1] **ESTABLISH** Drywell pressure as a Critical Parameter with reporting interval	SRO
	Perform OT-101, Att. 1 Recirc Pump Seals **(Malfunction)**	RO/PRO
	Monitor Drywell Floor Drain Sump 2 min flow average	PRO
	Establish Critical Parameter for Drywell Floor Drain Sump 2 min flow average (10 gpm)	SRO
	[OT-101 Att #1] Trip '1B' Recirc Pump **(Critical Task)**	PRO
	[OT-101 Att #1] Enter OT-112, Unexpected/Unexplained Change in Core Flow	SRO
	[OT-101 Att #1] Close '1B' Recirc Pump Discharge Valve (HV-043-1F031B) **(Critical Task)**	PRO
	[OT-101 Att #1] Close '1B' Recirc Pump Seal Purge Valve (HV-046-115B)	PRO
	[OT-101 Att #1] Close '1B' Recirc Pump Suction Valve (HV-043-1F023B) **(Critical Task)**	PRO
	Enter OT-112, Unexpected/Unexplained Change in Core Flow	SRO
	[OT-112 3.2] **DIRECT** RO to monitor for THI indications	SRO
	[OT-112 3.4] If Rx power > 80% then **INSERT** 8 Control Rods per RMSI	RO
	[OT-112 3.5] Perform Attachment #1 Trip of a Recirc Pump	PRO

4. EVENT - 4 RECIRC PUMP SEAL FAILURES

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
4.	**EVENT - 4 RECIRC PUMP SEAL FAILURES**	
	[OT-112 3.6] Perform OT-112, Attachment #3 to determine position on Power/Flow Map	RO
	[OT-112 3.7] **DEMAND** a P-1 edit and determine whether a Thermal Limit violation exists	RO
	[OT-112 3.9] **ENTER** GP-5, Appendix 2, Rx Maneuvering Without Shutdown	SRO
	[OT-112 3.10] **IF** trip of a single Recirc Pump has occurred **THEN** perform requirements for Single Recirc Loop Operation	SRO
	SRO contacts Work Week Manager for support and planned single Recirc loop operation	SRO
	Enter Tech Spec 3.4.1.1 for operable Recirculation Loops	SRO
Lead Evaluator (or designee) Notes: The scenario may advance to the next event (Steam Leak in Drywell) after the SRO determines actions for loss of a Recirc Pump.		

5. EVENT - 5 STEAM LEAK IN DRYWELL

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

Ensure **Trigger # 4** automatically actuates when total steam flow <8.5 Mlbm/hr to initiate steam leak in the Drywell and Downcomer failure.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5. EVENT - 5	**STEAM LEAK IN DRYWELL**	
Lead Evaluator (or designee) Notes: The following steps, due to the steam leak in the drywell, are directed to shutdown the plant per GP-4, Rapid Plant Shutdown to Hot Shutdown, and stabilize the plant per, T-101, RPV Control, and T-102, Primary Containment Control.		
	Reference ARCs • 107 F-2, DRYWELL HI/LO PRESS • 112 C-5, DRYWELL EQUIPMENT DRAIN TANK/FLOOR DRAIN SUMP LEAKAGE HI FLOW • 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH	RO/PRO
	Recognize Drywell pressure continues to rise	Crew
	Recognize OT-101 actions are ineffective in reversing rising Drywell pressure trend	SRO
	Enter GP-4, Rapid Plant Shutdown to Hot Shutdown (time permitting)	SRO
	Enter T-101 and T-102 on Hi Drywell Pressure (1.68 psig)	SRO
	[T-101 RC-4] Place Mode Switch in SHUTDOWN	RO

6/8. EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS

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
6/8.	**EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS**	
	On the scram, identify that 'A' RPS failed to de-energize and arm and depress all RPS manual pushbuttons	RO
	Enter T-101 with RPV level < +12.5 inches or >4% reactor power with scram condition	SRO
	[T-101 RC/Q-5] Initiate RRCS **(Critical Task)**	RO
	Recognize ARI inserted Control Rods	RO
	[T-101 RC-6] Insert SRMs/IRMs	RO
	[T-101 RQ-2] Ensure Turbine Tripped and Generator Lockout	PRO
	Direct to depressurize RPV within 100 °F/hour cooldown rate to minimize heat input into Primary Containment	PRO
	[T-102 PC/P-5] 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
Lead Evaluator (or designee) Notes: The following steps are performed as directed by T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation.		
	[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: • 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

6/8. EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS

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
6/8.	**EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS**	
	[T-225 4.2.6] **OPEN** HV-51-1F027A(B), "1A(B) 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
Lead Evaluator (or designee) Notes: The following steps are performed as directed by S12.1.A, RHR Service Water System Startup.		
	[S12.1.A 4.1.4 or App1 1.1] **OPEN** HV-51-*F014A(B), HEAT EXCHANGER INLET	PRO
	[S12.1.A 4.1.5 or App1 1.2] Throttle **OPEN** HV-51-*F068A(B) for 18 to 20 seconds	PRO
	[S12.1.A 4.1.6(7) or App1 1.3] **VERIFY** PI-51-*05A-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 or App1 1.6] **IF** 'A'/'B' Loop pump (0A(C)-P506) (0B(D)-P506) is to be placed in service, **THEN ENSURE** 0A(B)-V543 OR 0C(D)-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A 4.2.2 or App1 1.7] **START** 0A(B,C,D)P506, RHRSW PUMP	PRO
	[S12.1.A 4.2.3 or App1 1.8] **THROTTLE** HV-51-*F068A(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
	[T-225 4.2.9] **CLOSE** HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS)	PRO

6/8. EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

DELETE 16B override for '1B' Drywell Spray, if crew attempts to use '1A' Drywell Spray.
OR
DELETE 16A override for '1A' Drywell Spray, if crew attempts to use '1B' Drywell Spray.

At time 10 minutes **Load all SE-10 Floor Actions with time delays scenario,** after Crew requests SE-10 Shunt Trip Resets for DIV 1,3 and 4 loads and
report: The status of individual resets as requested or when all resets are timed out or
report: All SE-10 Floor Actions are complete when all SE-10 timers have expired.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/8.	**EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS**	
	[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(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B))	PRO
	Establish Suppression Pool pressure as Critical Parameter	SRO
	Recognize Suppression Pool pressure rising at faster rate and determine possible downcommer break	PRO
Lead Evaluator (or designee) Notes: The following steps, to spray the Drywell, are directed from T-102, and performed from T-225. The crew will re-align RHR from Suppression Pool Spray to Drywell Spray.		
	WHEN Suppression Pool pressure exceeds 7.5 psig AND on safe side of Drywell Spray Initiation Limit curve PC/P-2 **OR** Before DW temp reaches 340°F, **THEN** spray the Drywell per T-225 **(Critical Task)**	SRO
	[T-102 PC/P-10] Spray the **Drywell** per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation **(Critical Task)**	PRO
	[T-225 4.6.6] **REMOVE** Drywell cooling Fans from service	PRO/RO
	[T-225 4.6.7] **IF** LOCA signal not present – Initiate LOCA signal	PRO/RO
	Recognize failure of either HV-051-1F016A or 1F016B, RHR Loop A or B Drywell Spray Valves to OPEN on demand **(Malfunction)**	PRO
	OPEN alternate Drywell Spray Valve HV-051-1F016A or 1F016B, in designated loop	PRO
	Recognize LOCA permissive when RPV pressure drops below 455 psig	PRO
	Enter SE-10, LOCA	SRO
	Perform SE-10 Immediate Actions	PRO
	[SE-10 3.1] **PLACE** the following to "CLOSE" • 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	PRO
	PLACE to "RESET": • 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.	PRO

6/8. EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

At time 10 minutes **Load all SE-10 Floor Actions with time delays scenario,** after Crew requests SE-10 Shunt Trip Resets and

report: The status of individual resets as requested or when all resets are timed out or
report: All SE-10 Floor Actions are complete when all SE-10 timers have expired.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6/8.	**EVENTS 6 - 8 RPS FAILS / DOWNCOMMER BREAK / DW SPRAY FAILS**	
	Dispatch Equipment Operator to perform SE-10-1 field actions	PRO
	Recognize SAFE side of the Pressure Suppression Pressure (PSP) curve (Curve PC/P-3) cannot be maintained	SRO
	WHEN (or BEFORE) UNSAFE side of the Pressure Suppression Pressure (PSP) curve (Curve PC/P-3) cannot be maintained, enter T-112	SRO
Lead Evaluator (or designee) Notes: The following step is directed from T-112, Emergency Blowdown.		
	[T-112 EB-11] **DIRECT** Open all 5 ADS valves using **(Critical Task)**	CRS/PRO
	Restore RPV level between +12.5 inches and +54 inches	Crew
Lead Evaluator (or designee) Notes: 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.		

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

CREW: _____

DATE: _____ **LSEG:** _____

START TIME: _____ **STOP TIME:** _____

SM: _____ **RO:** _____ **WCS:** _____

CRS: _____ **PRO:** _____ **FSSV:** _____

TIME	PERSON CALLING	PERSON BEING CALLED	COMMUNICATION / REQUEST	CALL BACK TIME

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XI. CREW PREBRIEF INSTRUCTIONS

- Unit 1 is at 100% power
- Unit 2 is 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:

- Perform Drywell Unit Cooler Hydrogen Mixing System Operability Test

Documents Provided:

- ST-6-077-310-1, Drywell Unit Cooler Hydrogen Mixing System Operability Test Run.

CODE NO:	SEG-3005E	REV NO:	001
AUTHOR:	T. BYERS	APPROXIMATE RUN TIME:	60 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	12/01/17
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: T. A. Byers/S/ Date: 11/20/17
Training Instructor - Signature

Reviewed By: N/A for NRC ILT Date: N/A
LORT Lead Instructor - Signature

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

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

Approval: Bill Martin/S/ Date: 11/30/17
OPS Manager - Signature

Approved For Use: Dan Semeter/S/ Date: 12/01/17
Training Manager - Signature

Facility: Limerick 1 & 2 Scenario No.: SEG-3005E Rev 1 Op-Test No.: 1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions:

Unit 1 is at 5.0 % power. Unit 2 is at 100% power.

Turnover:

D12 D/G is running parallel to 201 Safeguard Bus following maintenance. D12 D/G has been running loaded for 11/2 hours of the required 2 hours per S92.2.N step 4.6.4.

Planned Evolutions :

When the 2 hour loaded run is complete, secure D12 D/G per S92.2.N beginning with step 4.6.4.

Critical Tasks:

1. Manually Insert Control Rods
2. Direct performance of T-290 to personnel outside the control room
3. Perform Emergency Blowdown per T-112

Event No.	Malfunction Number	Event Type*	Event Description
1	MESW600B	C-PRO TS-SRO	'0B' ESW Pump trip
2	MCU002A MCU002B MCU193 HS44-1F004	C-PRO TS-SRO	RWCU Isolation failure on differential flow
3	MED280A	C-RO C-PRO	Trip of 1AY160, RPS/UPS Distribution Panel
4	MRD016G	C-RO	Failure of 3 (three) Control Rods to scram.
5	MFW251B HS06-108A	C-RO	S/U Level Control Valve and HV-06-108A fail closed
6	MHP445	M-ALL	T-103 Steam Leak in HPCI
7	MHP446A MHP446B	C-PRO	HPCI Steam Isolation Valves fail to close
8	MFW245B MRC460	C-PRO	'1B' Reactor Feedpump Loss of HP steam supply RCIC injection valve fails to open Automatically

(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

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.	Critical tasks (2–3)	3

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 OT-112, Unexpected/Unexplained Change in Core Flow
   - Direct and perform actions per OT-200, Operations Transient Hard Cards
   - Direct and perform actions per GP-8.5, Isolation Bypass of Crucial Systems
   - Direct and perform actions per E-1AY160, Loss of 1A RPS UPS Power
   - Direct and perform actions per T-250, Remote Manual Primary Containment Isolations
   - Direct and perform actions per T-290, Instrumentation Available for T-103/SAMPS-2
   - Direct and perform actions per T-101, RPV Control
   - Direct and perform actions per T-103, Secondary 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 LSES to SEG format).

Revision Number	Description of Revision and Affect on Training Content	# Date of Revision
Rev000	This is a new SEG	10/08/16
Rev001	This SEG was reformatted to incorporate revisions to Critical Tasks, and format changes in SEG development.	8/20/17

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

VI. SCENARIO EVENT AND EVALUATION SUMMARY:

Events One: At shift turnover, the crew will be directed to Shutdown D12 EDG following an additional 30 minutes run time. However, before the crew can secure the diesel, the '0B' ESW Pump trips removing cooling water from the running D12 EDG.

Evaluation: The crew is expected to identify the loss of cooling water to the operating D/G and start the alternate '0D' ESW Pump, or perform an emergency shutdown of the EDG. The SRO will identify the Tech Spec requirements 3.7.1.2 / 3.8.1 for the loss of the '0B' ESW Pump.

Event Two: After the '0B' ESW Pump trips, and '0D' ESW Pump is started or D12 D/G secured, and Tech Spec referenced, a RWCU heat exchanger tube leak into RECW will cause a differential (delta) flow annunciator alarm. The RWCU delta flow is designed to isolate the RWCU system after a time delay. Complicating the event will be the failure of HV-44-1F004 (RWCU Outboard Isolation PCIV) to close from the handswitch.

Evaluation: Evaluate the crew's ability to diagnose that RWCU failed to isolate on delta flow and RWCU water is flowing into the RECW system. The crew will identify the Hi delta flow and take action to manually isolate the RWCU system including closing HV-44-1F001 (RWCU Inboard Isolation PCIV) and reference Tech Specs 3.6.3 for INOP PCIV and TRM 4.4.4.c for loss of conductivity monitoring.

Event Three Four & Five: After the RWCU system is isolated and Tech Specs referenced, a loss of the '1A' RPS UPS power supply, panel 1A-Y160 will occur. The power supply loss will result in a loss of RECW, DWCW, and PCIG, along with a Reactor HVAC isolation. A loss of 1A-Y160 at a power level when the Main Turbine is tripped will result in both Recirculation Pumps tripping. With no Recirc Pumps in operation the operators will scram the plant as directed by OT-112, Unexpected/ Unexplained Change in Core Flow and enter T-100, Scram / Scram Recovery. Complicating the scram, three rods will fail to insert. Complicating RPV Level Control, during the scram, a failure of the Reactor S/U Level Controller will occur and the '1A' RFP discharge valve will fail to open.

Evaluation: Evaluate the crew's ability to diagnose the power loss and execute E-1AY160, identify both Recirc Pumps have tripped, and scram the reactor, enter T-100, and bypass and restore the RECW, DWCW and PCIG systems. The RO will identify the 3 rod ATWS and insert the rods manually and identify the failed S/U level controller while controlling reactor level, and maintain RPV level using the '1B' RFP.

SCENARIO EVENT AND EVALUATION SUMMARY: cont'd

Event Six And Seven: Once the reactor is shutdown and T-100 steps are being executed, a steam leak will occur in the HPCI Room. Both the Inboard and Outboard HPCI steam isolation valves will fail to isolate, and the steam leak will propagate into a second area.

Evaluation: Evaluate the crew's response during execution of T-103, Secondary Containment Control, due to the elevated HPCI room temperatures. Due to the unisolable HPCI steam leak, and once a second area reaches MSO temperatures, a T-112, Emergency Blowdown, will be performed.

Event Eight: While operating the '1B' RFP for injection, the Hi Pressure Steam supply to the RFPT will fail and the '1B' RFP will stop injecting. When the crew transitions to RCIC, the RCIC injection valve will fail to open automatically. The Operator will be able to manually open the injection valve from the MCR.

Evaluation: To evaluate the Operator's ability to recognize the failure and control RPV level with the RCIC system following manually opening the RCIC Injection Valve.

Termination Criteria: This scenario may be terminated after two rooms have temperatures above MSO and when 5 SRVs opened to depressurize the reactor and reactor level is restored between +12.5" to +54".

VII. 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. 002 F-5, REAC ENCL STM FLOODING DAMPER PNL 10C234 TRBL
   2. 004 B-1, B DRYWELL CHILLER TRIP / FAILED TO START
   3. 004 B-3, REACTOR ENCLOSURE LOW dP/LOSS OF POWER/INOP
   4. 004 E-1, A REACTOR ENCL. ISOLATION SIGNAL INITIATED
   5. 004 E-3, A REFUELING FLOOR ISOLATION SIGNAL INITIATED
   6. 004 A-3, B REAC ENCL HVAC PNL 1BC208 TROUBLE
   7. 005 B-3, DIESEL FIRE PUMP RUNNING
   8. 005 A-2, MOTOR DRIVEN FIRE PUMP RUNNING
   9. 006 F-2U, REAC I EL 177 HPCI PUMP
   10. 011 D-1, DIV 2 ESW SYSTEM OUT OF SERVICE
   11. 011 D-3, B ESW PUMP MOTOR OVERCURRENT
   12. 107 H-1, REACTOR WATER BELOW LEVEL 3 TRIP
   13. 107 G-5, DIV 2 STEAM LEAK DET SYS HI TEMP / TROUBLE
   14. 107 I-5, DIV 4 STEAM LEAK DET SYS HI TEMP / TROUBLE
   15. 108 A-1, NEUTRON MONITORING SYSTEM TRIP
   16. 108 B-1/B-2, AUTO SCRAM CHANNEL 'A1'/'A2'
   17. 109 B-1, 1 REAC ENCL COOLING WATER HI RADIATION
   18. 110 E-3, RPS SYSTEM A OUT OF SERVICE
   19. 110 E-3, RPS SYSTEM A OUT OF SERVICE
   20. 111 D-5, NSSSS ISOL SYS OUT OF SERVICE (INBOARD)
   21. 111/112 A-5, 1A/B RECIRC PUMP MOTOR WINDING COOLING WATER LO FLOW
   22. 111/112 B-1, 1A/B RECIRC ASD TRIPPED
   23. 111/112 E-2, 1A/B RECIRC ASD 13KV BKR TRIP
   24. 112 I-3, RWCU HI DIFF FLOW ISLN TIMER INITIATED
   25. 117 A-1, HPCI OUT OF SERVICE
   26. 118 H-5, REAC ENCLCOOLING WATER HEAD TANK HI/LO LEVEL
   27. 120 F-5, 1A RPS & UPS DIST PNL TROUBLE
   28. 127 H-4, REAC ENCL FLR DRAIN SUMP PUMPHI-HI WATER LEVEL

C. System Procedures (S)
   1. S92.2.N, Shutdown Of The Diesel Generators
   2. S87.1.A App. 1, Start Up of Standby/Tripped Drywell Chiller HARD CARD
   3. S76.8.B App. 1, Initiation of U1 RE Secondary Containment 'B' solation Signal and Restoration of PCIG HARD CARD

REFERENCES cont'd

4. S46.7.A, Control Rod Drive Hydraulic System Operation Following Reactor Scram
5. S06.2.C APP. 1, Manually Placing A RFP to Standby During a Plant Event
6. S11.1.A, ESW System Startup

D. General Procedures (GP)
   1. GP-2, Normal Plant Startup

E. Off Normal Procedures (ON)

F. Operating Transient Procedures (OT)
   1. OT-101, High Drywell Pressure
   2. OT-112, Unexpected/Unexplained Change in Core Flow
   3. OT-200, Operations Transient Hardcards

G. Event Procedures (E)
   1. E-1AY160, Loss Of 1A RPS UPS Power

H. Special Event Procedures (SE)
   1. SE-8 App. 1, Fire Hard Card

I. Surveillance Test and Routine Test Procedures (ST and RT)

J. Technical Specifications and TRM (TS)
   1. 3.7.1.2
   2. 3.3.1
   3. 3.6.3
   4. 3.8.1.1
   5. 3.3.2
   6. 3.4.3.1

K. Transient Response Implementation Procedures (T-100 series)/SAMPs
   1. T-100, Scram / Scram Recovery
   2. T-101, RPV Control
   3. T-103, Secondary Containment Control
   4. T-112, Emergency Blowdown

L. TRIP 200 Series Procedures
   1. T-250, Remote Manual Primary Containment Isolations
   2. T-290, Instrumentation Available for T-103/SAMPS-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

REFERENCES cont'd

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. SOER 10-02, Engaged Thinking Organizations
   2. INPO 15-004, Operator Fundamentals

VIII. PREBRIEF INSTRUCTIONS

Unit 2 is in OPCON 1 at 100% power
Unit 1 is in OPCON 1 at 5.0% power

Specific Plant Conditions are as Follows:

- Reactor Startup in progress per GP-2 complete to step 3.5.1.3
- Two Condensate Pumps in service
- RFPs maintaining RPV level
- Main Turbine BPVs controlling Rx pressure
- HPCI and RCIC are operable
- Offgas Recombiner is in service
- Main Turbine Chest warmed
- The OOM has been contacted and Start-Up Review is in progress in preparation for going to RUN

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

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Make preparations to enter OPCON 1 (Planned OPCON change is 4 hrs. from now)
- D12 D/G is running parallel to 201 Safeguard Bus following 201-D12 Breaker compartment maintenance to repair a damaged cell switch linkage arm.
- D12 D/G has been running loaded for 1 hr 30 mins and is ready, in 30 minutes, to be secured per S92.2.N step 4.6.4. An EO is standing by in the D12 D/G Bay.

Documents Provided:

- S92.2.N, Shutdown of the Diesel Generators
- GP-2 complete to step 3.5.1.3
- Control Rod Move Sheet
- S73.1.A, Normal Operation Of The Reactor Manual Control System

IX. DIRECTIONS FOR EVALUATION PREPARATION

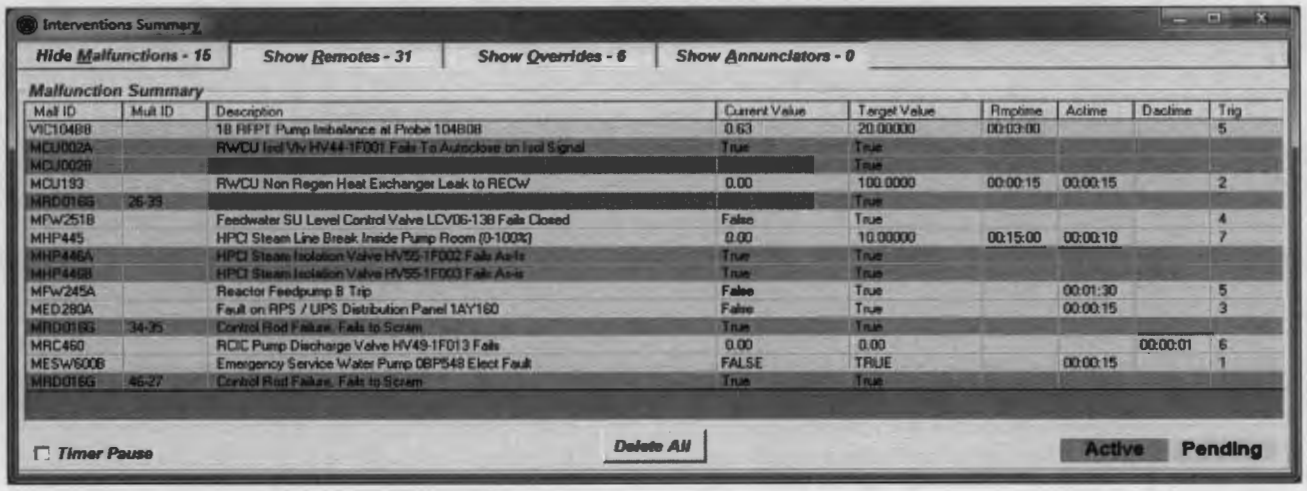
A. INITIAL PREPARATION

✔	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

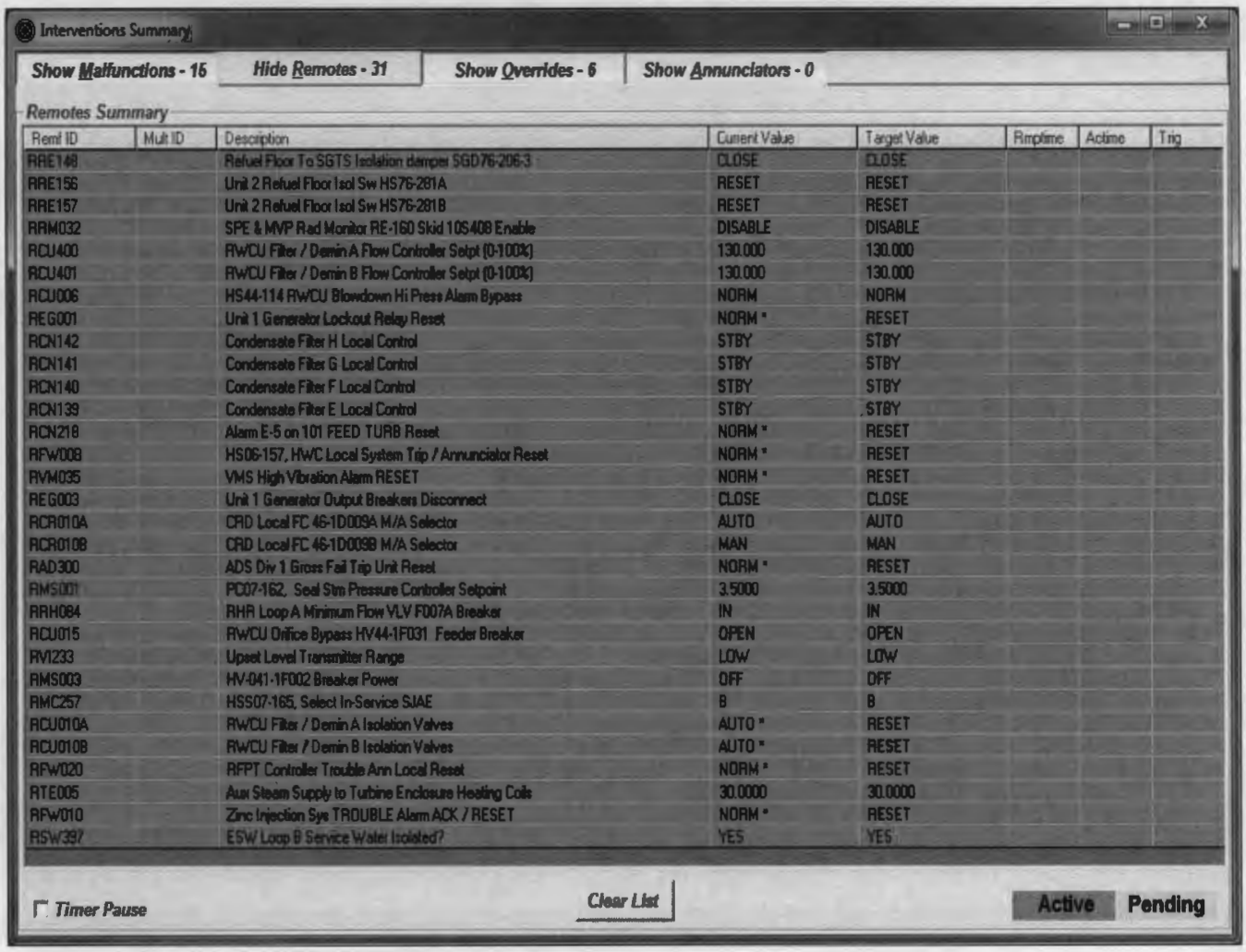
✔	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to the Pre-loaded Cycle **IC** developed for this SEG **OR** Reset the simulator to **IC-21** **AND** Load scenario file **SEG3005E Rev001.scn** • Verify that all Malfunctions, Remotes, Overrides, Annunciators and Triggers are properly loaded **OR** • Manually enter the Malfunctions, Remotes, Overrides, Annunciators and Triggers per the Scenario Generator Screen Shots:
	Simulator Operator (Driver) perform the following: • Momentarily place simulator in RUN • Acknowledge and clear all spurious alarms • Place the simulator back into FREEZE • **Perform** the following: 1. Provide a marked-up copy of S92.2.N, Shutdown of the Diesel Generators 2. Provide a marked-up copy of GP-2, to step 3.5.1.3 3. Provide a marked-up copy of the control rod pull sheet 4. Provide S73.1.A, Normal Operation Of The Reactor Manual Control System 5. Change the following Service Water return valves to green • 11-1013 and 11-2013

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

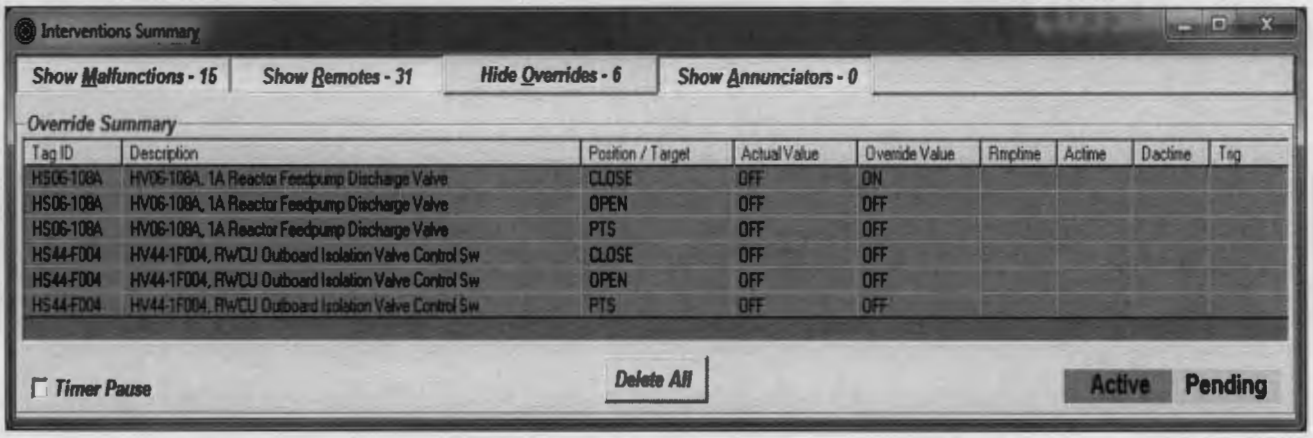


Mal ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
VIC104BB		1B RFPT Pump Imbalance at Probe 104BB	0.63	20.00000	00:03:00			5
MCU002A		RWCU Inst Vlv HV44-1F001 Fails To Autoclose on Isol Signal	True	True				
MCU002B				True				
MCU193		RWCU Non Regen Heat Exchanger Leak to RECW	0.00	100.0000	00:00:15	00:00:15		2
MRD016G	26-39			True				
MFW251B		Feedwater SU Level Control Valve LCV06-138 Fails Closed	False	True				4
MHP445		HPCI Steam Line Break Inside Pump Room (0-100%)	0.00	10.00000	00:15:00	00:00:10		7
MHP446A		HPCI Steam Isolation Valve HV55-1F002 Fails As-Is	True	True				
MHP446B		HPCI Steam Isolation Valve HV55-1F003 Fails As-Is	True	True				
MFW245A		Reactor Feedpump B Trip	False	True		00:01:30		5
MED280A		Fault on RPS / UPS Distribution Panel 1AY160	False	True		00:00:15		3
MRD016G	34-35	Control Rod Failure, Fails to Scram	True	True				
MRC460		RCIC Pump Discharge Valve HV49-1F013 Fails	0.00	0.00			00:00:01	6
MESW600B		Emergency Service Water Pump 0BP548 Elect Fault	FALSE	TRUE		00:00:15		1
MRD016G	46-27	Control Rod Failure, Fails to Scram	True	True				

NOTE: For the MRC460 to work correctly it requires the malfunction to be active in the IC with the Simulator in run. Once active, then assign trigger 6 with the 1 second deactivation time. Once snapped in the IC using the above method, the simulator resets work normally and the above steps are no longer needed.



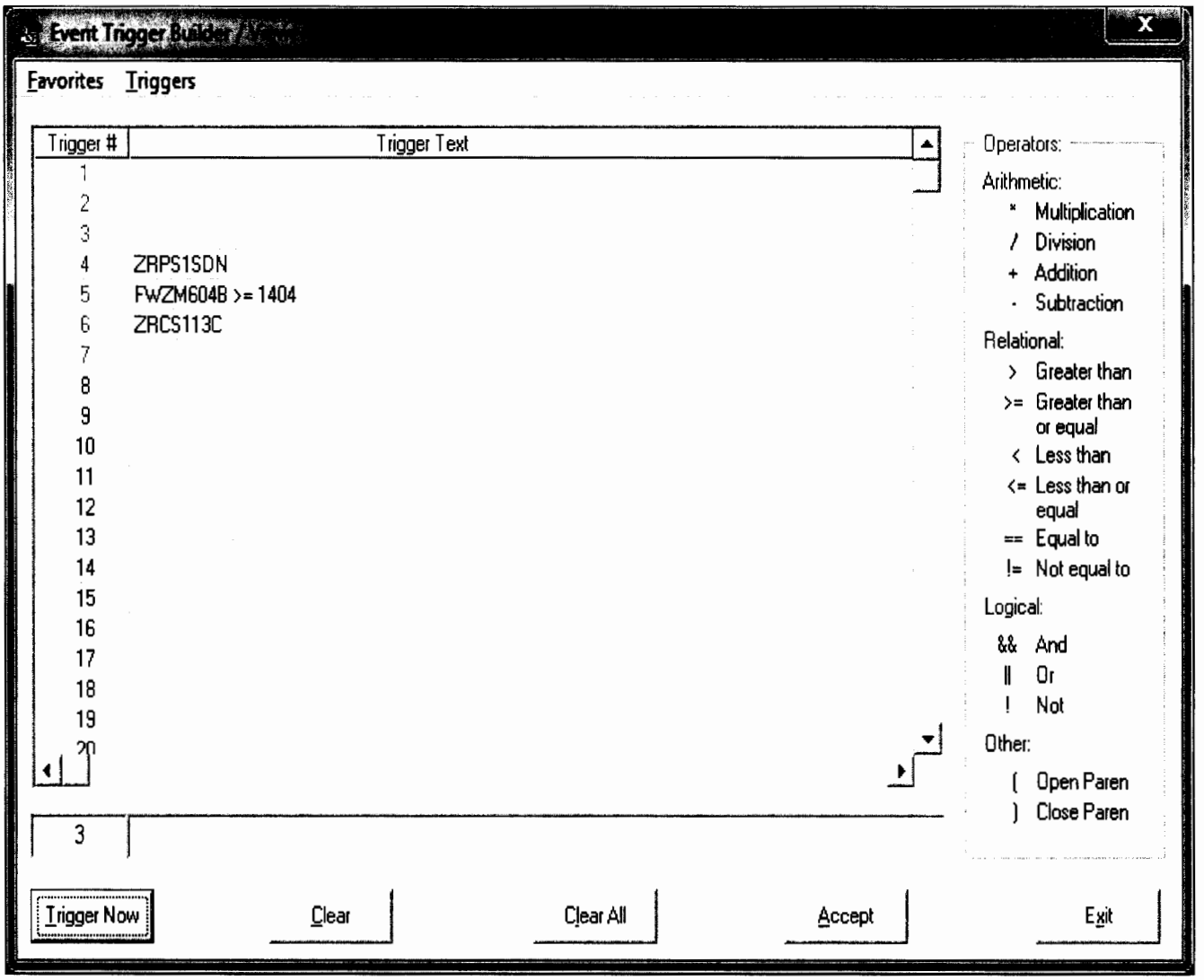
Remt ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Trig
RRE148		Refuel Floor To SGTS Isolation damper SGD76-206-3	CLOSE	CLOSE			
RRE156		Unit 2 Refuel Floor Isol Sw HS76-281A	RESET	RESET			
RRE157		Unit 2 Refuel Floor Isol Sw HS76-281B	RESET	RESET			
RRM032		SPE & MVP Rad Monitor RE-160 Skid 10S408 Enable	DISABLE	DISABLE			
RCU400		RWCU Filter / Demin A Flow Controller Setpt (0-100%)	130.000	130.000			
RCU401		RWCU Filter / Demin B Flow Controller Setpt (0-100%)	130.000	130.000			
RCU006		HS44-114 RWCU Blowdown Hi Press Alarm Bypass	NORM	NORM			
REG001		Unit 1 Generator Lockout Relay Reset	NORM *	RESET			
RCN142		Condensate Filter H Local Control	STBY	STBY			
RCN141		Condensate Filter G Local Control	STBY	STBY			
RCN140		Condensate Filter F Local Control	STBY	STBY			
RCN139		Condensate Filter E Local Control	STBY	STBY			
RCN218		Alarm E-5 on 101 FEED TURB Reset	NORM *	RESET			
RFW008		HS06-157, HWC Local System Trip / Annunciator Reset	NORM *	RESET			
RVM035		VMS High Vibration Alarm RESET	NORM *	RESET			
REG003		Unit 1 Generator Output Breakers Disconnect	CLOSE	CLOSE			
RCR010A		CRD Local FC 46-1D009A M/A Selector	AUTO	AUTO			
RCR010B		CRD Local FC 46-1D009B M/A Selector	MAN	MAN			
RAD300		ADS Div 1 Gross Fail Trip Unit Reset	NORM *	RESET			
RMS001		PC07-162, Seal Stm Pressure Controller Setpoint	3.5000	3.5000			
RRH084		RHR Loop A Minimum Flow VLV F007A Breaker	IN	IN			
RCU015		RWCU Orifice Bypass HV44-1F031 Feeder Breaker	OPEN	OPEN			
RVI233		Upset Level Transmitter Range	LOW	LOW			
RMS003		HV-041-1F002 Breaker Power	OFF	OFF			
RMC257		HSS07-165, Select In-Service SJAE	B	B			
RCU010A		RWCU Filter / Demin A Isolation Valves	AUTO *	RESET			
RCU010B		RWCU Filter / Demin B Isolation Valves	AUTO *	RESET			
RFW020		RFPT Controller Trouble Ann Local Reset	NORM *	RESET			
RTE005		Aux Steam Supply to Turbine Enclosure Heating Coils	30.0000	30.0000			
RFW010		Zinc Injection Sys TROUBLE Alarm ACK / RESET	NORM *	RESET			
RSW397		ESW Loop B Service Water Isolated?	YES	YES			



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 '0B' ESW Pump Trip
	2	Manual	Initiates RWCU differential flow
	3	Manual	Initiates loss of 1A-Y160
	4	Auto / ZRPS1SDN	RMS to SHUTDOWN Initiates S/U Level Control Valve fails closed
	5	Auto / FWZM604B >= 1404	1B FW Flow >= 0.3 Mlbm/hr Initiates 1B RFPT Vibrations and Trip
	6	Auto / ZRCS113C	HV-049-1F013 Handswitch to Open removes malfunction allowing HV-049-1F013 to be manually opened
	7	Manual	Initiates HPCI Stm Line Break Inside Pump Rm


Event Trigger Builder
Favorites
Triggers
Trigger #
Trigger Text
1
2
3
4 ZRPS1SDN
5 FWZM604B >= 1404
6 ZRCS113C
7
8
9
10
11
12
13
14
15
16
17
18
19
20
3
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 Rev. 11 and TQ-AA-150 requirements.

1. T-103.1 Direct the performance of T-290.

K/A	295032	EA2.01	3.8/3.8

Standard: Direct the performance of T-290 to operations personnel located outside the control room.

SAT/UNSAT

2. T-103.3 Perform emergency blowdown per T-112.

K/A	295032	EK3.01	3.5/3.8
K/A	295033	EK3.01	3.3/3.5
K/A	295036	EK3.01	2.6/2.8

Standard: After it is determined that two areas listed on the T-103 Maximum Safe Operating (MSO) Values table have exceeded MSO values and a primary system is still discharging into Secondary Containment, then enter T-112 and perform an emergency blowdown by opening five Safety Relief Valves (SRVs).

SAT/UNSAT

3. T-101.6 Insert control rods manually.

K/A	295037	EA1.07	3.9/4.0
K/A	295037	EA1.08	3.6/3.6
K/A	295015	AA2.02	4.1/4.2
K/A	295015	AA1.05	2.5/2.8*

Standard: If the reactor has not been determined to be shut down under all conditions without boron, then insert all control rods to or beyond 02 with the Reactor Manual Control System (RMCS), bypassing the Rod Worth Minimizer (RWM) when it prevents rod movement.

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**

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.

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1. EVENT - 1 '0B' ESW PUMP TRIP (Malfunction)
Simulator Operator Instructions: Inform Floor Instructor prior to each event trigger Manually actuate **Trigger #_1_** when requested by Lead Evaluator, to initiate 'B' ESW Pump trip.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
1.	**EVENT - 1 '0B' ESW PUMP TRIP (Malfunction)**	
EVALUATORS NOTE: As operator is evaluating reducing load on D12 EDG **Trigger #_1_** will be activated to trip the '0B' ESW Pump. The operator is expected to identify the tripped ESW Pump and start the standby '0D' ESW Pump, or secure the EDG.		
	Reference ARC: • 011 D-1, DIV 2 ESW SYSTEM OUT OF SERVICE • 011 D-3, B ESW PUMP MOTOR OVERCURRENT	PRO
	[ARC MCR 011 D-3] Recognize '0B' ESW Pump tripped	PRO/RO
	DIRECT start of '0D' ESW Pump or perform an emergency shutdown of D12 D/G **(Malfunction)**	SRO
	Reference S11.1.A, ESW System Startup	PRO
	'0D' ESW Pump, if started, verify running (N/A if ESW Pump not started, and D12 D/G shutdown option chosen)	PRO
	Dispatch the FSSV or an EO to investigate tripped '0B' ESW Pump	PRO
	Enter Tech Spec 3.7.1.2 action a.1 for the trip of '0B' ESW	SRO

2. EVENT - 2 RWCU FLOW DIFFERENTIAL ISOLATION FAILURE (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Manually activate **Trigger # 2** when directed by Lead Evaluator, to initiate RWCU High Differential Flow

At time 6 min after FSSV or EO action requested to investigate RWCU system flow to RECW
report: RECW tank level indicates high. If asked, Level is 80" and steady.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2. EVENT - 2	**RWCU FLOW DIFFERENTIAL ISOLATION FAILURE (Abnormal)**	
Lead Evaluator (or designee) Notes: The Reactor Enclosure Cooling Water alarms follow the RWCU Delta flow alarm, and shortly thereafter the RECW Hi radiation alarm annunciates. If the operator immediately secures the RWCU system the Hi Rad and Head Tank level will not alarm, and the operators will not be able to immediately identify the cause of the delta flow. In either case RWCU should be isolated by manual isolation.		
	Reference appropriate ARCs: • 109 B-1, 1 REAC ENCL COOLING WATER HI RADIATION • 112 I-3, RWCU HI DIFF FLOW ISLN TIMER INITIATED • 118 H-5, REAC ENCL COOLING WATER HEAD TANK HI/LO LEVEL	PRO/RO
	[ARC MCR 112 I-3] IF timer does not clear after 30 seconds, THEN manually close the HV-44-1F004	PRO
	Identify that HV-44-1F004 failed to respond to the Handswitch operation	PRO
	[OT-200 Appendix 7] Direct isolation of the RWCU system by closing the Inboard Isolation PCIV (HV-44-1F001)	SRO
	Isolate RWCU system by closing the Inboard Isolation PCIV (HV-44-1F001)	PRO
Lead Evaluator (or designee) Notes: If the operator does not immediately secure the RWCU system, and the Hi Rad and Head Tank level alarm, the operators will not be able to identify the cause of the delta flow.		
	[ARC MCR 109 B-1] Verify HI radiation on RISH-13-1K606, and on recorder RR-13-1R604	RO
	[ARC MCR 109 B-1] Notify chemistry to obtain grab sample	RO
	[ARC MCR 112 I-3] IF leaking into RECW, THEN transfer into other set of Non-Regen HTXCH	PRO
	[ARC MCR 118 H-5] Direct EO to verify RECW Head Tank level locally	PRO
	[ARC MCR 118 H-5] IF in conjunction with RECW High Radiation alarm, THEN refer to S13.0.B, RECW High Radiation	PRO
	If isolation initiated, verify isolation Group III using PMS	PRO
	Enter Tech Specs 3.6.3 action a for HV-44-1F004 INOP	SRO

3/4/5. EVENTS 3 - 5 LOSS OF 1AY160 / 3 Rod ATWS / S/U LEVEL CONTROLLER FAILS (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger # 3** when requested by Lead Evaluator, to trip of 1A-Y160 panel.

At time 4 min after FSSV or EO action requested to investigate trip of 1A-Y160,
report: There is an acrid smell in the Inverter Room, but there is no fire.

At time 3 min after FSSV or EO action requested to investigate 1AY160 feed breaker:
report: The normal DC INPUT (from 250 VDC MCC "1DA") inverter supply breaker is tripped

At time 4 min after FSSV or EO action requested to investigate 1AY160 alternate feed breaker
report: The primary alternate AC INPUT (from 480 VAC MCC "144D-C-F") is tripped open.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3/4/5.	**EVENTS 3 - 5 LOSS OF 1AY160 / 3 ROD ATWS / S/U LEVEL CONTROLLER FAILS (Abnormal)**	
	EVALUATORS NOTE: '1A' RPS/UPS electrical panel trips with the following indications to the crew. Reactor half scram, DWCW trip, RECW Isolation, RWCU Isolation, PCIG Isolation and RX HVAC trip with SBGT Fan start, and with the Main Turbine not reset both Recirc Pumps trip. The crew must restore these systems and take actions for both Recirc Pumps tripped.	
	Reference appropriate ARCs: • 108 A-1, NEUTRON MONITORING SYSTEM TRIP • 108 B-1/B-2, AUTO SCRAM CHANNEL 'A1'/'A2' • 110 E-3, RPS SYSTEM A OUT OF SERVICE • 111/112 A-5, 1A/B RECIRC PUMP MOTOR WINDING COOLING WATER LO FLOW • 111/112 B-1, 1A/B RECIRC ASD TRIPPED • 111/112 E-2, 1A/B RECIRC ASD 13KV BKR TRIP • 120 F-5, 1A RPS & UPS DIST PNL TROUBLE • 004 B-1, B DRYWELL CHILLER TRIP / FAILED TO START • 004 B-3, REACTOR ENCLOSURE LOW dP/LOSS OF POWER/INOP • 004 E-3, A REFUELING FLOOR ISOLATION SIGNAL INITIATED • 004 E-1, A REACTOR ENCL. ISOLATION SIGNAL INITIATED	PRO/RO
	[ARC MCR 108 B-1/B-2] Recognize loss of 1AY160 and reactor 'A' half scram	PRO/RO
	[ARC MCR 120 F-5] Enter E-1AY160, Loss of '1A' RPS UPS Power.	SRO
	[ARC MCR 111/112 B-1] Recognize '1A' and '1B' Recirc Pumps tripped	RO
	Enter, OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition	SRO
	[ARC MCR 111/112 B-1] Enter OT-112, Unexpected/Unexplained Change in Core Flow	SRO
	[OT-112 3.1] Manually Scram and enter T-100, Scram/Scram Recovery	RO
	[T-100 S-5] Ensure SRMs and IRMs inserted	RO
	Recognize 3 control rods failed to insert on the scram	RO
	EVALUATORS NOTE: On the scram 3 control rods will fail to insert. The RO will recognize the ATWS (3 control rods not inserted) and manually drive-in the rods. The control rods will be inserted as directed by T-100, Scram/Scram Recovery. If an entry condition for T-101, RPV Control, is required, T-100 will be exited.	

3/4/5. EVENTS 3 - 5 LOSS OF 1AY160 / 3 ROD ATWS / S/U LEVEL CONTROLLER FAILS (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

At time 7 min when S46.7.A , step 4.2.1, requested for Control Rod Drive Hydraulic System Operation Following Reactor Scram (Securing CRD flow to the Reactor
INSERT RCR009 to close 46-1F034, CRD Water Pressure Control Station Inlet Valve.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3/4/5.	**EVENTS 3 - 5 LOSS OF 1AY160 / 3 ROD ATWS / S/U LEVEL CONTROLLER FAILS (Abnormal)**	
	[T-100 RC/Q-3] Insert rods manually with the RWM Bypassed **(Critical Task)**	RO
	[T-100 RC/L-2] Maintain RPV level between +12.5" and +54" using Cond/FW	RO
	Recognize failure of LV-C-06-138A to align for post-scram level control	RO
	Take manual control of RFP '1A' attempt to open HV-06-108A discharge valve	RO
	Recognize HV-06-108A discharge valve fails to open	RO
	Manually open HV-06-108B and maintain RPV level between +12.5" and +54" using '1B' RFP	RO
	[T-100 RC/P-2] Stabilize RPV press below 1096 psig using Turb BPVs	RO
	Enter ON-113, Loss Of RECW	SRO
EVALUATORS NOTE: E-1AY160 directs the operator to enter ON-113, Loss of RECW, and restore RECW to the Recirc Pump seal and motor oil coolers. This step is performed assuming the Recirc Pumps are in operation. With the Recirc Pumps tripped the operator may place a lower priority in restoration of RECW to the Recirc Pumps		
	[E-1AY160 2.2] **(Malfunction)** Bypass and restore RECW flow • **PLACE** HS-13-112 to "BYPASS" • **PLACE** HS-13-106 to "OPEN" • **PLACE** HS-13-107 to "OPEN"	PRO
	Enter OT-101, Drywell High Pressure due to loss of DW Cooling	SRO
	[E-1AY160 2.3] **(Malfunction)** Bypass and restore DWCW flow • **PLACE** HS-87-116 to "BYPASS" • **PLACE** HSS-87-121A to OPEN • **PLACE** HSS-87-121A to OPEN	PRO
	[E-1AY160 2.3.3] **IF** Drywell Chiller trips, REFER to S87.1.A Appendix 1 Hard Card and start Drywell Chilled Water System.	PRO
	[S87.1.A Appendix 1] **PERFORM** the following: **PLACE** 1A/BK111 Drywell Chiller to STOP **PLACE** 1A/B161 Drywell Chiller Water Pump to OFF	PRO

3/4/5. EVENTS 3 - 5 LOSS OF 1AY160 / 3 ROD ATWS / S/U LEVEL CONTROLLER FAILS (Abnormal)
Simulator Operator Instructions: Inform Floor Instructor prior to each event trigger.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3/4/5.	**EVENTS 3 - 5 LOSS OF 1AY160 / 3 ROD ATWS / S/U LEVEL CONTROLLER FAILS (Abnormal)**	
	[S87.1.A Appendix 1] **PLACE** 1A/BK111 Drywell Chiller to START **ENSURE** 1A/B161 Drywell Chiller Water Pump to RUN	PRO
	[E-1AY160 2.4] **(Malfunction)** Bypass and restore PCIG • **PLACE** HS-59-129A to "CLOSE" • **PLACE** HS-59-191A to "BYPASS" • **PLACE** HS-59-129A to "AUTO" • **PLACE** HS-59-101 to "OPEN"	PRO
	Note Tech Spec entry times for PCIV's at time isolation is bypassed	SRO/PRO
	Reference Technical Specification LCOs: • 3.6.3 action a	SRO
	[ARC-MCR-004 E-3] Verify Refueling Floor Secondary Containment isolates, and Primary Containment groups VIA AND VIB isolate.	PRO
	Verify, by checking DP, Secondary Containment integrity with 'A' Standby Gas Fan running	PRO

6-7. EVENTS 6 – 7 HPCI ROOM STEAM LEAK / HPCI FAILS TO ISOLATE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Ensure **Trigger # 4** automatically actuates when RMS taken to SHUTDOWN to initiate steam leak in HPCI room.

When Fire Brigade Leader is dispatched,
report: This is Fire Brigade Leader ( ) responding to the fire alarm code 1-1-3.

At time 6 min after FSSV or EO action requested to investigate panel 1BC208 trouble,
report: HPCI Pump Room temperature is ( ) and both unit coolers are running.
(**NOTE**: 150 °F is top of scale)

At time 5 min after FSSV or EO action requested T-290 numbers, provide initial readings
report (via phone): HPCI Pump Room (Room 109) temperature is ( ) and the trend is ( ). All other temperatures and radiation levels are below MNO.

Fire Brigade Leader at time 6 min
report: The Unit 1 HPCI Pump Room door is hot to the touch and the sound of steam can be heard in the HPCI Pump Room. I am unable to enter the HPCI Room at this time to investigate for indications of a fire. I am exiting the Reactor Enclosure.

At time 5 min When requested to close HPCI Isolation valves from MCC,
report: RP is restricting entry into the Unit 1 Reactor Enclosure until they can fully assess the conditions.

DRIVER NOTE:

HPCI Pump Room Maximum Normal Operating (MNO) temperature value is 120 °F.

HPCI Pump Room (Room 109) temperature at Maximum Safe Operating (MSO) value (176 °F) must be reported per T-290. In addition, Room 309 temperature at MNO (120 °F) and MSO (145 °F) must be reported per T-290.

IF the crew decides to rapidly depressurize the RPV to the Main Condenser, THEN when RPV pressure reaches 400 psig, report Room 309 temperature is "145 °F UP SLOW" if a value above this temperature has not yet been reported.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6-7.	**EVENTS 6 – 7 HPCI ROOM STEAM LEAK / HPCI FAILS TO ISOLATE**	
	Reference ARC • 006 F-2U, "REAC I EL 177 HPCI PUMP" • 107 G-5, DIV 2 STEAM LEAK DET SYS HI TEMP / TROUBLE • 107 I-5, DIV 4 STEAM LEAK DET SYS HI TEMP / TROUBLE • 004 A-3, B REAC ENCL HVAC PNL 1BC208 TROUBLE • 117 A-1, HPCI OUT OF SERVICE	PRO/RO
	[ARC-MCR-006 F-2U] Enter SE-8, and Dispatch Fire Brigade Leader (FBL)	SRO
	[SE-8 App. 1 2.0] Record time of fire/alarm code	PRO
	[SE-8 App. 1 3.0] Activate Fire Brigade Leader	PRO
	[SE-8 App. 1 4.0] **PERFORM** evacuation announcement	PRO
	[ARC-MCR-004 A-3] Dispatch Operator to investigate Panel 1BC208 Trouble alarm to determine room cooler trouble	PRO/RO
	[ARC-MCR-117 A-1] Notify Fire Brigade Leader (FBL) of potential for steam leak in HPCI room	PRO/RO
	[ARC MCR 006 F-2U] Notify FBL of Fire Procedure F-R-109	PRO/RO
	[ARC MCR 107 G-5/I-5] Enter T-103 (Division 2 and 4 Steam Leak Detection alarms)	SRO
	[T-103 SCC-3] Direct use of PAMS, Fuel Zone, and EQ PMS only	SRO
	[T-103 SCC-6] Direct performance of T-290, Instrumentation Available for T-103/SAMP-2, to operations personnel located outside the control room. **(Critical Task)**	SRO
	[ARC-MCR-117 A-1] Recognize indications of a HPCI steam leak	PRO
	Dispatch Floor Personnel to close HPCI Steam Supply Valves from the MCC per OT-200 Attachment 9	PRO
	[T-103 SCC/T-5] Direct isolation of HPCI System per T-250 after report of exceeding MNO	SRO

6-7. EVENTS 6 – 7 HPCI ROOM STEAM LEAK / HPCI FAILS TO ISOLATE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

When T-290 Update(s) requested,
report (using phone): temperatures with trends as indicated on OCOEE T-103 display.

If Radwaste Operator is requested for status of Reactor Enclosure Floor Drain Sump Pumps
report: Both Unit 1 Reactor Enclosure Floor Drain Sump Pumps are running.

At time when T-290 monitored parameter reaches the Maximum Normal Operating (MNO) or Maximum Safe Operating (MSO) value
report via phone: Appropriate temperature/radiation level with trend (UP FAST or UP SLOW) to MCR CRS

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
6-7.	**EVENTS 6 – 7 HPCI ROOM STEAM LEAK / HPCI FAILS TO ISOLATE**	
	Direct manual isolation of HPCI Outboard Isolation Valve (HV-55-1F003)	SRO
	Place HV-55-1F003 key switch in CLOSE	PRO
	Recognize/report failure of HV-55-1F003 to close	PRO
	Direct manual isolation of HPCI Inboard Isolation Valve (HV-55-1F002)	SRO
	Place HV-55-1F002 key switch in CLOSE	PRO
	Recognize/report failure of HV-55-1F002 to close	PRO
	Recognize failure of HPCI to isolate with active steam leak in progress	Crew
	Establish T-290 Temperatures as Critical Parameters	SRO
	Re-enter T-103 (1BC208 Trouble Alarm and Report)	SRO
	[T-103 SCC/T-8] **WHEN** determined a pri system is discharging into RE (Recognize HPCI temperature cannot be maintained below MSO)	SRO
	[T-103 SCC/T-9] Enter T-101 and execute concurrently	SRO
	[T101 RC/P-19] Reduce Rx pressure to 600 psi to reduce the driving force - the HPCI leak	SRO/RO
	Reference ARCs • 005 A-2, MOTOR DRIVEN FIRE PUMP RUNNING • 005 B-3, DIESEL FIRE PUMP RUNNING • 127 H-4, REAC ENCL FLR DRAIN SUMP PUMPHI-HI WATER LEVEL • 002 F-5, REAC ENCL STM FLOODING DAMPER PNL 10C234 TRBL	PRO
	Re-enter T-103 (Reactor Enclosure Floor Drain Sump Alarm and Report)	SRO
	Recognize second area, Room 309, reported above MNO temperature value	SRO
	Track Room 309 temperature toward MSO temperature value	SRO
	[T-101 RC/P-6] Consider rapidly depressurizing the RPV using Main Turbine Bypass Valves prior to exceeding MSO value in two Reactor Enclosure areas	SRO
	[T-103 SCC/T-10 and SCC/T-11] When MSO temp is still exceeded in 2 OR more area and pri system still discharging - Enter T-112, Emergency Blowdown	SRO
	[T-112 EB-12] Open 5 ADS SRVs **(Critical Task)**	PRO

8-9. EVENTS 8 - 9 '1B' RFP HP STEAM FAILS / RCIC FLOW CONTROLLER FAILS

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Ensure **Trigger #5** automatically actuated when '1B' RFP FW flow > 0.3 Mlbm/hr

At time 7 min when S46.7.A , step 4.2.1, requested for Control Rod Drive Hydraulic System Operation Following Reactor Scram (Securing CRD flow to the Reactor – Insert **RCR009** to close 46-1F034, CRD Water Pressure Control Station Inlet Valve)

If crew chooses to reduce RPV Pressure prior to attempting to inject with RCIC,

With lead evaluator permission

at RPV Pressure of 700 psig,

Trip all Condensate Pumps.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
8-9. EVENTS 8 - 9 '1B' RFP HP STEAM FAILS / RCIC FLOW CONTROLLER FAILS		
Lead Evaluator (or designee) Notes: In STARTUP reactor level is maintained by the S/U level controller through the '1A' RFP, however the S/U level controller has failed to open and the '1A' RFP discharge valve will not open. The RO will attempt to use the '1B' RFP to maintain reactor level. The operator will find the HP steam to the B RFP is unavailable, and the '1B' RFP is unable to maintain RPV level. The RO will attempt to maintain reactor level using the RCIC system.		
	RO identifies the '1B' RFPT is not maintaining RPV level, indicating no flow or pump speed.	PRO
	RO identifies loss of HP steam supply to the '1B' RFP **(Malfunction)**	RO
	Transfer RPV level control to RCIC	SRO/PRO
	Recognize RCIC Discharge Valve (HV-049-1F013) fails to open automatically	PRO
	Manually open RCIC Discharge Valve	PRO
	[T-100 RC/L-3] Restore RPV water level between +12.5" and +54" using available systems, including low pressure ECCS systems	RO
	If RPV level drops below +12.5" enter T-101 RC/L	SRO
Lead Evaluator (or designee) Notes: The scenario may be terminated when an Emergency Blowdown has been completed and RPV level has been stabilized in band.		

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
	Rough log maintained by the crew with the following items noted: • '0B' ESW Pump trip • RWCU Delta Flow isolation • E-1AY160 entry • Reactor Scram (OT-112) • HPCI fire alarm • HPCI Pump Room Steam Supply Line Break • Startup Level Controller (LCV-06-138) Failure To Open • Room 309 Temperature Rise • 'B' RFP trip • RCIC Discharge Valve Malfunction • T-112 Entry	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

Attachment 2
Communications Log

CREW: _____

DATE: _____ **SEG:** _____

START TIME: _____ **STOP TIME:** _____

SM: _____ **RO:** _____ **WCS:** _____

CRS: _____ **PRO:** _____ **FSSV:** _____

TIME	PERSON CALLING	PERSON BEING CALLED	COMMUNICATION / REQUEST	CALL BACK TIME

XII. CREW PREBRIEF INSTRUCTIONS

Unit 2 is in OPCON 1 at 100% power
Unit 1 is in OPCON 1 at 5.0% power

Specific Plant Conditions are as Follows:

- Reactor Startup in progress per GP-2 complete to step 3.5.1.3
- Two Condensate Pumps in service
- RFPs maintaining RPV level
- Main Turbine BPVs controlling Rx pressure
- HPCI and RCIC are operable
- Offgas Recombiner is in service
- Main Turbine Chest warmed
- The OOM has been contacted and Start-Up Review is in progress in preparation for going to RUN

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

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Make preparations to enter OPCON 1 (Planned OPCON change is 4 hrs. from now)
- D12 D/G is running parallel to 201 Safeguard Bus following 201-D12 Breaker compartment maintenance to repair a damaged cell switch linkage arm.
- D12 D/G has been running loaded for 1 hr 30 mins and is ready, in 30 minutes, to be secured per S92.2.N step 4.6.4. An EO is standing by in the D12 D/G Bay.

Documents Provided:

- S92.2.N, Shutdown of the Diesel Generators
- GP-2 complete to step 3.5.1.3
- Control Rod Move Sheet
- S73.1.A, Normal Operation Of The Reactor Manual Control System

CODE NO:	SEG-4158E	REV NO:	000
AUTHOR:	T. BYERS	APPROXIMATE RUN TIME:	60 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	12/01/17
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: T. A. Byers/S/ Date: 11/20/17
Training Instructor - Signature

Reviewed By: N/A for NRC ILT Date: N/A
LORT Lead Instructor - Signature

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

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

Approval: Bill Martin/S/ Date: 11/30/17
OPS Manager - Signature

Approved For Use: Dan Semeter/S/ Date: 12/01/17
Training Manager - Signature

Appendix D **Scenario Outline** **Form ES-D-1**

Facility: Limerick 1 & 2 Scenario No.: SEG- 4158E Rev 0 Op-Test No.: ____.

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions:

Unit 1 Reactor Power is 100%
Unit 2 Reactor Power is 100%

Turnover:

Maintain 100% power

Critical Tasks:

1. Inhibit Automatic ADS
2. Perform actions to maintain/restore RPV water level above Top of Active Fuel (TAF)
3. Spray the Drywell

Event No.	Malfunction Number	Event Type*	Event Description
1	Ann. 118-I5	C-PRO C-RO	Loss of Iso-Phase Bus Cooling
2	MHP450	R-RO C-PRO TS-SRO	Inadvertent HPCI Start Up
3	MNS161B MNS001	I-PRO TS-SRO	Inadvertent NSSSS ISOLATION Failure of PCIG to Isolate
4	MCN604B MRR507A	C-RO	Trip of '1B' Condensate Pump with Failure of the '1A' Reactor Recirc Pump to automatically run back.
5	MED262A	M-ALL	Loss of the 11 BUS / Loss of All Condensate & Feed
6	MRR440A MHP447B MRC457B MRC466	C-PRO	LOCA, HPCI Aux Oil Pump Failure, RCIC Overspeed trip.
7	MDG420D MED014 MED015H	C-PRO	D14 Bus fails to auto swap on Dead Bus Transfer, and failure of D14 EDG to auto start.

* **(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor**

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)	1
5.	EOP contingencies requiring substantive actions (0-2)	1
6.	Critical tasks (2–3)	3

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-101, Loss of Iso-phase Bus Cooling
   - Direct and perform actions per GP-5, App. 2, Planned Rx Maneuvering Without Shutdown
   - Direct and perform actions per GP-8.5, Isolation Bypass of Crucial Systems
   - Direct and perform actions per OT-110, Reactor High Level
   - Direct and perform actions per OT-101, High Drywell Pressure
   - Direct and perform actions per OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition
   - Direct and perform actions per T-101, RPV Control
   - Direct and perform actions per T-111, RPV Level 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	New SEG	8/15/17

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

SCENARIO EVENT AND EVALUATION SUMMARY:

Events One: After the crew assumes responsibility, the operating Iso-phase Bus Cooling Fan will trip with a failure of the standby fan to auto start. This will require the crew to enter and execute ON-101 for Loss of Iso-phase Bus Cooling.

Evaluation: Evaluate the crew's response to the loss of Iso-phase Bus Cooling and their execution of the ON procedure. The crew should minimize VARS on the main generator and lower power as necessary to control Iso-phase bus temperature. When power is lowered below 90%, Iso-phase bus cooling will be restored.

Event Two: After the Iso-phase Bus cooling is restored, the HPCI system will experience an inadvertent startup. The HPCI injection will result in an initial rise in RPV water level and a rise in Reactor Power.

Evaluation: Evaluate the crew's response to the HPCI malfunction including actions taken per OT-104, and OT-110. The crew should reduce power and secure the injection from HPCI as well as reference Tech Specs due HPCI Inoperability.

Event Three: When the plant has been stabilized and HPCI isolated per OT-104, an inadvertent NSSSS Group VIIA and VIIIA isolation will occur. This will cause a loss of RECW cooling to the Recirc Pump Seals, a Loss of Drywell Cooling and a loss of Instrument Gas (PCIG). Complicating this event, the PCIG outboard suction valve will fail to isolate

Evaluation: Evaluate the crew's ability to recognize equipment affected, enter OT-101 for loss of DWCW and ON-113 for Loss of RECW. The crew should bypass and restore DWCW, RECW, and PCIG. The CRS should evaluate Tech Specs' implications for bypassed isolation signals, per T.S. 3.6.3

Event Four: Once actions are taken for the Group VIIA and VIIIA NSSSS isolation, a trip of the '1B' Condensate Pump will occur from an electrical fault. Complicating the trip, the '1A' Reactor Recirc Pump (RRP) will fail to automatically runback to 42% speed.

Evaluation: Evaluate the crew's ability to recognize the loss of the '1B' Condensate Pump and failure of the RRP to runback. The crew should take action per OT-100 to manually runback the Recirc pump and ensure Feedwater Flow is maintained below 11.3 Mlbm/hr.

Event Five: Once actions are taken for the loss of the '1B' Condensate Pump, the 11 Aux Bus will trip from an electrical fault causing a loss of all Condensate and Feedwater.

Evaluation: Evaluate the crew's ability to recognize the loss of the 11 Aux Bus and scram the reactor on lowering water level. The crew should enter T-101, RPV Control. The crew should initiate RCIC to control Rx water level.

SCENARIO EVENT AND EVALUATION SUMMARY cont'd:

Event Six: Once actions are taken for the Scram, a coolant leak will develop in the Drywell that eventually develops into a Recirc Loop rupture with increased severity. Complicating the event will be a failure of the HPCI Aux Oil Pump and a RCIC over-speed trip.

Evaluation: Determine the crews ability to take appropriate actions and use procedures to mitigate the effects of the leak in the DW. The crew is expected to execute OT-101, Drywell High Pressure, T-101, RPV Control, T-102, Primary Containment Control, and T-111, Level Restoration/Steam Cooling.

.

Event Seven: When the plant receives a LOCA signal on -129" Rx Level, the 201-D14 breaker will trip de-energizing the D-14 Bus with the 101-D14 breaker failing to auto close, also the D14 EDG fails to auto start.

Evaluation: The crew is expected to manually start D14 EDG and manually close the output breaker or manually close the 101-D14 Breaker.

Termination Criteria: The scenario may be terminated when the crew has performed an Emergency Depressurization per T-112 with 5 ADS/SRVs open, restored Rx level to the normal band, and place Drywell Spray is in service.

VI. REFERENCES

A. Training Procedures
1. TQ-AA-150, 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
4. TQ-AA-150, Limerick Operator Training Programs

B. Annunciator Response Cards (ARC)
1. 104 F-2, 1B CONDENSATE PUMP TRIP
2. 107 H-2, REACTOR HI/LO LEVEL
3. 107 F-2, DRYWELL HI/LO PRESSURE
4. 110 B-4, DIV 1 REACTOR LEVEL 3 ADS PERMISSIVE
5. 110 D-4, DIV 3 REACTOR LEVEL 3 ADS PERMISSIVE
6. 111 E-2, 1A RECIRC ASD 13KV BRK TRIP
7. 111 A-3, 1A RECIRC PUMP SEAL COOLING WATER LO FLOW
8. 111 A-5, 1A RECIRC PUMP MOTOR WINDING COOLING WATER LO FLOW
9. 112 A-3, 1B RECIRC PUMP SEAL COOLING WATER LO FLOW
10. 112 A-5, 1B RECIRC PUMP MOTOR WINDING COOLING WATER LO FLOW
11. 112 B-3, 1B RECIRC ASD MINOR FAILURE
12. 112 C-4, 1B RECIRC FLOW LIMIT
13. 112 K-2, DRYWELL FLOOR DRAIN TANK HI/LO LEVEL
14. 112 C-5, DRYWELL EQUIPMENT DRAIN TANK/FLOOR DRAIN SUMP LEAKAGE HI FLOW
15. 113 B-5, CORE SPRAY LINE INTERNAL BREAK
16. 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH
17. 115 E-4, DIV 2 DRYWELL HI PRESS
18. 117 B-5, HPCI VACUUM TANK HI/LO LEVEL
19. 117 B-3, HPCI PUMP LOW FLOW
20. 118 I-5, UNIT 1 ISOPHASE BUS COOLER TROUBLE
21. 120 F-2, 101 SAFEGUARD XFMR TROUBLE
22. 125 E-2, 1 MAIN XFMR TROUBLE
23. 125 F-1, 11 BUS BKR TRIP
24. 126 A-1, 11 UNIT AUX BUS NEG 0 SEQUENCE
25. 126 B-1, 11 UNIT AUX BUS UNDERVOLTAGE

C. System Procedures (S)
1. S12.1.A, RHR Service Water System Startup.
2. S34.2.B, Placing Alternate Iso-Phase Bus Cooling Unit in Service
3. S43.0.D, Response to Recirc Pump Motor High Temperature Condition
4. S87.1.A, Startup of Drywell Chilled Water System.

General Procedures (GP)
1. GP-5, App. 2, Planned Rx Maneuvering Without Shutdown
2. GP-8.5, Isolation Bypass of Crucial Systems

D. Off Normal Procedures (ON)
1. ON-101, Loss of Isophase Bus Cooling

2. ON-113, Loss of RECW

E. Operating Transient Procedures (OT)
   1. OT-101, High Drywell Pressure
   2. OT-100, Reactor Low Level
   3. OT-110, Reactor High Level
   4. OT-112, Unexpected/Unexplained Change in Core Flow

F. Event Procedures (E)

G. Special Event Procedures (SE)
   1. SE-10, LOCA

H. Surveillance Test and Routine Test Procedures (ST and RT)

I. Technical Specifications and TRM (TS)
   1. 3.3.2.1, Isolation Actuation Instrumentation
   2. 3.3.3.1, ECCS Instrumentation
   3. 3.6.3, Primary Containment Isolation Valves
   4. 3.5.1, Core Spray / RHR

J. 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

K. TRIP 200 Series Procedures
   1. T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation
   2. T-240, Maximize CRD Flow After Shutdown During Emergency Conditions

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-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. SOER 10-02, Engaged Thinking Organizations
   2. INPO 15-004, Operator Fundamentals

VII. PREBRIEF INSTRUCTIONS

Unit 1 is in OPCON 1 at 100 % power
Unit 2 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

VIII. DIRECTIONS FOR EVALUATION PREPARATION

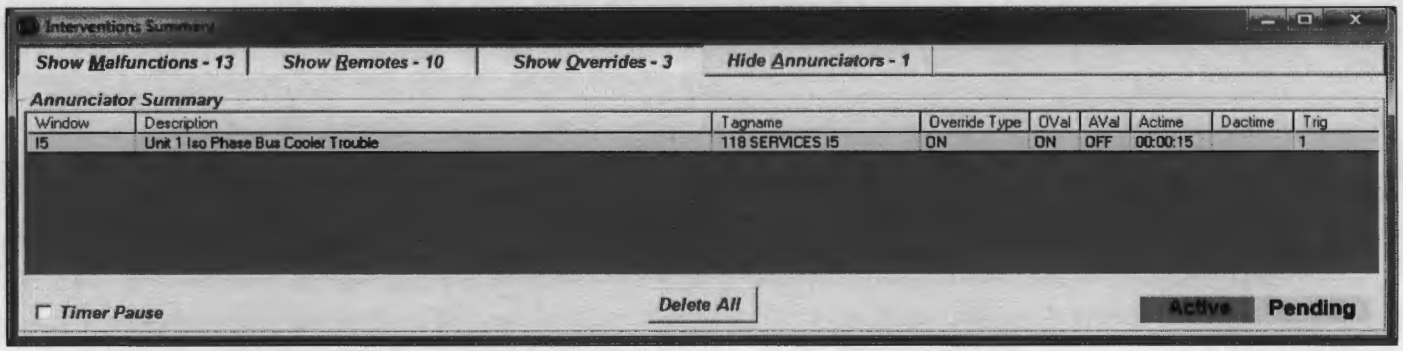
A. INITIAL PREPARATION

✔	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

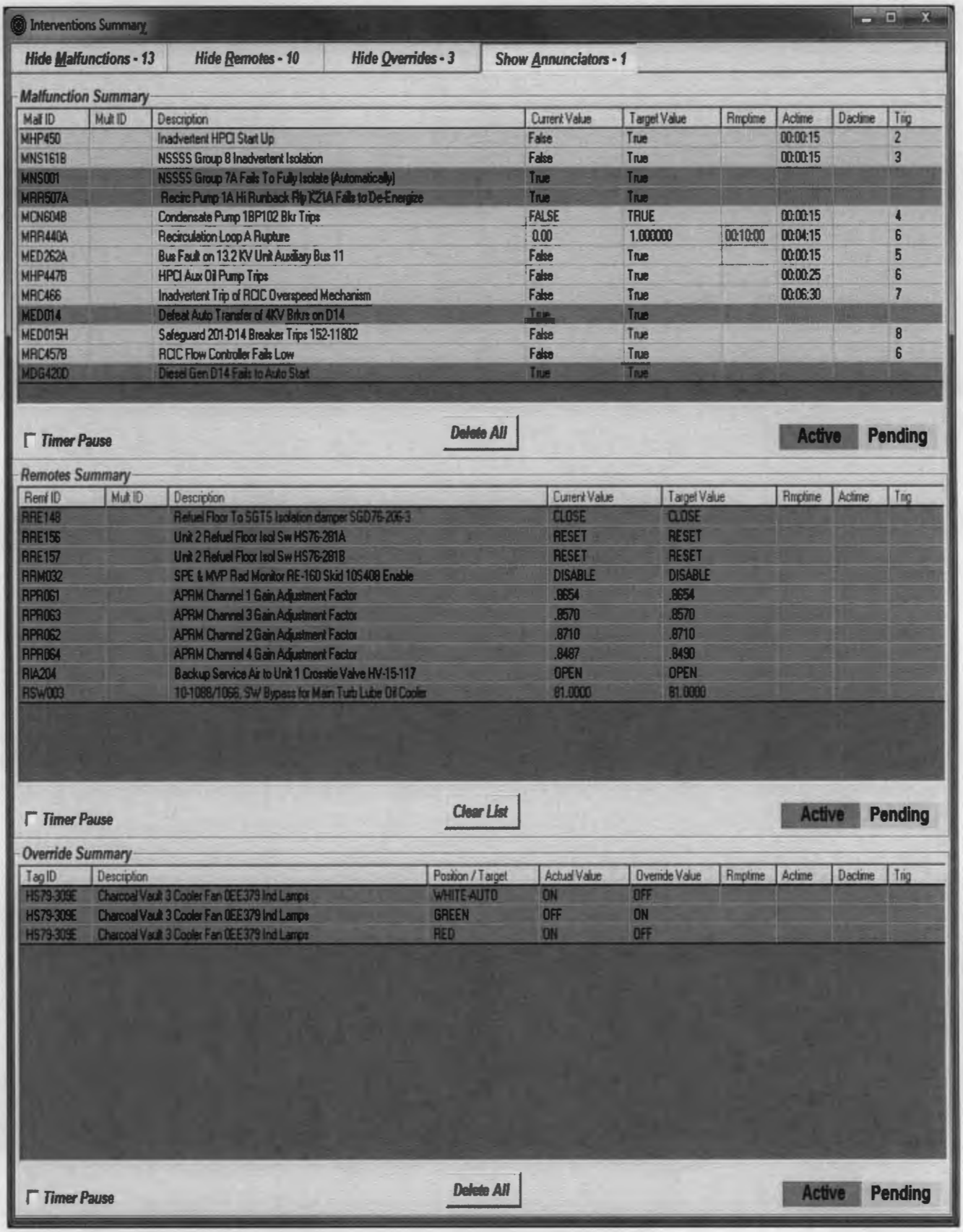
B. SIMULATOR SETUP

✔	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to the Pre-loaded **IC** developed for the Evaluation OR Reset the simulator to designated base load IC AND Load scenario file **SEG4158E Rev000.scn** • Verify that all Malfunctions, Remotes, Overrides, Annunciators and Triggers are properly loaded **OR** • Manually enter the Malfunctions, Remotes, Overrides, Annunciators and Triggers per the Scenario Generator Screen Shots:
	Simulator Operator (Driver) perform the following: • Momentarily place simulator in RUN • Acknowledge and clear all spurious alarms • Place the simulator back into FREEZE

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



MALFUNCTION/REMOTE/OVERRIDE/ANNUNCIATORS FUNCTION TIME TABLE cont'd



Interventions Summary

Hide Malfunctions - 13 | Hide Remotes - 10 | Hide Overrides - 3 | Show Annunciators - 1

Malfunction Summary

Malf ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MHP450		Inadvertent HPCI Start Up	False	True		00:00:15		2
MNS161B		NSSSS Group 8 Inadvertent Isolation	False	True		00:00:15		3
MNS001		NSSSS Group 7A Fails To Fully Isolate (Automatically)	True	True				
MRR507A		Recirc Pump 1A Hi Runback Rly K21A Fails to De-Energize	True	True				
MCN604B		Condensate Pump 1BP102 Bkr Trips	FALSE	TRUE		00:00:15		4
MRR440A		Recirculation Loop A Rupture	0.00	1.000000	00:10:00	00:04:15		6
MED262A		Bus Fault on 13.2 KV Unit Auxiliary Bus 11	False	True		00:00:15		5
MHP447B		HPCI Aux Oil Pump Trips	False	True		00:00:25		6
MRC466		Inadvertent Trip of RCIC Overspeed Mechanism	False	True		00:06:30		7
MED014		Defeat Auto Transfer of 4KV Bkrs on D14	True	True				
MED015H		Safeguard 201-D14 Breaker Trips 152-11802	False	True				8
MRC457B		RCIC Flow Controller Fails Low	False	True				6
MDG420D		Diesel Gen D14 Fails to Auto Start	True	True				

Timer Pause | Delete All | Active | Pending

Remotes Summary

Remf 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	.8487	.8490			
RIA204		Backup Service Air to Unit 1 Crosstie Valve HV-15-117	OPEN	OPEN			
RSW003		10-1088/1066, SW Bypass for Main Turb Lube Oil Cooler	81.0000	81.0000			

Timer Pause | Clear List | Active | Pending

Override Summary

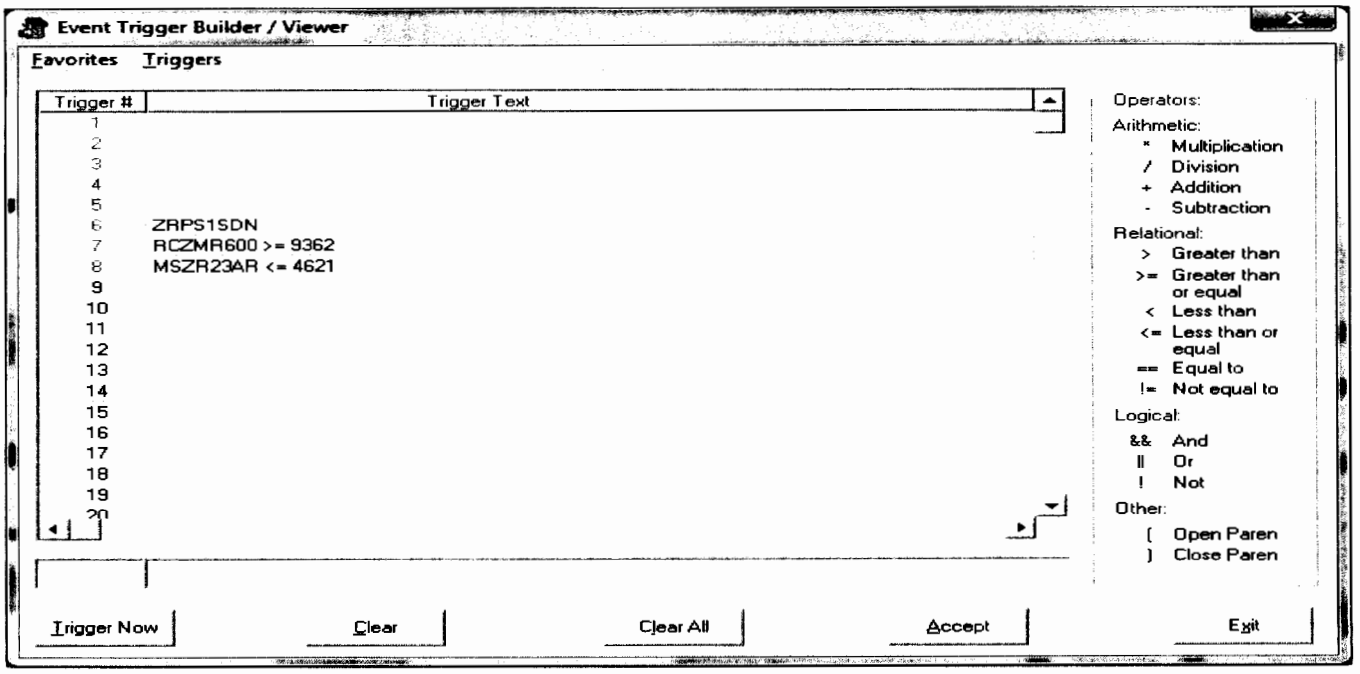
Tag ID	Description	Position / Target	Actual Value	Override Value	Rmptime	Actime	Dactime	Trig
HS79-309E	Charcoal Vault 3 Cooler Fan 0EE379 Ind Lamps	WHITE-AUTO	ON	OFF				
HS79-309E	Charcoal Vault 3 Cooler Fan 0EE379 Ind Lamps	GREEN	OFF	ON				
HS79-309E	Charcoal Vault 3 Cooler Fan 0EE379 Ind Lamps	RED	ON	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 Iso-phase Bus cooler trouble alarm
	2	Manual	Initiates HPCI system start
	3	Manual	Initiates NSSSS isolation
	4	Manual	Initiates '1B' Condensate Pump trip
	5	Manual	Initiates 11 Bus trip
	6	Auto / ZRPS1SDN	RMS to SHUTDOWN Initiates LOCA
	7	Auto / RCZM600 > = 9362	RCIC system RPM / flow > 200 gpm Initiates RCIC overspeed trip
	8	Auto / MSZR23AR <=4621	RPV level < -129" Initiates D14 Bus transfer failure and D14 EDG fails to auto start



E. EQUIPMENT REPORTS AND SIMULATOR INSTRUCTOR 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-111.3 Inhibit Automatic ADS

K/A 218000 A2.06 4.2/4.3

Standard: Prevent automatic initiation of the Automatic Depressurization System (ADS) prior to exceeding -129" reactor level and completion of ADS logic.

SAT / UNSAT

2. T-111.2 Maintain RPV water level greater than the Top of Active Fuel (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 water level greater than the top of active fuel (TAF) or enter T-112 and perform an emergency blowdown by opening five Safety Relief Valves (SRVs). When pressure permits, inject with low pressure injection sources to restore RPV level above TAF.

SAT / UNSAT

CREW CRITICAL TASKS cont'd

3. T-102.1 Spray the Drywell per T-225.

K/A	295012	AA2.01	3.2/4.2
K/A	295010	AK2.01	3.2/3.3
K/A	295010	AA1.07	3.2/3.4

Standard: Before Drywell temperature reaches 340°F, with Drywell temperature and pressure on the SAFE side of the Drywell Spray Initiation Limit curve and Suppression Pool level below 37.4 feet, then spray the Drywell per T-225 before exceeding 340°F.

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.

1. EVENT - 1 LOSS OF ISO-PHASE BUS COOLING

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger #_1_** to initiate alarm indicating Iso-phase Bus trouble.

At time _5 min_ when requested to investigate Unit 1 Iso-phase Bus Cooling,
report: The '1A' Iso-phase Bus Cooling Fan is tripped and the '1B' Fan has failed to auto start. I am attempting to start the '1B' Iso-phase Bus Cooling Fan.

As soon as power is lowered less than 90%,
DELETE override for annunciator 118 I-5, contact MCR and
report: '1B' Iso-phase Bus Cooling Fan is running and Iso-phase Bus temperatures are lowering.

If requested, at time _5 min_ from initial request to report Iso-phase Bus Temperatures,
report: 'A' phase temperature is 75°C and rising slow. 'C' phase temperature is 80°C and rising slowly. If crew asks for a trend, report: Both temperatures are rising approximately 1 degree/minute.

Alarm setpoints TISH-10-123A, 176 deg F
TISH-10-123C, 80 deg C

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
1. EVENT - 1 LOSS OF ISO-PHASE BUS COOLING		
Lead Evaluator (or designee) Notes: The crew will enter ON-101, when loss of Iso-phase Bus Cooling is verified. ON-101 directs the crew to minimize main generator VARS on the main generator and lower power as necessary to control the Iso-phase Bus temperatures. When power is lowered to 90%, Iso-phase Bus Cooling will be restored.		
	Reference ARC: • 118 I-5, UNIT 1 ISOPHASE BUS COOLER TROUBLE	PRO
	[ARC-MCR-118-I-5] Dispatch EO to 10C930 panel to investigate cause of alarm	PRO
	[ARC-MCR-118-I-5] If a total loss of Isolated Phase Bus Cooling **ENTER** ON-101, Loss of Iso-phase Bus Cooling	SRO
	Enter ON-101 after receiving report of no cooling fans running	SRO
	[ON-101 2.2] Direct EO to restore cooling using S34.2.B, Placing Alternate Iso-Phase Bus Cooling Unit in Service	PRO
	[ON-101 2.3] Lower Main Generator reactive load to 0 MVARs **(Malfunction)**	PRO
Lead Evaluator (or designee) Notes: OP-LG 103-102-1002, Strategies for Successful Transient Mitigation, allows use of the "63% LOSS OF FWP" pushbutton in the case of Loss of Iso-phase Bus Cooling.		
	[ON-101 2.4] Recognize cooling will not be restored within 10 minutes and reduce power IAW GP5 Appendix 2 and RMSI until Generator Amps <20,000 amps	SRO/RO
	[ON-101 2.5] Direct EO to monitor Iso-phase Bus temperatures	PRO
	[GP-5 App#2 3.1] **DETERMINE** target power level for intended drop in Rx power	SRO
	[GP-5 App#2 3.1] Notify PECO TSO and generation Dispatch of Rx power reduction	PRO
	Respond to report of Isophase Bus Cooling restored and stop lowering power	RO
	The SRO calls out to Work Week Manager for support	SRO
	Contact Reactor Engineering for support	SRO

2. EVENT - 2 INADVERTENT HPCI START

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

Manually actuate **Trigger #_2_** when directed by Lead Evaluator, to initiate HPCI System start.

If requested, at time _5 min_ EO notifies the MCR on HPCI start:
reports: No obvious cause of HPCI start.

When WWM contacted to investigate HPCI system start:
report: I&C will be notified to investigate HPCI start.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2. EVENT - 2 INADVERTENT HPCI START		
Lead Evaluator (or designee) Notes: HPCI system inadvertently starts and injects into the RPV. The crew will identify the power excursion and enter OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition, for the power rise, and when verified the start was inadvertent, isolate the HPCI system. Once HPCI is isolated and Tech Specs referenced at Lead Evaluators direction move to Event 3.		
	Reference appropriate ARCs: • 117 B-5, HPCI VACUUM TANK HI/LO LEVEL • 117 B-3, HPCI PUMP LOW FLOW • 107 H-2, REACTOR HI/LO LEVEL • 113 B-5, CORE SPRAY LINE INTERNAL BREAK	PRO
	Recognize and report HPCI start	PRO
	Determine HPCI start signal is not valid and minimize HPCI injection	PRO
	Enter OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition	SRO
	[OT-104 IOA] Reduce Recirc Flow, per GP-5 Appendix 2, and RMSI, to reduce power below pre-transient level	RO
	[OT-104 3.1] Enter and execute OT-104, Attachment 2, HPCI/RCIC Inadvertent Injection	SRO/PRO
	[OT-104 Att#2] Secure HPCI in accordance with S55.2.A, HPCI Shutdown From Automatic Or Manual Initiation.	PRO
	Manually isolate HPCI Steam Supply, closing HV-55-1F003, HPCI Steam Line Outboard Isolation Valve.	PRO
	[OT-104 3.5] Request P-1 and determine whether a Thermal Limit violation exists	RO
	Enter 3.5.1.c.1 and 3.3.3.1, (if investigation is conducted), for HPCI INOP and determine action.	SRO
	The SRO calls out to Work Week Manager for support	SRO

3. EVENT - 3 INADVERTENT NSSSS ISOLATION

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 NSSSS isolation.

At time 10 min after FSSV or EO action requested for Group 8 NSSSS isolation:
report: I&C is investigating, no cause has been identified to MCR

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	**EVENT - 3 INADVERTENT NSSSS ISOLATION**	
Lead Evaluator (or designee) Notes: An inadvertent Group VIIA and VIIIA NSSSS isolation occurs causing a loss of RECW cooling to the Recirc Pump seals, a loss of drywell cooling, and a loss of Instrument Gas (PCIG). The crew is expected to identify the PCIG outboard suction valve failed to isolate on the NSSSS signal.		
	Reference appropriate ARCs: • 111 A-3, 1A RECIRC PUMP SEAL COOLING WATER LO FLOW • 111 A-5, 1A RECIRC PUMP MOTOR WINDING COOLING WATER LO FLOW • 112 A-3, 1B RECIRC PUMP SEAL COOLING WATER LO FLOW • 112 A-5, 1B RECIRC PUMP MOTOR WINDING COOLING WATER LO FLOW	PRO/RO
	Recognize increase in Drywell pressure	Crew
	Enter OT-101, High Drywell Pressure	SRO
	Crew verifies parameters and determines isolation signal inadvertent	Crew
	Establish Drywell pressure as Critical Parameter	SRO
	Direct PRO to bypass and restore DWCW, RECW, and PCIG	SRO/PRO
	[ARC-MCR-111 A-3] Monitor Recirc Pump seal cavity temperatures and refer to S43.0.D (Section 4.5)	RO/PRO
	Enter ON-113, Loss of RECW	SRO
	[ON-113 2.1] **IF** RECW flow is not expected to be restored to Recirc Pump seals within 10 minutes, **THEN INFORM** CRS to consider a rapid plant shutdown per GP-4, Rapid Plant Shutdown To Hot Shutdown.	PRO
	[ON-113 2.2] **IF** RECW flow is not restored to Recirc Pump seals within 10 minutes, **THEN** immediately **TRIP** Recirc Pumps 10 seconds apart per S43.2.A, Shutdown Of A Recirculation Pump.	SRO/PRO
Lead Evaluator (or designee) Notes: The crew will bypass and restore RECW per GP-8.5, Isolation Bypass of Crucial Systems **AND/OR** as directed using ON-113, Loss of RECW		
	[GP-8.5 3.3.1] **IF** RECW Head Tank HI/LO Alarm (118 services H-5) is not in alarm **OR** RECW Pump suction pressure is greater than 80 psig as read on PI-013-105A(B) (local PI at pumps) **THEN** perform the following: Otherwise do **not** bypass the isolation.	PRO/RO

3. EVENT - 3 INADVERTENT NSSSS ISOLATION

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 Group 8 NSSSS isolation:
report: I&C is investigating, no cause has been identified to MCR

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3.	**EVENT - 3 INADVERTENT NSSSS ISOLATION**	
	[GP-8.5 3.3.3] **IF** an Outboard Isolation has occurred **THEN** perform the next step to bypass the isolation signals for: HV-13-108 Recirc Pp Clg Wtr In (SUPPLY/RETURN TO SEALS/OIL CLRS) HV-13-111 Recirc Pp Clg Wtr Out (SUPPLY/RETURN TO SEALS/OIL CLRS)	SRO/PRO
	[GP-8.5 3.3.3.1] [ON-113 2.5.1] Position HS-13-113 in BYPASS. **PLACE** HS-013-*13, "Reac Recirc Pmp Clg Wtr MOV Isln Bypass Switch" (SEALS/OIL CLRS OUTBD ISOL BYPASS), in "BYPASS."	PRO
	[ON-113 2.5.1] **OPEN** HV-013-*08, "Rx Recirc Pump RECW Inlet PCIV" **AND** HV-013-*11, "Rx Recirc Pmp RECW Outlet PCIV," by placing HS-013-*08, "RECW To Recirc Pp" (SUP/RET SEAL/OIL CLRS) (HV-013-*08/*11), in "OPEN."	PRO
	[OT-101 3.15.3 or GP-8.5] **IF** the Drywell Chilled Water System has undergone an inadvertent isolation **THEN RESET** per GP-8.3 **OR BYPASS** per GP-8.5.	SRO/PRO
	[GP-8.5 3.2.1] **IF** DWCW Head Tank HI/LO Alarm (PMS Point G532) is "NORMAL" **OR** DWCW Pump suction pressure is greater than 35 psig as read on PI-087-109A(B) (local PI at pumps) **THEN** perform the following: Otherwise do **not** bypass the isolation.	RO/PRO
	[GP-8.5 3.2.2] **IF** an Inboard Isolation has occurred **THEN** perform the next step to bypass the isolation signals for: • HV-87-128 A D/W Chilled Water Supply (LOOP A) • HV-87-129 A D/W Chilled Water Return (LOOP A) • HV-87-122 B D/W Chilled Water Supply (LOOP B) • HV-87-123 B D/W Chilled Water Return (LOOP B)	PRO
	[GP-8.5 3.2.2.1] Position HS-87-115 in **BYPASS**.	PRO

3. EVENT - 3 INADVERTENT NSSSS ISOLATION

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
3. EVENT - 3 INADVERTENT NSSSS ISOLATION		
Lead Evaluator (or designee) Notes: When possible only bypass the effected valve(s) so that the isolation capability of the entire penetration in **not** bypassed. Per [GP-8.4 3.1] **WHEN** bypass logic is completed, **THEN POSITION** valve handswitches used to make up logic as necessary.		
	Open the following valves repositioned for bypassing logic: • HV-87-128 A D/W Chilled Water Supply (LOOP A) • HV-87-129 A D/W Chilled Water Return (LOOP A) • HV-87-122 B D/W Chilled Water Supply (LOOP B) • HV-87-123 B D/W Chilled Water Return (LOOP B)	PRO
Lead Evaluator (or designee) Notes: If required, Drywell Cooling is restored using S87.1.A Appendix 1, Startup of Standby/Tripped Drywell Chiller Hard Card or S87.1.A, Startup of Drywell Chilled Water System.		
	Restore Drywell Cooling per S87.1.A Appendix 1, Startup of Standby/Tripped Drywell Chiller Hard Card or S87.1.A, Startup of Drywell Chilled Water System.	PRO
	[S87.1.A App1 2.1] **PLACE** *A(B)K111 Drywell Chiller (CHILLER) to STOP (Green Flagged).	PRO
	[S87.1.A App1 2.2] **PLACE** DW Chilled water pump *A-P161 to OFF.	PRO
	[S87.1.A App1 2.3] **PLACE** DW Chilled water pump *B-P161 to OFF.	PRO
	[S87.1.A App1 4.0] **PLACE** *B(A)K111, "D/W Chiller" (CHILLER) for oncoming Drywell Chiller in "START."	PRO
	[S87.1.A App1 4.0] **VERIFY** HV-087-*02B(A), "CHILLER Discharge," opens	PRO
	[S87.1.A App1 4.0] **ENSURE** *A-P161 in RUN.	PRO
	[S87.1.A App1 4.0] **ENSURE** *B-P161 in RUN.	PRO

3. EVENT - 3 INADVERTENT NSSSS ISOLATION

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
3. EVENT - 3 INADVERTENT NSSSS ISOLATION		
Lead Evaluator (or designee) Notes: The crew will identify the PCIG outboard suction valve HV-59-102, Instrument Gas PCIV (OUTBD) failed-to-close on the NSSSS isolation signal. When identified, the operator is expected to close the PCIG isolation valve. PCIG is then restored as directed using GP-8.5 section 3.1		
	Identify HV-59-102, Instrument Gas PCIV (OUTBD) failed-to-close on isolation signal **(Malfunction)**	PRO
	Bypass and restore PCIG per GP-8.5	PRO
	[GP-8.5 3.1.3] **IF** an Outboard Isolation has occurred **THEN** perform the next step to bypass the isolation signals for: • HV-59-102 PCIG Compressor Suction (OUTBOARD) • HV-59-129B PCIG B Header Supply (DRYWELL B)	PRO
	[GP-8.5 3.1.3.1] Position switches as listed: • HSS-57-191B BYPASS • HV-59-102 CLOSE • HV-59-129B CLOSE	PRO
NOTE: [GP-8.4 3.1] [GP-8.5 3.1.1] **WHEN** bypass logic is completed, **THEN POSITION** valve handswitches used to make up logic as necessary.		
	Open the following valves repositioned for bypassing logic: • HV-59-102 • HV-59-129B	PRO
Lead Evaluator (or designee) Notes: PCIG header may be restored to service using Instrument Air **OR** after PCIG is restored per GP-8.5, it is acceptable to either wait for PCIG pressure to build up **OR** open air to gas valves. (difference is < 1 min and NOT consequential)		
	[ON-113 2.15] **IF** Primary Containment Instrument Gas (PCIG) Compressors trip due to loss of RECW flow, **THEN OPEN** HV-059-*28A(B), "Inst Air Supply Vlv To 'A'('B') Inst Gas Hdr" (INST GAS A(B)), on Panel *0C655 to pressurize PCIG System with Instrument Air.	PRO
	Enter Tech Spec 3.6.3, PCIVs and TS 3.3.2, Isolation Actuation Instrumentation (with investigation)	SRO
	Contact I&C/ Floor Supervisor/ WWM to investigate inadvertent isolation	CRS/PRO
	The SRO calls out to Work Week Manager for support	SRO

4. EVENT - 4 CONDENSATE PUMP TRIP

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger #_4_** to Initiate Condensate Pump trip at Lead Evaluator's discretion.

At time _5 Min___ after FSSV or EO action requested for '1B' Condensate Pump
report: The '1B' Condensate pump breaker has tripped on overcurrent.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4. EVENT - 4 CONDENSATE PUMP TRIP		
Lead Evaluator (or designee) Notes: '1B' Condensate Pump will trip. The '1B' Condensate Pump trip will limit RFP speed to 78%, and result in an expected 42% Recirc system runback for both Recirc Pumps, however the '1A' Recirc Pump will fail to runback. The Operator will identify the failure and manually insert a 42% Recirc runback on the '1A' Recirc Pump.		
	Reference appropriate ARCs: • 112 B-3, 1B RECIRC ASD MINOR FAILURE • 104 F-2, 1B CONDENSATE PUMP TRIP • 112 C-4, 1B RECIRC FLOW LIMIT	RO/PRO
	Recognize '1B' Condensate Pump Trip	RO/PRO
	[ARC MCR 112 B-3] Reference HMI Faults & Alarms screen at panel 10C626	PRO
	[ARC MCR 112 C-4] Verify '1B' Recirc Pump runback and identify '1A' Recirc Pump failed to runback. **(Malfunction)**	RO/PRO
	[ARC MCR 112 C-4] Reduce speed manually on '1A' Recirc Pump to 42%, using 42% PB on 10C603 panel.	RO
	Enter OT-112, Unexpected/Unexplained Change In Core Flow, Attachment 2, and Attachment 3.	SRO
	[OT-112 3.2] **DIRECT** RO to monitor for THI indications	SRO
	[OT-112 3.3] **DIRECT** RO, **IF** indications of THI exist, to manually **SCRAM** the reactor.	SRO
	[OT-112 Att #2] **NOTIFY** CRS to enter GP-5, Appendix 2 and Tech Spec 3.4.1.3	RO/PRO
	[OT-112 Att #3] **CHECK** plant operating in authorized region of Power/Flow Map.	SRO
	Enter OT-100, Reactor Low Level, on '1B' Condensate Pump trip.	SRO
	[OT-100 3.1] Direct performance of OT-100 Attachment #1	SRO
	[OT-100 Att #1] Dispatch EO to determine if Condensate/Feedpump vibration levels are elevated	PRO

4. EVENT - 4 CONDENSATE PUMP TRIP

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 for '1B' Condensate Pump
report: The '1B' Condensate pump breaker has tripped on overcurrent.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4.	**EVENT - 4 CONDENSATE PUMP TRIP**	
	[OT-100 Att #1, GP-5, Appendix 2,] **REDUCE** reactor power, per GP-5, Appendix 2, by control rod insertion (2-3 control rods) to maintain RFP suction pressure above 300 psig **AND** Total FW flow ≤ 11.3 Mlbs/hr.	RO
	Enter OT-104, Unexpected, Unexplained Positive or Negative Reactivity Insertion.	SRO
	[OT-104 3.5] Demand P-1 edit and determine possibility of a Thermal Limit violation	RO
	[GP-5 App #2] Chemistry notified >15% Rx power change	PRO
	Enter Tech Spec 3.4.1.3, Recirc loop flow mismatch	SRO
	The SRO calls out to SOS and SDM for prompt and OCC support	SRO

5-7. EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger #_5_** at Lead Evaluator's discretion, to initiate Loss of 11 BUS

At time _5 Min___ If requested to investigate trip of 11 Unit Aux Bus
report: There are overcurrent flags up on the 'A' and 'B' phases of the 11 Bus Breaker. It smells like burnt insulation in the room." If requested, there is no evidence of a fire.

If requested to perform steps of S44.2.A, Reactor Water Cleanup Shutdown, perform sections of procedure as requested.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5-7. EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE		
Lead Evaluator (or designee) Notes: The 11 Aux Bus trips from an electrical fault initiating a loss of high pressure feed, and a reactor low level scram. The crew will identify the loss of all high pressure feed to the vessel and take action to restore reactor level. Also, as actions are being taken for the scram, a coolant leak develops in the drywell that eventually develops into a Recirc Loop rupture with increased severity.		
	Reference appropriate ARCs: • 125 E-2, 1 MAIN XFMR TROUBLE • 125 F-1, 11 BUS BKR TRIP • 126 A-1, 11 UNIT AUX BUS NEG 0 SEQUENCE • 126 B-1, 11 UNIT AUX BUS UNDERVOLTAGE • 111 E-2, 1A RECIRC ASD 13KV BRK TRIP • 120 F-2, 101 SAFEGUARD XFMR TROUBLE • 107 H-2, REACTOR HI/LO LEVEL • 110 B-4, DIV 1 REACTOR LEVEL 3 ADS PERMISSIVE • 110 D-4, DIV 3 REACTOR LEVEL 3 ADS PERMISSIVE	RO/PRO
	Recognize/report loss of 11 Unit Auxiliary Bus	RO/PRO
	Dispatch personnel to investigate loss of 11 Unit Aux Bus	PRO
	Recognize/report reactor scram and low RPV level	RO
	Enter T-101 (RPV level < +12.5 inches)	SRO
	[T-101 RC-4] Place Mode Switch in SHUTDOWN	RO
	[T-101 RC-6] Insert SRM's and IRM's	RO
	[T-101 RQ-2] Ensure Turbine trip and Generator Lockout	PRO
	[T-101 RC/P-4] Stabilize RPV pressure below 1096 psig	RO/PRO
	Verify RCIC running and injecting into RPV	PRO
	Establish RPV Level as Critical Parameter	SRO
Lead Evaluator (or designee) Notes: T-111, Level Restoration/Steam Cooling is entered from T-101 when it is determined RPV level cannot be maintained above TAF (-161"). This conclusion may be reached prior to RPV level reaching -161".		
	Enter T-111, Level Restoration/Steam Cooling	SRO
	[T-111 LR/5] Inhibit automatic ADS **(Critical Task)**	SRO/PRO

5-7. EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 5 Min If requested to investigate trip of 11 Unit Aux Bus
report: There are overcurrent flags up on the 'A' and 'B' phases of the 11 Bus Breaker. It smells like burnt insulation in the room." If requested, there is no evidence of a fire.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5-7.	**EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE**	
	[T-111 LR/6] Perform T-240, Maximize CRD Flow After Shutdown During Emergency Conditions	RO
	[T-111 LR/7] Start two SLC Pumps	RO
	[T-111 LR/8] Start two Subsystems **(a subsystem is defined as any motor-driven system loop that is independently capable of injecting into the RPV)**	PRO
	Verify isolations (+12.5 inches, -38 inches)	PRO
	Recognize RCIC Overspeed trip (trips 6.5 minutes after injection starts)	PRO
	Dispatch Operator to reset RCIC Turbine Overspeed trip locally	PRO
Lead Evaluator (or designee) Notes: As the crew is taking actions to restore reactor level, a coolant leak develops in the Drywell that eventually develops into a Recirc Loop Rupture. OT-101, Attachment #4 isolates non-essential sections of piping within the Drywell which could cause a Drywell pressure rise if a hole or crack in the piping exists.		
	Respond to annunciators: • 107 F-2, DRYWELL HI/LO PRESSURE • 112 K-2, DRYWELL FLOOR DRAIN TANK HI/LO LEVEL • 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH • 112 C-5, DRYWELL EQUIPMENT DRAIN TANK/FLOOR DRAIN SUMP LEAKAGE HI FLOW • 115 E-4, DIV 2 DRYWELL HI PRESS	RO/PRO
	Recognize rising Drywell pressure	RO/PRO
	Enter OT-101, High Drywell Pressure	SRO
	Establish Drywell and Suppression Pool pressure as Critical Parameters	SRO
	CRS directs OT-101, High Drywell Pressure Attachment #4, Unidentified or RWCU system cause of rising drywell pressure	SRO
	[OT-101, Att. 4] **ENSURE** Main Steam Line and Recirc sample valves closed	PRO
	[OT-101, Att. 4] **ENSURE** RWCU System secured	PRO
	[OT-101, Att. 4] **ENSURE** Main Steam Line drains closed	PRO

5-7. EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 5 Min If requested to investigate trip of 11 Unit Aux Bus
report: There are overcurrent flags up on the 'A' and 'B' phases of the 11 Bus Breaker. It smells like burnt insulation in the room." If requested, there is no evidence of a fire.

If requested to perform steps of S44.2.A, Reactor Water Cleanup Shutdown, perform sections of procedure as requested.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5-7.	**EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE**	
	When Drywell pressure exceeds 1.68 psig, re-enter T-101	SRO
	When Drywell pressure exceeds 1.68 psig, enter T-102	SRO
	Un-Bypass all NSSSS systems bypassed during inadvertent NSSSS signal when Drywell pressure exceeds 1.68	PRO
	When Drywell temperature exceeds 145 °F, re-enter T-102	SRO
	[T-102 DW/T-5] Maximize Drywell Cooling bypassing isolations per GP-8 as necessary	PRO
	Verify DWCW Head Tank level	PRO
	Verify isolations on RPV level <+12.5"	PRO
	Verify isolations on 1.68 psig Drywell pressure	PRO
	Secure Recirculation Pumps running without cooling	RO/PRO
	Observe HPCI system (isolated), Aux Oil pump will fail to start if unisolated for RPV injection.	PRO
	[T-102 PC/P-5] 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/PRO
Lead Evaluator (or designee) Notes: The following steps are performed as directed by T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation.		
	[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: • 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

5-7. EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 5 Min If requested to investigate trip of 11 Unit Aux Bus
report: There are overcurrent flags up on the 'A' and 'B' phases of the 11 Bus Breaker. It smells like burnt insulation in the room." If requested, there is no evidence of a fire.

If requested to perform steps of S44.2.A, Reactor Water Cleanup Shutdown, perform sections of procedure as requested.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5-7.	**EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE**	
	[T-225 4.2.6] **OPEN** HV-51-1F027A(B), "1A(B) 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
Lead Evaluator (or designee) Notes: The following steps are performed as directed by S12.1.A, RHR Service Water System Startup.		
	[S12.1.A 4.1.4 or App1 1.1] **OPEN** HV-51-*F014A(B), HEAT EXCHANGER INLET	PRO
	[S12.1.A 4.1.5 or App1 1.2] Throttle **OPEN** HV-51-*F068A(B) for 18 to 20 seconds	PRO
	[S12.1.A 4.1.6(7) or App1 1.3] **VERIFY** PI-51-*05A-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 or App1 1.6] **IF** 'A'/'B' Loop pump (0A(C)-P506) (0B(D)-P506) is to be placed in service, **THEN ENSURE** 0A(B)-V543 OR 0C(D)-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A 4.2.2 or App1 1.7] **START** 0A(B,C,D)P506, RHRSW PUMP	PRO
	[S12.1.A 4.2.3 or App1 1.8] **THROTTLE** HV-51-*F068A(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
	[T-225 4.2.9] **CLOSE** HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS)	PRO

5-7. EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 5 Min If requested to investigate trip of 11 Unit Aux Bus
report: There are overcurrent flags up on the 'A' and 'B' phases of the 11 Bus Breaker. It smells like burnt insulation in the room." If requested, there is no evidence of a fire.

At time 10 minutes **Load all SE-10 Floor Actions with time delays scenario,** after Crew requests SE-10 Shunt Trip Resets and
report: The status of individual resets as requested or when all resets are timed out or
report: "All SE-10 Floor Actions are complete" when all SE-10 timers have expired.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5-7.	**EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE**	
	[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(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B))	PRO
Lead Evaluator (or designee) Notes: The following steps, to spray the Drywell, are directed from T-102, and performed from T-225. The crew will re-align '1B' RHR from Suppression Pool Spray to Drywell Spray.		
	[T-102 PC/P-9] **DIRECT** to Spray the **Drywell** per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation	CRS
	[T-102 PC/P-9] **PERFORMS** Spray the **Drywell** per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation **(Critical Task)**	PRO
Lead Evaluator (or designee) Notes: When the plant receives the LOCA signal at -129" RPV level, the 101-D14 breaker will trip with the 201-D14 breaker failing to auto close rendering the D14 Bus de-energized until manual actions are taken.		
	Crew monitors RPV level decrease and re-aligns ECCS systems to RPV	Crew
	Enter SE-10, LOCA	Crew
	Perform SE-10, LOCA, actions in MCR	RO/PRO
	Direct performance of SE-10 Floor Actions	RO/PRO
	[SE-10 3.1] **PLACE** the following to "CLOSE" • 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
	Recognize failure of D-14 Bus to fast transfer from the 201 SFGD Bus to 101 SFGD Bus	PRO
	Recognize failure of D-14 EDG to auto start on LOCA signal and Manually start D-14 EDG	PRO
	[SE-10 3.2] **PLACE** to "RESET": • 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 (following D-14 EDG start)	RO

5-7. EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger.

At time 5 Min If requested to investigate trip of 11 Unit Aux Bus
report: There are overcurrent flags up on the 'A' and 'B' phases of the 11 Bus Breaker. It smells like burnt insulation in the room." If requested, there is no evidence of a fire.

At time 10 minutes **Load all SE-10 Floor Actions with time delays scenario,** after Crew requests SE-10 Shunt Trip Resets and
report: The status of individual resets as requested or when all resets are timed out or
report: "All SE-10 Floor Actions are complete" when all SE-10 timers have expired.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5-7.	**EVENTS 5 - 7 LOSS OF 11 BUS / LOCA / RCIC TRIP / D14 EDG FAILURE**	
	Restart '1A' CRD Pump following LOCA	RO
	Restart SLC Pumps following LOCA	RO
Lead Evaluator (or designee) Notes: The following steps are directed from T-112, Emergency Blowdown.		
	[T-112 EB-11] **DIRECT** Open all 5 ADS valves using **(Critical Task)**	SRO/PRO
	Maximize injection with **all available** RPV injection sources **(Critical Task)**	RO/PRO
	When RPV level is restored above -161 inches, exit T-111 and re-enter RC/L leg of T-101	SRO
	Align / Realign RHR to Spray the **Drywell** per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation **(Critical Task)**	PRO
	Restore RPV level between +12.5 inches and +54 inches	Crew
Lead Evaluator (or designee) Notes: 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.		

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

CREW: _____

DATE: _____ **LSEG:** _____

START TIME: _____ **STOP TIME:** _____

SM: _____ **RO:** _____ **WCS:** _____

CRS: _____ **PRO:** _____ **FSSV:** _____

TIME	PERSON CALLING	PERSON BEING CALLED	COMMUNICATION / REQUEST	CALL BACK TIME

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XI. CREW PREBRIEF INSTRUCTIONS

Unit 1 is in OPCON 1 at 100 % power
Unit 2 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

CODE NO:	SEG-6217E	REV NO:	000
AUTHOR:	T. BYERS	APPROXIMATE RUN TIME:	60 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	12/01/17
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: T. A. Byers/S/ Date: 11/20/17
Training Instructor - Signature

Reviewed By: N/A for NRC ILT Date: N/A
LORT Lead Instructor - Signature

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

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

Approval: Bill Martin/S/ Date: 11/30/17
OPS Manager - Signature

Approved For Use: Dan Semeter/S/ Date: 12/01/17
Training Manager - Signature

Appendix D **Scenario Outline** **Form ES-D-1**

Facility: Limerick 1 & 2 Scenario No.: SEG-6217E Rev 0 Op-Test No.: 1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions:

Unit 1 Reactor Power is 75%
Unit 2 Reactor Power is 100%

Turnover:

Restore Unit 1 power to 100% using by withdrawing Control Rods and raising Core Flow

Critical Tasks:

1. Inhibit Auto ADS
2. Terminate and prevent injection into the RPV (second lowering)
3. Direct performance of control rod insertion via T-217 to personnel located outside the MCR

Event No.	Malfunction Number	Event Type*	Event Description
1	None	R-RO	Continue raising reactor power
2	MRD016D	C-RO	Control Rod (38-39) fails stuck
3	MPC257	C-PRO TS-SRO	'1D' RHR Pump suction leak
4	MED282B	C-PRO TS-SRO	Loss of Div 2 DC
5	MVI232B MRP029A	C-RO TS-SRO	Reactor Level Transmitter Failure / Failure to Half Scram.
6	MRR441	C-PRO	Small coolant leak into Drywell
7	MSL559 MRD556	M-ALL	Hydraulic ATWS with failure of Standby Liquid Control
8	MRD024	C-RO	RDCS Inoperative
9	MAD145E	C-PRO	'1J' SRV Fails Open Mechanically

* **(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor**

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)	1
5.	EOP contingencies requiring substantive actions (0-2)	1
6.	Critical tasks (2–3)	3

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 S73.1.A, Normal Operation Of The Reactor Manual Control System
- Direct and perform actions per OT-101, High Drywell Pressure
- Direct and perform actions per OT-114, Inadvertent Opening Of A Relief Valve
- Direct and perform actions per OT-117, RPS Failures
- Direct and perform actions per T-217, RPS/ARI Reset and Backup Method Of Draining Scram Discharge Volume
- 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	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	New SEG	8/18/17

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

SCENARIO EVENT AND EVALUATION SUMMARY:

Events One: When the crew takes the shift, the RO will raise power by withdrawing control rods.

Evaluation: To evaluate the RO's ability to properly operate RMCS to raise Reactor Power with control rods.

Event Two: As the RO withdraws control rods, one of the control rods will fail stuck.

Evaluation: To evaluate the RO's ability to recognize the stuck rod and take actions as directed by S73.1.A, Normal Operation Of The Reactor Manual Control, for the stuck control rod.

Event Three: Following the stuck control rod event, a leak will develop in the suction line for the '1D' RHR Pump.

Evaluation: To evaluate the crew's ability to enter and execute SE-4, Flood and T-103, and taking action to close the '1D' RHR Pump suction valve to stop the leak. The SRO will evaluate Tech Spec 3.5.1 for the out of service RHR Pump.

Event Four: After the RHR leak has been isolated and Tech Specs referenced, a loss of Division 2 DC will occur.

Evaluation: To evaluate the crew's ability to recognize the loss of DIV 2 DC and enter and execute E-1FB, placing the MCR HVAC in a Chlorine isolation (PRO) and to call plant personnel for support. The SRO is expected to reference Tech Spec 3.0.3 and 3.8.2.1 for loss of DC.

Event Five: After the crew responds to the loss of DC, a downscale failure of a RPS Reactor Water Level instrument will occur with a failure to cause a half scram.

Evaluation: Evaluate the crews' ability to implement OT-117, RPS Failures and respond to a failure to half scram. The crew will be evaluated on their ability to implement OT-117 to determine the instrument failure and insert a manual half scram. The CRS is expected to reference Tech Specs for the failure of the RPS system.

Event Six: After the crew responds to the instrument failure, a small coolant leak will occur in the drywell causing Drywell pressure to rise. Eventually, pressure will rise to the point requiring the crew to perform a GP-4, Rapid Plant Shutdown to Hot Shutdown.

Evaluation: Evaluate the crews' ability to recognize rising drywell pressure and execute OT-101 for rising drywell pressure including isolating RWCU. When Drywell pressure approaches the scram setpoint, the crew should perform a GP-4 Rapid Plant Shutdown to Hot Shutdown, or manually scram the reactor.

SCENARIO EVENT AND EVALUATION SUMMARY cont'd:

Event Seven: When the Mode Switch is taken to shutdown, a Hydraulic ATWS will prevent the scramming of control rods. Complicating the event, Standby Liquid Control will fail to inject into the reactor.

Evaluation: Evaluate the crews' ability to enter and execute T-101, RPV Control, and T-117, Level/Power Control. The crew should recognize the Hydraulic ATWS and make the proper callouts for Trip procedures to assist in the Reactor shutdown.

Event Eight: After the Mode Switch is taken to shutdown, RDCS will become inoperative and prevent manual insertion of control rods.

Evaluation: Evaluate the crews' ability to recognize the failure of RDCS and call out for floor assistance in resetting RDCS in the AER. Once RDCS is reset, the crew is expected to manually insert control rods to help mitigate the ATWS condition.

Event Nine: After Rx level is lowered below -50", the '1J' SRV will fail open mechanically adding heat to the Suppression Pool. The crew should enter OT-114 and attempt SRV closure by removing fuses to the SRV.

Evaluation: Evaluate the crews' ability to respond to the inadvertent SRV opening per OT-114 and their ability to track the rising Suppression Pool temperatures. When Suppression Pool temperature exceeds 110°F, the crew should perform a second lowering of reactor water level as directed by T-117, Level/Power Control.

Termination Criteria: The scenario is terminated following performance of T-217, RPS/ARI Reset and Backup Method of Draining Scram Discharge Volume, to insert all Control Rods, and RPV level is established above –161 inches (TAF), and stabilized for Cooldown Rate Control.

VI. REFERENCES

A. Training Procedures
1. TQ-AA-150, 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
4. TQ-LG-150, Limerick Operator Training Programs

B. Annunciator Response Cards (ARC)
1. 002 F-4 & F-5, RE SFD PNLs 10C245, 10C243 TROUBLE
2. 002 A-1, CONTROL ROOM RADIATION ISOLATION INITIATED
3. 002 A-2, CONTROL ROOM CHLORINE ISOLATION INITIATED
4. 003 B-2, Unit 1&2 CONTAINMENT LEAK DETECTOR HI RADIATION
5. 107 H-1, REACTOR WATER BELOW LEVEL 3 TRIP
6. 107 F-2, DRYWELL HI / LO PRESS
7. 108 E-4, RDCS INOPERATIVE
8. 110 B-1, SRV/HEAD VENT VALVE LEAKING
9. 110 B-2, SAFETY RELIEF VALVE OPEN
10. 112 C-5, DRYWELL EQUIPMENT DRAIN TANK/FLOOR DRAIN SUMP LEAKAGE HI FLOW
11. 115 G-5, 1B-1D RHR PUMP ROOM FLOOD
12. 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH
13. 115 E-5, FLOOR DRAIN LEAKAGE HI FLOW
14. 122 G-1, 1 UNIT DIV 2 SFGD BATTERY CHARGERS TROUBLE
15. 122 G-2, 1DB-1 250V DC MCC UNDERVOLTAGE
16. 122 G-3, 1DB-2 250V DC MCC UNDERVOLTAGE
17. 122 G-4, 1PPB1/1PPB3 125VDC DIST PANELS UNDERVOLTAGE
18. 122 G-5, 1PPB2 125VDC DC DIST PANEL UNDERVOLTAGE
19. 122 D-1, D12 D-G TROUBLE
20. 122 D-2, D12 STANDBY AC POWER SYS OUT OF SERVICE
21. 122 E-3, DIV 2 MCC SHUNT TRIP COIL AUX CIRCUIT UNDERVOLTAGE
22. 122 E-4, DIV 2 MCC SHUNT TRIP COIL UNDERVOLTAGE
23. 122 F-4, 1B RPS & UPS DIST PNL. TROUBLE
24. 122 A-5, 1B RPS & UPS STATIC INVERTER TROUBLE
25. 127 H-4, REACTOR ENCLOSURE FLOOR DRAIN SUMP HI-HI WATER LEVEL

C. System Procedures (S)
1. S12.1.A, RHR Service Water System Startup
2. S51.8.A, Suppression Pool Cooling Operation (Startup And Shutdown And Level Control)
3. S73.1.A, Normal Operation Of The Reactor Manual Control System

General Procedures (GP)
1. GP-4, Rapid Plant Shutdown To Hot Shutdown

D. Off Normal Procedures (ON)

E. Operating Transient Procedures (OT)
1. OT-101, High Drywell Pressure
2. OT-114, Inadvertent Opening Of A Relief Valve
3. OT-117, RPS Failures

REFERENCES cont'd

F. Event Procedures (E)
   1. E-1FB, Loss of Division 1 Safeguard 125/250 VDC Bus 1FB
G. Special Event Procedures (SE)
   1. SE-4, Plant Flood
   2. SE-10, LOCA
H. Surveillance Test and Routine Test Procedures (ST and RT)
I. Technical Specifications and TRM (TS)
   1. 3.0.3 both offsite sources and one EDG
   2. 3.0.6 provided safety function determined to be functional
   3. 3.1.3.1 Control Rods
   4. 3.3.1 RPS Instrumentation
   5. 3.8.2.1.c DC Sources (2 hr. LCO)
   6. 3.8.3.1.b Onsite Power Distribution (8 hr. LCO)
   7. 3.5.1 HPCI
   8. 3.1.5 SLC
   9. 3.3.4.1 RRCS/ATWS RPT Breakers
   10. 3.5.1 Core Spray / RHR
   11. 3.7.1.2 ESW
   12. 3.7.1.1 RHRSW
J. Transient Response Implementation Procedures (T-100 series)/SAMPs
   1. T-101, RPV Control
   2. T-102, Primary Containment Control
   3. T-117, Level/Power Control
K. TRIP 200 Series Procedures
   1. T-209, Injection From SLCS (SLC) Storage Tank With The RCIC System
   2. T-217, RPS/ARI Reset and Backup Method Of Draining Scram Discharge Volume
   3. T-218, Control Rod Insertion By Withdraw Line Venting
   4. T-221, MSIV Isolation Bypass Procedure
   5. T-270, Terminate And Prevent Injection Into the RPV
   6. T-290, Instrumentation Available for T-103/SAMP-2
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-106-101-1006, Operational Decision Making Process

REFERENCES cont'd

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. SOER 10-02, Engaged Thinking Organizations
   2. INPO 15-004, Operator Fundamentals

VII. PREBRIEF INSTRUCTIONS

Unit 1 Reactor Power is 75%

Unit 2 Reactor Power is 100%

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:

- Restore Unit 1 power to 100% by withdrawing Control Rods and raising Core flow
- Reactor Engineering has determined there are no known Channel Distorted Control Rods.

Documents Provided:

- ReMA
- GP-5, Appendix #2 completed to step 3.2.22
- S73.1.A, Normal Operation Of The Reactor Manual Control System

VIII. DIRECTIONS FOR EVALUATION PREPARATION

A. INITIAL PREPARATION

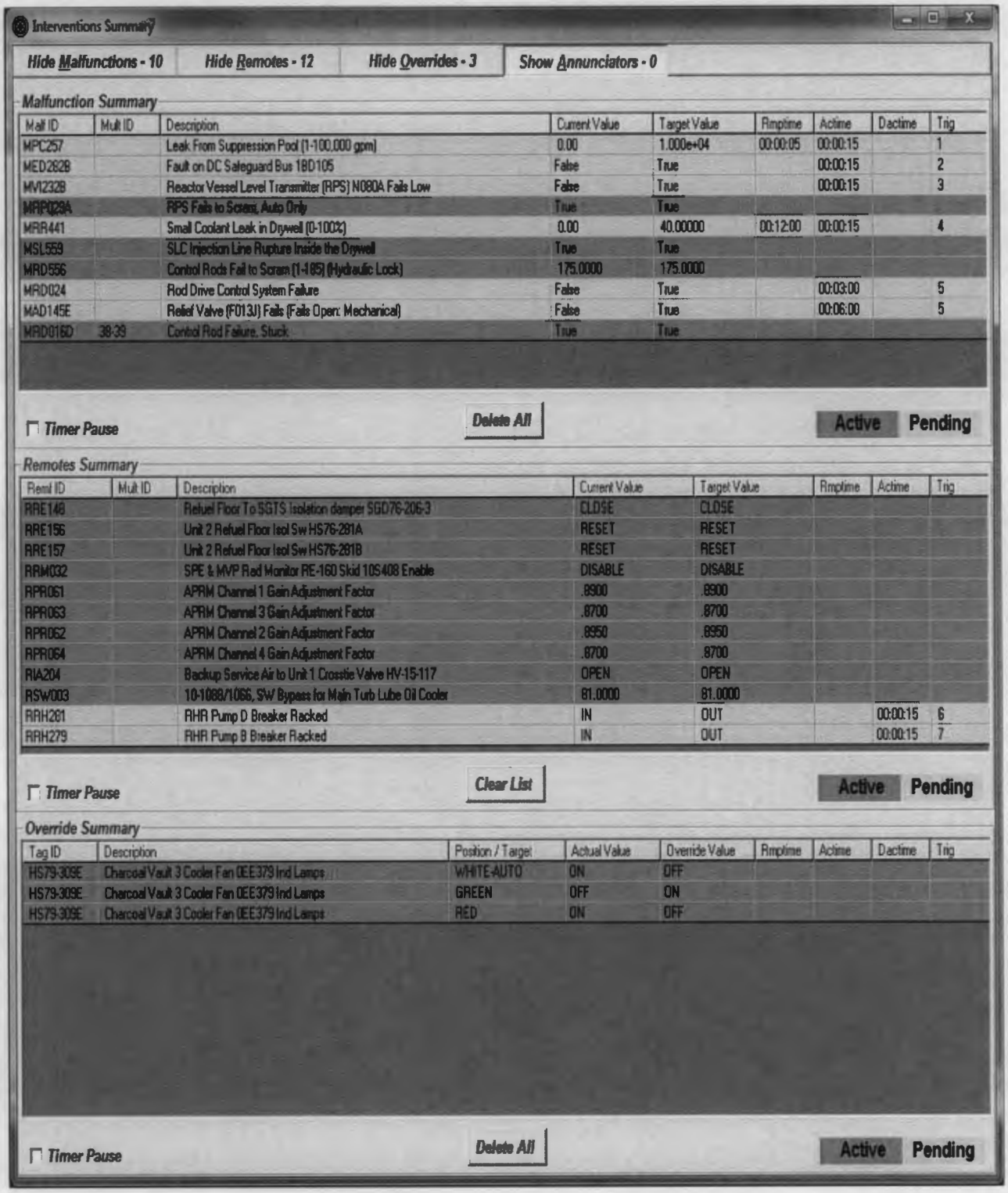
✔	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete TQ-AA-155, Operator Training Programs Attachment 02, Evaluated Scenario Administration Checklist.
	Complete TQ-LG-201-0113, Limerick Training Department Simulator Examination Security Actions Checklist

B. SIMULATOR SETUP

✔	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to the Pre-loaded **IC** developed for the Evaluation OR Reset the simulator to designated base load IC AND Load scenario file **SEG6217E Rev000.scn** • Verify that all Malfunctions, Remotes, Overrides, Annunciators and Triggers are properly loaded **OR** • Manually enter the Malfunctions, Remotes, Overrides, Annunciators and Triggers per the Scenario Generator Screen Shots:

	Simulator Operator (Driver) perform the following:
	• Reduce Reactor power to 75% using ReMA for scenario (if not using pre-loaded IC)
	• Provide the following:
	  • GP-5, Appendix #2 M/U to step 3.2.22, Return to Power
	  • ReMA
	  • S73.1.A, Normal Operation Of The Reactor Manual Control System
	• Momentarily place simulator in RUN
	• Acknowledge and clear all spurious alarms
	• Place the simulator back into FREEZE

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



Interventions Summary

Hide Malfunctions - 10 | Hide Remotes - 12 | Hide Overrides - 3 | Show Annunciators - 0

Malfunction Summary

Malf ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MPC257		Leak From Suppression Pool (1-100,000 gpm)	0.00	1.000e+04	00:00:05	00:00:15		1
MED282B		Fault on DC Safeguard Bus 1BD105	False	True		00:00:15		2
MVI232B		Reactor Vessel Level Transmitter (RPS) N080A Fails Low	False	True		00:00:15		3
MRP023A		RPS Fails to Scram, Auto Only	True	True				
MRR441		Small Coolant Leak in Drywell (0-100%)	0.00	40.00000	00:12:00	00:00:15		4
MSL559		SLC Injection Line Rupture Inside the Drywell	True	True				
MRD556		Control Rods Fail to Scram (1-185) (Hydraulic Lock)	175.0000	175.0000				
MRD024		Rod Drive Control System Failure	False	True		00:03:00		5
MAD145E		Relief Valve (F013J) Fails (Fails Open: Mechanical)	False	True		00:06:00		5
MRD016D	38-39	Control Rod Failure, Stuck	True	True				

Timer Pause | Delete All | Active | Pending

Remotes Summary

Remf 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	.8900	.8900			
RPR063		APRM Channel 3 Gain Adjustment Factor	.8700	.8700			
RPR062		APRM Channel 2 Gain Adjustment Factor	.8950	.8950			
RPR064		APRM Channel 4 Gain Adjustment Factor	.8700	.8700			
RIA204		Backup Service Air to Unit 1 Crosstie Valve HV-15-117	OPEN	OPEN			
RSW003		10-1088/1066, SW Bypass for Main Turb Lube Oil Cooler	81.0000	81.0000			
RRH281		RHR Pump D Breaker Racked	IN	OUT		00:00:15	6
RRH279		RHR Pump B Breaker Racked	IN	OUT		00:00:15	7

Timer Pause | Clear List | Active | Pending

Override Summary

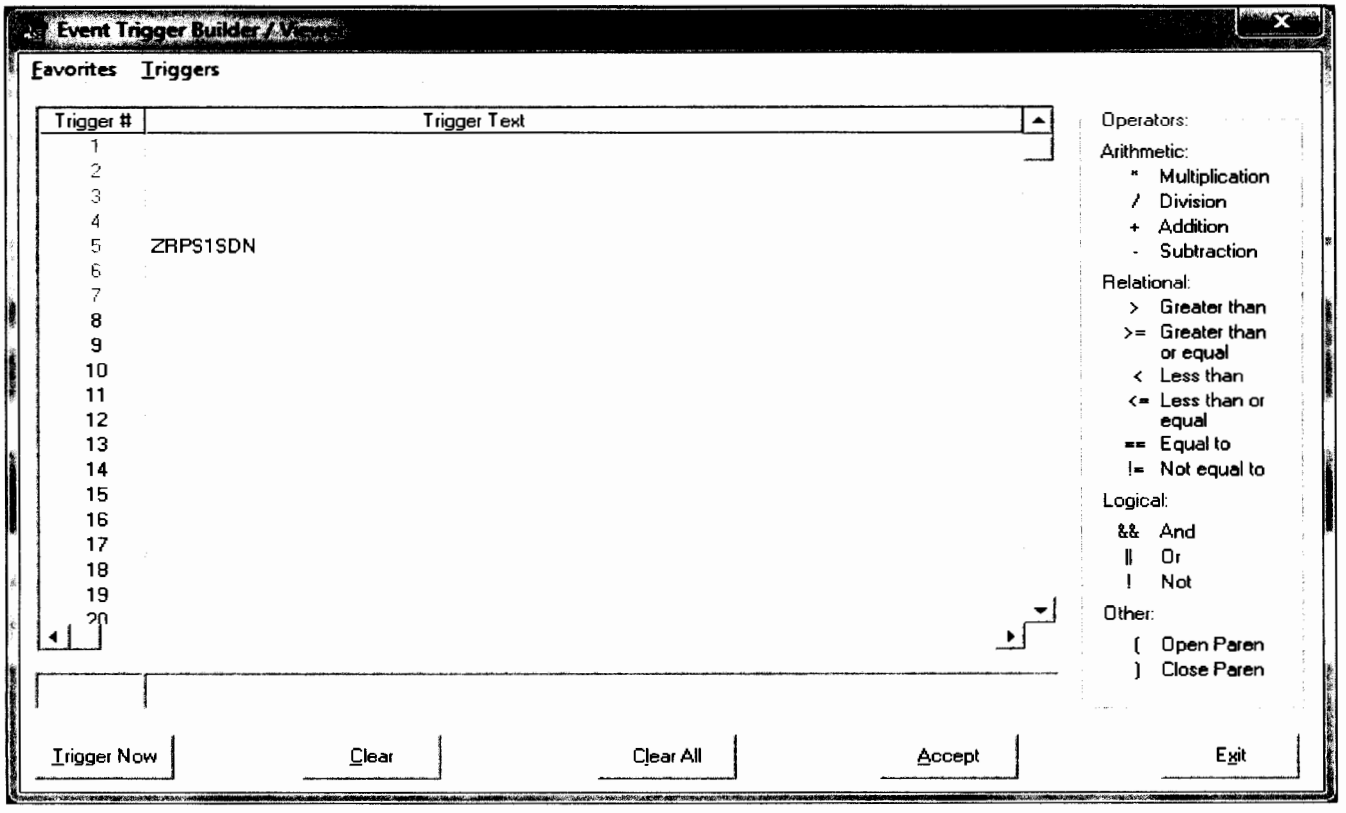
Tag ID	Description	Position / Target	Actual Value	Override Value	Rmptime	Actime	Dactime	Trig
HS79-309E	Charcoal Vault 3 Cooler Fan 0EE379 Ind Lamps	WHITE-AUTO	ON	OFF				
HS79-309E	Charcoal Vault 3 Cooler Fan 0EE379 Ind Lamps	GREEN	OFF	ON				
HS79-309E	Charcoal Vault 3 Cooler Fan 0EE379 Ind Lamps	RED	ON	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 '1D' RHR Pump Room flooding
	2	Manual	Initiates loss of Div 2 DC
	3	Manual	Initiates RPS Level transmitter fails
	4	Manual	Initiates Small Coolant Leak in Drywell
	5	Auto / ZRPS1SDN	RMS to Shutdown Initiates RDCS INOP and SRV fails open
	6	Manual	Racks out '1D' RHR Pump breaker
	7	Manual	Racks out '1B' RHR Pump breaker



E. EQUIPMENT REPORTS AND SIMULATOR INSTRUCTOR 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-117.1 Inhibit automatic ADS.

K/A	295037	EA2.06	4.0/4.1
K/A	218000	AA4.04	4.1/4.1

Standard: Prevent automatic initiation of the Automatic Depressurization System (ADS) prior to exceeding -129" reactor level and completion of ADS logic.

SAT/UNSAT

2. T-117.10 Terminate and prevent injection into the RPV.

K/A	295037	EK1.02	4.1/4.3
K/A	295037	EK3.03	4.1/4.5
K/A	295037	EA2.02	4.1/4.2

Standard: Reactor water level deliberately lowered by performing T-270. When reactor power is below 4% or reactor water level reaches -161 inches or all Safety Relief Valves (SRVs) closed and Drywell pressure is below 1.68 psig, then stop lowering reactor water level AND continue.

SAT/UNSAT

3. T-101.4 Implement T-217 to insert control rods.

K/A	295037	EA1.05	3.9/4.0
K/A	295037	EA2.05	4.2/4.3
K/A	295037	EA1.02	3.8/4.0
K/A	295037	EA1.03	4.1/4.1
K/A	212000	A4.04	3.9/3.9

Standard: Direct the performance of T-217 to Operations personnel located outside the Main Control Room (MCR).

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.

1. EVENT - 1 RAISE REACTOR POWER WITH CONTROL RODS / FLOW

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond as requested for floor support.

The crew will raise reactor power by withdrawing control rods. As control rod (38-39) is selected and withdrawal attempt made, the RO will determine the control rod is stuck.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
1. EVENT - 1	**RAISE REACTOR POWER WITH CONTROL RODS / FLOW**	
Lead Evaluator (or designee) Notes: The crew will raise reactor power by withdrawing control rods. As control rod (38-39) is selected and withdrawal attempt made, the RO will determine the control rod is stuck. The following steps are directed in S73.1.A, Normal Operation Of The Reactor Manual Control System, for **each** Control Rod withdrawn. This SEG uses section 4.3 for Continuous Withdraw, however the crew may choose to use section 4.2 for Single Notch Withdraw. **NOTE:** Control Rod movement requires a PEER CHECK prior to Control Rod movement.		
	Withdraw control rods IAW Control Rod move sheet and S73.1.A, Normal Operation Of The Reactor Manual Control System	RO
	[S73.1.A 4.3.1] **REVIEW** Attachment 1 **AND VERIFY** the control rod to be withdrawn is not channel distortion susceptible	RO
	[S73.1.A 4.3.2] **ENSURE** drive water pressure is 255 to 265 psid, as indicated on PDI-046-1R602	RO
	[S73.1.A 4.3.3] **SELECT** next in-sequence Control Rods per rod withdraw sheet	RO
	[S73.1.A 4.3.4] **VERIFY** correct rod position on Four-Rod-Display	RO
	[S73.1.A 4.3.7] Simultaneously **DEPRESS** WITHDRAWAL AND CONTINUOUS WITHDRAWAL pushbuttons.	RO
	[S73.1.A 4.3.8] **VERIFY** proper RDCS light sequence. • INSERT light lit and then extinguishes 0.6 sec. • WITHDRAWAL and CONTINUOUS WITHDRAWAL lights lit	RO
	[S73.1.A 4.3.11] **VERIFY** SETTLE light lit and extinguishes 6.1 sec	RO
	[S73.1.A 4.3.13] **VERIFY** control rod withdrawn to target position at Four Rod Display	RO
	Select next control rod in sequence	RO

2. EVENT - 2 CONTROL ROD (38-39) FAILS STUCK

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

When requested for Reactor Engineering support: Provide assistance as necessary.
If asked, control rod (38-39) triple notch withdrawal is acceptable.

When requested for I&C support provide assistance as necessary.

When reactor operator makes several attempts to withdraw control rod (38-39) and has raised CRD Drive Water pressure, as directed by S73.1.A, step 4.4.4:
AND at evaluators request:
DELETE MRD016D Control Rod (38-39) fails stuck allowing control rod movement.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2. EVENT - 2 CONTROL ROD (38-39) FAILS STUCK		
Lead Evaluator (or designee) Notes: The following steps are directed per S73.1.A, Normal Operation Of The Reactor Manual Control System, for **each** Control Rod withdrawn, and if required, ON-104, Control Rod Problems. **Lead Evaluator (or designee) Notes:** After reactor operator has raised CRD Drive Water Pressure per S73.1.A Attachment 5 **THEN NOTIFY** simulator driver to: **DELETE** Control Rod (38-39) stuck malfunction allowing control rod movement. **NOTE:** Control Rod movement requires a PEER CHECK prior to Control Rod movement.		
	Recognize/report inability to withdraw control rod (38-39)	RO
	NOTIFY CRS that a control rod (38-39) failed to move on a withdraw command	RO
	CRS references Tech Spec 3.1.3.1 for Inoperable Control Rod.	SRO
	CRS directs PRO to attempt rod withdraw IAW S73.1.A, Normal Operation Of The Reactor Manual Control System section 4.4	SRO
	[S73.1.A 4.4.1] **VERIFY** no rod block exists	RO
	[S73.1.A 4.4.4] **ATTEMPT** several single notch withdrawals using WITHDRAW pushbutton	RO
Lead Evaluator (or designee) Notes: If control rod remains stuck and cannot be withdrawn per S73.1.A, Reactor Engineering will be contacted to determine if triple notching the control rod will violate thermal power or any thermal Limit.		
	[S73.1.A 4.4.5] **IF** control rod fails to reposition in step 4.4.4. **THEN PERFORM** the following: 1. **IF** the control rod is capable of performing a triple notch **THEN DIRECT** Reactor Engineering to perform an evaluation of consequences of an inadvertent triple notch control rod withdrawal. 2. **IF** an inadvertent triple notch control rod withdrawal is permissible **AND IF** control rod is at position 00, **THEN PERFORM** Attachment 5	SRO
	[S73.1.A Step 4.4.5.3] **IF** an inadvertent triple notch control rod withdrawal is permissible **OR IF** control rod is at notch position 46, **THEN PERFORM** the following: a. **RAISE** drive water pressure to 300 to 350 psid, as indicated on PDI-046-*R602, "Drive Water Differential Pressure Indicator." b. **ATTEMPT** several single notch withdrawals using WITHDRAW pushbutton.	RO

2. EVENT - 2 CONTROL ROD (38-39) FAILS STUCK

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

When requested for Reactor Engineering support: Provide assistance as necessary.
If asked control rod (38-39) triple notch withdrawal is acceptable.

When requested for I&C support provide assistance as necessary.

When reactor operator makes several attempts to withdraw control rod (38-39) and has raised CRD Drive Water pressure, as directed by S73.1.A, step 4.4.4:
AND at evaluators request:
DELETE MRD016D Control Rod (38-39) fails stuck allowing control rod movement.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
2. EVENT - 2 CONTROL ROD (38-39) FAILS STUCK		
	NOTIFY CRS that a control rod (38-39) has withdrawn on command	RO
	[S73.1.A 4.4.5.d] **ENSURE** drive water pressure restored to 255 to 265 psid	RO
	The SRO calls out to WWM for support	SRO
Lead Evaluator (or designee) Notes: The control rod will successfully withdraw after drive water pressure is raised and the scenario may proceed to the next event (RHR Pump Suction leak).		

3. EVENT - 3 '1D' RHR PUMP SUCTION LEAK

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger # 1** when directed by Lead Evaluator to activate Suppression Pool Leak into RHR Pump Room.

At time 4 min When directed to investigate '1B/1D' RHR Pump room flooding alarm,
report: There is approximately 4" of water on the floor. There is water spraying on the '1D' RHR Pump motor it is coming from between the '1D' RHR Pump suction valve and the pump."

When the crew contacts the Radwaste Control Room, for RE Sump status:
report: Both Unit 1 Reactor Enclosure Sump Pumps are running.

At time 5 min activate **Trigger # 6** If crew requests breaker for '1D' RHR Pump feeder breaker to be racked out, and
report: '1D' RHR Pump breaker has been racked out.

At time 5 min activate **Trigger # 7** If crew requests breaker for '1B' RHR Pump feeder breaker to be racked out, and
report: '1B' RHR Pump breaker has been racked out.

After the crew has closed '1D' RHR Pump suction valve to isolate the leak,
DELETE MPC257, '1D' RHR Pump suction leak.

After the crew has taken action to close the '1D' RHR Pump Suction Valve,
report: The leak appears to have stopped and level in the room is lowering.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
3. EVENT - 3 '1D' RHR PUMP SUCTION LEAK		
Lead Evaluator (or designee) Notes: The '1D' RHR Pump Suction Valve from the Suppression Pool will develop a leak. The crew will enter and execute SE-4, Flood and T-103, and take action to close the '1D' RHR Pump Suction Valve to stop the leak. The SRO will evaluate Tech Spec 3.5.1 for the out of service RHR Pump.		
	Respond to alarm: • 127 H-4, REACTOR ENCLOSURE FLOOR DRAIN SUMP HI-HI WATER LEVEL • 115 G-5, 1B-1D RHR PUMP ROOM FLOOD	RO/PRO
	[ARC-MCR-115 G-5] Dispatch EO/FSSV to '1B/D' RHR Pump room to check for indications of leakage.	PRO
	[ARC-MCR-115 G-5] Enter SE-4 following report of active leak in the RHR room	SRO
	[ARC-MCR-115 G-5] Enter T-103 following report of active leak in the B/D RHR Pump Room	SRO
	Establish Suppression Pool level as critical parameter	SRO
	Enter T-102, Primary Containment Control when Suppression Pool level outside of 22' to 24'3"	SRO
	Establish RHR Room flooding level as critical parameter	SRO
	Monitor Suppression Pool level	PRO
	Determine Suppression Pool level is lowering slowly	PRO
	[T-103, SCC-4] Direct performance of T-290, Instrumentation Available for T-103/SAMP-2	SRO
	[ARC-MCR-127 H-4] Contact Radwaste Control Room to verify operation of U1 Reactor Enclosure Sump Pumps	PRO
	Re-enter T-103, Secondary Containment Control for Reactor Enclosure Floor Drain alarm	SRO
	[SE-4-1 Att 1, T-103, SCC/L-4] Direct performance of T-250 to isolate systems discharging into the '1D' RHR Pump Room	SRO
	Place HV-51-1F004D keyswitch to CLOSE as directed by T-250, section 4.6	PRO
	Direct floor personnel to rack out '1D' RHR Pump feeder breaker	Crew
	Enter Tech Spec 3.5.1.b.1 for INOP RHR subsystem (30 day LCO)	SRO
	Enter Tech Spec 3.6.2.1.a for Suppression Pool level outside of 22' to 24'3"	SRO
Lead Evaluator (or designee) Notes: The scenario may advance to the next event (Loss of Div 2 DC) after the SRO determines actions for RHR '1D' subsystem inoperability.		

4. EVENT - 4 LOSS OF DIV 2 DC (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Manually actuate **Trigger# 2** when directed by Lead Evaluator to insert loss of DIV 2 DC.

Respond to request for assistance as appropriate.

At time 5 min after FSSV or EO action requested to investigate loss of DIV 2 DC

report: A fault has occurred in the main fuse panel on Division 2 DC. I will contact Electrical Maintenance for support.

At time 5 min after FSSV or EO action requested to investigate Steam Flooding Damper Panels 10C234 and 10C245 on loss of DIV 2 DC:
report: On the 10C234 and 10C245 panels, all of the 'B' Steam Flooding Damper lights are off. All of the 'A' Steam Flooding Dampers on both panels indicate open."

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4.	**EVENT - 4 LOSS OF DIV 2 DC (Abnormal)**	
	Reference appropriate ARCs: • 122 G-1, 1 UNIT DIV 2 SFGD BATTERY CHARGERS TROUBLE • 122 G-2, 1DB-1 250V DC MCC UNDERVOLTAGE • 122 G-3, 1DB-2 250V DC MCC UNDERVOLTAGE • 122 G-4, 1PPB1/1PPB3 125VDC DIST PANELS UNDERVOLTAGE • 122 G-5, 1PPB2 125VDC DC DIST PANEL UNDERVOLTAGE • 122 D-1, D12 D-G TROUBLE • 122 D-2, D12 STANDBY AC POWER SYS OUT OF SERVICE • 122 E-3, DIV 2 MCC SHUNT TRIP COIL AUX CIRCUIT UNDERVOLTAGE • 122 E-4, DIV 2 MCC SHUNT TRIP COIL UNDERVOLTAGE • 122 F-4, 1B RPS & UPS DIST PNL. TROUBLE • 122 A-5, 1B RPS & UPS STATIC INVERTER TROUBLE • 002 F-4 & F-5, RE SFD PNLs 10C245, 10C243 TROUBLE • 002 A-1, CONTROL ROOM RADIATION ISOLATION INITIATED • 002 A-2, CONTROL ROOM CHLORINE ISOLATION INITIATED	RO/PRO
	Recognize/report loss of Div 2 DC	RO/PRO
	Enter and execute E-1FB, Loss of Division 2 Safeguard 125/250 VDC Bus 1FB	SRO
Lead Evaluator (or designee) Notes: The following steps are directed in E-1FB, Loss of Division 2 Safeguard 125/250 VDC Bus 1FB.		
	[E-1FB 1.1.3] Loss of DC AND HPCI Aux Oil Pump indications on 10-C647 HPCI	SRO/PRO
	[E-1FB 1.2] Refer to E-1FB Attachment 1 for Confirming Indication Annunciators for loss of DIV 2 DC	SRO/PRO
	[E-1FB 2.2] **REFER to** Attachment #3 and **VERIFY** RE/RF isolations per S76.9.A, Verification of Reactor Enclosure or Refueling Floor Secondary Containment Isolation	PRO
	Verify SBGT and RERS fan start and maintain Secondary Containment due to Reactor Enclosure and Refueling Floor Secondary Containment Isolation	PRO
	[E-1FB 2.3] **REFER** to S94.2.B, By-passing and Removing the *B RPS and UPS Static Inverter from Service, and remove '1B' RPS/UPS Inverter from service	PRO
	[E-1FB 3.2] Dispatch appropriate personnel to investigate loss of Div 2 DC	PRO

4. EVENT - 4 LOSS OF DIV 2 DC (Abnormal)

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 investigate loss of DIV 2 DC
report: A fault has occurred in the main fuse panel on Division 2 DC. I will contact Electrical Maintenance for support.

At time 5 min after FSSV or EO action requested to investigate Steam Flooding Damper Panels 10C234 and 10C245 on loss of DIV 2 DC:
report: On the 10C234 and 10C245 panels, all of the 'B' Steam Flooding Damper lights are off. All of the 'A' Steam Flooding Dampers on both panels indicate open."

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
4.	**EVENT - 4 LOSS OF DIV 2 DC (Abnormal)**	
	[E-1FB 3.5] Dispatch floor personnel to Steam Flooding Damper panels 10C234 and 10C245	PRO
	[E-1FB 2.1] Direct to Manually **INITIATE** MCR Chlorine Isolation per Attachment #2	CRS
Lead Evaluator (or designee) Notes: The following steps are directed in E-1FB, Loss of Division 2 Safeguard 125/250V DC Bus 1FB (Attachment #2) for 'A' Subsystem		
	[E-1FB Att #2 1.1] **ENSURE** the following; HS-078-010A, 0A-V127 in AUTO HS-078-010B, 0B-V127 in STANDBY	PRO
	[E-1FB Att #2 1.2] Place HS-78-017C in RESET C to RESET Place HS-78-017A in RESET A to RESET	PRO
	[E-1FB Att #2 1.3] Place HSS-78-017C, TRIP C to CI2 Place HSS-78-017A, TRIP A to CI2	PRO
	[E-1FB Att #2 1.4] Place HS-78-017C in RESET C to AUTO Place HS-78-017A in RESET A to AUTO	PRO
	[E-1FB Att #2 1.4] Depress and Release HSS-78-017C, TRIP C Depress and Release HSS-78-017A, TRIP A	PRO
	[E-1FB Att #2 1.7] **ENSURE** CHLOR ISLN Channel A, C amber lights are Lit	PRO
	[E-1FB Att #2 1.8] **VERIFY** annunciator 002 A-3, CONTROL ROOM ISOLATION NOT COMPLETE not alarmed after 25 second T/D.	PRO
	ENSURE the following are running: • 0A-V127, Emergency Air Fan A • 0A(B)-V116, Control Room Air Supply Fan A(B) • 0A(B)-V121, Control Room Air Return Fan A(B)	PRO
	[E-1FB Att #2 1.12] **VERIFY** PDI-078-054, Control Room Air Inside/Outside at 0" water after T/D	PRO

4. EVENT - 4 LOSS OF DIV 2 DC (Abnormal)

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
4. EVENT - 4 LOSS OF DIV 2 DC (Abnormal)		
Lead Evaluator (or designee) Notes: The following steps are directed in E-1FB, Loss of Division 2 Safeguard 125/250V DC Bus 1FB (Attachment #2) for 'B' Subsystem		
	[E-1FB Att #2 2.1] Place HS-78-017D in RESET D	PRO
	[E-1FB Att #2 2.2] Place HSS-78-017D, TRIP D to CL2	PRO
	[E-1FB Att #2 2.3] Place HS-78-017D in AUTO	PRO
	[E-1FB Att #2 2.4] Depress and Release HSS-78-017D, TRIP D	PRO
	[E-1FB Att #2 2.5] **ENSURE** CHLOR ISLN Channel D amber lights are Lit	PRO
Lead Evaluator (or designee) Notes: The following steps are directed in E-1FB, Loss of Division 2 Safeguard 125/250V DC Bus 1FB (Attachment #3) for RE/RF isolations		
	[E-1FB Att #3 1.1] **VERIFY** Channel B Rx Enclosure isolation signal initiated by: • 004 F-1, B REAC ENCL ISOLATION SIGNAL INITIATED	PRO
	[E-1FB Att #3 1.2] **VERIFY** Channel A and B Rx Enclosure HVAC isolation valves have repositioned by alarms **NOT** alarmed: • 004 E/F-2, A/B REAC ENCL ISOLATION NOT COMPLETE	PRO
	[E-1FB Att #3 1.4] **ENSURE** "B" SGTS FAN is running at 00-C681	PRO
	[E-1FB Att #3 1.6] **VERIFY** RERS flow by checking PDI-076-189B at $\geq$3 inches W.G	PRO
	[E-1FB Att #3 2.2] **VERIFY** Channel A and B Rx Enclosure HVAC isolation valves have repositioned by alarms **NOT** alarmed: • 004 E/F-4, A/B REFUELING FLOOR ISOLATION NOT COMPLETE	PRO
	CRS briefs crew on impact of loss of DIV 2 DC including inability to remotely or automatically start: • '1B' RHR • '1B' Core Spray • HPCI • '1B' ESW • '0B' RHRSW • '1B' SBLC • D12 Diesel Generator	SRO

4. EVENT - 4 LOSS OF DIV 2 DC (Abnormal)

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
4. EVENT - 4 LOSS OF DIV 2 DC (Abnormal)		
Lead Evaluator (or designee) Notes: The following Tech Specs will be entered as directed by E-1FB, due to loss of DIV 2 DC depending on time allotted:		
	Initiate temporary LCO Log to include the following: • 3.8.2.1.c DC Sources (2 hr. LCO) • 3.8.3.1.b Onsite Power Distribution (8 hr. LCO) • 3.5.1, HPCI • 3.1.5 SLC • 3.3.4.1 RRCS/ATWS RPT Breakers • 3.3.3/3.5.1 ADS • 3.5.1 Core Spray / RHR • 3.7.1.2 ESW • 3.8.1.1 One Offsite Source and D12 Diesel Generator	SRO
	Evaluate the following TS: • 3.8.2.1.c DC Sources (2 hr. LCO) • 3.0.3 both offsite sources and one EDG • 3.0.6 provided safety function determined to be functional	SRO
Lead Evaluator (or designee) Notes: After the SRO has determined the Div 2 DC Tech Spec implications, the scenario may advance to the next event (RPS level transmitter failure).		

4. EVENT - 5 RPS LEVEL TRANSMITTER FAILURE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.

Manually actuate **Trigger# 3** when directed by Lead Evaluator to initiate RPV level transmitter failure.

At time 5 min after FSSV or EO action requested to investigate RPS Level Trip units in AER,
report: LIS-042-1N680A is indicating downscale.

When the crew has inserted the manual scram;
DELETE MRP029A, "RPS Fails to Scram, Auto Only".

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
5. EVENT - 5 RPS LEVEL TRANSMITTER FAILURE		
Lead Evaluator (or designee) Notes: RPS reactor level transmitter (LIS-042-1N680A) fails downscale. The failed RPS instrument will result in a failed RPS channel (Will fail to de-energize).		
	Reference appropriate ARC: • 107 H-1, REACTOR WATER BELOW LEVEL 3 TRIP	RO
	Verify Rx level normal with RPS low level transmitter alarm	RO
	Recognize failure to ½ scram on 'A' RPS and inform CRS	RO
	Dispatch an EO to investigate the Rx level transmitter	PRO/RO
	Enter OT-117, RPS Failures, for failure to ½ scram on 'A' RPS	SRO
	[OT-117 3.2.1] **DIRECT** Insert manual ½ scram on 'A1' Side	SRO
	PERFORM Arm and depress 'A1' RPS	RO
	[OT-117 3.2.1.2] Recognize SCRAM lights off on 'A1' RPS	RO
	[OT-117 3.2.1.2] **LEAVE** half SCRAM in	SRO
	[OT-117 3.2.1.2] **NOTIFY** Senior Plant Staff Member	SRO
	[OT-117 3.2.1.2] **INITIATE** investigation	SRO
	Enter TS 3.3.1 action a. to identify the minimum number of Rx level channels is 2 per trip system.	SRO
	The SRO calls out to WWM for support	SRO

6. EVENT - 6 COOLANT LEAK IN DRYWELL

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

Manually actuate **Trigger# 4** when directed by Lead Evaluator to initiate small coolant leak in the Drywell.

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
6. EVENT - 6 COOLANT LEAK IN DRYWELL		
Lead Evaluator (or designee) Notes: A coolant leak in the drywell causes the crew to recognize rising drywell pressure and execute OT-101 for rising drywell pressure including isolating RWCU. When Drywell pressure approaches the scram setpoint, the crew should perform a GP-4, Rapid Plant Shutdown to Hot Shutdown, or manually scram the reactor.		
	Reference appropriate ARCs: • 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH • 115 E-5, FLOOR DRAIN LEAKAGE HI FLOW • 003 B-2, Unit 1&2 CONTAINMENT LEAK DETECTOR HI RADIATION • 112 C-5, DRYWELL EQUIPMENT DRAIN TANK/FLOOR DRAIN SUMP LEAKAGE HI FLOW • 107 F-2, DRYWELL HI / LO PRESS	RO/PRO
	Check D/W Cooler Drain flow FI-87-120 at 10C624 panel for high flow.	PRO
	Proceed as directed by ARC using S61.0.A to panel 00C424 to identify leakage (time permitting)	PRO
	Crew recognizes/reports rising Drywell pressure	Crew
	CRS enters OT-101, High Drywell Pressure	SRO
Lead Evaluator (or designee) Notes: The following steps are directed by OT-101, High Drywell Pressure.		
	[OT-101, 3.1] Establish Drywell pressure as Critical Parameter	SRO
	Notifies RO of Drywell pressure and when to perform manual scram	SRO
	[OT-101, 3.3] Direct OT-101, High Drywell Pressure Attachment. 4	SRO
	[OT-101, Att. 4] **ENSURE** the Main Steam and Recirc sample/drains valves closed:	PRO
	[OT-101, Att. 4] PRO secures and isolates RWCU (time permitting) **SECURE** operating RWCU pump(s) **ENSURE** the following valves closed: • HV-C-044-1F033 • HV-44-1F001, INBD • HV-44-1F004, OUTBD • HV-44-1F100, BOTTOM HEAD DRAIN • HV-44-1F105, INLET FLOW	PRO

6. EVENT - 6 COOLANT LEAK IN DRYWELL

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
6. EVENT - 6 COOLANT LEAK IN DRYWELL		
Lead Evaluator (or designee) Notes The following steps are directed by GP-4, Rapid Plant Shutdown to Hot Shutdown, T-101, RPV Control, and T-102, Primary Containment Control.		
	[OT-101, Att. 4] Crew recognizes that Drywell pressure continues to rise following RWCU isolation	SRO/RO
	Direct GP-4 Rapid Plant Shutdown	SRO
	[GP-4 3.1] **TRANSFER** house loads to startup buses per S91.6.B, Transferring house Loads To S/U Buses	
	[GP-4 3.2] **REDUCE** Rx Recirculation system pump speed to minimum	RO
	[GP-4 3.3] **WHEN** core flow reduces to nominal 60% **THEN** immediately SCRAM Rx **AND ENTER** T-100, Scram Recovery **OR** T-101, RPV Control (core flow is <60%)	RO
	Enter T-101 and T-102 on Hi Drywell Pressure	SRO
	[T-101 RC-4] Place Mode Switch in SHUTDOWN	RO
	Recognize Control Rods failed to insert on scram	RO

7-9. EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

Inform Floor Instructor prior to each event trigger

Ensure **Trigger# 5** automatically actuates when RMS taken to SD to initiate RDCS INOP and SRV failure.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7-9.	**EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN**	
	Lead Evaluator (or designee) Notes: As a result of the coolant leak in the drywell, a reactor shutdown is required. On the scram the Control Rods will fail to insert, resulting in an ATWS. The CRS will take actions to mitigate the ATWS while addressing the increasing drywell pressure. The RO will to recognize the failure of RDCS and call out for floor assistance in resetting RDCS in the AER. Once RDCS is reset, the crew is expected to manually insert control rods to help mitigate the ATWS condition.	
	Enter T-101, RPV Control on Scram Condition with power > 4%	RO
	[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
	Recognize failure of SLC Pumps	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] **(May have been completed previously by GP-4)** 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
	Verify position of scram valves are open	RO
	[T-101 RC/Q-13] Direct performance of T-217,RPS/ARI Reset and Backup Method Of Draining Scram Discharge Volume **(Critical Task)**	SRO
	[T-101 RC/Q-13] Direct performance of T-218, Control Rod Insertion By Withdraw Line Venting	SRO
	Reference appropriate ARC: • 108 E-4, RDCS INOPERATIVE	PRO
	Recognize and report RDCS INOP alarm	RO
	Direct RDCS Reset in AER **(Malfunction)**	RO
	When RDCS Reset in the MCR manually insert control rods	RO

7-9. EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN

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

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7-9.	**EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN**	
	[T-101 RC/Q-19 –OR- T-117 LQ/5] Inhibit Auto ADS **(Critical Task)**	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** to establish RPV level < –50 inches performing T-270, Terminate And Prevent Injection Into the RPV.	SRO
	Direct performance of Section 4.6 of T-270 to personnel outside Main Control Room (MCR).	PRO
	[T-270 4.2.1] **IF** HPCI initiation signal is present – **(HPCI INOP due to loss of DIV 2 DC).**	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
	[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

7-9. EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN

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
7-9.	**EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN**	
	[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" and 1.68 psig drywell pressure	PRO
	[T-117 LQ/18] Recognize T-251, Establish A HPCI Injection Flow Path via Feedwater Only is unavailable due to loss of DIV 2 DC	SRO

7-9. EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN

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"

At time _6 min__ after FSSV or EO action requested to pull fuses for '1J' SRV per OT-114 Attachment #1
Toggle Remote Function **RADS212** to **OUT** and;
report (via phone): "The fuses for the '1J' SRV have been removed per OT-114."

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7-9.	**EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN**	
	Lead Evaluator (or designee) Notes: After Rx level is lowered below -50", the '1J' SRV will fail open mechanically adding heat to the Suppression Pool. The crew should enter OT-114 and attempt SRV closure by removing fuses to the SRV. The crew, with drywell pressure increasing and 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. ***[B RHRSW and B RHR are unavailable due to loss of DIV2]***	
	Reference appropriate ARC: • 110 B-1, SRV/HEAD VENT VALVE LEAKING • 110 B-2, SAFETY RELIEF VALVE OPEN	PRO
	Enter OT-114, Inadvertent Opening Of A Relief Valve	SRO
	[OT-114 IOA] **CONFIRM** SRV is open ('1J' SRV confirmed open)	RO/PRO
	[OT-114 IOA] **PLACE** both loops of Suppression Pool Cooling in service ***[B RHR unavailable due to loss of DIV2]***	PRO
	[OT-114 3.1] **DISPATCH** EO to attempt SRV closure by pulling fuses for 1J SRV per Att #1	PRO
	Re-enter T-102, Primary Containment Control on Supp Pool Temp > 95°F	SRO
	Establish Suppression Pool Temperature as a Critical Parameter	SRO
R	[T-102 SP/T-2] Place Two Loops of Suppression Pool Cooling in service per S51.8.A, Suppression Pool Cooling Operation (Startup And Shutdown And Level Control) ***[B RHR unavailable due to loss of DIV 2 DC]***	PRO
	START selected RHR Service Water Pump loop per S12.1.A, RHR Service Water System Startup ***[B RHRSW unavailable due to loss of DIV2]***	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
	[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

7-9. EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN

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."

When FSSV or EO action requested for T-217, and when RPV level is below -50 inches, toggle Remotes **RTR181** and **RTR303** to BYPASS and
report (via phone): Steps 4.1.1 thru 4.1.6 of T-217 have been completed in the Auxiliary Equipment Room. We are ready for the MCR to perform Steps 4.1.7 through 4.1.10.

When RPV level is being maintained between -161 inches and -186 inches and Lead Evaluator directs, perform the following:
Verify MCR performs Steps 4.1.7 through 4.1.10 of T-217 **AND** SDV Level is less than **25 gallons** indicated level in the simulator, and
report (via phone): Step 4.1.12 of T-217, all SDV level indications are less than 62% and Step 4.2.1 is complete. We are continuing with Step 4.2.2 of T-217. Expect control rod motion.

DRIVER NOTES:

DELETE MAD145E, '1J' SRV Fails open, after RPV level drops to <-161"

DELETE MRP029A, "RPS Fails to Scram, Auto Only" prior to attempting control rod insertion. (These malfunctions do not work together).

Insert Control Rods per T-217 as Follows:

DELETE MRD556, Hydraulic ATWS;
AND Toggle Remote Function **RTR181 to "Normal"** (control rods will insert)

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7-9.	**EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN**	
	[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 ***[B RHRSW loop unavailable due to loss of DIV2 DC]***	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 disch 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) ***[B RHR unavailable due to loss of DIV2 DC]***	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 °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
	Re-perform T-270 steps to Emergency Stop Reactor Feed Pumps	RO
Lead Evaluator (or designee) Notes: The following steps are from SE-10, LOCA and are performed at the SAFEGUARDS PANEL (Diesel Panel). **NOTE**: Failure of DIV 2 DC will eliminate the need for closing the 52-20124/CS, "D*24 Safeguard L.C. D*24-G-D MCC Breaker" (SAFEGUARDS A), on *BC661		
	Enter SE-10, LOCA during performance of T-270 for -129" LOCA signal	Crew
	[SE-10 3.1] **PLACE** the following to "CLOSE" • 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": • 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

7-9. EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN

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."

When FSSV or EO action requested for T-217, and when RPV level is below -50 inches, toggle Remotes **RTR181** and **RTR303** to BYPASS and
report (via phone): Steps 4.1.1 thru 4.1.6 of T-217 have been completed in the Auxiliary Equipment Room. We are ready for the MCR to perform Steps 4.1.7 through 4.1.10.

When RPV level is being maintained between -161 inches and -186 inches and Lead Evaluator directs, perform the following:
Verify MCR performs Steps 4.1.7 through 4.1.10 of T-217 **AND** SDV Level is less than **25 gallons** indicated level in the simulator, and
report (via phone): Step 4.1.12 of T-217, all SDV level indications are less than 62% and Step 4.2.1 is complete. We are continuing with Step 4.2.2 of T-217. Expect control rod motion.

DRIVER NOTES:

DELETE MAD145E, '1J' SRV Fails open, after RPV level drops to <-161"

DELETE MRP029A, "RPS Fails to Scram, Auto Only" prior to attempting control rod insertion. (This malfunction with T-217 do not work together).

Insert Control Rods per T-217 as Follows:

DELETE MRD556, Hydraulic ATWS;
AND Toggle Remote Function **RTR181 to "Normal"** (control rods will insert)

Re-INSERT MRD024, RDCS INOP, when Rx power reaches 20% power.

TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
7-9. EVENTS 7 - 9 ATWS / RDCS INOP / SRV FAILS OPEN		
Lead Evaluator (or designee) Notes: The scenario is terminated when RPV level has been maintained –186" to –161", followed by Control Rods inserted per T-217, RPS/ARI Reset and Backup Method Of Draining Scram Discharge Volume. After the scenario is terminated, direct the SRO to make the highest EAL classification for the scenario.		
	Dispatch Equipment Operator to perform SE-10-1 field actions	PRO
	Re-inject with Feedwater when RPV level is < -161" (TAF) and stabilize level between -186" and -161"	RO
	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-217, RPS/ARI Reset and Backup Method Of Draining Scram Discharge Volume **(Critical Task)**	RO
	Secure SLC Pumps that restart on LOCA Signal	RO
	Exit T-117 when all Control Rod inserted	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

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

CREW: _____

DATE: _____ **LSEG:** _____

START TIME: _____ **STOP TIME:** _____

SM: _____ **RO:** _____ **WCS:** _____

CRS: _____ **PRO:** _____ **FSSV:** _____

TIME	PERSON CALLING	PERSON BEING CALLED	COMMUNICATION / REQUEST	CALL BACK TIME

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XI. CREW PREBRIEF INSTRUCTIONS

Unit 1 Reactor Power is 75%

Unit 2 Reactor Power is 100%

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:

- Restore Unit 1 power to 100% by withdrawing Control Rods and raising Core flow
- Reactor Engineering has determined there are no known Channel Distorted Control Rods.

Documents Provided:

- ReMA
- GP-5, Appendix #2 completed to step 3.2.22
- S73.1.A, Normal Operation Of The Reactor Manual Control System