

Facility: LimerickDate of Examination: Jan 12-23, 2015

Examination Level: RO X SRO

Operating Test Number: 1

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations RO 2.1-1	R-M	Evaluate Overtime Work Request (Generic 2.1.5)
Conduct of Operations RO 2.1-2	R-D	Prepare Valve Stroke Data Sheet (Generic 2.1.7)
Equipment Control RO 2.2-1	R-N	Determine Blocking Required per OP-MA-109-101, "Clearance and Tagging" (Generic 2.2.13)
Radiation Control RO 2.3-1	R-D-P	Determine Offgas Effluent Activity Release Rate (Generic 2.3.11)
Emergency Procedures/Plan		

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

* Type Codes & Criteria:

- (C)ontrol room, (S)imulator, or Class(R)oom
- (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
- (N)ew or (M)odified from bank (≥ 1)
- (P)revious 2 exams (≤ 1 ; randomly selected)

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

**EVALUATE WORK HISTORY AND
OVERTIME WORK REQUEST (RO)**

JPM Number: LOJPM6724

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

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



II. RECORD OF TEMPORARY CHANGES:

1. Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence
2. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
3. 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:

1. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
2. The description of the Revision should adequately indicate how the training content of the Revision has changed.
3. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
4. 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



IV. SIMULATOR SETUP INSTRUCTIONS

1. Simulator - N/A

V. TASK STANDARD:

Reviewing the work history, determines the following:

1. Between the 48-hour period of 1800 on Day 7 and 1800 on Day 9, worked a total of 27 hours, which exceeds the "26 hours in 48-hours" limit.
2. Between leaving work at 0900 on Day 9 and returning to work at 1800 on Day 9, there was a break of only 9 hours, which violates the "at least a 10-hour break between work periods" requirement.
3. The Day 15 scheduled day off is necessary in order to comply with the "minimum of 3 days off in each successive 15-day period" requirement. The RO cannot work the requested overtime.

Continued next page.



VI. INITIAL CONDITIONS:

1. You were on vacation for two weeks prior to the start of this Unit 2 refueling outage.
2. Your RO work history for this outage, thus far, is as follows:

Day	Worked		Day	Worked		Day	Worked
1	0600-1800		7	1800-0600		13	0600-1900
2	0600-1800		8	1800-0900		14	0600-1400
3	0600-1800		9	1800-0600		15	Scheduled off
4	0600-1200		10	1800-2400		16	Scheduled off
5	0600-1200		11	1800-2400		17	Scheduled off
6	OFF		12	OFF			

3. It is now Day 15 of the outage; the time is 1200 hours.
4. Shift Supervision has contacted you at home. You've been asked to work the on-coming night shift (1800-0600) on Day 15.

VII. INITIATING CUE:

The work hour calculating and scheduling component of eSOMS has been out-of-service for the entire outage.

You are directed to do the following using the above provided work history:

1. Determine if your work schedule complied with work hour limits; state all limits/requirements that were violated, if any.
2. Determine if you can work the requested overtime; if not, state the reason why.

Document your findings on this Cue Sheet.

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 LS-AA-119, "Fatigue Management and Work Hour Limits". Cue: Provide copy of LS-AA-119 to Examinee.	Obtains LS-AA-119.			
	2. Review LS-AA-119.	Reviews LS-AA-119, sections 5.1.1 and 5.1.3.			
*	3. Evaluate prior work schedule.	Determines the following: <ul style="list-style-type: none">Between the 48-hour period of 1800 on Day 7 and 1800 on Day 9, worked a total of 27 hours, which exceeds the "26 hours in 48-hours" limit.Between leaving work at 0900 on Day 9 and returning to work at 1800 on Day 9, there was a break of only 9 hours, which violates the "at least a 10-hour break between work periods" requirement.			
	4. Evaluate overtime request.	Determines that, to date, he/she has had only two days off: Day 6 and Day 12.			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	5. Evaluate overtime request.	Determines that the Day 15 scheduled day off is necessary in order to meet the requirement for a "minimum of 3 days off in each successive 15-day period". <u>Cannot</u> work the requested overtime.			
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: Evaluate Overtime Work Request (RO)

JPM Number: LOJP6724

Revision Number: 000

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

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, Rev. 11

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. You were on vacation for two weeks prior to the start of this Unit 2 refueling outage.
2. Your RO work history for this outage, thus far, is as follows:

Day	Worked		Day	Worked		Day	Worked
1	0600-1800		7	1800-0600		13	1200-2000
2	0600-1800		8	1800-0900		14	0600-1400
3	0600-1800		9	1800-0600		15	Scheduled off
4	0600-1200		10	1800-2400		16	Scheduled off
5	0600-1200		11	1800-2400		17	Scheduled off
6	OFF		12	OFF			

3. It is now Day 15 of the outage; the time is 1200 hours.
4. Shift Supervision has contacted you at home. You've been asked to work the on-coming night shift (1800-0600) on Day 15.

INITIATING CUE:

The work hour calculating and scheduling component of eSOMS has been out-of-service for the entire outage.

You are directed to do the following using the above provided work history:

1. Determine if your work schedule complied with work hour limits; state all limits/requirements that were violated, if any.
2. Determine if you can work the requested overtime; if not, state the reason why.

Document your findings on this Cue Sheet.

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

PREPARE VALVE STROKE DATA SHEET

JPM Number: LOJPM6767

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 12 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure ST-6-107-200-0 Rev: 27
Procedure ST-6-043-200-1 Rev: 22
Procedure _____ Rev: _____
Procedure _____ Rev: _____
Procedure _____ Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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

II. RECORD OF TEMPORARY CHANGES:

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

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

III. REVISION HISTORY:

- A. If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.
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- 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 LLOJPM0767 Rev. 0. Revised to new template and to align with latest procedure revision. Valve stroke time was changed to provide an unsat value.	08/01/14

IV. TASK STANDARD:

1. "Valve Data Sheet" of ST-6-107-200-0, Attachment 1, prepared to stroke HV-043-1F020 for PMT.
2. "Valve Stroke Time Database" information is obtained for ST-6-043-200-1, step 4.1.3. from the LGS Operations Web page or on the LAN at ***L:OPS\IST Control Room Interface.mdb***.

V. INITIAL CONDITIONS:

1. Unit 1 is in OPCON 1 at 100% Power.
2. Maintenance on HV-043-1F020 is complete per work order C0995903.
3. A PMT is required to stroke time HV-043-1F020 per C0995903 Act. 05.
4. Prerequisites for stroking HV-043-1F020, have been met.
5. ST-6-107-200-0 is to be used to document the HV-043-1F020 valve stroking.
6. ST-6-107-200-0, Attachment 2 lists the applicable ST for obtaining the stroke time data for HV-043-1F020.

VI. INITIATING CUE:

You are directed to use ST-6-107-200-0, "IST Valve Stroke Surveillance Log" and record the necessary valve data on Step 3.0 of Attachment 1, for HV-043-1F020

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. Hand examinee the following: <ul style="list-style-type: none"> Individual Briefing Sheet ST-6-107-200-0 initialed up through step 4.2 ST-6-043-200-1 with HV-043-1F020 highlighted on Attachment 2. 	N/A			
	2. REFER to ST-6-107-200-0, Attachment 1, Valve Data Sheet for the following:	ST-6-107-200-0, "Valve Date Sheet", Attachment 1 referenced			
	3. RECORD initiating event (WO # C0995903-05)	WO # C0995903-05 is recorded in Attachment 1			
	4. ENSURE system conditions permit valve to be stroked. (This may include reviewing the ST from Attachment 2) CUE: If asked, state "Initial conditions allow the valve to be stroked" CUE: Hand examinee a copy of ST-6-043-200-1	ST-6-043-200-1 is referenced from "Attachment 2" of ST-6-107-200-0. Prerequisites to stroke the valve are met.			
	5. PERFORM valve stroke and record stroke (Open/Close) time CUE: State that HV-043-1F020 stroked 9.87 seconds in the closed direction and that the required valve data needs to be included in the table for Step 3.0. CUE: Inform candidate "Table in step 3.0 can be completed at this time"	Record closed stroke time 9.87 seconds in the closed direction in ST-6-107-200-0, Attachment 1, table for step 3.0			



	*ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
	6. RECORD "As Left" position of HV-043-1F020 CUE: State that HV-043-1F020 was left closed.	Candidate records "Closed" and initials step 4.0 of ST-6-107-200-0, Valve Data Sheet			
	7. RECORD appropriate information in table for each piece of measurement / test equipment used. CUE: State that the PRO will fill in stopwatch information for Step 5.0	N/A			
	8. RECORD data from applicable Surveillance Test listed on Attachment 2 (ST-6-043-200-1) into table in step 3.0 (ST-6-107-200-0, Attachment 1)	Surveillance Test data listed on Attachment 2 (ST-6-043-200-1) recorded into table in step 3.0 (ST-6-107-200-0, Attachment 1)			
*	8a. Access Valve Stroke Timing and Exercise Data Sheet	ST-6-043-200-1, Step 4.1.3 is used and access to valve stroke database using the IST Valve Stroke database link on the LGS Operations Home Page OR on the LAN at L:OPS\IST Control Room Interface.mdb .			
*	8b. Valve Stroke Data Sheet for HV-043-1F020 is used to complete table in Step 3	Table in Step 3 is completed using valve stroke data sheet			
*	8c. Verify Stroke Time Satisfactory Initials / Date	Determines valve stroke time is UNSAT, declares valve INOPERABLE and notifies SSV			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____

JPM SUMMARY**Operator's Name:** _____**Job Title:** ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER**JPM Title:** Prepare Valve Stroke Data Sheet**JPM Number:** LOJPM6767**Revision Number:** 000**Task Number and Title:** 2980120101 Perform Retests Following Equipment Maintenance**K/A Number and Importance:** G2.1.7 4.4/4.7**Level of Difficulty (1-5)** 2**Suggested Testing Environment:** Simulator/Classroom**Alternate Path:** ☐ Yes ☒ No **SRO Only:** ☐ Yes ☒ No **Time Critical:** ☐ Yes ☒ No**Reference(s):** ST-6-107-200-0, Rev 27, IST Valve Stroke Surveillance Log"

ST-6-043-200-1, Rev 22, Reactor Recirculation System Quarterly Valve Test

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

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

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

INITIAL CONDITIONS:

1. Unit 1 is in OPCON 1 at 100% Power.
2. Maintenance on HV-043-1F020 is complete per work order C0995903.
3. A PMT is required to stroke time HV-043-1F020 per C0995903 Act. 05.
4. Prerequisites for stroking HV-043-1F020, have been met.
5. ST-6-107-200-0 is to be used to document the HV-043-1F020 valve stroking.
6. ST-6-107-200-0, Attachment 2 lists the applicable ST for obtaining the stroke time data for HV-043-1F020

INITIATING CUE:

You are directed to use ST-6-107-200-0, "IST Valve Stroke Surveillance Log" and record the necessary valve data on Step 3.0 of Attachment 1, for HV-043-1F020



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

DETERMINE BLOCKING REQUIRED FOR REPAIR OF 1C RHR PUMP
MIN FLOW CHECK VALVE, PER OP-MA-109-101
"CLEARANCE AND TAGGING"

LOJPM6722

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 12 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-MA-109-101 Rev: 20
Procedure Dwg E-0015, Sheet 1 Rev: 30
Procedure Dwg E-0057, Sheet 1 Rev: 42
Procedure Dwg M-0051, Sheet 1 Rev: 29
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



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Simulator - N/A
2. Provide the following to the Examinee:
 - OP-MA-109-101
 - M-0051, Sheet 1
 - E-0015, Sheet 1
 - E-0057, Sheet 1
 - Proposed Blocking Sheet (blank)

V. TASK STANDARD:

Provide a list of proposed blocking points (DANGER tags) for doing in-body repair work on 1C RHR Pump Min Flow Check Valve 1F046C, in accordance with OP-MA-109-101, that identifies the components specified in the attached Proposed Blocking Key.

VI. INITIAL CONDITIONS

1. Unit 1 is at 100% power.
2. 1C RHR Pump Min Flow Check Valve 1F046C is scheduled for in-body repair work.
3. PIMS is not available for developing a clearance order by electronic means.

VII. INITIATING CUE:

Using OP-MA-109-101 and the appropriate drawings, provide a list of components and their designations to be aligned to provide adequate personnel protection (DANGER tagged) for the in-body repair work on 1F046C. Determine whether each component should be "blocked open", "blocked closed", "de-energized" and/or "racked out". Document the Component/Designation and Blocked Position on the Proposed Blocking Sheet. Give your completed list of blocking points to the Unit Supervisor.

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.

III. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
DETERMINE SCOPE OF WORK AND APPLICABLE BLOCKING RULES					
	1. Review the scope of work planned for check valve 1F046C.	Reviews P&ID M-0051, sheet 1, and determines that the check valve must be isolated from fluid energy on all sides.			
	2. Review applicable sections of OP-MA-109-101 for the applicable blocking rules.	Reviews Section 5 "Clearance and Tagging Standards"; Section 7 "Clearance Development Standards". May also review Attachment 6 "Clearance Writer and Approver Checklist".			
DETERMINE BLOCKING POINTS					
*	3. Develop list of proposed blocking points based on print review and OP-MA-109-101 requirements.	List of proposed blocking points matches the attached Proposed Blocking Key, and all Critical Steps are met.			
	4. Provide completed list of proposed blocking points to the Unit Supervisor to be forwarded to WCC.	Unit Supervisor is given the list of proposed blocking points.			
CUE: <ul style="list-style-type: none"> • Role-play the Unit Supervisor and acknowledge receipt of the proposed blocking points. • Inform examinee that the list will be forwarded to the WCC. 					
CUE: "You have met the termination criteria for this JPM."					

JPM Completion Time _____

JPM SUMMARY**Operator's Name:** _____**Job Title:** ☐ SED ☐ SM ☐ SRO ☐ RO ☐ STA/IA ☐ EO ☐ OTHER**JPM Title:** DETERMINE BLOCKING REQUIRED FOR REPAIR OF 1C RHR PUMP MIN FLOW CHECK VALVE, PER OP-MA-109-101 "CLEARANCE AND TAGGING"**JPM Number:** LOJPM6722**Revision Number:** 000**Task Number and Title:** 2990100301, Coordinate Equipment Tagouts Equipment Clearance and Switching**K/A Number and Importance:** 2.2.13 4.1 / 4.3**Level of Difficulty (1-5)** 3**Suggested Testing Environment:** Classroom**Alternate Path:** ☐ Yes ☒ No **SRO Only:** ☐ Yes ☒ No **Time Critical:** ☐ Yes ☒ No**Reference(s):**

NUREG 1123, Rev. 2, Supp 1

OP-MA-109-101, Rev. 20

M-0051, Sheet 1, Rev. 66

E-0015, Sheet 1, Rev. 30

E-0057, Sheet 1, Rev. 42

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

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

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

INITIAL CONDITIONS

1. Unit 1 is at 100% power.
2. 1C RHR Pump Min Flow Check Valve 1F046C is scheduled for in-body repair work.
3. PIMS is not available for developing a clearance order by electronic means.

INITIATING CUE:

Using OP-MA-109-101 and the appropriate drawings, provide a list of components and their designations to be aligned to provide adequate personnel protection (DANGER tagged) for the in-body repair work on 1F046C. Determine whether each component should be “blocked open”, “blocked closed”, “de-energized” and/or “racked out”. Document the component/Designation and Blocked Position on the Proposed Blocking Sheet. Give your completed list of blocking points to the Unit Supervisor.

NOTE

Do NOT give the
next page (KEY)
to the Examinee!

Examinee is given Cue Sheet and
blank Proposed Blocking Sheet.

PROPOSED BLOCKING KEY

DO NOT GIVE TO EXAMINEE

NOTE: Components marked with ★ are part of the Critical Step.

Component and Designation	Position
1. ★1C RHR Pump 1CP202 4KV Breaker 152-11704	★Racked Out
2. ★1C RHR Pump Min Flow Valve HV-051-1F007C ★1C RHR Pump Min Flow Valve HV-051-1F007C 480V Breaker 52-21710 <u>OR</u> ★1C RHR Pump Min Flow Valve Isolation Valve 051-1F018C	★Blocked Closed ★Blocked Open/De-energized ★Blocked Closed
3. ★1C RHR Pump Min Flow PCIV HV-051-105A	★Blocked Closed
4. ★1C RHR Pump Min Flow PCIV HV-051-105A 480V Breaker 52-22323	★Blocked Open/De-energized
5. ★1C RHR Pump Min Flow Drain Valve 051-1064C	★Blocked Open
6. ★1C RHR Pump Min Flow Drain Valve 051-1065C	★Blocked Open
7. ★1C RHR Pump Min Flow Vent Valve 051-1099C	★Blocked Open
8. ★1C RHR Pump Min Flow Vent Valve 051-1053	★Blocked Open
★ Examinee must identify at least one DRAIN path (components 5 + 6) or one VENT path (components 7 + 8) as Blocked Open	



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

GASEOUS EFFLUENT DOSE RATE DETERMINATION

JPM Number: LOJPM6706

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 12 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure ST-6-104-880-0 Rev: 30
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 LLOJPM0706 Rev. 0. Revised to new template and to align with latest procedure revision.	08/15/14

IV. TASK STANDARD:

ST-6-104-880-0 is completed for North Stack Gaseous Effluent Dose Rate Determination

V. INITIAL CONDITIONS:

1. Unit 1 is in OPCON 1
2. Unit 2 is in OPCON 1
3. North Stack Hi radiation alarm (003 E-2) and
4. North Stack Hi – Hi radiation alarm (003 E-1) has annunciated

VI. INITIATING CUE:

You have been directed to perform ST-6-104-880-0, Gaseous Effluent Dose Rate Determination for the North Stack, section 4.5 (South Stack not required).

Information for Evaluator's Use:

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

Denotes critical steps

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

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

The JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VII. PERFORMANCE CHECKLIST:
JPM Start Time _____

*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Reference marked up copy of ST-6-104-880-0, Gaseous Effluent Dose Rate Determination starting at step 4.5 CUE: Provide candidate a copy of ST-6-104-880-0, Gaseous Effluent Dose Rate Determination	ST-6-104-880-0, Gaseous Effluent Dose Rate Determination is obtained marked up to step 4.5			
*	2. RECORD maximum 15 minute trend values from RE26076-4, RE26075A-3, RE26075B-3 CUE: Provide candidate with copies of RMDS for GRID 1 and 15 minute trends for RE26076-4, RE26075A-3, RE26075B-3	Record maximum 15 minute values			
*	3. IF RE26076-4 is less than $1.10\text{E}+5\text{uCi/sec}$ AND no action required, THEN GO TO step 4.5.4	Candidate determines RE26076-4 is greater than $1.10\text{E}+5\text{uCi/sec}$			
*	4. IF RE26076-4 value is greater than or equal to $1.10\text{E}+5\text{uCi/sec}$ THEN DIRECT Radiation Protection to perform EP-AA-110-200 AND RECORD name of Rad Pro Tech contacted CUE: Rad Pro Tech <u>Brian Landis</u> notified	Rad Pro Tech directed to perform EP-AA-110-200 and name of Rad Pro Tech recorded.			
*	5. IF RE20675A-3 OR RE20675B-3 concentration is less than $3.51\text{E}-4\text{uCi/ml}$ THEN GO TO section 4.6	Candidate determines RE26075A-3 or RE20675B-3 are greater than $3.51\text{E}-4\text{uCi/ml}$			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	6. IF RE20675A-3 OR RE20675B-3 concentration is > 3.51E-4uCi/ml THEN DIRECT Radiation Protection to perform EP-AA-110-200 AND RECORD name of Rad Pro Tech contacted CUE: Rad Pro Tech <u>Brian Landis</u> notified	Rad Pro Tech directed to perform EP-AA-110-200 and name of Rad Pro Tech recorded.			
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:** GASEOUS EFFLUENT DOSE RATE DETERMINATION**JPM Number:** LOJPM6706**Revision Number:** 000**Task Number and Title:** 2990090301 Apply Radiation and Contamination Safety Procedures**K/A Number and Importance:** Generic 2.3.11 RO 3.8 / SRO 4.3**Level of Difficulty (1-5)** 3**Suggested Testing Environment:** Classroom**Alternate Path:** ☐ Yes ☒ No **SRO Only:** ☐ Yes ☒ No **Time Critical:** ☐ Yes ☒ No**Reference(s):** ST-6-104-880-0, Rev 30, Gaseous Effluent Dose Rate Determination**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 ☐ NoThe operator's performance was evaluated against standards contained within this JPM and has been determined to be: ☐ Satisfactory ☐ Unsatisfactory**Comments:** _____

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

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

INITIAL CONDITIONS:

1. Unit 1 is in OPCON 1
2. Unit 2 is in OPCON 1
3. North Stack Hi radiation alarm (003 E-2) and
4. North Stack Hi – Hi radiation alarm (003 E-1) has annunciated

INITIATING CUE:

You have been directed to perform ST-6-104-880-0, Gaseous Effluent Dose Rate Determination for the North Stack, section 4.5 (South Stack not required).

Facility: <u>Limerick</u>		Date of Examination: <u>Jan 12-23, 2015</u>
Examination Level: RO SRO <input checked="" type="checkbox"/> X		Operating Test Number: <u>1</u>

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations SRO 2.1-1	R-N	Determination of Adequate Shift Staffing (SRO) (Generic 2.1.5)
Conduct of Operations SRO 2.1-2	R-M	Authorize a Reactor Maneuvering Shutdown Instruction (RMSI) (Generic 2.1.37)
Equipment Control SRO 2.2-1	R-N	Review and Verify Blocking Required per OP-MA-109- 101, "Clearance and Tagging" (Generic 2.2.13)
Radiation Control SRO 2.3-1	R-M-P	Review and Approve Inventory Release from Equipment Drain Sample Tank to Cooling Tower Blowdown Line (Generic 2.3.11)
Emergency Procedures/Plan SRO 2.4-1	R-D	ERP Upgrade Classification and Reporting (Time Critical) (Generic 2.4.41)

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when 5 are required.

* Type Codes & Criteria:	(C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected)
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**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

DETERMINATION OF ADEQUATE SHIFT STAFFING (SRO)

JPM Number: LOJPM6725

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 12 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: 4
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

IV. SIMULATOR SETUP INSTRUCTIONS

Simulator - N/A

V. TASK STANDARD:

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

VI. INITIAL CONDITIONS:

- Both Units are in OPCON 1
- A total of 4 SROs have the 1800-0600 shift, as follows:
 - Shift Manager
 - Unit 1 CRS (the only one who is qualified STA)
 - Unit 2 CRS
 - FSS
- 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 this 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
	1. Obtain OP-LG-101-111 and/or the Tech Specs for one or both Units.	Obtains OP-LG-101-111 and/or Tech Specs.			
CUE: When requested, provide a copy of OP-LG-101-111. If requested, provide the Tech Specs for one or both Units.					
EVALUATOR NOTE: Examinee may elect to perform the following Elements in any order he/she chooses.					
	2. Review OP-LG-101-111 and/or Tech Specs for SRO shift staffing requirements.	Reviews OP-LG-101-111 and/or Tech Specs to determine the minimum number of SROs required to satisfy staffing requirements, as follows: <ul style="list-style-type: none"> • 1 Shift Manager • 2 SROs • 1 STA (who can be any one of the SROs who is qualified as such) 			
*	3. 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.			
*	4. 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: <ul style="list-style-type: none"> • Unit 2 CRS assumes responsibility for both Units, <u>or</u> • FSS assumes the role of Unit 1 CRS 			



ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
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: 000

Task Number and Title: 3420140302 Manage the Shift Team
3430160302 Assure Adequate Personnel Coverage For All Plant Conditions In Accordance With Overtime Policy

K/A Number and Importance: 2.1.5 2.9 / 3.9

Level of Difficulty (1-5) 3

Suggested Testing Environment: Classroom

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

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

- Both Units are in OPCON 1
- A total of 4 SROs have the 1800-0600 shift, as follows:
 - Shift Manager
 - Unit 1 CRS (the only one who is qualified STA)
 - Unit 2 CRS
 - FSS
- 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: 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 12 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: _____
Procedure NF-LG-721-1005-F-01 Rev: _____
Procedure NF-AB-721-1005 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 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

IV. INSTRUCTIONS

1. Handouts to be included with this JPM:
 - a. P-1 Core Map
 - b. Reactor Maneuvering Shutdown Instructions
 - c. NF-LG-721-1005 Reactor Maneuvering Shutdown Instructions Preparation Guideline

V. TASK STANDARD:

1. The applicant should determine that the SRO should NOT authorize the Reactor Maneuvering Shutdown Instructions because RMSI Flow Reduction Target is less than 60 Mlbm/hr, the limit established in NF-LG-721-1005. The applicant should also identify that control rod ID 18-25 is incorrect, the control rod ID should be 18-27.

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 12/14/2014 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 independently verified using the checklist in Exhibit 6 of NF-LG-721-2001 to determine successful case execution.

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 this 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.

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 (18-25 should be 18-27) on the Instruction sheet. Additionally, core flow value of 58 Mlbm/hr is lower than allowed by NF-LG-721-1005.

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

The SRO signoffs are on the RMSI cover sheet and the rod sequence sheet. The candidate may be cued as to the locations to sign, as RE's are usually asked and will show the SRO where to sign.

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

Fill out NF-LG-721-1005-F-01 with the Reactor Engineer signoff
Fill in Shutdown Sequence ID LGSIMSU2.0

RE/QNE
2nd Verifier

Step	Rod ID	Target
1	18-35	00
2	42-27	00
3	26-19	00
4	34-43	00
5	18-25	00 incorrect rod – should be 18-27
6	34-19	00
7	26-43	00
8	42-35	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 and 2.

Candidate should identify the step 5 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 RMSI, NF-LG-721-1005 and P-1. CUE: Provide copies of RMSI, NF-LG-721-1005 and P-1.	Reviews RMSI, NF-LG-721-1005 and P-1.			
*	2. Determine Rod 18-25 is incorrect rod since rod is already inserted.	Identify from the P-1 edit that rod 18-25 is should be 18-27.			
*	3. Determine that core flow is less than 60 Mlbm/hr.	Identify incorrect core flow value.			
*	4. SRO determines that RMSI is incorrect.	SRO does not sign off RMSI due to 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 Reactor Maneuvering Shutdown Instructions Following a Rod Pattern Adjustment

JPM Number: LOJPM6727

Revision Number: 000

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

K/A Number and Importance: 2.1.37 4.3/4.6

Level of Difficulty (1-5) 2

Suggested Testing Environment: Simulator/Classroom

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

Reference(s): NF-LG-721-1005

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 12/14/2014 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 independently verified using the checklist in Exhibit 6 of NF-LG-721-2001 to determine successful case execution.

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 this Cue Sheet.

Reactor Maneuvering Shutdown Instructions

Limerick Unit 1

RMSI Flow Reduction Target:	58 Mlbm/hr
Shutdown Sequence ID Referenced:	LGSIMSU2.0
RE / QNE Validation:	John Doe
2 nd Verifier	Jim Miller
SRO Authorization	

Table 1: Rods Required for Stability Rod Line

INSTRUCTIONS		Initials
1. IF Core Flow is available to use for power reduction AND Core Flow is greater than the value listed above (Flow Reduction Target), THEN REDUCE power as needed with flow until any of the following occur: A) Core Flow reaches the value listed above. B) An "APRM UPSCALE" alarm occurs.		
2. IF FLLLP exceeds <u>1.0</u> , THEN FULLY INSERT control rods from Table 1 to lower FLLLP to < 1.0.		
3. IF Core Flow is less than 60 Mlb/hr, THEN FULLY INSERT control rods from Table 1 to EXIT the Restricted Region of the Power to Flow Map.		
4. IF further power reduction is required, THEN INSERT rods in RMSI Table 1 as required OR until all rods in Table 1 are fully inserted.		
5. VERIFY on Power/Flow Map that current load line is less than 66.7%. IF current Load Line is greater than 66.7%, THEN CONTINUE inserting rods starting with the last step of the Shutdown Sequence indicated at the top of this page, in order to achieve a Load Line less than 66.7%.		
6. IF further power reduction is required AND the current Load Line is less than 66.7%, AND all RMSI steps in Table 1 are inserted, THEN REDUCE core flow as required until new Target Power is achieved.		



Limerick Unit 1

Initials

7. **REPEAT** Step 6 as required until core flow is at minimum,
THEN CONTINUE to Step 8.
8. **IF** further power reduction is required
AND core flow is at minimum,
THEN ENTER the insert column of the last unexecuted step of approved
Shutdown Sequence listed at the top of Table 1.

[illegible]

LIMERICK-1 CYCLE 16 SEQUENCE NO 6

CORE PARAMETERS			3D MONICORE	14-NOV-2014 06:54 CALCULATED
POWER	MWT	3510.	PERIODIC LOG	14-NOV-2014 06:54 PRINTED
POWER	MWE	1168.		CASE ID FMLD1141114065458
FLOW	MLB/HR	90.296	CALC RESULTS	RESTART FMLD1141114064659
FPAPDR		0.845		LPRM ABSOLUTE - FULL CORE
SUBC	BTU/LB	22.97	Keff	0.9999
PR	PSIa	1059.0	XE WORTH %	-2.45
CORE	MWD/sT	12858.1	XE RATED	1.07
CYCLE	MWD/sT	3489.5	AVE VF	0.421
MCPR		1.450	FLLLP	0.929
				LOAD LINE SUMMARY
				CORE POWER 99.8%
				CORE FLOW 90.3%
				LOAD LINE 106.8%

CORRECTION FACTOR: MFLCPR= 1.000 MFLPD= 1.000 MAPRAT= 1.000 ZBB= 2.23 ft
 OPTION: ARTS 2 LOOPS ON MANUAL FLOW MCPRLIM= 1.300 FCBB= N/A

MOST LIMITING LOCATIONS (NON-SYMMETRIC)

MFLCPR	LOC	MFLPD	LOC	MAPRAT	LOC	PCMARG	LOC
0.917	33-48	0.886	49-34-12	0.821	33-50-12	-0.443	21-14- 5
0.914	31-46	0.885	17-16- 5	0.819	15-18- 5	-0.449	53-14- 5
0.911	33-32	0.877	47-20- 5	0.818	17-16- 5	-0.450	57-28- 4
0.908	31-38	0.875	45-14- 5	0.816	47-20- 5	-0.450	47- 8- 5
0.899	45-32	0.873	47-16- 5	0.816	29-30- 5	-0.451	15-18- 5
0.897	23-32	0.867	31-46-12	0.813	31-46-12	-0.452	17-16- 5
0.896	27-36	0.864	29-48-12	0.813	17-18- 5	-0.454	31-46-12
0.893	47-38	0.863	19-18- 5	0.809	45-14- 5	-0.465	47-20- 5
0.887	25-34	0.863	17-20- 5	0.807	19-18- 5	-0.510	45-14- 5
0.893	37-48	0.861	29-38- 8	0.806	47-22- 5	-0.554	29-38- 8

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

	NOTCH	REL PW	LOC
		0.400	25
	00	0.457	24
59	02	0.514	23
L	04	0.664	22
55	06	0.913	21
51	08	0.962	20
L	10	1.014	19
47	12	1.099	18
43	14	1.117	17
L	16	1.134	16
39	18	1.163	15
35	20	1.169	13
L	22	1.193	13
31	24	1.234	12
27	26	1.242	11
L	28	1.265	10
23	30	1.303	09
19	32	1.310	08
L	34	1.250	07
15	36	1.149	06
11	38	1.129	05
L	40	0.938	04
07	42	0.620	03
03	44	0.557	02
	46	0.278	01

CORE AVERAGE RADIAL POWER DISTRIBUTION

RING #	1	2	3	4	5	6	7	8
REL PW	0.259	0.407	0.986	1.028	1.142	1.291	1.112	0.859

LIMERICK-1 CYCLE 16 INSTRUMENT READINGS/STATUS CALIBRATED LPRM READINGS

SEQUENCE NO 6
14-NOV-2014 06:54 CALCULATED
14-NOV-2014 06:54 PRINTED
CASE ID FMLD1141114065458
LPRM ABSOLUTE - FULL CORE

5		23.0	35.5	36.7	30.2		
C		20.7	36.5	37.5	30.6		
B		13.5	34.5	35.2M	26.6		
A		6.5	18.8	19.5M	26.6		
49D		27.7	48.4	59.6	61.9C	55.6	40.8
C		27.2	50.7	64.2	61.7	62.4	41.9
B		19.8	58.8	72.5	69.1	71.3	43.1
A		9.5	41.0	45.3	43.7	47.4	25.5
41D		44.8	62.8	68.9	65.2	65.5	30.1
C		46.8	67.1	59.4	59.5	63.7	30.9
B		56.1	74.9	63.9	62.6	68.8	26.7
A		38.6	46.3	36.6	36.1	42.4	14.2
33D		51.1	66.3	72.3	73.7	65.1	36.4
C		52.7	55.9	74.9	72.7	59.4	37.2
B		62.5	61.3	77.8	73.8	62.5	35.0
A		43.4	35.3	45.7	43.4	36.1	19.6
25D		49.0	63.5	70.6	72.1	68.5	35.2
C		51.0	58.2	67.0	74.7	59.1	36.1
B		61.8	64.5	70.3	77.7	63.7	34.3
A		44.5	37.2	42.7	45.8	36.6	18.8
1		41.1	54.9	63.4	65.9	62.1	22.8
C		41.7	57.4	58.2	55.5	66.3	20.8
B		43.2	66.0	64.5	61.1	74.3	13.6
A		23.8	45.9P	37.3	35.3	46.4	6.6
09D		41.2	48.8	50.7	44.3	27.2	
C		41.1	50.8	52.2	46.1	26.4	
B		42.8	61.8	62.3	55.5	18.6	
A		23.7	44.5	43.5	38.7	8.8	

OF TIPS NOT SCANNED:

FAILED SENSORS:
LPRM (NONE FAILED)

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 LOCATION

08 16 24 32 40 48 56

CORE SUMMARY

CORE POWER	99.8%	CALC SUB FLOW	86.6%	DP MEAS PSI	12.23
CORE FLOW	90.3%	OPER SUB FLOW	-1.0%	DP CALC PSI	12.23
LOAD LINE	106.8%	FLOW BASIS	MEAS	FEEDWTR FLOW MLB/HR	15.37

APRM CALIBRATION

	1	2	3	4
READING	100.1	100.1	100.1	100.0
AGAF	0.999	0.999	0.999	0.999

APRM - %CTP	0.2	0.2	0.2	0.2
-------------	-----	-----	-----	-----

TIP RUNS RECOMMENDED
STRINGS: NONE

DRIVE FLOW	MLB/HR	15.37
FEEDWTR TEMP	DEG.F	433.3

This is a major re-write. No revision bars were used.

REACTOR MANEUVERING SHUTDOWN INSTRUCTIONS **PREPARATION GUIDELINE**

1.0 PURPOSE

- 1.1 This T&RM describes the general theory guidelines and details for the generation or revision of the Reactor Maneuvering Shutdown Instructions.

2.0 SCOPE

- 2.1 This T&RM is used by the on-shift Reactor Engineer for guidance and instructions to be used when developing or revising the Reactor Maneuvering Shutdown Instructions.
- 2.2 This T&RM is used by the Reactor Engineer for guidance and instructions to be used when developing the Reactor Maneuvering Shutdown Instructions in preparation for a maneuver.

3.0 SOURCES AND REFERENCES

- 3.1 NF-LG-721
- 3.2 NF-LG-721-1000
- 3.3 NSA-01-0349, AOO Criteria Compliance Analysis Above the MELLLA Rod Line, September 7, 2001
- 3.4 NF-AB-720

4.0 PREREQUISITES

- 4.1 A Stability Rod line Pattern is available for the Unit that a Shutdown Instruction generation / revision is required.
- 4.2 A valid Full Power Target Rod Pattern OR current rod pattern is available for the Unit that a Shutdown Instruction generation / revision is required.
- 4.3 Certification Guide N-AB-ENG-CERT-RX10 is required to perform the activities within this T&RM.

NOTE

Shutdown instructions will typically be developed at the same time as new target rod patterns, but may be developed more frequently, as changing reactor conditions warrant.

6.2.1 The Reactor Engineer shall execute the 3D MONICORE PREDICTOR module to determine an appropriate Shutdown Rod Line Pattern.

1. Specify the restart file.
2. Specify the fit-adaptive solution (non-adaptive IF BOC start-up).
3. Specify a power search calculation.
4. Input a core flow value no lower than 60 Mlbm/hr.
5. Specify restart k-effective
6. Specify transient conditions with a depletion step of 0.1 to maintain equilibrium Xenon concentrations.
7. Stack the flow reduction case.
8. Input a proposed Shutdown Rod Line Pattern. The final shutdown rod line pattern should represent a reasonable compromise of the following design objectives:
 - Maximize rod pattern symmetry. Octant symmetric rod patterns are optimal.
 - Minimize the magnitude of the power reduction.
 - Minimize radial power peaking.
 - Minimize number of rods inserted.
 - Consider inserting similar groups (Keep A2 rods together, A1 rods together.)
 - Insert enough rods that it would be expected to reduce rod line to less than 66.7%, but not significantly less than that value. A rod line $\geq 45\%$ reduces the possibility of an automatic runback to 28% speed.
9. Submit the job for execution.

6.3 PREPARATION / REVISION OF REACTOR MANEUVERING SHUTDOWN INSTRUCTIONS (RMSI).

6.3.1 Prepare the RMSI package as follows using the NF-LG-721-1005-F-01 blank forms:

- 1. Specify Unit on each page of form NF-LG-721-1005-F-01.**
- 2. Specify RMSI Flow Reduction Target value to go to during the initial power reduction at the top of Page 1.**
- 3. Fill in Table 1, "Rods Required for Stability Rod Line" as follows:**
 - Fill in the corresponding Shutdown Sequence ID at the top of Page 1.**
 - Fill in the rods needed to reduce power below the 66.7% rod line as determined from the Predictor case that was run.**
- 4. Sign RMSI page 1.**

6.3.2 Submit the completed RMSI for independent review to a Second Verifier. The Second Verifier shall review all related work and then sign the shutdown rod line rod pattern paperwork following successful completion of the review, indicating concurrence with the proposed shutdown rod line pattern and RMSI information.

6.3.3 Submit the completed RMSI to an SRO for authorization.

6.3.4 Discard old RMSI from RMSI binder and insert new approved RMSI sheets.

7.0 EXHIBITS

7.1 NF-LG-721-1005-F-01: Reactor Maneuvering Shutdown Instructions



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

**REVIEW AND VERIFY BLOCKING REQUIRED FOR REPAIR OF 1C RHR
PUMP MIN FLOW CHECK VALVE,
PER OP-MA-109-101 "CLEARANCE AND TAGGING"**

LOJPM6723

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 12 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-MA-109-101 Rev: 20
Procedure Dwg E-0015, Sheet 1 Rev: 30
Procedure Dwg E-0057, Sheet 1 Rev: 42
Procedure Dwg M-0051, Sheet 1 Rev: 29
Procedure U/1 Tech Spec 3.5.1 Rev: NA
Procedure U/1 Tech Spec 3.6.3 Rev: NA
Procedure U/1 TRM Table 3.6.3-1 Rev: NA
- _____ 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



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Simulator - N/A
2. Provide the following to the Examinee:
 - OP-MA-109-101
 - M-0051, Sheet 1
 - E-0015, Sheet 1
 - E-0057, Sheet 1
 - "List of Proposed Blocking Points" (part of this JPM)

V. TASK STANDARD:

Review the "List of Proposed Blocking Points" (DANGER tags) for doing in-body repair work on 1C RHR Pump Min Flow Check Valve 1F046C. Identify any discrepancies and revise the "List" accordingly. Determine the applicable Tech Spec Actions for performing the valve repair work.

VI. INITIAL CONDITIONS

1. Unit 1 is at 100% power.
2. 1C RHR Pump Min Flow Check Valve 1F046C is scheduled for in-body repair work.
3. PIMS is not available for developing a clearance order by electronic means.

VII. INITIATING CUE:

Using OP-MA-109-101 and the provided drawings, review the "List of Proposed Blocking Points" to ensure that the blocking points provide adequate personnel protection (DANGER tagged) for the check valve repair work. Identify any discrepancies and revise the "List" accordingly. Determine the required Tech Spec ACTION(s) for performing the valve repair work and note the ACTION(s) on this 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.

III. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
DETERMINE SCOPE OF WORK AND APPLICABLE BLOCKING RULES					
	1. Review the scope of work planned for check valve 1F046C.	Reviews P&ID M-0051, sheet 1, and determines that the check valve must be isolated from fluid energy on all sides.			
	2. Review applicable sections of OP-MA-109-101 for the applicable blocking rules.	Reviews Section 5 "Clearance and Tagging Standards"; Section 7 "Clearance Development Standards". May also review Attachment 6 "Clearance Writer and Approver Checklist".			
DETERMINE ADEQUACY OF LIST OF PROPOSED BLOCKING POINTS					
	3. Review the "List of Proposed Blocking Points" against the provided prints.	Uses provided prints to review the "List of Proposed Blocking Points".			
*	4. Using E-0015, Examinee recognizes that the proposed 4KV breaker listed (152-11702) for the 1C RHR Pump is incorrect.	Using E-0015, Examinee identifies 152-11704 as the correct 4KV breaker for 1C RHR Pump <u>AND</u> revises the "List of Proposed Blocking Points" to reflect the change.			
*	5. Using M-0051, Examinee recognizes that the 1C RHR Pump Min Flow PCIV (HV-051-105A) is an MOV, but the "List of Proposed Blocking Points" lacks the 480V breaker for that MOV.	Using E-0057, Examinee identifies 52-22323 as the 480V breaker for HV-051-105A. Examinee adds the breaker to the "List of Proposed Blocking Points" <u>AND</u> identifies its required position as "Blocked Open / De-energized".			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
DETERMINE TECH SPEC REQUIRED ACTION					
*	6. Determine that Tech Spec 3.5.1, ECCS – Operating, is applicable for the inoperable 1C LPCI subsystem.	Determines that ACTION 3.5.1.b.1 is required: “With one LPCI subsystem inoperable, provided that at least one CSS subsystem is OPERABLE, restore the inoperable LPCI pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.”			
*	7. Determine that Tech Spec 3.6.3, PCIVs, is applicable for the blocked closed/de-energized HV-051-105A. HV-051-105A is the sole PCIV for the 1C RHR Min Flow Line (refer to U/1 TRM 3.6.3-1, Penetration 226A).	Determines that ACTION 3.6.3.a is required but is already satisfied because the PCIV (HV-051-105A) is already de-activated and secured in its isolated position, as directed by 3.6.3.a.2.			
CUE: Once the Examinee turns in the revised “List of Proposed Blocking Points” and the annotated Cue Sheet showing the applicable Tech Spec Actions, the JPM is complete.					
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 AND VERIFY BLOCKING REQUIRED FOR REPAIR OF 1C RHR PUMP MIN FLOW CHECK VALVE, PER OP-MA-109-101 "CLEARANCE AND TAGGING"

JPM Number: LOJPM6723

Revision Number: 000

Task Number and Title: 2990100301, Coordinate Equipment Tagouts Equipment Clearance and Switching

K/A Number and Importance: 2.2.13 4.1 / 4.3

Level of Difficulty (1-5) 3

Suggested Testing Environment: Classroom

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

Reference(s):

NUREG 1123, Rev. 2, Supp 1
OP-MA-109-101, Rev. 20
M-0051, Sheet 1, Rev. 66
E-0015, Sheet 1, Rev. 30
E-0057, Sheet 1, Rev. 42

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 at 100% power.
2. 1C RHR Pump Min Flow Check Valve 1F046C is scheduled for in-body repair work.
3. PIMS is not available for developing a clearance order by electronic means.

INITIATING CUE:

Using OP-MA-109-101 and the provided drawings, review the "List of Proposed Blocking Points" to ensure that the blocking points provide adequate personnel protection (DANGER tagged) for the check valve repair work. Identify any discrepancies and revise the "List" accordingly. Determine the required Tech Spec ACTION(s) for performing the valve repair work and note the ACTION(s) on this Cue Sheet.

NOTE

Do NOT give the
next page (KEY)
to the Examinee!

Examinee is given the Cue Sheet and
the “List of Proposed Blocking Points”
sheet.

“LIST OF PROPOSED BLOCKING POINTS” **KEY**

DO NOT GIVE TO EXAMINEE

NOTE: Components marked with ★ are part of the Critical Step.

Component and Designation	Position
1. ★1C RHR Pump 1CP202 4KV Breaker 152-11704	★Racked Out
2. ★1C RHR Pump Min Flow Valve HV-051-1F007C ★1C RHR Pump Min Flow Valve HV-051-1F007C 480V Breaker 52-21710	★Blocked Closed ★Blocked Open/De-energized
<u>OR</u>	
★1C RHR Pump Min Flow Valve Isolation Valve 051-1F018C	★Blocked Closed
3. ★1C RHR Pump Min Flow PCIV HV-051-105A	★Blocked Closed
4. ★1C RHR Pump Min Flow PCIV HV-051-105A 480V Breaker 52-22323	★Blocked Open/De-energized
5. ★1C RHR Pump Min Flow Drain Valve 051-1064C	★Blocked Open
6. ★1C RHR Pump Min Flow Drain Valve 051-1065C	★Blocked Open
7. ★1C RHR Pump Min Flow Vent Valve 051-1099C	★Blocked Open
8. ★1C RHR Pump Min Flow Vent Valve 051-1053	★Blocked Open
★ Examinee must identify at least one DRAIN path (components 5 + 6) or one VENT path (components 7 + 8) as Blocked Open	

Correct 1C RHR Pump breaker designation is 152-11704; the “List of Proposed Blocking Points” shows the breaker as 152-11702.

1C RHR Pump Min Flow PCIV HV-051-105A 480V Breaker 52-22323 is missing from the “List of Proposed Blocking Points.”

LIST OF PROPOSED BLOCKING POINTS

Component and Designation	Position
1. 1C RHR Pump 1CP202 4KV Breaker 152-11702	Racked Out
2. 1C RHR Pump Min Flow Valve Isolation Valve 051-1F018C	Blocked Closed
3. 1C RHR Pump Min Flow PCIV HV-051-105A	Blocked Closed
4. 1C RHR Pump Min Flow Drain Valve 051-1064C	Blocked Open
5. 1C RHR Pump Min Flow Drain Valve 051-1065C	Blocked Open
6. 1C RHR Pump Min Flow Vent Valve 051-1099C	Blocked Open
7. 1C RHR Pump Min Flow Vent Valve 051-1053	Blocked Open

LIST OF PROPOSED BLOCKING POINTS

Component and Designation	Position
1. 1C RHR Pump 1CP202 4KV Breaker 152-11702	Racked Out
2. 1C RHR Pump Min Flow Valve Isolation Valve 051-1F018C	Blocked Closed
3. 1C RHR Pump Min Flow PCIV HV-051-105A	Blocked Closed
4. 1C RHR Pump Min Flow Drain Valve 051-1064C	Blocked Open
5. 1C RHR Pump Min Flow Drain Valve 051-1065C	Blocked Open
6. 1C RHR Pump Min Flow Vent Valve 051-1099C	Blocked Open
7. 1C RHR Pump Min Flow Vent Valve 051-1053	Blocked Open



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

**REVIEW AND APPROVE INVENTORY RELEASE FROM EQUIPMENT
DRAIN SAMPLE TANK TO COOLING TOWER BLOWDOWN LINE**

JPM NUMBER: LOJPM6726

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 12 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 S62.1.E Rev: 30
Procedure ST-5-061-570-0 Rev: 49
Procedure ST-5-061-575-0 Rev: 15
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:

Approval of Pen & Ink Changes will be by the ILT or LORT Lead Instructor with OTM concurrence

All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision

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:

If a Revision affects a Task Performance from VISION Terminal Performance Objectives then the revision must also be made in the VISION database.

The description of the Revision should adequately indicate how the training content of the Revision has changed.

The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).

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 a MODIFIED version of the SRO A-3 JPM used on the 2012 LGS ILT NRC Exam.	11/12/14



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Simulator – N/A
2. Provide Examinee the following:
 - Marked-up copy of S62.1.E, “Inventory Release From 0A(B)T303 Equipment”
 - Marked-up copy of ST-5-061-570-0, “Radwaste Discharge Permit”
 - Marked up copy of ST-5-061-575-0, “Liquid Radwaste Effluent INOP Monitor”

V. TASK STANDARD:

Review data for the Equipment Drain Sample Tank 0AT303 release in-progress and discover the following discrepancies:

- ST-5-061-575-0 is not marked as SAT with the appropriate Chemistry Supervision Signature, as required
- EDST ‘A’ was not recirculated for the required minimum time (80 minutes)

Continued next page

VI. INITIAL CONDITIONS

1. Radiation Monitor (00S368) –Radwaste Effluent Radiation Monitor is INOPERABLE.
2. Chemistry has completed ST-5-061-575-0, "Liquid Radwaste Effluent INOP Monitor" due to the Radwaste Radiation Monitor being INOPERABLE.
3. FI-063-055, Cooling Tower Blowdown Flow, is in service, reading 6,300 gpm.
4. The RWEO has completed ST-5-061-570-0, Radwaste Discharge Permit up to start of the release activity step 4.7.
5. The operator has completed S62.1.E, "Inventory Release from 0A(B)T303 Equipment Drain Sample Tanks to Cooling Tower Blowdown Line" up to step 4.3.8.
6. No Hold Pond release is in progress.
7. ST-5-061-570-0, step 4.3.1, assume the Gamma Spectrum Analysis and Liquid Permit Pre-Release Data Reports are attached and are reviewed SAT.
8. ST-5-061-575-0, Step 4.2.5, assume gamma isotopic scan is attached and has been reviewed SAT.

VII. INITIATING CUE:

1. You have just taken the shift as the CRS.
2. The prior crew has been relieved and is undergoing post-event FFD testing based on a human performance issue.
3. Equipment Drain Sample Tank 'A' discharge to cooling tower blowdown line is in progress.
4. The Shift Manager has directed you to review the documentation for the on-going release to ensure all requirements have been satisfied.

Document any discrepancies you find on this 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
EVALUATOR NOTE: Provide Examinee the Cue Sheet and marked-up copies of S62.1.E, ST-5-061-570-0, and ST-5-061-575-0.					
	1. Materials provided to Examinee for review.	Reviews Cue Sheet and S62.1.E.			
	2. Determine compensatory action required for inoperable 00S368 Rad Monitor.	Reviews Cue Sheet INITIAL CONDITIONS and/or S62.1.E step 4.2.13 and determines that, because the 00S368 Rad Monitor is inoperable, ST-5-061-575-0 must be completed SAT.			
*	3. Determine if ST-5-061-575-0 has been completed SAT.	Discovers that the ST-5-061-575-0 cover sheet TEST RESULTS are <u>not</u> marked SAT, nor is there the required "Reviewed by" signature from a Chemistry Supervisor.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	4. Review ST-5-061-570-0 Radwaste Discharge Permit requirements for the on-going release.	Discovers the following: <ul style="list-style-type: none">Step 4.1.3 shows that the tank recirc began at 1030 and should have recirc'd for at least 80 minutes (1150) before being released.However, per step 4.5.1, the release began at 1147; the minimum tank recirc time was not satisfied.			
EVALUATOR NOTE: Examinee may decide that the release should be stopped because the minimum tank recirc time was not satisfied; there is no explicit procedural direction to do so.					
	5. Consider whether the on-going release should continue or be stopped.	Decides to stop the on-going release due to the inadequate tank recirc time.			
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 AND APPROVE INVENTORY RELEASE FROM EQUIPMEN DRAIN
SAMPLE TANK TO COOLING TOWER BLOWDOWN LINE

JPM Number: LOJPM6726

Revision Number: 000

Task Number and Title: 3410040302 Review and Approve Radioactive Waste
Discharge/Release Permits

K/A Number and Importance: Generic 2.3.11 3.8 / 4.3

Level of Difficulty (1-5) 3

Suggested Testing Environment: Classroom

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

Reference(s):

1. NUREG 1123, Rev. 2 Supp. 1
2. ST-5-061-570-0, Rev. 49
3. ST-5-061-575-0, Rev. 15
4. S62.1.E, Rev. 30

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. Radiation Monitor (00S368) –Radwaste Effluent Radiation Monitor is INOPERABLE.
2. Chemistry has completed ST-5-061-575-0, "Liquid Radwaste Effluent INOP Monitor" due to the Radwaste Radiation Monitor being INOPERABLE.
3. FI-063-055, Cooling Tower Blowdown Flow, is in service, reading 6,300 gpm.
4. The RWEO has completed ST-5-061-570-0, Radwaste Discharge Permit up to start of the release activity step 4.7.
5. The operator has completed S62.1.E, "Inventory Release from 0A(B)T303 Equipment Drain Sample Tanks to Cooling Tower Blowdown Line" up to step 4.3.8.
6. No Hold Pond release is in progress.
7. ST-5-061-570-0, step 4.3.1, assume the Gamma Spectrum Analysis and Liquid Permit Pre-Release Data Reports are attached and are reviewed SAT.
8. ST-5-061-575-0, Step 4.2.5, assume gamma isotopic scan is attached and has been reviewed SAT.

INITIATING CUE:

1. You have just taken the shift as the CRS.
2. The prior crew has been relieved and is undergoing post-event FFD testing based on a human performance issue.
3. Equipment Drain Sample Tank 'A' discharge to cooling tower blowdown line is in progress.
4. The Shift Manager has directed you to review the documentation for the on-going release to ensure all requirements have been satisfied.

Document any discrepancies you find on this Cue Sheet.



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

ERP CLASSIFICATION AND REPORTING (TIME CRITICAL)

JPM NUMBER: LOJPM3126

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 12 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 Rev: _____
Procedure EP-MA-114-100-F-01 Rev: _____
Procedure EP-AA-112-100-F-01 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 LLOJPM0126 Rev. 5. Revised to new template and to align with latest procedure revision.	9/16/13



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Enter the following MET conditions:
 - Wind Speed 7 mph
 - Wind Direction 255°

V. TASK STANDARD:

1. Site Emergency (FS1) 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.

VI. INITIAL CONDITIONS:

1. D11 and D12 busses have tripped.
2. Reactor level is -230 inches and slowly rising.
3. Reactor Pressure is 220 psig and dropping quickly.
4. Drywell pressure is steady at 20 psig.
5. Drywell Post-LOCA radiation monitors are reading 250 R/Hr and steady.

VII. INITIATING CUE:

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			
	2. Call for Shift Communicator to report to MCR	Shift Communicator called to the MCR			
	3. Identify the operating MODE for the affected Unit(s) prior to the abnormal condition, and obtain appropriate Matrix.	Hot Matrix is obtained			
	4. Review the initiating conditions applicable to the operating MODE.	Use EAL Matrix to classify event	N/A		
*	5. IF the EAL Threshold Values have been met or exceeded, determine appropriate classification	Determine Site Area Emergency initiating conditions have been exceeded (FC-5 and either RC-5 or RC3.1 AND RC3.2)			
*	6. DECLARE the event	Declare Site Area Emergency " FS1 " within 15 minutes of the START TIME DECLARATION TIME: _____			
*	7. PERFORM EP-AA-112-100-F-07 Notification of Augmentation	Directs Shift Communicator to initiate ERO augmentation			
	7a. Specify ERO Type of Notification NOTE: If ERO is augmented prior to EP communicator being directed to make notifications, type of Activation should be specified	ERO Response to site per Scenario 1			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	8. Announce the event classification, possible escalation path and declaration to the Control Room staff.	Event classification, possible escalation path and declaration announced to the Control Room staff.			
EP-AA-112-100-F-01, SHIFT EMERGENCY DIRECTOR CHECKLIST					
	9. ANNOUNCE the event classification to the Control Room Staff, and over the plant Public Address (PA) system based on pre-scripted message guidelines in EP-AA-112	Make announcement per scripted message within 15 minutes of declaration			
*	10. INITIATE required State/Local notification within 15 minutes of the event classification as required per EP-MA-114-100-F-01.	Shift Communicator notified to make notifications within 15 minutes of DECLARATION TIME. Declaration Time: Notification Initiated Time: NOTE: the expectation is notification is initiated <u>within 9</u> (nine) minutes of declaration time. Notification times between 9-15 minutes constitutes a pass with comment. Note: This step is graded after the next section.			
EP-MA-114-100-F-01, STATE/LOCAL EVENT NOTIFICATION FORM					
	11. UTILITY MESSAGE NO.	"1" or equivalent entered			
	12. VERIFIED WITH	N/A	N/A		
*	13. EMERGENCY DIRECTOR APPROVAL	Name entered			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	14. CALL STATUS	Call Status marked <input checked="" type="checkbox"/> THIS IS A DRILL			
	15. AFFECTED STATION	Affected Station marked <input checked="" type="checkbox"/> LIMERICK			
*	16. EMERGENCY CLASSIFICATION	Classification marked <input checked="" type="checkbox"/> SITE AREA EMERGENCY			
*	17. AFFECTED UNIT	Unit(s) marked <input checked="" type="checkbox"/> ONE			
*	18. DECLARED AT	Time Entered Date entered			
	19. THIS REPRESENTS A/AN	This Represents marked <input checked="" type="checkbox"/> INITIAL DECLARATION			
*	20. EMERGENCY ACTION LEVEL (EAL) NO.	"FS1" entered			
*	21. A BRIEF NON-TECHNICAL DESCRIPTION	"Loss or potential loss of any 2 fission product barriers" or other reasonable description. (Critical only that something is entered that identifies the event)			
*	22. NON-ROUTINE RADIOLOGICAL RELEASE STATUS	Release Status marked <input checked="" type="checkbox"/> NO RELEASE			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	23. METEOROLOGY 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: _____(degrees) Wind Speed: _____(MPH) Attachment Values : Wind Direction: _____(degrees) Wind Speed: _____(MPH)			
*	24. UTILITY PAR (a <u>or</u> b)	PAR Recommendation marked <input checked="" type="checkbox"/> NOT Applicable			
	25. CONCLUSION	Conclusion marked <input checked="" type="checkbox"/> THIS IS A DRILL (Critical that at least one of the two status blocks on the page is marked correctly and no contradictory info is marked. If contradictory info is marked, then the incorrect step is UNSAT. If one block is blank and the other is correct, then the blank block is N/A)			
CUE: When form has been completed and Shift Communicator informed to process form, "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: ERP CLASSIFICATION AND REPORTING (TIME CRITICAL)

JPM Number: LOJPM3126

Revision Number: 000

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

K/A Number and Importance: Generic 2.4.41 2.3/4.1 Importance 4.6

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, LGS EMERGENCY ACTION LEVEL (EAL) MATRIX, Rev 27

EP-MA-114-100-F-01, STATE/LOCAL EVENT NOTIFICATION FORM, Rev N

EP-AA-112-100-F-01, SHIFT EMERGENCY DIRECTOR CHECKLIST, Rev T

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:

1. D11 and D12 busses have tripped.
2. Reactor level is -230 inches and slowly rising.
3. Reactor Pressure is 220 psig and dropping quickly.
4. Drywell pressure is steady at 20 psig.
5. Drywell Post-LOCA radiation monitors are reading 250 R/Hr and steady.

INITIATING CUE:

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.



917 METEOROLOGICAL 15 MINUTE AVERAGE POINT DATA

	PID	SENSOR	DESCRIPTION	VALUE	EU
T O W E R 1	T1DTULFA	T1.SP.U	TOWER 1 270 FT WIND SPEED	6.7	MPH
	T1SPIFA	T1.SP.I	TOWER 1 175 FT WIND SPEED	7.0	MPH
	T12SPLFA	T1.SP.L	TOWER 1 30 FT WIND SPEED	7.3	MPH
	T1DRUFA	T1.DR.U	TOWER 1 270 FT WIND DIRECTION	252.3	DEG AZ
	T1DRIFA	T1.DR.I	TOWER 1 175 FT WIND DIRECTION	255	DEG AZ
	T1DRLFA	T1.DR.L	TOWER 1 30 FT WIND DIRECTION	257.2	DEG AZ
	T1DTULFA	T1.DT.U-L	TOWER 1 266 - 26 FT DELTA TEMP	-0.3	DEG F
	T1DTILFA	T1.DT.I-L	TOWER 1 171 - 26 FT DELTA TEMP	0.4	DEG F
	T1ATLFA	T1.AT.L	TOWER 1 26 FT AMBIENT TEMP	85.2	DEG F
	T1DPLFA	T1.DP.L	TOWER 1 26 FT DEW POINT	45.00	DEG F
T O W E R 2	T1RNFA	T1.RN	TOWER 1 PRECIPITATION	0.1	INCHES
	T2DTULFA	T2.SP.U	TOWER 2 304 FT WIND SPEED	6.8	MPH
	T2SPIFA	T2.SP.I	TOWER 2 159 FT WIND SPEED	7.3	MPH
	T22SPLFA	T2.SP.L	TOWER 2 30 FT WIND SPEED	7.8	MPH
	T2DRUFA	T2.DR.U	TOWER 2 304 FT WIND DIRECTION	251.7	DEG AZ
	T2DRIFA	T2.DR.I	TOWER 2 159 FT WIND DIRECTION	250.5	DEG AZ
	T2DRLFA	T2.DR.L	TOWER 2 30 FT WIND DIRECTION	257.6	DEG AZ
	T2DTULFA	T2.DT.U-L	TOWER 2 304 - 26 FT DELTA TEMP	-0.4	DEG F
	T2DTILFA	T2.DT.I-L	TOWER 2 155 - 26 FT DELTA TEMP	0.6	DEG F
	T2ATLFA	T2.AT.L	TOWER 2 26 FT AMBIENT TEMP	85.0	DEG F
	T2DPLFA	T2.DP.L	TOWER 2 26 FT DEW POINT	44.81	DEG F

Facility: <u>Limerick Generating Station</u>		Date of Examination: <u>Jan 12-23, 2015</u>
Exam Level: RO X SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test No.: <u>1</u>

Control Room Systems® (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. Start a Reactor Recirc Pump (202001 A3.02)	A, D, S, P	1
b. Manually Place 3 rd Reactor Feed Pump in Service (259001 A4.02)	A, D, S, P	2
c. Open a Single Isolated MSIV (239001 A4.02)	D, S	3
d. Operate Unit 1 RCIC in Full Flow Test (217000 A2.12)	M, S	4
e. Perform a Group III NSSSS Isolation Reset (223002 A4.03)	D, S	5
f. Supplying Power to a 480 VAC Non-Safeguard Load Center from its Alternate Source (262001 A4.05)	A, D, S	6
g. Place Alternate RECW Pump in Service (400000 A2.01)	A, D, S	8
h. Manually Isolate the Reactor Enclosure (223002 A4.02)	A, N, S, EN	9

In-Plant Systems® (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Maximizing CRD Flow After Shutdown During Emergency Conditions (295031 EA1.10)	D, R, E, L, P	2
j. Install Air Jumper to Provide Long Term ADS Operation from D*1 D/G Air Compressor (218000 A2.03)	D, R, L	8
k. Drywell Spray Interlock Bypass (226001 A2.15)	D, R, E, L	5

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.		
--	--	--

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Facility: Limerick Generating StationDate of Examination: Jan 12-23, 2015Exam Level: RO ☐ SRO-I ☒ SRO-U ☐Operating Test No.: 1Control Room Systems[@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Start a Reactor Recirc Pump (202001 A3.02)	A, D, S, P	1
b. Manually Place 3 rd Reactor Feed Pump in Service (259001 A4.02)	A, D, S, P	2
c. Open a Single Isolated MSIV (239001 A4.02)	D, S	3
d. Operate Unit 1 RCIC in Full Flow Test (217000 A2.12)	M, S	4
e.		
f. Supplying Power to a 480 VAC Non-Safeguard Load Center from its Alternate Source (262001 A4.05)	A, D, S	6
g. Place Alternate RECW Pump in Service (400000 A2.01)	A, D, S	8
h. Manually Isolate the Reactor Enclosure (223002 A4.02)	A, N, S, EN	9

In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. Maximizing CRD Flow After Shutdown During Emergency Conditions (295031 EA1.10)	D, R, E, L, P	2
j. Install Air Jumper to Provide Long Term ADS Operation from D*1 D/G Air Compressor (218000 A2.03)	D, R, L	8
k. Drywell Spray Interlock Bypass (226001 A2.15)	D, R, E, L	5

[@] All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

* Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	$\leq 9 / \leq 8 / \leq 4$
(E)mergency or abnormal in-plant	$\geq 1 / \geq 1 / \geq 1$
(EN)gineered safety feature	- / - / ≥ 1 (control room system)
(L)ow-Power / Shutdown	$\geq 1 / \geq 1 / \geq 1$
(N)ew or (M)odified from bank including 1(A)	$\geq 2 / \geq 2 / \geq 1$
(P)revious 2 exams	$\leq 3 / \leq 3 / \leq 2$ (randomly selected)
(R)CA	$\geq 1 / \geq 1 / \geq 1$
(S)imulator	

Facility: <u>Limerick Generating Station</u>		Date of Examination: <u>Jan 12-23, 2015</u>
Exam Level: RO <input type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input checked="" type="checkbox"/>		Operating Test No.: <u>1</u>
Control Room Systems [®] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)		
System / JPM Title	Type Code*	Safety Function
a. Start a Reactor Recirc Pump (202001 A3.02)	A, D, S, P	1
b.		
c.		
d.		
e.		
f. Supplying Power to a 480 VAC Non-Safeguard Load Center from its Alternate Source (262001 A4.05)	A, D, S	6
h. Manually Isolate the Reactor Enclosure (223002 A4.02)	A, N, EN, S	9
In-Plant Systems [®] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
i. Maximizing CRD Flow After Shutdown During Emergency Conditions (295031 EA1.10)	D, R, E, L, P	2
j. Install Air Jumper to Provide Long Term ADS Operation from D*1 D/G Air Compressor (218000 A2.03)	D, R, L	8
k.		
<p>@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.</p>		
* Type Codes	Criteria for RO / SRO-I / SRO-U	
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power / Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6 / 4-6 / 2-3 $\leq 9 / \leq 8 / \leq 4$ $\geq 1 / \geq 1 / \geq 1$ - / - / ≥ 1 (control room system) $\geq 1 / \geq 1 / \geq 1$ $\geq 2 / \geq 2 / \geq 1$ $\leq 3 / \leq 3 / \leq 2$ (randomly selected) $\geq 1 / \geq 1 / \geq 1$	



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

START A REACTOR RECIRCULATION PUMP (Alternate Path)

JPM Number: LOJPM3092

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 12 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure S43.1.A Rev: _____
Procedure S43.2.A Rev: _____
Procedure ARC MCR 111 D-2 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 NRC JPM Designation A Rev. 1. Revised to new template and to align with latest procedure revision.	10/20/14

IV. SIMULATOR SETUP INSTRUCTIONS:

1. Reset to single loop IC, with reactor power at ~22%, post Recirculation Pump trip with sufficient Control Rod insertion as necessary to allow for Recirculation Pump restart.
2. Ensure '1A' RRP shutdown IAW S43.2.A, and startup of '1A' RRP complete up to and including step 4.3.6 of S43.1.A. (step prior to placing ASD hand-switch to start)
3. Insert the following malfunctions to trigger when '1A' RRP discharge valve is full open:
 - a. VIC105A6, VIM105A06, VIM105A05: 3 minute ramp time to 20 mils
 - b. ARC-MRC-111 D2 (1 minute time delay)

V. TASK STANDARD:

'1A' Reactor Recirculation Pump started and then secured due to high vibration

VI. INITIAL CONDITIONS:

1. '1A' Recirculation Pump tripped due to ASD setpoint programming error.
2. The cause has been found and corrected.
3. Reactor power is currently at ~ 22%, ready for startup of '1A' RRP.
4. S43.1.A, Start Up of Recirculation System, is complete up to and including step 4.3.6.
5. ST-6-043-391-1, "Reactor Recirculation Single Loop Operation Temperature and Flow Check," was last performed 2 minutes ago. It has been reviewed and temperatures are satisfactory by SSV.

VII. INITIATING CUE:

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

Information for Evaluator's Use:

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

Denotes critical steps

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

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

The JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

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



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



*ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
<p style="text-align: center;">ALTERNATE PATH BEGINS HERE:</p> <p>EVALUATORS CUE: (If Candidate attempts to respond to VMS), provide the following: The CRS informs you another operator will respond to the VMS alarms on 107 REACTOR</p> <p>Ensure Annunciator 111 D-2 1A RECIRC PUMP MOTOR HI VIBRATION inserted 1 minute after Discharge Valve is fully open.</p> <p>Ensure Malf VIC105A6 0-20 mils inserted over 3 minutes after Discharge Valve is fully open. Ensure Malf VIM10506 0-20 mils inserted over 3 minutes after Discharge Valve is fully open. Ensure Malf VIM10505 0-20 mils inserted over 3 minutes after Discharge Valve is fully open.</p>				
7. Candidate responds to ARC-111-D2, performing the following:	N/A			
7a. IF vibration monitoring system indicates a problem, THEN reduce speed of '1A' Recirc Pump to clear annunciator.	Candidate notes Recirc Pump at minimum speed and no further speed reduction can be accomplished.			
7b. Attempt to clear alarm by pressing reset button at 10C602 for several seconds.	Candidate presses reset button at 10C602 for several seconds.			
7c. IF annunciator cannot be cleared after reducing flow to the low speed setpoint, AND Vibration monitoring system indicates a problem, THEN secure '1A' Recirc Pump per S43.2.A CUE: (If necessary): If the applicant requests '1A' Recirc Pump vibration levels, inform Candidate that pump vibration level is 12 mils and up slow. One minute later , inform Candidate that pump vibration has risen to 18 mils and continues up slow.	Candidate verifies recirculation pump vibration is not instrument malfunction and is worsening; proceeds to S43.2.A to secure the '1A' Recirc Pump.			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: The following steps are directed by S43.2.A, Shutdown Of A Recirculation Pump					
PRECAUTIONS - Operation with less than two Reactor (Rx) Coolant Recirc Loops requires actions per Technical Specification (TS) 3.4.1.1					
	8. Candidate notifies CRS per S43.2.A, Step 3.1 Operation with less than two Reactor (Rx) Coolant Recirc Loops requires actions per Technical Specification (TS) 3.4.1.1. CUE: CRS acknowledges Technical Specification (TS) 3.4.1.1 requirement.	Candidate notifies SSV that actions per TS 3.4.1.1 are required.			
	9. IF Rx is at power, THEN monitor position on Power/Flow Map in accordance with GP-5 Appendix 2, Planned Rx Maneuvering Without Shutdown AND/OR OT-112 Recirculation Pump Trip, as applicable. CUE: Plant conditions support plant trip without any subsequent action, as plant was stable and ready for pump start at beginning of JPM.	Candidate monitors position on Power/Flow Map.			
	10. ENSURE that recirc pump is at min speed, 466 RPM as indicated on recorder XR-043-101A, "ASD '1A' Speed/Demand Recorder" on panel 10C602.	Candidate ensures that recirc pump is at min speed, 466 RPM as indicated on recorder XR-043-101A on panel 10C602			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: The ASD may be secured via PB-043-102A pushbutton OR by placing the ASD Breaker control switch in "STOP". Either one of these is acceptable for completion of critical task. (step 11)					
*	11. SECURE the '1A' ASD system via push button PB-043-102A on 10C602 panel "1A ASD Normal Stop".	Candidate trips the '1A' ASD via push button PB-043-102A on 10C602 panel "'A' Normal Stop" OR placing "A" ASD Breaker control switch "START A" in "STOP".			
	12. VERIFY that the '1A' ASD 13.2 KV breaker opens.	Candidate verifies that the 1A ASD 13.2 KV breaker opens			
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 Reactor Recirculation Pump (Alternate Path)

JPM Number: LOJPM3092

Revision Number: 000

Task Number and Title: 2020010101 Place Recirculation System in Service
2020030101 Secure a Recirculation Pump

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

Level of Difficulty (1-5) 4

Suggested Testing Environment: Simulator

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

Reference(s): S43.1.A, Start Up of Recirculation System, Rev 69

S43.2.A, Shutdown Of A Recirculation Pump, Rev 33

Annunciator 111 D-2 1A RECIRC PUMP MOTOR HI VIBRATION, Rev 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. '1A' Recirculation Pump tripped due to ASD setpoint programming error.
2. The cause has been found and corrected.
3. Reactor power is currently at ~ 22%, ready for startup of '1A' RRP.
4. S43.1.A, Start Up of Recirculation System, is complete up to and including step _____.
5. ST-6-043-391-1, "Reactor Recirculation Single Loop Operation Temperature and Flow Check," was last performed 2 minutes ago. It has been reviewed and temperatures are satisfactory by SSV.

INITIATING CUE:

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

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

MANUALLY PLACE 3RD REACTOR FEED PUMP IN SERVICE

JPM Number: LOJPM3754

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 12 below.

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

Procedure <u>S06.1.C U/1</u>	Rev: <u>15</u>
Procedure <u>S06.2.C U/1</u>	Rev: <u>11</u>
Procedure <u>S06.0.E U/1</u>	Rev: <u>11</u>
Procedure _____	Rev: _____
Procedure _____	Rev: _____
- _____ 10. Verify cues both verbal and visual are free of conflict.
- _____ 11. Verify performance time is accurate
- _____ 12. If the JPM cannot be performed as written with proper responses, then revise the JPM.
- _____ 13. When JPM is initially validated, sign and date JPM cover page.
Subsequent validations, sign and date below:

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



II. RECORD OF TEMPORARY CHANGES:

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

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

III. REVISION HISTORY:

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

Revision Number	Description of Revision and Affect on Training Content	Date of Revision
000	This JPM replaces LLOJPM0754 Rev. 1. Revised to new template and to align with latest procedure revision.	10/15/13
001	Revised to change standard for last step to allow trip of the '1C' RFP by use of TRIP pushbutton OR EMERGENCY STOP.	1/17/14



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Reset to IC that supports removal of 1 RFPT with Rx Power \approx 60% and build the following scenario:

Unit ID	Unit Name	Current Value	Target Value	Response	Active	Trip
FWNTRPM	Power Transformer / High Voltage		True	00:00:00	00:00:00	00:00:00
FWNTRPM(3)	1E Power Transformer 1145 Probe 1145(3) Fail	0.0000	0.0000	00:00:00	00:00:00	00:00:00
FWNTRPM(2)	1E Power Transformer 1145 Probe 1145(2) Fail	0.0000	0.0000	00:00:00	00:00:00	00:00:00
FWNTRPM(1)	1E Power Transformer 1145 Probe 1145(1) Fail	0.0000	0.0000	00:00:00	00:00:00	00:00:00
FWNTRPM(4)	1E Power Transformer 1145 Probe 1145(4) Fail	0.0000	0.0000	00:00:00	00:00:00	00:00:00

Trigger #	Trigger Text
1	FWNTRPM(3) >=3500
2	ZLOB1(2194)
3	ZLOB1(2203)
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	

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



V. TASK STANDARD:

"1C" RFP tripped due to high vibration condition.

VI. INITIAL CONDITIONS:

1. Unit 1 is at 60% power.
2. "1C" RFPT is in Standby in accordance with S06.1.A U/1.
3. "1C" RFPT has been in Standby at 2300 RPM for 65 minutes.
4. Minimum Recirculation Flow established in Auto Mode per S06.0.A U/1.
5. Lube Oil Cooler Outlet temperature is 113°F.
6. An RO is stationed at the Reactor Recirc Pump Controls at 10C602.
7. All S06.1.C U/1 Prerequisites are complete for placing the 1C Reactor Feed Pump in service.
8. FWLCS is operational.
9. FWLCS sequence was initiated, and initiation failed.
10. An EO is standing by at the RFP

VII. INITIATING CUE:

You are directed by Shift Supervision to MANUALLY place the "1C" Reactor Feed Pump in service from Standby per S06.1.C U/1. Procedure is complete up to and including step 4.1.2.

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. ENSURE the following: Oncoming Feed Pump has been adequately warmed.	The Initial conditions are referenced to verify that the "1C" RFP has been adequately warmed			
	1.a HV-006-108C, "1C" RFP Disch Vlv is closed for the oncoming RFP	HV-006-108C is verified closed.			
	1.b HIC-006-106C, "C" RFP Min Flow Control in AUTO for the oncoming RFP	HIC-006-106C is verified in AUTO			
	2. <u>IF</u> 1A RFP is being placed <u>IN SERVICE</u> , <u>THEN ENSURE</u> HV-006-138A, "1A RFP BPV, is closed.	N/A			
	3. <u>IF</u> third RFP is being placed <u>IN SERVICE</u> <u>THEN PERFORM</u> the following:				
	3.a REFER TO current P-1 edit <u>AND VERIFY</u> FLLLP is <0.92	FLLLP is verified to be <0.92			
	3.b ACCESS screen FWLC_01, Process Overview, at FWLCS Operator Station	Screen FWLC_01 is accessed			
*	3.c SELECT blue bordered box next to "Reset" in FLLLP <0.92 Dialog Box <u>until</u> it is outlined in white <u>AND</u> then release.	FLLLP <0.92 Box is outlined in white			
*	3.d SELECT (D4) Dialog Key (at bottom of screen)	(D4) Dialog Key is selected			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	3e. AND VERIFY box next to "Reset" in FLLLP <0.92 Dialog Box turns solid blue with white circle in center.	FLLLP box solid blue with white circle in center verified			
	4. PLACE FIC-M1-1R601C, "C RFPT Speed Controller" (FEED PUMP A(B, C), in "AUTO" for oncoming RFP	FIC-M1-1R601C "C" RFPT Speed Controller" (FEED PUMP C) in "AUTO			
	5. IF PMS Computer Point K000NSS (K001NSS, K002NSS) has been substituted, THEN RESTORE per RT-6-038-800-1. CUE: "PMS Computer Point K000NSS is NOT substituted"	N/A			
*	6. OPEN HV-006-108A(B,C), "1A(B,C) RFP Disch Vlv" (FEED, DISCH A(B,C)), for oncoming RFP at panel 10C651	HV-006-108C, "1C" RFP Disch Vlv Opened			
	6.a AND VERIFY FWLCS maintains RPV level.	RPV level monitored			
	7. VERIFY the following automatic actions:	N/A			
	7.a Oncoming RFPT speed rises <u>until</u> oncoming RFP discharge pressure is nominal 10 psig below RPV pressure	Oncoming RFPT speed rises, RFP discharge pressure is nominal 10 psig below RPV pressure			
	7.b WHEN oncoming RFP discharge pressure nominal 10 psig below RPV pressure, THEN oncoming RFPT speed slowly rises until oncoming RFP begins feeding RPV	Oncoming RFP begins feeding RPV			
	8. VERIFY oncoming AND running RFP(s) are maintaining RPV level	Oncoming AND running RFP(s) are maintaining RPV level			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
NOTE: Alternate Path begins at next with next step.					
	9. Respond to Annunciators: <ul style="list-style-type: none">• 107 REACTOR I-2, Vibration Alarm Alert• 107 REACTOR I-3, Vibration Alarm Danger• 102 FEED C-2, 1C RFPT HI Vibration	NOTE: 107 ANNs for Vibration Alarm and Danger will only come in once and remain in alarm			
	9a. Monitor RFPT vibration levels on Vibration Monitoring System (VMS) AND DAS terminals. CUE: Report as the EO in the field, "The 1C Reactor Feed Pump is beginning to vibrate severely. The pump and the attached piping are shaking."	Monitor Vibration levels on VMS			
NOTE: Following the EO report, it is expected that the operator will manually trip the '1C' RFP. In this case, skip directly to step 10. The operator may also attempt to perform the one of the following actions to clear the vibration alarms. This will not, however, reduce the vibration and the operator will still be expected to trip the feed pump. If the operator suggests tripping the feed pump to the CRS then respond "You are directed to trip the '1C' Reactor Feed Pump."					
	9b. The Following is directed from ANN 102 FEED C-2, 1C RFPT HI Vibration: IF RFPT vibration on BOTH VMS probes (X&Y) on a bearing are >5 mils , THEN raise/lower RFPT speed to clear HI VIBRATION alarm by performing one of the following: <ul style="list-style-type: none">• Raising/lowering RFPT speed using FIC-MI-1R601C, RFPT Speed Controller in MANUAL OR <ul style="list-style-type: none">• HS-006-149C, "1C RFPT Speed Cont. SW" (MSC) per S06.0.E U/1.	Candidate lowers speed by: Manual (MAN) pushbutton on FIC-M1-1R601C, RFPT Speed Controller in MANUAL OR HS-006-149C, 1C RFPT Speed Cont. SW			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	<p>9c. The Following is directed from ANN 102 FEED C-2, 1C RFPT HI Vibration:</p> <p>IF RFPT vibration on BOTH VMS probes (X&Y) on a bearing are >8 mils, THEN lower Rx power per GP-3 OR GP-5 Appendix 2, as applicable, to within the capability of the remaining RFP(s) AND remove 1C RFPT from service per S06.2.C U/1.</p> <p>CUE: If asked if reactor power needs to need to be lowered, respond as CRS "Rx power is within the capability of the remaining RFPs."</p>	N/A			
*	10. TRIP the Reactor Feed Pump	"1C" RFPT TRIP C pushbutton OR EMERGENCY STOP pushbutton for '1C' RFP is depressed			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

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

JPM Title: Manually Place 3rd RFP in Service

JPM Number: LOJPM3764

Revision Number: 000

Task Number and Title: TPO-2950050101 Place a Standby Reactor Feed Pump in Service
from Standby

K/A Number and Importance: 295001 A4.02 3.9/3.7

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S06.1.C U/1, Rev. 15

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 1 is at 60% power.
2. "1C" RFPT is in Standby in accordance with S06.1.A U/1.
3. "1C" RFPT has been in Standby at 2300 RPM for 65 minutes.
4. Minimum Recirculation Flow established in Auto Mode per S06.0.A U/1.
5. Lube Oil Cooler Outlet temperature is 113°F.
6. An RO is stationed at the Reactor Recirc Pump Controls at 10C602.
7. All S06.1.C U/1 Prerequisites are complete for placing the 1C Reactor Feed Pump in service.
8. FWLCS is operational.
9. FWLCS sequence was initiated, and initiation failed.
10. An EO is standing by at the RFP

INITIATING CUE STATEMENT:

You are directed by Shift Supervision to MANUALLY place the "1C" Reactor Feed Pump in service from Standby per S06.1.C U/1. Procedure is complete up to and including step 4.1.2.



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

OPEN A SINGLE ISOLATED MSIV

JPM NUMBER: LOJPM3086

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 12 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 S41.3.B Rev: _____
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 LLOJPM0086 Rev. 5 Revised to new template and to align with latest procedure revision.	9/26/13

IV. SIMULATOR SETUP INSTRUCTIONS:

1. Reset to IC 17 and lower Reactor power to <75% reactor power.
2. Close the Inboard MSIV, HV-41-1F022A.
3. Allow plant to stabilize, acknowledge alarms and attempt to reset any annunciators which will clear.

V. TASK STANDARD:

HV-41-1F028A and HV-41-1F022A are open, and the Main Steam Drain Valves are closed.

VI. INITIAL CONDITIONS:

1. Reactor Power is <75%.
2. Inboard MSIV HV-41-1F022A inadvertently closed.
3. Repairs complete on HV-41-1F022A.
4. There are no Group I isolation signals present.
5. HP has been notified of this evolution.

VII. INITIATING CUE:

You are directed by the Control Room Supervisor to open the MSIV HV-41-1F022A, per S41.3.B section 4.2.

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 S41.3.B	Current revision of S41.3.B obtained.			
	2. INFORM HP that MSIV will be opened AND another steam flow path is being established CUE: HP notified	HP notified			
	3. ENSURE alignment of the following Main Steam System valves at panel *0C601: <ul style="list-style-type: none"> • HV-C-41-*F020, OPEN • HV-41-*42, OPEN • HV-41-*43, OPEN 	<ul style="list-style-type: none"> • HV-C-41-1F020, OPEN • HV-41-142, OPEN • HV-41-143, OPEN 			
*	4. ALIGN the following Main Steam System valves to drain condensate from upstream AND downstream piping around outboard MSIV at panel *0C601: <ul style="list-style-type: none"> • HV-41-*F016, OPEN • HV-41-*F019, OPEN • HV-41-*F021, OPEN 	<ul style="list-style-type: none"> • HV-41-1F016, OPEN with handswitch placed in STOP after valve is open (per note in procedure) (handswitch placed in STOP is <u>not</u> considered critical) • HV-41-1F019, OPEN • HV-41-1F021, OPEN 			
*	5. OPEN HV-01-*04, "Main Steam Line Startup Drain" (STARTUP DRAIN), at panel *0C653.	HV-01-104 OPEN			
	6. WAIT 5 to 10 minutes before proceeding to the next step to allow condensate to drain CUE: 10 minutes have elapsed	N/A			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	<p>7. IF MSIV was not isolated in accordance with S41.3.C, Isolation of One Main Steam Line at Power THEN PERFORM the following:</p> <p>CUE: MSIV was not isolated per S41.3.C</p>				
	7a. DEPRESS white "Single" pushbutton on LIC-M1-*R600, "Reactor Level Controller" (MASTER, LV), at panel *0C603.	White "Single" pushbutton on LIC-M1-1R600, "Reactor Level Controller" (MASTER, LV), at panel 10C603 depressed.			
	7b. VERIFY white "Single" pushbutton is lit on LIC-M1-*R600, "Reactor Level Controller" (MASTER, LV), at panel *0C603.	White "Single" pushbutton is lit on LIC-M1-1R600, "Reactor Level Controller" (MASTER, LV), at panel 10C603 verified.			
	7c. MARK steps 4.2.7.1, 4.2.7.2, and 4.2.7.3 as N/A.	Steps marked as N/A			
	8. VERIFY MSIV Test Mode is activated at FWLCS Operator Station as follows:	N/A			
	8a. ACCESS screen FWLC_2, Measuring Points 1	N/A			
	8b. VERIFY box next to MSIV Test Mode" in Steam Line Flow Dialog Box is solid blue with white circle in center.	N/A			
	8c. ACCESS the Event List at FWLCS Operator Station AND VERIFY "**XX-FW301.IVTM MSIV Testing Mode" appears with a condition of "Set"	N/A			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	9. OPEN HV-41-*F022A, "Inboard MSIV," by placing handswitch to "AUTO"	HV-41-1F022A in "AUTO" and OPEN			
*	10. ALIGN the following Main Steam System valves, unless otherwise directed by GP-2, Normal Plant Startup, at panel *0C601: <ul style="list-style-type: none">• HV-41-*F016, closed• HV-41-*F019, closed• HV-41-*F021, closed	<ul style="list-style-type: none">• HV-41-1F016, CLOSED (With handswitch left in CLOSE)• HV-41-1F019, CLOSED• HV-41-1F021, CLOSED			
*	11.. CLOSE HV-01-*04, "Main Steam Line Startup Drain" (STARTUP DRAIN), at panel *0C653.	HV-01-104 is closed			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

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

JPM Title: Open a Single Isolated MSIV

JPM Number: LOJPM3086

Revision Number: 000

Task Number and Title: TPO-2390040101 Monitor/Operate & Equalize Pressure Across the MSIVs

K/A Number and Importance: 239001 A4.02 3.2/3.2

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S41.3.B, Reopening a Single Isolated MSIV, Rev 015

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 Power is <75%.
2. Inboard MSIV HV-41-1F022A inadvertently closed.
3. Repairs complete on HV-41-1F022A.
4. There are no Group I isolation signals present.
5. HP has been notified of this evolution.

INITIATING CUE STATEMENT:

You are directed by the Control Room Supervisor to open the MSIV HV-41-1F022A, per S41.3.B section 4.2



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

OPERATE RCIC FULL FLOW TEST CST TO CST

JPM Number: LOJPM3093

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 12 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure S49.1.D Rev: _____
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 is new.	10/20/14

IV. SIMULATOR SETUP INSTRUCTIONS

1. Place Suppression Pool Cooling in service.
2. Copy of S49.1.D, RCIC System Full Flow Functional Test And Turbine Oil Priming with prerequisites for S49.1.D signed off.

V. TASK STANDARD:

Unit 1 RCIC in CST to CST full flow test, using Manual Slow Start per S49.1.D, RCIC System Full Flow Functional Test and Turbine Oil Priming.

VI. INITIAL CONDITIONS:

1. RCIC will be run for a 30 minute Post Maintenance Test (PMT) following maintenance on the Turbine Oil system.
2. All prerequisites for S49.1.D have been completed.
3. RCIC System available for auto initiation per S49.1.A, Normal RCIC Line-up for Automatic Operation.
4. Vibration Monitor System for RCIC is in operation.
5. RHR Suppression Pool Cooling is in service to support RCIC run.
6. The PRO is monitoring Suppression Pool temperature per ST-6-060-390-1, Suppression Pool Temperature Check.
7. HP has been informed of changing radiological conditions due to the RCIC run.

VII. INITIATING CUE:

Shift Supervision directs you to place Unit 1 RCIC in CST to CST full flow test, using Section 4.3, Manual Slow Start using FIC-49-1R600, of S49.1.D, RCIC System Full Flow Functional Test and Turbine Oil Priming.

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. ENSURE HV-55-*F071, "HPCI/RCIC Flush Line to Suppression Pool" (TEST OUTBOARD), closed.	HV-55-1F071HPCI/RCIC Flush Line to Suppression Pool valve closed			
	2. ENSURE HV-55-*F008, "Test Loop Shutoff" (TEST ISOL), closed.	HV-55-1F008, Test Loop Shutoff (TEST ISOL), closed			
	3. ENSURE HV-49-*F022, "RCIC Test Loop Isolation" (TEST ISOL), is closed.	HV-49-1F022, RCIC Test Loop Isolation (TEST ISOL), closed			
EVALUATOR NOTE: System Startup Section 4.2					
	4. PERFORM the following to open HV-55-*F011, "HPCI/RCIC Test Return to CST"(CONDENSATE RETURN).	N/A			
*	5. PLACE HS-55-*11 in OPEN at panel *0C647.	HV-55-1F011, HPCI/RCIC Test Return to CST (CONDENSATE RETURN) OPEN			
	6. WHEN HV-55-*F011 is full open THEN PLACE HS-55-*11 in STOP	When HV-55-1F011 is full open HS-55-111 placed in STOP			
*	7. START *OP219, "Barometric Condenser Vacuum Pump" (VACUUM PUMP).	Barometric Condenser Vacuum Pump running			
*	8. OPEN HV-50-*F046, "RCIC Lube Oil Cooling Water Supply" (COOLING WATER)	HV-50-1F046, "RCIC Lube Oil Cooling Water Supply" (COOLING WATER) open			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	9. MONITOR Suppression Pool temperature per ST-6-060-390-*, Suppression Pool Temperature Check. CUE: The PRO is performing ST-6-060-390-1, per briefing sheet.	N/A			
	10. IF required to limit Suppression Pool Temperature any time during this procedure, THEN PLACE Suppression Pool Cooling Mode of RHR System in service per S51.8.A, Suppression Pool Cooling Operation (Startup and Shutdown) and Level Control. CUE: Suppression Pool Cooling is in service, per briefing sheet	N/A			
	11. INFORM HP of changing radiological conditions due to RCIC system start CUE: HP informed that radiological conditions in the RCIC room may change due to RCIC run, per briefing sheet.	N/A			
EVALUATOR NOTE: Manual Slow Start Section 4.3					
*	12. PLACE FIC-49-*R600, "RCIC Pump Discharge Flow Controller" (FL), in "MANUAL" AND SET to 0%.	FIC-49-1R600 placed in MANUAL			
*	13. OPEN HV-50-*F045, "RCIC Steam Supply" (INLET), at *0C648	HV-50-1F045, "RCIC Steam Supply" (INLET) open			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: If differential pressure across HV-49-*F022 is greater than 1000 psid, the valve may trip on thermals and not open. Quickly throttling HV-49-*F022 after indication of RCIC speed will prevent pressure lock on the valve. (Step 16)					
	14. PERFORM the following to start RCIC turbine:				
*	15. Slowly RAISE the output of FIC-49-*R600 until turbine speed begins to raise as indicated on SI-50-*01-1, "Turbine Speed" (S)	"OPEN" detent pushbutton on FIC-49-1R600 depressed until turbine speed rises on SI-50-101-1.			
*	16. WHEN RCIC turbine speed begins to increase THROTTLE HV-49-*F022, "RCIC Full Flow Test" (TEST ISOL).	HV-49-1F022 RCIC throttled open to establish flow of 200-600 gpm.			
	17. IF HV-49-*F022 will not open, THEN perform the following:	N/A			
	18. LOWER output of FIC-49-*R600 to approximately 2500 rpm.	N/A			
	19. THROTTLE OPEN HV-49-*F022, TEST ISOL.	N/A			
*	20. Slowly RAISE output of FIC-49-*R600 to approximately 600 gpm AND MATCH setpoint to actual flow, THEN PLACE FIC-49-*R600 in "AUTO".	"OPEN" detent pushbutton on FIC-49-1R600 depressed until indicated flow is 600 gpm AND FIC placed in "AUTO".			
*	21. ADJUST HV-49-*F022, "RCIC Full Flow Test" (TEST ISOL), as necessary to maintain pump discharge pressure at least 70.3 psig over reactor pressure AND pump flow rate of 600 gpm	RCIC pump discharge pressure is at least 70.3 psig over reactor pressure and pump flow rate of 600 gpm			
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: Operate RCIC Full Flow Test CST TO CST

JPM Number: LOJPM3093

Revision Number: 000

Task Number and Title: 2170040104 Align RCIC System to support a Full Flow Test per S49.1.D

K/A Number and Importance: 217000 A2.12 3.4/3.3

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

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

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

Testing Method: ☒ Simulate ☐ Perform

Estimated Time to Complete: 20 minutes

Actual Time Used: _____ minutes

EVALUATION SUMMARY:

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

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

Comments: _____

Evaluator's Name: _____ (Print)

Evaluator's Signature: _____ Date: _____

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

INITIAL CONDITIONS:

1. RCIC will be run for a 30 minute Post Maintenance Test (PMT) following maintenance on the Turbine Oil system.
2. All prerequisites for S49.1.D have been completed.
3. RCIC System available for auto initiation per S49.1.A, Normal RCIC Line-up for Automatic Operation.
4. Vibration Monitor System for RCIC is in operation.
5. RHR Suppression Pool Cooling is in service to support RCIC run.
6. The PRO is monitoring Suppression Pool temperature per ST-6-060-390-1, Suppression Pool Temperature Check.
7. HP has been informed of changing radiological conditions due to the RCIC run.

INITIATING CUE:

Shift Supervision directs you to place Unit 1 RCIC in CST to CST full flow test, using Section 4.3, Manual Slow Start using FIC-49-1R600, of S49.1.D, RCIC System Full Flow Functional Test And Turbine Oil Priming.



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

PERFORM A GROUP III NSSSS ISOLATION RESET

JPM NUMBER: LOJPM3037

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



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 12 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: 16
Procedure GP-8.1 U/1 Rev: 16
Procedure GP-8.3 U/1 Rev: 11
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



IV. SIMULATOR SETUP INSTRUCTIONS:

1. Reset simulator to any IC with all RWCU isolation signals clear
2. Insert Malf **MNS158A, MNS158B**, RWCU INBD AND OUTBD ISOLATION SIGNALS
3. Clear Malf **MNS158A, MNS158B**
4. Verify PMS 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 and PMS indicates Group III isolation command = NO.

VI. INITIAL CONDITIONS:

1. Reactor Water Cleanup was 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, 8.1, and 8.3.	Current revision of GP-8, 8.1, and 8.3 obtained.			
	2. Using GP-8, 8.1, and/or 8.3, determine all isolation signals are clear and an R1 reset is required	Determine R1 reset is required (Signal J) and isolation signals are clear			
Examiner Note: The sequence of placing Blue and Green switches to CLOSE is not critical.					
	3. PLACE HV-41-1F084, DRAIN SAMPLE INBOARD to "CLOSE".	HV-41-1F084 switch in CLOSE position.			
	4. PLACE HV-51-1F040, OUTBOARD to "CLOSE"	HV-51-1F040 switch in CLOSE position.			
	5. PLACE HV-51-1F079A, SAMPLE INBOARD to "CLOSE".	HV-51-1F079A switch in CLOSE position.			
	6. PLACE HV-51-1F079B, SAMPLE INBOARD to "CLOSE".	HV-51-1F079B switch in CLOSE position.			
*	7. PLACE SV-57-133, ISOL A to "CLOSE".	SV-57-133 switch in CLOSE position.			
*	8. PLACE SV-57-183, 191 ISOL A to "CLOSE".	SV-57-183, 191 switch in CLOSE position.			
*	9. PLACE SV-57-132, 134, 150, ISOL B to "CLOSE".	SV-57-132, 134, 150 switch in CLOSE position.			
*	10. PLACE SV-57-181, ISOL B to "CLOSE".	SV-57-181 switch in CLOSE position.			
	11. PLACE HV-41-1F085, DRAIN SAMPLE OUTBOARD to "CLOSE".	HV -41-1F085 switch in CLOSE position.			
	12. PLACE HV-51-1F080A, SAMPLE OUTBOARD to "CLOSE".	HV-51-1F080A switch in CLOSE position.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	13. PLACE HV-51-1F080B, SAMPLE OUTBOARD to "CLOSE".	HV-51-1F080B switch in CLOSE position.			
*	14. PLACE HS-57-187, SUPP POOL ISOL to "CLOSE".	HS-57-187 switch in CLOSE position.			
*	15. PLACE HS-57-153 DRYWELL ISOL to "CLOSE".	HS-57-153 switch in CLOSE position.			
	16. PLACE HV-43-1F019, INBOARD to "CLOSE".	HV-43-1F019 switch in CLOSE position.			
	17. PLACE HV-43-1F020, OUTBOARD to "CLOSE".	HV-43-1F020 switch in CLOSE position.			
*	18. PRESS B21-S32A AND B21-S32D.	B21-S32A and B21-S32D pushbuttons depressed.			
	19. Verify Group III isolation reset per PMS.	Group III isolation signal not present on PMS screen "Containment Isol Valve Status".			

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: Perform a Group III NSSSS ISOLATION RESET

JPM Number: LOJPM3037

Revision Number: 000

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

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. 16

GP-8.1 U/1 Rev. 16

GP-8.3 U/1 Rev. 11

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 was 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**

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

JPM Number: LOJPM3525

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 12 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: 35
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

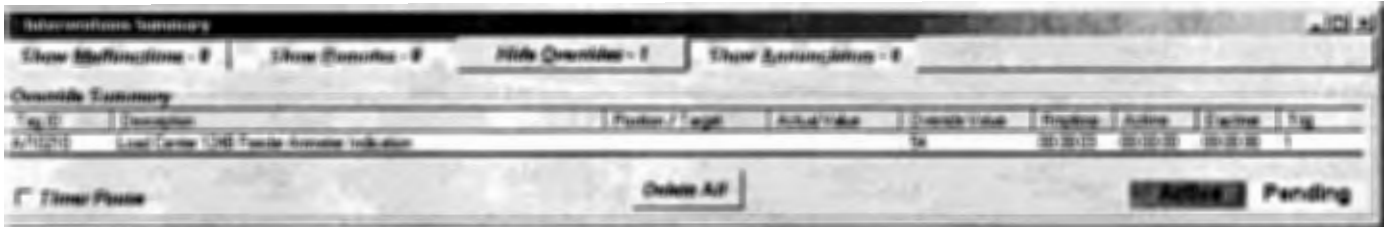
III. REVISION HISTORY:

- 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.
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- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, annotate the changes that were made or incorporated.

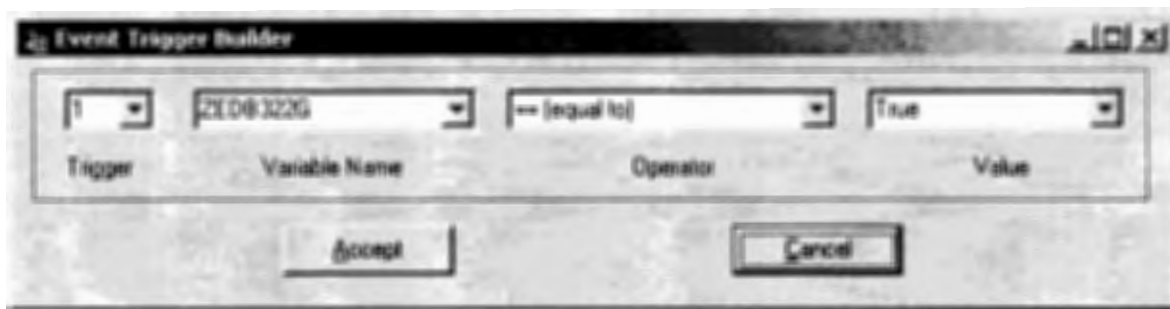
Revision Number	Description of Revision and Affect on Training Content	Date of Revision
000	This JPM replaces LLOJPM0525 Rev. 3. Revised to new template and to align with latest procedure revision. Changed cue so Operators must determine control power source (step 4.7).	9/17/13

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:



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 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
	<p>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. <u>Otherwise</u> CONTINUE to step 4.7.</p> <p>CUE: If requested, 114B Load Center Transformer will be de-energized.</p>	Recognizes 114B Transformer to be de-energized.			
	<p>2. CIRCLE the desired source AND MARK those not aligned N/A</p> <p>CUE: If directed to select NON-PREFERRED source, report: "Control Power for the 114B-124B Load Center has been selected to NON-PREFERRED."</p>	<p>124B is circled.</p> <p>EO is directed to select NON-PREFERRED Source (124B).</p>			
*	<p>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:</p>	Breaker Control Switch 52-10342/CS taken to "CLOSE" AND held in "CLOSE" for 114B 480 Volt Load Center.			
*	<p>3a. PLACE appropriate Bus Breaker control switch to "OPEN".</p>	Bus Breaker 52-10322/CS placed in "OPEN".			
	<p>3b. WHEN Tie breaker indicates closed, AND Main Breaker indicates tripped, THEN RELEASE Tie Breaker control switch.</p>	Bus Breaker 52-10342/CS released.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
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).					
4.	OBSERVE ammeter associated with Load Center Bus which is now feeding intertied buses.	Ammeter for 124B is observed.			
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 _____



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 it's Alternate Source

JPM Number: LOJPM3525

Revision Number: 000

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

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 Rev. 35

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 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

PLACING ALTERNATE RECW PUMP IN SERVICE

JPM Number: LOJPM3129

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 12 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:
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:

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- B. All Pen & Ink Changes are to be tracked in ILT or LOR Program Action Tracking for Next Revision
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Temp Change #	Date of Change	Purpose of Change	ILT/LORT Approval	Action Tracking	Revision Date

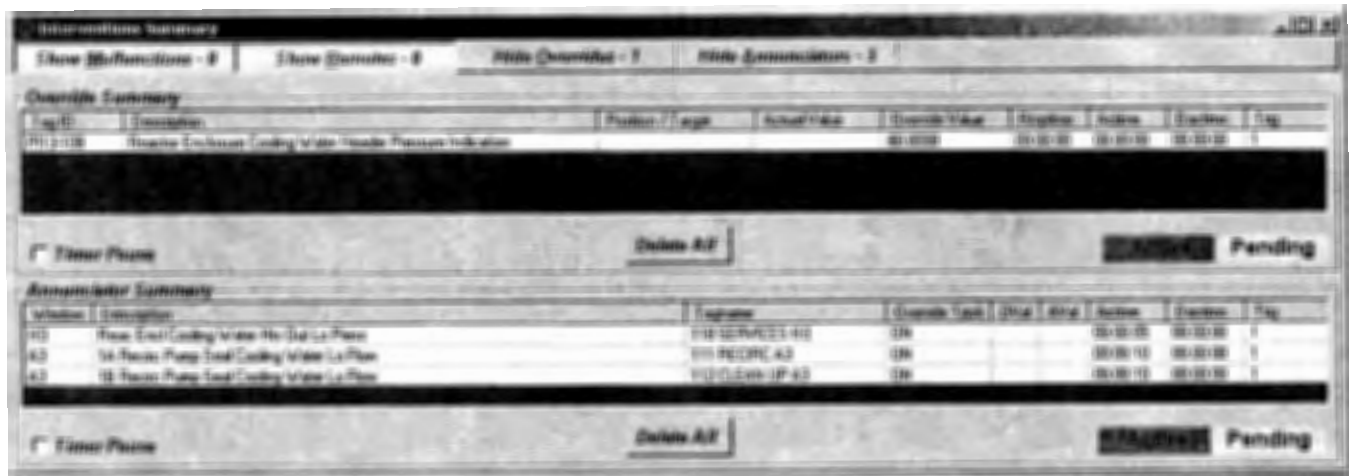
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- C. The description of the Revision should also include previous format reference and number and previous template used (i.e. for conversion to LLOJPM format).
- D. For Revision 000, put reason for writing this JPM and for all subsequent revisions, 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

IV. SIMULATOR SETUP INSTRUCTIONS:

1. This JPM can be run in any Simulator IC.
2. INSERT the following malfunctions on Trigger #1 when '1A' RECW pump is secured.
3. 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:
 - 13-1001B "RECW Pump Suction" and 13-1005B "RECW Pump Discharge" are open
 - Pump has been successfully vented, and 13-1003B "RECW Pump Vent" is closed
 - Pump oil level is in the green band
 - The EO is standing by to support swapping RECW Pumps

VII. INITIATING CUE:

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

Information for Evaluator's Use:

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.

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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. VERIFY all prerequisites satisfied.	N/A Provided in Initiating Cue			
	3. VERIFY procedure being performed on correct unit.	Verify on Unit 1			
	4. VERIFY standby 13-1001B, "RECW Pump Suction Valve," open.	N/A Provided in Initiating Cue			
	5. VERIFY standby 13-1005B, "RECW Pump Discharge Valve," open.	N/A Provided in Initiating Cue			
	6a. OPEN standby 13-1003B, "RECW Pump Vent," until a steady stream is observed.	N/A Provided in Initiating Cue			
	6b. WHEN a steady, solid stream of water flows, THEN CLOSE vent.	N/A Provided in Initiating Cue			
	7. ENSURE standby 1BP210, "Rx Encl Pump" (PUMP) oil level is in green band.	N/A Provided in Initiating Cue			
*	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 <u>no</u> excessive vibration <u>OR</u> 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 <u>not</u> have excessive vibration or noise.			
*	9. STOP desired 1AP210, "RECW Pump" (Pump).	HS-13-103A ("1A" RECW pump Handswitch) is taken to "STOP"			
NOTE TO EVALUATOR AND DRIVER: The next step begins the alternate path.					
	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
	<p>12. VERIFY low RECW Supply pressure using PI-13-108 at 10C655</p> <p>IF EO at RECW pump is contacted:</p> <p>CUE: "1B" RECW Pump discharge pressure has dropped to 80 psig, and the pump is making excessive noise."</p> <p>IF CRS is contacted:</p> <p>CUE: The CRS directs you to take the required action to restore RECW and place any degraded equipment in a safe condition.</p>	RECW low supply pressure (80 psig) verified at PI-13-108 at 10C655			
<p style="text-align: center;">NOTE TO EVALUATOR AND DRIVER:</p> <p>When "1A" RECW pump is restarted, the PI-13-108 "RECW Supply Pressure" indication override is removed.</p>					
*	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. 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.			
<p style="text-align: center;">CUE: You have met the termination criteria for this JPM</p>					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____

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

JPM Title: Placing Alternate RECW Pump in Service

JPM Number: LOJPM3129

Revision Number: 001

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

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

Level of Difficulty (1-5) 3

Suggested Testing Environment: Simulator

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

Reference(s): S13.6.A, Placing Alternate RECW Pump in Service , Rev. 9

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:
 - 13-1001B "RECW Pump Suction" and 13-1005B "RECW Pump Discharge" are open
 - Pump has been successfully vented, and 13-1003B "RECW Pump Vent" is closed
 - Pump oil level is in the green band
 - The EO is standing by to support swapping RECW Pumps

INITIATING CUE STATEMENT:

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



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

MANUALLY ISOLATE THE REACTOR ENCLOSURE

JPM Number: LOJPM3090

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 12 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.B Rev: _____
Procedure S76.9.A Rev: _____
Procedure S76.8.C Rev: _____
Procedure GP-8.2 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.	9/15/14
001	Added rad levels rising in Secondary Containment to initial conditions,	11/10/14

Event Trigger Builder / Viewer

Favorites Triggers

Trigger #	Trigger Text
1	ZPCS1788(1)
2	ZDIB1(4186)
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Operators:

Arithmetic:

- * Multiplication
- / Division
- + Addition
- Subtraction

Relational:

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

Logical:

- && And
- || Or
- ! Not

Other:

- { Open Paren
- } Close Paren

Trigger Now Clear Clear All Accept Exit

V. TASK STANDARD:

Manual Reactor Enclosure isolation completed and '1B' RERS Fan manually started.

VI. INITIAL CONDITIONS:

1. Unit 1 Reactor HVAC has tripped and cannot be restarted.
2. Secondary Containment radiation levels are slowly rising.
3. SGTS and RERS are aligned for automatic operation.

VII. INITIATING CUE:

Shift Supervision has directed you to manually initiate a Unit 1 Reactor Enclosure Isolation from the MCR using the manual isolation pushbuttons per S76.8.B section 4.0.

Information for Evaluator's Use:

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

★

Denotes critical steps

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

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

The JPM Start Time clock starts when the candidate acknowledges the initiating cue.

**VIII. PERFORMANCE CHECKLIST:**

JPM Start Time _____

*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Candidate obtains copy of S76.8.B, Initiation of Reactor Enclosure or Refueling Floor Secondary Containment. CUE: Provide a copy of S76.8.B.	N/A			
	2. Verify prerequisite, RERS and SGTS lined up for automatic initiation. CUE: RERS and SGTS are lined up for automatic initiation.	N/A			
EVALUATORS NOTE: Steps 3, 4, 5 may be performed independently (following performance of step #7) as directed per S78.8.B, Initiation of RE or RF Secondary Containment.					
	3. When RERS or SGTS is placed in operation RECORD start times on Control Room logs. CUE: The 3 rd RO will log run times.	N/A			
	4. Monitor room temperatures on Aux Equip Room Steam Leak Detection per S76.0.C, Tracking of Room Temps while Reactor HVAC is secured. CUE: Steam Leak Detection room temperatures in Aux Equip Room will be monitored by an EO.	Direct Equipment Operator to monitor room temperatures per S76.0.C			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	<p>5. IF during performance of S76.8.B, both sets of SGTS Filter Isolation Valves HV-76-011A(B) and HV-76-012A(B) are found open go to step 4.10.1</p> <p>CUE: If requested, restore to single filter train operation, either train is acceptable.</p>	<p>Operator ENSURES HS-76-013A (B) in OPEN and</p> <ul style="list-style-type: none">• PLACES HS-76-013A(B) from OPEN to AUTO" and• VERIFIES SGTS isolation filter valves HV-76-011A(B) and HV-76-012A(B) are closed			
	<p>6. Shutdown Reactor Enclosure HVAC per S76.2.B, Shutdown of Reactor Enclosure HVAC</p> <p>CUE: If requested, RE HVAC shutdown per Initiating Conditions.</p>	N/A			
*	<p>7. Place HS-76-*78A, HVAC Isolation "A" to ISOLATION and</p> <ul style="list-style-type: none">• DEPRESS and• RELEASE pushbutton at *0C681	HS-76-178A, HVAC Isolation "A" Collars armed placed in ISOLATION, with pushbutton depressed and released at 10C681			
*	<p>8. Place HS-76-*78B, HVAC Isolation "B" to ISOLATION and</p> <ul style="list-style-type: none">• DEPRESS and• RELEASE pushbutton at *0C681	HS-76-178B, HVAC Isolation "B" Collars armed placed in ISOLATION, with pushbutton depressed and released at 10C681			



*ELEMENT	STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATOR NOTE: The '1A' RERS Fan will trip one (1) minute following the initiation of the isolation, and 004 VENT C-2, A Reac Encl Recirc Sys / Filter DP XMTR Trouble, will alarm. The '1B' RERS Fan will fail to auto start. Since this will occur shortly after the isolation, it is unlikely the candidate will have time to complete the next 3 steps (9-11) and may marked N/A.				
9. VERIFY response of Reactor Enclosure Isolation per S76.9.A, AND GP-8, Primary and Secondary Containment Isolation Verification and Reset. CUE: Provide a copy of S76.9.A.	Verification of RE Secondary Containment Isolation per S76.9.A, Verification of Reactor Enclosure or Refueling Floor Secondary Containment Isolation AND GP-8, Primary and Secondary Containment Isolation Verification and Reset performed.			
EVALUATOR NOTE: The following steps 10 and 11 are from S76.9.A.				
10. VERIFY Channel A AND B Reactor Enclosure Secondary Containment Isolation signals are initiated by assuring following annunciators have alarmed: A REAC ENCL ISOLATION SIGNAL INITIATED B REAC ENCL ISOLATION SIGNAL INITIATED	004 VENT E-1 AND F-1 alarms verified			
11. VERIFY Channel A AND B Reactor Enclosure HVAC isolation valves repositioned by assuring following annunciators have not alarmed: A REAC ENCL ISOLATION NOT COMPLETE B REAC ENCL ISOLATION NOT COMPLETE	004 VENT E-2 AND F-2 alarms verified clear			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
EVALUATORS NOTE: Alternate path begins here. Annunciator 004 VENT C-2, A Reac Encl Recirc Sys / Filter P XMTR Trouble will alarm and the "A" RERS Fan will trip. The "B" RERS Fan will fail to auto start on the low flow signal, and be required to be manually started.					
	12. Respond to Annunciator 004 VENT C-2, A Reac Encl Recirc Sys / Filter DP XMTR Trouble and recognize the "A" RERS Fan has tripped.	Operator acknowledges 004 VENT C-2, A Reac Encl Recirc Sys / Filter P XMTR Trouble and recognizes the "A" RERS Fan has tripped and reports these conditions to CRS.			
	13. "1B" RERS Fan fails to Auto start.	Operator identifies failure of the "B" RERS Fan to Auto start following time delay on low flow.			
*	14. Place HS-76-193B, to RUN, and verify isolation dampers OPEN and start of "B" RERS Fan.	Operator places HS-76-193B, to RUN, and verifies isolation dampers OPEN and start of "B" RERS Fan.			
CUE: You have met the termination criteria for this JPM					

JPM Completion Time _____



JPM SUMMARY

Operator's Name: _____.

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

JPM Title: Manually Isolate the Reactor Enclosure

JPM Number: LOJPM3090

Revision Number: 001

Task Number and Title: 2880020401 Manually Initiate Reactor Enclosure or Refueling
Floor Isolation

K/A Number and Importance: 223002 A4.02 3.9/3.8
288000 A3.01 3.8/3.8

Level of Difficulty (1-5) 3.0

Suggested Testing Environment: Simulator

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

Reference(s): S76.8.B, Initiation of RE or RF Secondary Containment Isolation, Rev 31.

S76.9.A, Verification of RE or RF Secondary Containment Isolation, Rev 21.

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. Unit 1 Reactor HVAC has tripped and cannot be restarted.
2. Secondary Containment radiation levels are slowly rising.
3. SGTS and RERS are aligned for automatic operation.

INITIATING CUE:

Shift Supervision has directed you to manually initiate a Unit 1 Reactor Enclosure Isolation from the MCR using the manual isolation pushbuttons per S76.8.B section 4.0.

**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

**MAXIMIZE CRD FLOW AFTER SHUTDOWN DURING EMERGENCY
CONDITIONS**

JPM Number: LOJPM2269

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 12 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-240 U/1 Rev: _____
Procedure T-240 U/2 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 NRC JPM Designation 1 Rev. 2. Revised to new template and to align with latest procedure revision.	10/20/14

IV. TASK STANDARD:

Using T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions, maximize CRD flow, open the CRD pump suction filter bypass, and start the standby CRD pump.

V. INITIAL CONDITIONS:

1. Both Unit 1 and Unit 2 are SHUTDOWN.
2. RPV water level on Unit ____ is -100", down slow.
3. TRIP procedures direct RPV level restoration using T-240.
4. CRD system is in operation.
5. It has been determined that T-240, step 4.8 is not required to be performed at this time.
6. S46.7.A, Control Rod Drive Hydraulic System Operation Following Reactor Scram, has NOT been performed.

VI. INITIATING CUE:

Take actions necessary to restore RPV level per T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions 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 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-240 Unit ____ 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-240 on Unit ____. CUE: Once applicant demonstrates ability to obtain current revision of Unit ____ T-240, provide him/her a copy	Candidate describes/obtains where they get equipment necessary to perform T-240 on Unit _____.			
2. IF step 4.8 to be performed, THEN the following tools / equipment obtained from Unit * T-200 "Hose Storage Cabinet", (506/580-R16/17-283) (ATTACHMENT 3) BL-840 key required: <ul style="list-style-type: none"> • ¾" Drive Socket Wrench • (1) 1 5/8" x ¾" Drive Socket • 14" Pipe wrench • 12" Adjustable Wrench • (1) Flashlight 	Candidate verifies that step 4.8 is not required to be performed at this time by referring to initiating cue.			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	<p>3. IF S46.7.A, Control Rod Drive Hydraulic System Operation Following Reactor Scram, has been performed, THEN ENSURE the following valves are open:</p> <ul style="list-style-type: none">•46-*F060, "CRD Water Pressure Control Station Inlet Valve"•46-*F069, "CRD Stabilizing Valves Return Header Stop Valve"•46-*F034, "CRD Charging Water Header Supply Valve"	Candidate verifies that step S46.7.A has NOT been performed by referring to Initiating Cue and N/A the step.			
*	<p>4. Fully OPEN HV-46-*F003 "Drive Water Pressure Control" (DRIVE WATER PRESSURE), at *0C603 (MCR)</p> <p>CUE: This is Unit * Control Room, HV-46-*F003 is fully open.</p>	Candidate simulates contacting Reactor Operator to fully OPEN HV-46-*F003 "Drive Water Pressure Control" (DRIVE WATER PRESSURE).			
*	<p>5. OPEN FV-C-46-*F002A(B) at *0C603 (MCR) using FC-46-*R600 "Rod Drive Flow Controller" (FL), in "MANUAL" to maximize CRD flow, while maintaining greater than 1200 psig as indicated on PI-46-*08A, "CRD Pump Discharge" (252/270-T6/10-200)</p> <p>CUE: Unit * Control Room has throttled opened FV-C-46-*F002A(B) and the PI-46-*08A(B) is reading 1225 psig.</p>	Candidate simulates contacting reactor operator to OPEN FV-C-46-*F002A, "Flow control" and verifies > 1200 psig is maintained as indicated on PI-46-*08A(B), "CRD Pump Discharge" (252/270-T6/10-200).			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	<p>6. OPEN 46-*F045, "CRD Pump Suction Filter Bypass" (252/270-T6/10-200).</p> <p>CUE: 46-*F045, "CRD Pump Suction Filter Bypass" is OPEN</p>	Candidate simulates opening 46-*F045, "CRD Pump Suction Filter Bypass"			
	<p>7. IF additional CRD flow is required THEN PLACE second CRD pump in service:</p> <p>CUE: Unit * Reactor Operator reports that reactor water level trend is still down slow</p>	Candidate determines that reactor water level trend is still lowering and proceeds to Step 4.5.1			
<p>CAUTION: (Candidate reads and acknowledges caution)</p> <p>IF one of two running pumps trip, THEN immediate operator action is needed to reduce flow OR other running pump may be damaged by exceeding runout flow (200 gpm).</p>					
	<p>8. ENSURE 46-*F014B(A), the on-coming CRD pump Discharge Stop Check (252/270-T6/10-200), (Attachment 1), is CLOSED</p> <p>CUE: 46-*F014B(A) is CLOSED</p>	Candidate simulates closing/checking closed 46-*F014 for non-running pump			
*	<p>9. START *B(A) CRD pp with HS-46-*08B(A) at *0C603 (MCR)</p> <p>CUE: Acknowledge request and tell candidate they hear the previously non-running pump come up to speed</p>	Candidate simulates contacting Control Room to START *B(A) CRD pp			
*	<p>10. Slowly OPEN 46-*F014B(A), "CRD Pump Discharge Stop Check" (252/270-T6/10-200), for the on-coming pump</p> <p>CUE: 46-*F014B(A) is OPEN</p>	Candidate simulates slowly opening 46-*F014B(A) for the on-coming pump			



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
NOTE: If required, FV-C-*F002A(B) may be opened using permanently installed manual jack					
*	<p>11. OPEN FV-C-46-*F002A(B), "Flow Control" at *0C603 (MCR) using FC-46-*R600 "Rod Drive Flow Controller" (FL), to maximize CRD flow, while maintaining > 1200 psig as indicated on PI-46-*08A(B), "CRD Pump Discharge" (252/270-T6/10-200).</p> <p>CUE: FV-C-46-*F002A(B), "Flow Control" is throttled open at *0C603. Unit * Reactor Operator reports RPV water level is rising slowly</p>	Candidate simulates contacting Control Room to OPEN FV-C-46-*F002A(B), to maximize CRD flow, while verifying > 1200 psig is maintained as indicated on PI-46-*08A(B), "CRD Pump Discharge" (252/270-T6/10-200)			
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: Maximizing CRD Flow After Shutdown During Emergency Conditions

JPM Number: LOJPM2269

Revision Number: 000

Task Number and Title: 2000710501, T-240 Maximizing CRD Flow After Shutdown During
Emergency Conditions (RO)

2000480504, Maximize CRD Flow (EO)

K/A Number and Importance: 295031 EA1.10 3.6/3.7

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-240 U/1, Maximizing CRD Flow After Shutdown During Emergency Conditions
Rev. 18.

T-240 U/2, Maximizing CRD Flow After Shutdown During Emergency Conditions
Rev. 18.

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. Both Unit 1 and Unit 2 are SHUTDOWN.
2. RPV water level on Unit ____ is -100", down slow.
3. TRIP procedures direct RPV level restoration using T-240.
4. CRD system is in operation.
5. It has been determined that T-240, step 4.8 is not required to be performed at this time.
6. S46.7.A, Control Rod Drive Hydraulic System Operation Following Reactor Scram, has NOT been performed.

INITIATING CUE:

Take actions necessary to restore RPV level per T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions on Unit ____.



**LIMERICK GENERATING STATION
JOB PERFORMANCE MEASURE**

**INSTALL AIR JUMPER TO PROVIDE LONG TERM ADS
OPERATION FROM D*1 D/G AIR COMPRESSOR**

JPM Number: LOJPM2231

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 12 below.

- _____ 1. Task description and number, JPM description and number are identified.
- _____ 2. Knowledge and Abilities (K/A) references are included.
- _____ 3. Performance location specified. (in-plant, control room, simulator, or other)
- _____ 4. Initial setup conditions are identified.
- _____ 5. Initiating cues (and terminating cues if required) are properly identified.
- _____ 6. Task standards identified and verified by SME review.
- _____ 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).
- _____ 8. If an alternate path is used, the task standard contains criteria for successful completion.
- _____ 9. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure SE-1-1 Rev: _____
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 LLOJPM0231 Rev. 0. Revised to new template and to align with latest procedure revision.	10/11/13
000	Changed to reflect common Task with EOs	10/01/14

IV. TASK STANDARD:

Perform SE-1-1, step 2.1.2 to connect an air jumper from 20-*172A, “*A Air Supply to Long Term N2 Instr. Gas Outer Isol Vlv” to 59-*137, “*A Long Term N2 Supply to ADS Outside Connection Vlv”

V. INITIAL CONDITIONS:

1. The MCR has been evacuated due to a fire in the Cable Spreading Room.
2. Unit ____ has been shutdown with control established from the RSP.
3. Long Term operation of A/C/N MSRVs is required due to a loss of Primary Containment Instrument Gas.
4. ADS N₂ Gas bottle Supply to PCIG supplied per SE-1-1 has been exhausted.

VI. INITIATING CUE:

You are directed to provide long term compressed gas to the MSRVs utilizing the D__1 Starting Air Compressor per SE-1-1, step 2.1.2.

Information for Evaluator’s Use:

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

★

Denotes critical steps

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

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

The JPM Start Time clock starts when the candidate acknowledges the initiating cue.

VII. PERFORMANCE CHECKLIST:

JPM Start Time _____

ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	1. Obtain current revision of SE-1-1 CUE: Provide a copy of SE-1-1	N/A			
<p>EVALUATORS NOTE: Air Jumpers and door stops for Step 2.1.2 are located in locked safe shutdown cabinets in the DG access corridors.</p> <p>Attachment 2, Diesel Air Jumper, is drawing for air jumper installation.</p> <p>Candidate opens safe shutdown cabinet in D/G access corridor and obtains air jumper and door stops.</p>					
	2. IF diesel generator starting air compressor pressure is required to operate MSRV valves, THEN perform the following:	N/A			
	3. OPEN door #164/168 from Diesel room 311A/315A to Diesel Corridor 313/317, and SECURE door open. CUE: The door is SECURED OPEN	Candidate simulates installing door stops for open door 164/168			
*	4. CONNECT air jumper from 20-*172A "A AIR SUP TO LONG TERM N2 INSTR GAS OUTER ISOL VLV" to 59-*137, "A' Long Term N2 Supply To ADS Outside Connection VLV" (DG corridor)	Candidate simulates installing air jumper from valve 20-*172A to piping downstream of 59-*137 valve.			



ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
	5. OPEN the following valves:	N/A			
*	5a. Open 20-*171A CUE: Valve turns 90° counter - clockwise until it come to a complete stop.	Candidate simulates opening valve 20-*171A			
*	5b. Open 59-*137 CUE: Valve turns 90° counter - clockwise until it come to a complete stop.	Candidate simulates opening valve 59-*137			
*	5c. Open 59-*138 CUE: Valve turns 90° counter - clockwise until it come to a complete stop.	Candidate simulates opening valve 59-*138			
EVALUATORS NOTE: Valve 20-*172A must be throttled slowly to maintain starting air pressure greater than Tech. Spec. minimum of 225 psig and to prevent icing of pressure control valve					
*	6. Slowly THROTTLE OPEN valve 20-*172A to maintain starting air pressure above 225 psi at PI-020-*28A-1 "START AIR RESERVOIR PRESS" CUE: If asked say that pressure is 235 psig and steady	Candidate simulates slowly opening valve 20-*172A			
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: Install Air Jumper to provide long term ADS operation from D___1 D/G Air Compressor

JPM Number: LOJPM2231

Revision Number: 000

Task Number and Title: 2000410501, SE-1 Control Room Abandonment (RO)
2000030404, Connect Air Hoses for Long Term Supply to SRVs (EO)

K/A Number and Importance: 218000 A2.03 3.4/3.6

Level of Difficulty (1-5) _3_

Suggested Testing Environment: In-Plant

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

Reference(s): SE-1-1, Rev. 14, Protected Depressurization Control (Long Term Operation)

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 MCR has been evacuated due to a fire in the Cable Spreading Room.
2. Unit ____ has been shutdown with control established from the RSP.
3. Long Term operation of A/C/N MSRVS is required due to a loss of Primary Containment Instrument Gas.
4. ADS N₂ Gas bottle Supply to PCIG supplied per SE-1-1 has been exhausted.

INITIATING CUE:

You are directed to provide long term compressed gas to the MSRVS utilizing the D__1 Starting Air Compressor per SE-1-1, step 2.1.2.



LIMERICK GENERATING STATION JOB PERFORMANCE MEASURE

DRYWELL SPRAY INTERLOCK BYPASS

JPM Number: LOJPM2213

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 12 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-225 Unit 1 Rev: _____
Procedure T-225 Unit 2 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 LLOJPM0213 Rev. 9. Revised to new template and to align with latest procedure revision.	9/17/14



IV. TASK STANDARD:

Drywell spray interlock for Unit ____, A Loop RHR is bypassed using T-225

V. INITIAL CONDITIONS:

1. Unit ____ has scrammed due to a leak in the Drywell.
2. Conditions requiring Drywell Spray have been met.
3. T-225 has been completed up to and including step 4.5.9.3, however the LOOP A INJECTION white indicating light is NOT lit.

VI. INITIATING CUE:

Shift Supervision directs you to initiate LOCA signal for A Loop by performing step 4.5.9.4 of T-225 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 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-225 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-225. CUE: When trainee demonstrates ability to obtain current revision of procedure, give him/her copy of T-225.	Current revision of proper units T-225 obtained.		
*	2. Obtain the following equipment from Unit * T-200 cabinet in OSC. • Slotted screwdriver • screwholding screwdriver • 4 electrical jumpers • flashlight • LV-*00 Key CUE: You have obtained the equipment	Operator obtains: • slotted screwdriver • screwholding screwdriver • electrical jumpers • Flashlight • LV-*00 Key		



*ELEMENT		STANDARD	SAT	UNSAT	COMMENT NUMBER
*	3. Jumper from FFF5-7 to FFF5-6 at *0C617, Bay A (Aux Equip Room) CUE: Jumper installed.	Jumper installed from FFF5-7 to FFF5-6 in *0C617, Bay A.			
*	4. Jumper from FFF9-2 to FFF9-1 at *0C617, Bay B (Aux Equip Room) CUE: Jumper installed.	Jumper installed from FFF9-2 to FFF9-1 in *0C617, Bay B.			
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: DRYWELL SPRAY INTERLOCK BYPASS

JPM Number: LOJPM2213

Revision Number: 000

Task Number and Title: 2000600501 (T-225) Bypass Containment Spray Interlock (RO)
2000370504 Support Operation of Suppression Pool and Drywell
Spray (EO)

K/A Number and Importance: 226001 A2.15 3.6/3.8

Level of Difficulty (1-5) 2.5

Suggested Testing Environment: In-Plant

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

Reference(s): T-225, Startup And Shutdown Of Suppression Pool And Drywell Spray Operation,
Unit 1 Rev 22

T-225, Startup And Shutdown Of Suppression Pool And Drywell Spray Operation,
Unit 2 Rev 22

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 _____ has scrammed due to a leak in the Drywell.
2. Conditions requiring Drywell Spray have been met.
3. T-225 has been completed up to and including step 4.5.9.3, however the LOOP A INJECTION white indicating light is NOT lit.

INITIATING CUE:

Shift Supervision directs you to initiate LOCA signal for A Loop by performing step 4.5.9.4 of T-225 on Unit _____.



CODE NO:	SEG-4155E	REV NO:	000
AUTHOR:	J. N. KOELLE	APPROXIMATE RUN TIME:	70 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: _____ Date: _____
Training Instructor - Signature

Reviewed By: _____ Date: _____
Program (ILT or LOR) Lead - Signature

Reviewed By: _____ Date: _____
EP (as appropriate) - Signature

Reviewed By: _____ Date: _____
RE (as appropriate) - Signature

Approval: _____ Date: _____
OPS Manager - Signature

Approved For Use: _____ Date: _____
Training Manager - Signature



Appendix D

Scenario Outline

Form ES-D-1

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

Examiners: _____ Operators: _____

Initial Conditions:

Unit 1 Reactor Power is 90% due to '1A' ASD cell failure
 Unit 2 Reactor Power is 100%

Turnover:

- '1A' ASD cell failure troubleshooting in progress
- Perform RT-6-019-310-1, REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY

Event No.	Malfunction Number	Event Type*	Event Description
1	N/A	N-PRO	Perform RT-6-019-310-1 Reactor Feedpump Turbine Lube Oil Pump Operability
2	MFW245A	R-RO C-PRO	"1B" RFP Trip
3	MRD016I	C-RO TS-SRO	Control Rod Drifts Out
4	MNS161B	I-PRO TS-SRO	Inadvertent NSSS ISOLATION
5	MRR441 MRR440A MHP447B MCN001 MCN002 MRC466	M-ALL	LOCA, HPCI Aux Oil Pump Failure, Loss of Condensate, RCIC overspeed trip
6	MRD016G	C-RO	Failure of 3 (three) Control Rods to scram
7	MDG420A MED011 MED015A	C-PRO	D11 Bus fails to auto swap on Dead Bus Transfer, and failure of D11 EDG to auto start
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			



- I. **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.

II. **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-100, Reactor Low 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 GP-8.5, Isolation Bypass Of Crucial Systems
 - Direct and perform actions per GP-5, Appendix 2, Planned Rx Maneuvering Without Shutdown
 - Direct and perform actions per GP-5, Appendix 3, Unintentional Drop in Power
 - Direct and perform actions per ON-104, Control Rod Problems
 - Direct and perform actions per ON-113, Loss of RECW
 - Direct and perform actions per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation
 - Direct and perform actions per T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions
 - Direct and perform actions per T-101, RPV Control
 - Direct and perform actions per T-111, Level Restoration/Steam Cooling
 - Direct and perform actions per T-102, Primary Containment Control
 - Direct and perform actions per T-117, Level/Power Control

**III. 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

IV. REVISION HISTORY:

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

Revision Number	Description of Revision and Affect on Training Content	Date of Revision
Rev000	This is a modified version of scenario 2 from the ILT09-1 NRC Exam.	10/20/14

**V. SCENARIO EVENT AND EVALUATION SUMMARY:**

Event One: The crew will perform RT-6-019-310-1 Reactor Feedpump Turbine Lube Oil Pump Operability.

Evaluation: Evaluate the crew's ability to set up and perform RT-6-019-310-1 Reactor Feedpump Turbine Lube Oil Pump Operability, test.

Event Two: Shortly after the crew begins performance of RT-6-019-310-1, the "1B" RFP will trip.

Evaluation: Evaluate the crew's ability to recognize the RFP trip, execute OT-100 for lowering Rx level, OT-104 for the unexpected power change, and reduce Rx power by performing steps of GP-5 Appendix 3 and RMSI. The crew is expected to lower power such that total FW flow is not in excess of 13 Mlbm/hr with two RFPs.

Event Three: When the plant has been stabilized following the power reduction for the RFP trip, a Control Rod will drift out.

Evaluation: Evaluate the crew's ability to recognize the drifting control rod. The crew is expected to execute ON-104, isolate the control rod, and take actions required by Tech Spec 3.1.3.1.

Event Four: Following Tech Spec actions taken for control rod, an inadvertent NSSSS Group VIIIA isolation will occur.

Evaluation: Evaluate the crew's ability to recognize equipment affected and bypass and restore DWCW, RECW, and PCIG.

Event Five: Once actions are taken for the Group VIIIA NSSSS isolation, a coolant leak will develop in the Drywell that eventually develops into a Recirc Loop rupture with increased severity to a 1% DBA LOCA. Complicating the event will be a failure of the HPCI Aux oil pump, RCIC overspeed trip, and a loss of Condensate.

Evaluation: To determine the crew's ability to take appropriate actions and use procedures to mitigate the effects of the leak in the DW. The crew is expected to perform OT-101, T-101, T-102, and T-111.



SCENARIO EVENT AND EVALUATION SUMMARY: cont'd

Event Six: When the scram is attempted three control rods will fail to scram.

Evaluation: The crew is expected to enter T-117 and insert the Control Rods manually.

Event Seven: When the plant receives a LOCA signal the 101-D11 breaker will trip with the 201-D11 breaker failing to auto close, also the D11 EDG fails to auto start.

Evaluation: The crew is expected to manually start D11 EDG and manually close the output breaker or manually close the 201-D11 Breaker

Termination Point: The scenario may be terminated when the crew has restored level to the normal band, 5 ADS/SRVs are open and Drywell Spray is in service.

**VI. REFERENCES**

- A. Training Procedures
 - 1. TQ-AA-150, Operator Training Programs
 - 2. TQ-AA-155, Conduct of Simulator Training and Evaluation
 - 3. TQ-AA-155-F04, Simulator Evaluation Form – Individual
 - 4. TQ-AA-155-F05, Simulator Evaluation Form – Crew
 - 5. TQ-JA-155-03, Simulator Evaluation Job Aid
 - 6. TQ-JA-155-05, Evaluated Scenario Grading Flowchart
 - 7. TQ-JA-155-08, Simulator Evaluation Individual Competency Standards
 - 8. TQ-JA-155-09, Simulator Evaluation Crew Competency Standards
 - 9. TQ-JA-155-11, Simulator Self Evaluation Form
- B. Annunciator Response Cards (ARC)
 - 1. 108 REACTOR F-4, Rod Drift
 - 2. 111 RECIRC , A3, 1A Recirc Pump Seal Cooling Water LO Flow
 - 3. 111 RECIRC , A5, 1A Recirc Pump Motor Winding Cooling Water LO Flow
 - 4. 112 CLEANUP, A3, 1B Recirc Pump Seal Cooling Water LO Flow
 - 5. 112 CLEANUP, A5, 1B Recirc Pump Motor Winding Cooling Water LO Flow
 - 6. 114 ISOL G2, 1A Drywell Inst Gas Trouble
 - 7. 114 ISOL G3, 1B Drywell Inst Gas Trouble
 - 8. 102 FEED B1, “1B” RFPT TRIP
 - 9. 125 GEN D-2, 1 GEN AC & DC Regulators Unbalanced
 - 10. 103 B3, Drywell Floor Drain Hi Level
 - 11. 115 B5, Drywell Cooler Drain Flow High
 - 12. 004 B1, Drywell Chiller Trip / Failed to Start
 - 13. 004 H1, Turb Encl HVAC Panel 10C126 Trouble
 - 14. 104 D5, Condensate Pump Disch Sample Station Trouble
- C. System Procedures (S)
 - 1. S43.0.D, Response to Recirc Pump Motor High Temperature
 - 2. S87.1.A, Startup of the Drywell Chiller Water System
- D. General Procedures (GP)
 - 1. GP-5, Appendix 2, Planned Rx Maneuvering Without Shutdown
 - 2. GP-5, Appendix 3, Unintentional Drop in Power
- E. Off Normal Procedures (ON)
 - 1. ON-104, Control Rod Problems
 - 2. ON-113, Loss of RECW
- F. Operating Transient Procedures (OT)
 - 1. OT-100, Reactor Low Level
 - 2. OT-101, High Drywell Pressure
 - 3. OT-104, Unexpected/Unexplained Positive or Negative Reactivity Addition
- G. Event Procedures (E)



- H. Special Event Procedures (SE)
 - 1. SE-10, LOCA
- I. Surveillance Test and Routine Test Procedures (ST and RT)
 - 1. RT-6-019-310-1, Reactor Feedpump Turbine Lube Oil Pump Operability
- J. Technical Specifications and TRM (TS)
 - 1. 3.1.3.1
 - 2. 3.1.3.6
 - 3. 3.6.3
- K. Transient Response Implementation Procedures (T-100 series)/SAMPs
 - 1. T-101, RPV Control
 - 2. T-102, Primary Containment Control
 - 3. T-111, Level Restoration/Steam Cooling
 - 4. T-112, Emergency Blowdown
 - 5. T-117, Level/Power Control
- L. TRIP 200 Series Procedures
 - 1. T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation
 - 2. T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions
- M. EP-AA-1008, Limerick, Radiological Emergency Plan Annex for Limerick Generating Station
- N. Administrative Procedures
 - 1. OP-AA Procedures
 - a. OP-AA-1, Conduct of Operations
 - b. OP-AA-20, Conduct of Operations Process Description
 - c. OP-AA-101-111-1003, Operations Department Standards and Expectations
 - d. OP-AA-101-113, Operations Fundamentals
 - e. OP-AA-101-113-1006, 4.0 Crew Critique Guidelines
 - f. OP-AA-106-101-1006, Operational Decision Making Process
 - 2. OP-LG Procedures
 - a. OP-LG-101-111-1000, Licensed Operator Duties
 - b. OP-LG-102-106, Operator Response Time Program at Limerick
 - c. OP-LG-103-102-1000, Human Performance Continuing Good Practices
 - d. OP-LG-103-102-1002, Strategies for Successful Transient Mitigation
 - e. OP-LG-108-101-1001, Simple Quick Acts / Transient Acts
- O. Current Shift Night Orders Forced Outage Plan
- P. INPO Significant Operating Experience Reports (SOER), Significant Event Reports (SER) and INPO Event Reports (IER)
 - 1. IER-L1 11-3, Weaknesses in Operator Fundamentals
 - 2. SER 3-05, Weakness in Operator Fundamentals
 - 3. SOER 10-02, Engaged Thinking Organizations

**VII. PREBRIEF INSTRUCTIONS**

- Unit 1 is in OPGON 1 at 90% power
- Unit 2 is in OPGON 1 at 100% power

Specific Plant Conditions are as Follows:

- A cell failure on the '1A' ASD occurred the previous shift. Cell failure troubleshooting is in progress. The '1A' Speed Hold has been reset.

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

- None

Restrictions on Plant Operations:

- Maintain 90% power until '1A' ASD troubleshooting is complete

Planned Evolutions:

- Perform RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY

Documents Provided:

- RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY

**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
	Complete Limerick Simulator Pre-Evaluation Checklist


B. SIMULATOR SETUP

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to IC-125 OR Reset the simulator to IC developed for scenario AND Load scenario file SEG-4155E 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: <ul style="list-style-type: none">• Momentarily place simulator in RUN• Acknowledge and clear all spurious alarms• Reduce reactor power to 90% using Recirc• Place the simulator back into FREEZE• Provide copy of RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY



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	AUTO/ZFWS912B(1)	'1B' RFP trip
	2	Manual	Control Rod 26-43 Drifts out
	3	Manual	Inadvertent NSSSS Group 8 isolation
	4	Manual	Small Coolant leak in Drywell
	5	AUTO/ZRPS1SDN	LOCA, Loss of Condensate
	6	AUTO/RRLFX43B <=-55	RCIC system overspeed trip
	7	AUTO/RRLFX438 <=-129	D11 Bus transfer failure and D11 EDG fails to auto start

Event Trigger Builder / Viewer

Favorites Triggers

Trigger #	Trigger Text
1	ZFWS912B(1)
2	
3	
4	
5	ZRPS1SDN
6	RRLFX43B<=-55
7	RRLFX43B<=-129
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Operators:

Arithmetic:

- * Multiplication
- / Division
- + Addition
- Subtraction

Relational:

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

Logical:

- && And
- || Or
- ! Not

Other:

- [Open Paren
-] Close Paren

Trigger Now Clear Clear All Accept Exit

**E. EQUIPMENT REPORTS AND 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. QUANTITATIVE ATTRIBUTES**

QUANTITATIVE ATTRIBUTES			
ATTRIBUTE	MINIMUM NUMBER	ACTUAL NUMBER	DESCRIPTION (If Applicable)
TOTAL MALFUNCTIONS	5	5	See Assessment Items
MALFUNCTIONS AFTER EOP	1	3	See Assessment Items
ABNORMAL EVENTS	2	4	ON-104, OT-101, OT-100, ON-113
MAJOR TRANSIENTS	1	1	LOCA
EOPs USED BEYOND PRIMARY SCRAM RESPONSE	1	1	T-102
EOP CONTINGENCY PROCEDURES USED	1	3	T-112, T-111, T-117
CREW CRITICAL TASKS	2	4	T-117.1 or T-111.3, T-101.6, T-111.3 or T-102.2, T-102.1
TECHNICAL SPECIFICATIONS EXERCISED	1	3	3.1.3.1, 3.6.3, 3.3.2
EOP RUN TIME	40-70%	40%	
SCENARIO RUN TIME	45 Minutes	70 Min.	

Enter the level of difficulty (LOD) of each scenario using a
1 – 5 (easy – difficult) rating scale (LOD > 1 and < 5 are acceptable)

3.0

**X. CREW CRITICAL TASKS**

- A. Critical Tasks are based on the current Crew Critical Task List revision, NUREG 1123 Rev 2 Supplement 1 and TQ-AA-150 requirements.

1. 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

Standard: Insert all insertable control rods to or beyond 02 with the RMCS, bypassing the RWM when it prevents rod movement.

SAT/UNSAT

2. T-117.1 Inhibit automatic ADS.

K/A	295037	EA2.06	4.0/4.1
K/A	218000	A4.04	4.1/4.1

Standard: Prevent automatic initiation of ADS

SAT/UNSAT

OR

T-111.3 Inhibit automatic ADS.

K/A	218000	A2.06	4.2/4.3
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Standard: Prevent automatic initiation of ADS prior to exceeding -129" reactor level and ADS logic being completed.

SAT/UNSAT

**CREW CRITICAL TASKS cont'd****3. T-111.3 Maintain RPV level greater than the TAF.**

K/A	295031	EA1.01	4.4/4.5
K/A	295031	EA1.02	4.5/4.5
K/A	295031	EA1.05	4.3/4.3
K/A	295031	EA1.11	4.1/4.1
K/A	295031	EA1.12	3.9/4.1

Standard: Operate injection systems to maintain reactor level greater than the TAF or enter T-112, perform an emergency blowdown, and when pressure permits, inject with low pressure ECCS to restore RPV level above TAF.

SAT / UNSAT / N/A**OR****T-102.2 Perform emergency blowdown per T-112.**

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

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

SAT / UNSAT / N/A**4. T-102.1 Spray the Drywell per T-225.**

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

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

SAT/UNSAT

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

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

**EVENT 1 RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP
OPERABILITY****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

Ensure Trigger # 1 automatically actuates to trip the '1B' RFP when hand switch for 1B(2)P124 is placed in RUN.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 1 RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY		
	Obtain copy of RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY	PRO
RT-6-019-310-1 section 4.3-4.5 EMERGENCY LUBE OIL PUMP 1AP125 TEST (Test steps are repeated for 1BP125 and 1CP125) CUE: To conserve time, evaluator may cue candidate 5 minutes have passed between pump runs		
	START 1AP125, "1A RFPT Emergency Lube Oil Pump" by pressing A, OIL PUMP TEST, (E), PUSH TO TEST pushbutton at panel 10C668.	PRO
	VERIFY pump starts.	PRO
	ALLOW pump to run for five minutes.	PRO
	PLACE 1AP125 (HS-19-110A), PUMP TURBINE LUBE OIL, EMER LO (PUMP A), in "STOP" at panel 10C651.	PRO
	VERIFY pump has stopped AND does not restart.	PRO
RT-6-019-310-1 section 4.6-4.8, RFPT MAIN LUBE OIL PUMP 1A1P124 TEST (Test steps are repeated for 1B1P124 and 1C1P124) CUE: To conserve time, evaluator may cue candidate 5 minutes have passed between pump runs EVALUATOTS NOTE: The '1B' RFP will trip when hand switch for 1B(2)P124 is placed in RUN		
	START standby 1A1P124 OR 1A2P124, "1A RFPT Main Lube Oil Pump" by depressing A, OIL PUMP TEST, (M1/M2), PUSH TO TEST pushbutton at panel 10C668.	PRO
	VERIFY pump starts	PRO
	PLACE hand switch for 1A(2)P124 in "RUN" for the running pump.	PRO
	ALLOW pump to run for five minutes.	PRO
	PLACE pump that was in service prior to test, 1A1P124 (HS-19-111A), (PUMP A1) OR 1A2P124, (HS-19-112A), (PUMP A2), PUMP TURBINE LUBE OIL, NORMAL LO, in "STOP" at panel 10C651.	PRO
	VERIFY pump has stopped AND does not restart.	PRO

**EVENT 2 "1B" RFP Trip****Simulator Operator Instructions:**

Ensure Trigger # 1 automatically actuates to trip the '1B' RFP when hand switch for 1B(2)P124 is placed in RUN.

Respond to request for assistance as appropriate.

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

At time 5 min If action requested, from FSSV or EO to re-align HWC (HWC currently aligned to the '1A' and '1B' RFP).

Insert override **RFW003**, and

report: HWC is aligned to "1C" RFP to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 2 "1B" RFP Trip		
	Reference appropriate ARC: <ul style="list-style-type: none"> 102 FEED B1, "1B" RFPT TRIP 125 GEN D-2, 1 GEN AC & DC Regulators Unbalanced 	PRO/RO
	The RO reports Q/L/P with parameter, value, units, trend and rate to the CRS Power, Pressure and Level are stable	RO
	Recognize and report "1B" RFP tripped	RO
	Enter and execute OT-100, Reactor Low Level	CRS/RO
	[OT-100 2.1(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
	[OT-100 2.1(Immediate operator Action)] REDUCE Rx power in accordance with GP-5 Appendix 2, Section 3.1, Reducing Rx Power AND Reactor Maneuvering Shutdown Instructions, until normal RPV level is restored.	RO
	[ARC-MCR-102 B1] IF Rx power was reduced as a result of RFPT trip, THEN enter GP-5 Appendix 3, Unintentional Drop In Power.	RO
	[ARC-MCR-102 B1 OR GP-5 App 3 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-125 D2] IF Regulation Transfer Switch 43-G103/CS is in "AUTO" position, THEN using 1 Gen Field Voltage adjust, 70-G103/CS, adjust the manual DC voltage regulator output voltage to match the AUTO AC regulator as indicated by 1 Alt Exciter AC-DC reg transfer volt V/T-G103.	PRO
	[ARC-MCR-102 B1] Dispatch EO personnel determine the cause of the RFPT trip AND repair.	PRO/RO
	[GP-5 App 3 p.3 Note 10] IF Rx power changes of >15% RTP occur in less than one hour, THEN Chemistry must be informed of Rx power change in order to perform ST-5s as required, AND Chemistry should continue to call Main Control Room (MCR) every hour until Rx power change is complete. (CM-2)	PRO/RO

**EVENT 2 "1B" RFP Trip****Simulator Operator Instructions:**

.Respond to request for assistance as appropriate.

At time 5 min If action requested, from FSSV or EO to re-align HWC (HWC currently aligned to the '1A' and '1B' RFP).

Insert override **RFW003**, and

report: HWC is aligned to "1C" RFP to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 2 "1B" RFP Trip		
	[ARC-MCR-102 B1] Refer to S06.2.A U/1, Shutdown Reactor Feed Pump from Standby Condition	RO
	[ARC-MCR-102 B1] 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
	Swap from LEFM to Venturi per S06.7.B U/1, Section 4.2	RO/PRO
	Reference TRM 3.3.7.13	SRO

**EVENT 3 Control Rod 26-43 Drifts Out****Simulator Operator Instructions:**

Manually initiate Trigger # 2 when directed by Lead Evaluator for Rod 26-43 to drift out.

Respond to request for assistance as appropriate:

At time 3 min after FSSV or EO action requested to isolate Control Rod 26-43 by closing on HCU 26-43, 47- 01 and 47- 02:

DELETE Malfunction **MRD016I** for Control Rod 26-43 to allow the control rod to settle, and
report: Unit 1 Control Rod 26-43 is isolated with the 01, and 02 valves closed. To
MCR

After isolating HCU 26-43:

INSERT MRD016D for Control Rod 26-43, so Rod remains stuck on scram signal.

Self Check – Do NOT remove malfunction **MRD016G** for Control Rods 22-39, 22-55, or 54-47.

NOTE: SSV may request per Tech Spec 3.1.3.1 closing on HCU 26-43, 47- 03 and 47- 05.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 3 Control Rod 26-43 Drifts Out		
	Reference appropriate ARC: <ul style="list-style-type: none"> 108 REACTOR F-4, ROD DRIFT 	RO/PRO
	The RO reports Q/L/P with parameter, value, units, trend and rate to the CRS Power, Pressure and Levels.	RO
	Determine Control Rod 26-43 is drifting out	RO
	Enter and execute OT-104, Unexpected/Unexplained Positive Or Negative Reactivity Insertion	CRS/RO
	[OT-104 2.1(Immediate Operator Action)] REDUCE Rx power in accordance with GP-5 Appendix 2, Planned Rx Maneuvering Without Shutdown, Section 3.1, Reducing Rx Power AND Reactor Maneuvering Shutdown Instructions, to maintain Rx power at OR below initial pre-transient level. (Reduce Recirc Flow by pressing "lowering RPM" on ASD controllers)	CRS/RO
	[OT-104 2.1(Follow-Up Action)] DIRECT performance of appropriate procedure based on cause of reactivity insertion	CRS
	Enter and execute ON-104, Control Rod Problems	CRS/RO
	[ON-104 2.2.3] APPLY continuous control rod insert signal to drifting rod (26-43) until fully inserted.	RO
	[ON-104 2.2.3.1] IF control rod (26-43) drifts out after fully inserted, THEN REAPPLY continuous control rod insert signal as necessary to maintain control rod fully inserted.	RO
	[ON-104 2.2.5] GO TO Flowchart on Attachment 2 AND CONSULT Tech Spec 3.1.3.1.	CRS
	[ON-104 2.2.19] Maintain continuous control rod insert signal to drifting rod as necessary to maintain rod full in. Isolate affected rod from its HCU as follows: (a) close affected CRDS 47-*-01 valve, (b) close affected CRDS 47-*-02 valve, (c) release insert pushbutton. If affected rod begins to drift out while isolated, then continue at step 2.2.14	RO



EVENT 3 Control Rod 26-43 Drifts Out

Simulator Operator Instructions:

Respond to request for assistance as appropriate:



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 3 Control Rod 26-43 Drifts Out		
	[ON-104 2.2.19] Dispatch personnel to isolate rod by closing the 01 and 02 valves	PRO/RO
	[ON-104 2.2.20] When Rod is isolated demand a P-1, and verify no "thermal limits greater than 1.0"	RO
	Reference TS 3.1.3.1 for drifting rod	CRS
	Direct personnel to isolate rod by closing 03 and 05 valves within 1 hour to comply with Tech Spec 3.1.3.1.b.1	CRS

**EVENT 4 NSSSS Group VIIIA Inadvertent isolation****Simulator Operator Instructions:**

Manually actuate Trigger # 3 when directed by Lead Evaluator to initiate NSSSS inadvertent isolation..

Respond to request for assistance as appropriate.

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
EVENT 4 NSSSS Group VIIIA Inadvertent isolation		
	Reference appropriate ARCs: <ul style="list-style-type: none"> • 111 RECIRC , A3, 1A Recirc Pump Seal Cooling Water LO Flow • 111 RECIRC , A5, 1A Recirc Pump Motor Winding Cooling Water LO Flow • 112 CLEANUP, A3, 1B Recirc Pump Seal Cooling Water LO Flow • 112 CLEANUP, A5, 1B Recirc Pump Motor Winding Cooling Water LO Flow • 114 ISOL G2, 1A Drywell Inst Gas Trouble • 114 ISOL G3, 1B Drywell Inst Gas Trouble 	PRO/RO
	Enter OT-101, High Drywell Temperature	CRS
	Establish Drywell pressure as Critical Parameter	CRS
	Direct PRO to bypass and restore DWCW, RECW, and PCIG	CRS/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	CRS
	[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.	CRS/PRO
EVALUATORS NOTE: The crew will bypass and restore RECW per GP-8.5, Isolation Bypass of Crucial Systems AND/OR as directed using ON-113		
	[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: <u>Otherwise</u> do not bypass the isolation.	PRO/RO



EVENT 4 NSSSS Group VIIIA Inadvertent isolation

Simulator Operator Instructions:

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 4 NSSSS Group VIIIA Inadvertent isolation		
	<p>[GP-8.5 3.3.3]</p> <p>IF an Outboard Isolation has occurred THEN perform the next step to bypass the isolation signals for:</p> <p>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)</p>	CRS/PRO
	<p>[GP-8.5 3.3.3.1] [ON-113 2.5.1]</p> <p>Position HS-13-113 in BYPASS.</p> <p>PLACE HS-013-*13, "Reac Recirc Pmp Clg Wtr MOV IsIn Bypass Switch" (SEALS/OIL CLRS OUTBD ISOL BYPASS), in "BYPASS."</p>	PRO
	<p>[ON-113 2.5.1]</p> <p>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."</p>	PRO
	<p>[OT-101 3.15.3 or GP-8.5]</p> <p>IF the Drywell Chilled Water System has undergone an inadvertent isolation THEN RESET per GP-8.3 OR BYPASS per GP-8.5.</p>	CRS/PRO
	<p>[GP-8.5 3.2.1]</p> <p>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: <u>Otherwise</u> do not bypass the isolation.</p>	RO/PRO
	<p>[GP-8.5 3.2.2]</p> <p>IF an Inboard Isolation has occurred THEN perform the next step to bypass the isolation signals for:</p> <ul style="list-style-type: none"> • 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
	<p>[GP-8.5 3.2.2.1]</p> <p>Position HS-87-115 in BYPASS.</p>	PRO
<p>EVALUATORS NOTE: whenever possible only bypass the effected valve(s) so that the isolation capability of the entire penetration in not bypassed.</p> <p>Per [GP-8.4 3.1] WHEN bypass logic is completed, THEN POSITION valve handswitches used to make up logic as necessary.</p>		



EVENT 4 NSSSS Group VIIIA Inadvertent isolation

Simulator Operator Instructions:

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 4 NSSSS Group VIIIA Inadvertent isolation		
	Open the following valves repositioned for bypassing logic: <ul style="list-style-type: none"> • 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
EVALUATORS NOTE: 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
EVALUATORS NOTE: PCIG is restored as directed using GP-8.5 section 3.1		
	Bypass and restore PCIG per GP-8.5	PRO



EVENT 4 NSSSS Group VIIIA Inadvertent isolation

Simulator Operator Instructions:

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 4 NSSSS Group VIIIA Inadvertent isolation		
	<p>[GP-8.5 3.1.3]</p> <p>IF an Outboard Isolation has occurred THEN perform the next step to bypass the isolation signals for:</p> <ul style="list-style-type: none"> HV-59-102 PCIG Compressor Suction (OUTBOARD) HV-59-129B PCIG B Header Supply (DRYWELL B) 	PRO
	<p>[GP-8.5 3.1.3.1]</p> <p>Position switches as listed:</p> <ul style="list-style-type: none"> HSS-57-191B BYPASS HV-59-102 CLOSE HV-59-129B CLOSE 	PRO
<p>NOTE: [GP-8.4 3.1] [GP-8.5 3.1.1]</p> <p>WHEN bypass logic is completed, THEN POSITION valve handswitches used to make up logic as necessary.</p>		
	<p>Open the following valves repositioned for bypassing logic:</p> <ul style="list-style-type: none"> HV-59-102 HV-59-129B 	PRO
<p>EVALUATORS NOTE: 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)</p>		
	<p>[ON-113 2.15]</p> <p>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.</p>	PRO
	Reference Tech Spec 3.6.3	CRS
	Contact I&C/ Floor Supervisor/ WWM to investigate inadvertent isolation	CRS/PRO



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate

EVENT 6 Failure of (three) Control Rods to scram

EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

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

Ensure Trigger # 5 automatically actuates when RMS taken to SHUTDOWN.

Ensure Trigger # 6 automatically actuates to trip RCIC on -55" low reactor level.

Ensure Trigger # 7 automatically actuates when Reactor level decreases to -129".

Respond to request for assistance as appropriate.

At time 10 min after FSSV or EO action requested for Control Rods Fail to Scram:

report: There is no apparent cause at either HCU, 22-39, 22-55 or 54-47, which would account for the failure to scram. to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	Reference ARCs <ul style="list-style-type: none"> • 112 C5, Drywell Equip Drain Tank/ Floor Drain Sump Leakage HI Flow • 115 B5, Drywell Cooler Drain Flow High 	PRO
	Recognize rising Drywell pressure	PRO/RO
	Enter and execute OT-101, High Drywell Pressure	CRS/PRO
	[OT-101 3.1] ESTABLISH Drywell pressure as a Critical Parameter	PRO
	[OT-101 3.2, 3.3] CHECK following parameters and DIRECT use of appropriate OT-101, Att. 4 <ul style="list-style-type: none"> • Recirc Pump seals • RWCU flow/pressure • DWCW operation 	CRS/PRO
	[OT-101 Attachment 4 step 3] ENSURE RWCU system secured per OT-101	PRO
	Recognize OT-101 actions are ineffective in reversing rising Drywell pressure trend and direct plant shutdown	CRS/PRO
	Manually scram reactor before Drywell pressure reaches 1.68 psig	RO
	Enter and execute T-101 on <+12.5"	CRS
	Re-enter T-101 on 1.68 psig	CRS
	Enter and execute T-102 on 1.68 psig	CRS/PRO
	Remove isolation bypasses for RECW, DWCW and PCIG	
	Recognize HPCI Failure to start at 1.68 psig due to Aux Oil Pump Overload	PRO
	[T-101 RC-4] Place Mode Switch in SHUTDOWN	RO
	[T-101 RC-6] Insert SRM's and IRM's	RO
	Recognize ALL RODS NOT IN [Three (3) Control Rods failed to insert].	RO
	Report downscales on all APRMs	RO



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate

EVENT 6 Failure of (three) Control Rods to scram

EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

Ensure Trigger # 5 automatically actuates when RMS taken to SHUTDOWN.

Ensure Trigger # 6 automatically actuates to trip RCIC on -55" low reactor level.

Ensure Trigger # 7 automatically actuates when Reactor level decreases to -129".

Respond to request for assistance as appropriate.

If call is made to Rad Waste Control Room requesting information on loss of FW,
report: "PLC Failure has resulted in Condensate Flow Control Valves failing closed".

At time 10 min after FSSV or EO action requested for Control Rods Fail to Scram:
report: There is no apparent cause at either HCU, 22-39, 22-55 or 54-47, which would account for the failure to scram. to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	[T-101 RQ-2] DIRECT Ensure Turbine trip and Generator Lockout	
	[T-101 RQ-2] PERFORM Ensure Turbine trip and Generator Lockout	PRO
	[T-101 RC/Q-12] DIRECT Insert Rods Manually with the RWM bypassed	CRS
	[T-101 RC/Q-12] PERFORM Insert Rods Manually with the RWM bypassed	RO
	[T-101 RC/L-3] Exit RC/L ONLY and enter T-117 (not performed if RO has driven rods and ATWS is not appropriate when the SRO arrives at this step)	CRS
	[T-117 LQ-3] Inhibit Auto ADS (if T-117 is performed) (Critical Task)	PRO
	Report when all but one rod at 00 (No ATWS)	RO
	Report when ALL rods at 00 (Critical Task)	RO
	[T-117 LQ-2] Re-enter T-101 at RC/L-1 (Exit T-117 if it was entered)	CRS
	Recognize Loss of Feedwater	RO
	Un-bypass systems bypassed per GP-8.5	CRS/PRO
	Re-enter T-102 on Drywell Temperature > 145 deg F	CRS
	[T-102 DW/T-5] Maximize Drywell Cooling bypassing isolations per GP-8 as necessary	CRS/PRO
	[T-102 PC/P-5] DIRECT Before Supp Pool pressure reaches 7.5 psig Spray the Suppression Pool per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation	CRS



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate

EVENT 6 Failure of (three) Control Rods to scram

EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	PERFORM [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
EVALUATORS NOTE: 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: <ul style="list-style-type: none"> HV-51-1F047A(B), "1A(B) RHR Htx Shell Side Inlet Vlv" (INLET) HV-51-1F003A(B), "1A(B) RHR Htx Shell Side Outlet Vlv" (OUTLET) HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS) 	PRO
	[T-225 4.2.5] OPEN HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B)) AND OBTAIN flow of 8,000 to 8,500 gpm as indicated on FI-51-1R603A(B), FL.	PRO
	[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
EVALUATORS NOTE: 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



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate
EVENT 6 Failure of (three) Control Rods to scram
EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

Ensure Trigger # 6 automatically actuates to trip RCIC on -55" low reactor level.

Ensure Trigger # 7 automatically actuates when Reactor level decreases to -129".

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	[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 1.5] IF 'A' Loop pump (0A(C)-P506) is to be placed in service, THEN ENSURE 0A-V543 OR 0C-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A 4.1.10 or App1 1.6] IF 'B' Loop pump (0B(D)-P506) is to be placed in service, THEN ENSURE 0B-V543 OR 0D-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681. OR 0C-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
EVALUATORS NOTE: The following steps are from T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation as directed by T-102, Primary Containment Control		
	[T-225 4.2.9] CLOSE HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS).	PRO



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate
EVENT 6 Failure of (three) Control Rods to scram
EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	Reference ARCs <ul style="list-style-type: none"> 103 B3, Drywell Floor Drain Hi Level 115 B5, Drywell Cooler Drain Flow High 	PRO
	[T-225 4.2.10] IF more spray flow is required, THEN REDUCE flow through Full Flow Test line by throttling closed HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B)).	PRO
	DIRECT [T-102 PC/P-9] Spray the Drywell per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation	CRS
	PERFORM [T-102 PC/P-9] Spray the Drywell per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation (Critical Task)	PRO
	[T-225 4.5.1] ENSURE HV-51-1F004A(B), "1A(B) RHR Pump Suction PCIV" (SUCTION A(B)), open	PRO
	[T-225 4.5.2] ENSURE the following valves closed: <ul style="list-style-type: none"> HV-51-1F006A(B), "1A(B) RHR Pp S/D Clg Suct Intertie Vlv" (SUCTION A(B)) HV-51-1F015A(B), "1A(B) Shutdown Clg Injection PCIV" (OUTBOARD A(B)) HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD A(B)) HV-51-1F017A(B), "1A(B) RHR LPCI Inj PCIV" (OUTBOARD A(B)) 	PRO
	[T-225 4.5.3] IF RHR pump not running THEN START 1A(B)P202 "RHR Pump."	PRO
	[T-225 4.5.4] ENSURE the following valves open: <ul style="list-style-type: none"> HV-51-1F047A(B), "1A(B) RHR Htx Shell Side Inlet Vlv" (INLET) HV-51-1F003A(B), "1A(B) RHR Htx Shell Side Outlet Vlv" (OUTLET) HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS) 	PRO

**EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate****EVENT 6 Failure of (three) Control Rods to scram****EVENT 7 D11 EDG fails to auto start****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

If call is made to Rad Waste Control Room requesting information on loss of FW,
report: "PLC Failure has resulted in Condensate Flow Control Valves failing closed".



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	[T-225 4.5.5] TRIP Reactor Recirc Pumps.	PRO/RO
	[T-225 4.5.6] REMOVE Drywell Cooling Fans from service by placing all 16 Drywell Cooler Fan switches to "OFF."	PRO/RO
	[T-225 4.5.7] IF Drywell High Pressure AND LOCA signals are present, THEN GO TO step 4.5.11.	PRO
	[T-225 4.5.11] OPEN HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B)), AND OBTAIN flow of 9,250 to 10,500 gpm as indicated on FI-51-1R603A(B), FL.	PRO
	[T-225 4.5.12] OPEN only one loop HV-51-1F021A(B), "1A(B) RHR Cntmt Spray Line Inboard PCIV" (INBOARD).	PRO
	[T-225 4.5.13] REQUEST SSV verify drywell temperature AND drywell pressure are on SAFE side of Drywell Spray Initiation Limit Curve per T-102, Primary Containment Control OR SAMP-1, RPV and Primary Containment Flooding Control.	PRO/CRS
	[T-225 4.5.14] Throttle OPEN only one loop HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD) to initiate spray AND OBSERVE raising flowrate as indicated on FI-51-1R603A(B), FL.	PRO
	[T-225 4.5.15] MONITOR Drywell pressure.	CRS/PRO
	[T-225 4.5.16] Throttle OPEN HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD) AND Fully CLOSE HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv", (SUPP POOL CLG A(B)) AND OBTAIN flow of 9,250 to 10,500 gpm as indicated on FI-51-1R603A(B), FL	PRO



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate

EVENT 6 Failure of (three) Control Rods to scram

EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

Respond to request for assistance as appropriate.

At time 8 min after FSSV or EO action requested for T-240 Floor Actions:

report: 46-1F045, CRD Pump Suction Filter Bypass is OPEN, and

Verify **RCR019** 'B' CRD Pump Discharge Check Valve 46-1F014B CLOSED, and

When requested: **TOGGLE; RCR019** '1B' CRD Pump Discharge Check Valve to OPEN, and

report: 46-1F014B, '1B' CRD Pump Discharge Check Valve is OPEN. to MCR

If asked to report CRD Pressure for T-240, while Rod Drive Flow Controller is being adjusted:

report: Give initial reading of 1300 psig, and additional reading of 1200 psig once Flow controller is opened. to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	[T-225 4.5.17] PLACE RHR Service Water Pump for RHR Heat Exchanger to be used in service per S12.1.A, RHR Service Water System Startup.	PRO
	[T-225 4.5.18] CLOSE HV-C-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Valve" (HEAT EXCHANGER BYPASS).	PRO
	[T-101 RC/L-9] Recognize RPV level cannot be maintained above -161" and Enter T-111, Level Restoration/Steam Cooling.	CRS/RO
	[T-111 LR-3] Inhibit Auto ADS (if not already inhibited for T-117) (Critical Task)	RO
EVALUATORS NOTE: The following steps are from T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions		
	Direct T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions	CRS
	Dispatch EO to support T-240, Maximizing CRD Flow After Shutdown During Emergency Conditions	RO
	[T-240 4.1] Fully OPEN HV-46-1F003, "Drive Water Pressure Control" (DRIVE WATER PRESSURE), at 10C603 (Main Control Room).	RO
	[T-240 4.2] OPEN FV-C-46-1F002A(B), "Flow Control," at 10C603 (Main Control Room) using FC-46-1R600, "Rod Drive Flow Controller" (FL), in "MANUAL" to maximize CRD flow, while maintaining greater than 1,200 psig as indicated on PI-46-108A(B), "CRD Pump Discharge" (252-T6-200).	RO
	[T-111 LR-6] Start C & D RHR Pumps	PRO
	[T-101 RC/L-7 OR T-111 LR-5] Start SLC Pumps	RO

**EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate****EVENT 6 Failure of (three) Control Rods to scram****EVENT 7 D11 EDG fails to auto start****Simulator Operator Instructions:**

Respond to request for assistance as appropriate.

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

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

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

report: All SE-10 Floor Actions are complete to MCR

At time 10 min after FSSV/ EO action requested to investigate, D11 EDG failure to auto start:

report: We have not identified an apparent cause for D11 failure to auto start. to MCR

When requested to perform EDG running checks:

report: D11 started and is running SAT following remote manual start. to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
EVALUATORS NOTE: The following steps are from SE-10, LOCA.		
	Verify RCIC starts and injects at -38".	PRO/RO
	Perform SE-10, LOCA, actions in MCR	RO
	[SE-10 3.1] PLACE the following to "CLOSE" <ul style="list-style-type: none"> 52-20224/CS, "D*24 Safeguard L.C. D*24-G-D MCC Bkr" (SAFEGUARDS B), on *BC661 	RO
	[SE-10 3.2] PLACE to "RESET": <ul style="list-style-type: none"> 43-22322/CS, "Div. III Non SFGD Instr. Panel" (INST AC 201 CONTROL PNL), on *CC661 43-22422/CS, "Div. IV Non SFGD Instr. Panel" (INST AC 202 CONTROL PNL), on *DC661. 	RO
	Restart CRD and SLC after LOCA signal	RO
	Recognize D11 EDG failed to auto start on LOCA signal	PRO/RO
	Manually start D11 EDG from control switch in MCR	PRO
	Dispatch floor personnel to investigate failure of D11 EDG to start	PRO
	Recognize and report D11 started (after 3 minute time delay)	PRO
	[SE-10 3.1] PLACE the following to "CLOSE" <ul style="list-style-type: none"> 52-20124/CS, "D*14 Safeguard L.C. D*14-G-D MCC Bkr" (SAFEGUARDS A), on *AC661. 	RO
	[SE-10 4.3] Maintain ECCS for injection IF Low Pressure ECCS is not required to restore RPV level, THEN ALIGN per SSV direction.	CRS



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate

EVENT 6 Failure of (three) Control Rods to scram

EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	Notify SRO when level drops below -161"	RO/PRO
	[T-111 LR-17] When level drops to -161", Enter T-112.	CRS
	DIRECT [T-112 EB-11] Open all 5 ADS valves	CRS
	PERFORM [T-112 EB-11] Open all 5 ADS valves	RO/PRO
	[T-111 LR-18] Maximize RPV injection using all available systems subsystems and alt subsystems EXCEEDING pump NPSH and vortex limits if necessary.	PRO
	Restore RPV level above -161 inches.	PRO
	Re-establish Suppression Pool spray per T-225 (Critical Task)	PRO
	[T-225 4.2.3] IF RHR pump not running THEN start 1A(B)P202 "RHR Pump"	PRO
	[T-225 4.2.4] ENSURE the following valves open: <ul style="list-style-type: none">HV-51-1F047A(B), "1A(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



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate
EVENT 6 Failure of (three) Control Rods to scram
EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	[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
	[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
	[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 1.5] IF 'A' Loop pump (0A(C)-P506) is to be placed in service, THEN ENSURE 0A-V543 OR 0C-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO
	[S12.1.A 4.1.10 or App1 1.6] IF 'B' Loop pump (0B(D)-P506) is to be placed in service, THEN ENSURE 0B-V543 OR 0D-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681. OR 0C-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681.	PRO



EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate

EVENT 6 Failure of (three) Control Rods to scram

EVENT 7 D11 EDG fails to auto start

Simulator Operator Instructions:

No further actions required



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 LOCA via "1A" Recirc, HPCI Aux Oil Pump Failure, Loss of Condensate EVENT 6 Failure of (three) Control Rods to scram EVENT 7 D11 EDG fails to auto start		
	[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
	[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
	Direct RPV Level restored to 12.5" to 54"	CRS
EAL CLASSIFICATION at completion of scenario		
	SRO declares an Site Emergency (FA1) due to Threshold(s): RC-3.1 Drywell pressure > 1.68 psig AND RC-3.2 Drywell pressure rise due to RCS leakage	CRS

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: _____

START TIME: _____

SM: _____

CRS: _____

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XII. CREW PREBRIEF INSTRUCTIONS

- Unit 1 is in OPCON 1 at 90% power
- Unit 2 is in OPCON 1 at 100% power

Specific Plant Conditions are as Follows:

- A cell failure on the '1A' ASD occurred the previous shift. Cell failure troubleshooting is in progress. The '1A' Speed Hold has been reset.

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

- None

Restrictions on Plant Operations:

- Maintain 90% power until '1A' ASD troubleshooting is complete

Planned Evolutions:

- Perform RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY

Documents Provided:

- RT-6-019-310-1 REACTOR FEEDPUMP TURBINE LUBE OIL PUMP OPERABILITY



CODE NO:	SEG-2158E	REV NO:	000
AUTHOR:	J. N. KOELLE	APPROXIMATE RUN TIME:	80 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: _____ Date: _____
Training Instructor - Signature

Reviewed By: _____ Date: _____
Program (ILT or LOR) Lead - Signature

Reviewed By: _____ Date: _____
EP (as appropriate) - Signature

Reviewed By: _____ Date: _____
RE (as appropriate) - Signature

Approval: _____ Date: _____
OPS Manager - Signature

Approved For Use: _____ Date: _____
Training Manager - Signature



Appendix D

Scenario Outline

Form ES-D-1

Facility: Limerick 1 & 2 Scenario No.: 3 Rev 0 Op-Test No.: 1

Examiners: _____ Operators: _____

Initial Conditions:

Unit 1 is at 18 % power with a startup in progress per GP-2. Unit 2 is at 100% power.

Turnover:

GP-2 is complete through step _____ with the Main Generator ready for synchronization per S32.1.A. The crew is expected to synch the Main Generator and continue raising power per GP-2.

Event No.	Malfunction Number	Event Type*	Event Description
1	N/A	N-PRO	Synch the Main Generator
2	N/A	R-RO	Continue raising power
3	MRD016D	C-RO	Control Rod fails stuck
4	113 A-3 127 H-4 LI-42-150A LI-42-150B	C-PRO TS-SRO	'1C' Core Spray Pump suction leak (Abnormal)
5	MED282A	C-PRO TS-SRO	Loss of Div 1 DC (Abnormal)
6	MRR441	C-PRO	Small coolant leak in Drywell (Abnormal)
7	MRP029C	C-RO	RPS 'A' fails to scram (ARI successful)
8	MMS067	M	Steam leak in the Drywell
9	MPC476	C-PRO	Downcomer break results in Suppression Pool pressure equalizing with Drywell pressure requiring blowdown on Pressure Suppression Curve
10	HS-51-F017D Override	C-PRO	'D' LPCI Valve handswitch fails
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			



- I. **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.

II. **SIMULATOR EVALUATION GUIDE OBJECTIVES:**

- A. The following evaluation objectives apply to the Crew (C), Shift Manager (SM), Control Room Supervisor (S), Unit Reactor Operator / Plant Reactor Operator (R), or Incident Assessor / Shift Technical Advisor (A) as indicated in the following categories.
1. The general condition for each of the evaluation objectives will be "Given the plant conditions and sequence of events in the Simulator Evaluation Guide (SEG)".
 2. The general acceptable evaluation objective criteria for each of the evaluation objectives will be "To perform effectively as an individual and contribute to successful crew performance in accordance with appropriate reference plant procedures and Operations Expectations, Fundamentals and Strategies".
 3. Specific UNSAT evaluation objective criteria will be consistent with TQ-AA-155, Conduct of Simulator Training and Evaluation with applicable forms and job aids.
 4. During performance of this Simulator Evaluation Guide, the individuals and crew should satisfactorily demonstrate the following overall procedure and plant control objectives:
 - Direct and perform actions per ON-104, Control Rod Problems
 - Direct and perform actions per SE-4, Plant Flooding
 - Direct and perform actions per E-1FA, Loss of Division 1 Safeguard 125/250 VDC Bus 1FA.
 - 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-103, Secondary Containment Control
 - Direct and perform actions per T-112, Emergency Blowdown
 - Direct and perform transition to Implement the Emergency Plan with accurate and timely Event Declarations and Notifications



III. 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

IV. REVISION HISTORY:

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

Revision Number	Description of Revision and Affect on Training Content	Date of Revision
Rev000	This is a modified version of scenario 3 from ILT09-1 NRC Exam	10/12/14



V. SCENARIO EVENT AND EVALUATION SUMMARY:

Event One: When the crew takes responsibility, the PRO will be required to synchronize the Main Generator per S32.1.A with a startup in progress.

Evaluation: To evaluate the PRO's ability to properly synchronize the Main Generator and close both output breakers.

Event Two: Once the Main Generator is online, the RO will continue raising power by withdrawing control rods.

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

Event Three: As the RO continues to withdraw rods, one of the control rods will fail stuck.

Evaluation: To evaluate the RO's ability to recognize the stuck rod and take actions in S73.1.A to raise drive water pressure in order to withdraw the control rod.

Event Four: Following the stuck Control Rod event, a leak will develop in the suction line for the '1C' Core Spray Pump.

Evaluation: To evaluate the crew's ability to enter and execute SE-4, Flood and T-103, and take action to close the '1C' Core Spray Pump suction valve to stop the leak. The SRO will evaluate Tech Spec for the inoperable Core Spray Pump.

Event Five: After the Core Spray leak has been isolated and Tech Specs referenced, a loss of Division I DC will occur.

Evaluation: To evaluate the crew's ability to recognize the loss of DC and enter and execute E-1FA to place MCR HVAC in a Chlorine isolation (PRO) and call plant personnel for support. The SRO is expected to reference Tech Spec 3.8.2 for loss of DC.



SCENARIO EVENT AND EVALUATION SUMMARY: cont'd

Event Six: After the chlorine isolation has been initiated, a small coolant leak will occur in the Drywell.

Evaluation: To evaluate the crew's ability to enter and execute OT-101 on rising Drywell pressure. The PRO is expected to secure and isolate RWCU and the SRO should direct a GP-4 Rapid Plant Shutdown as Drywell pressure approaches the scram setpoint.

Event Seven: After the PRO has transferred house loads to the Startup Buses, the RO will perform a manual scram but 'A' RPS will fail to de-energize.

Evaluation: To evaluate the RO's ability to recognize and report the failure to scram and to initiate RRCS Division II to insert rods with ARI.

Event Eight: After the Reactor Mode Switch has been placed in Shutdown, a large steam leak will occur in the Drywell.

Evaluation: To evaluate the SRO direct actions from T-101 and T-102 to mitigate the leak and direct the PRO to spray the Suppression Pool with 'B' RHR per T-225 and then re-direct use of Drywell Spray with 'B' RHR when Suppression Pool pressure exceeds 7.5 psig and conditions are permissible for Drywell Spray. ('A' RHR will be unavailable due to loss of Div I DC.)

Event Nine: After Drywell Spray is in service, a downcomer break will occur resulting in Suppression Pool pressure rising faster and exceeding the Pressure Suppression Curve.

Evaluation: 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 curve cannot be maintained. The PRO will open 5 ADS SRVs to blowdown the reactor to the Suppression Pool.

Event Ten: When a LOCA signal occurs on High Drywell pressure and Low Reactor Pressure, the 'D' LPCI Valve will auto open as the delta P permissive is met but the valve will fail to close from the handswitch.

Evaluation: To evaluate the PRO's ability to recognize the valve handswitch failure and to trip the 'D' LPCI Pump to prevent overfilling the RPV.



Termination Point: The scenario may be terminated when the emergency RPV depressurization has been completed and Drywell Spray is in service per T-225 with Primary Containment pressure dropping.



VI. REFERENCES

A. Training Procedures

1. TQ-AA-150, Operator Training Programs
2. TQ-AA-155, Conduct of Simulator Training and Evaluation
3. TQ-AA-155-F04, Simulator Evaluation Form – Individual
4. TQ-AA-155-F05, Simulator Evaluation Form – Crew
5. TQ-JA-155-03, Simulator Evaluation Job Aid
6. TQ-JA-155-05, Evaluated Scenario Grading Flowchart
7. TQ-JA-155-06, Simulator Evaluation Shift Manager Competency Standards
8. TQ-JA-155-07, Simulator Evaluation STA or IA Competency Standards
9. TQ-JA-155-08, Simulator Evaluation Individual Competency Standards
10. TQ-JA-155-09, Simulator Evaluation Crew Competency Standards
11. TQ-JA-155-11, Simulator Self Evaluation Form

B. Annunciator Response Cards (ARC)

1. 113 A-3, 1A/1C CORE SPRAY PUMP ROOM FLOOD
2. 127 H-4, REACTOR ENCL FLOOR DRAIN SUMP HI-HI WATER LEVEL
3. 120 G-1, 1 UNIT DIV 1 SFGD BATTERY CHARGERS TROUBLE
4. 120 G-2, 1DA-1 250V DC MCC UNDERVOLTAGE
5. 120 G-3, 1PPA1/1PPA3 125VDC DIST PANELS UNDERVOLTAGE
6. 120 G-4, 1PPA2 125VDC DC DIST PANEL UNDERVOLTAGE
7. 120 D-1, D11 TROUBLE
8. 120 D-2, D11 STANDBY AC POWER SYS OUT OF SERVICE
9. 120 E-3, DIV 1 MCC SHUNT TRIP COIL AUX CIRCUIT UNDERVOLTAGE
10. 120 E-4, DIV 1 MCC SHUNT TRIP COIL UNDERVOLTAGE
11. 120 F-5, 1A RPS & UPS DIST PNL. TROUBLE
12. 120 A-5, 1A RPS & UPS STATIC INVERTER TROUBLE
13. 002 F4 & F5, RE SFD PNLs 10C245, 10C243 TROUBLE
14. 002 A-1, CONTROL ROOM RADIATION ISOLATION INITIATED
15. 002 A-2, CONTROL ROOM CHLORINE ISOLATION INITIATED
16. 115 B-5, DRYWELL COOLER DRAIN FLOW HIGH
17. 115 E-5 FLOOR DRAIN LEAKAGE HI FLOW
18. 003 B-2, Unit 1&2 CONTAINMENT LEAK DETECTOR HI RADIATION
19. 112 C-5, DRYWELL EQUIPMENT DRAIN TANK/FLOOR DRAIN SUMP LEAKAGE HI FLOW
20. 107 F-2, DRYWELL HI / LO PRESS

C. System Procedures (S)

1. S12.1.A, RHR Service Water System Startup.
2. S32.1.A U/1, Synchronizing Main Generator To Grid
3. S76.9.A, Verification of Reactor Enclosure or Refueling Floor secondary Containment Isolation.
4. S73.1.A, Normal Operation Of The Reactor Manual Control System

D. General Procedures (GP)

1. GP-4, Rapid Plant Shutdown
2. GP-2, Normal Reactor Startup

E. Off Normal Procedures (ON)

1. ON-104, Control Rod Problems



- F. Operating Transient Procedures (OT)
 - 1. OT-101, High Drywell Pressure
- G. Event Procedures (E)
 - 1. E-1FA, Loss of Division 1 Safeguard 125/250 VDC Bus 1FA.
- H. Special Event Procedures (SE)
 - 1. SE-4, Plant Flood
 - 2. SE-10, LOCA
- I. Surveillance Test and Routine Test Procedures (ST and RT)
 - 1. ST-6-107-730-1, Control Rod Coupling Check.
- J. Technical Specifications and TRM (TS)
 - 1. 3.8.2.1.c DC Sources (2 hr. LCO)
 - 2. 3.8.3.1.b Onsite Power Distribution (8 hr. LCO)
 - 3. 3.7.3 RCIC
 - 4. 3.1.5 SLC
 - 5. 3.3.4.1 RRCS/ATWS RPT Breakers
 - 6. 3.3.3/3.5.1 ADS
 - 7. 3.5.1 Core Spray / RHR
 - 8. 3.7.1.2 ESW
 - 9. 3.7.1.1 RHRSW
 - 10. 3.8.1.1 One Offsite Source and D11 Diesel Generator
- K. Transient Response Implementation Procedures (T-100 series)/SAMPs
 - 1. T-101, RPV Control
 - 2. T-102, Primary Containment Control
 - 3. T-103, Secondary Containment Control
 - 4. 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. IER-L1 11-3, Weaknesses in Operator Fundamentals
 - 2. SER 3-05, Weakness in Operator Fundamentals
 - 3. SOER 10-02, Engaged Thinking Organizations



VII. PREBRIEF INSTRUCTIONS

- Unit 1 is in OPCON 1 at ~18% power with startup in progress
- Unit 2 is in OPCON 1 at 100% power

Specific Plant Conditions are as Follows:

- Main Generator is ready for synch per S32.1.A U/1, Synchronizing Main Generator To Grid

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

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Synch Main Generator
- Continue withdrawing Control Rods per Reactor move sheet
- Reactor Engineering has determined there are no known Channel Distorted Control Rods.

Documents Provided:

- S32.1.A U/1, Synchronizing Main Generator To Grid
- GP-2, Normal Plant Startup



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
	Complete Limerick Simulator Pre-Evaluation Checklist

B. SIMULATOR SETUP

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to IC-129 OR Reset the simulator to IC developed for scenario AND Load scenario file SEG2158E 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: <ul style="list-style-type: none">• Momentarily place simulator in RUN• Acknowledge and clear all spurious alarms• Place the simulator back into FREEZE• Provide copies of the following procedures:<ul style="list-style-type: none">• S32.1.A U/1, Synchronizing Main Generator To Grid• GP-2, Normal Plant Startup



Exelon Generation LIMERICK GENERATING STATION SIMULATOR EVALUATION GUIDE

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

Interventions Summary

Hide Malfunctions - 7

Show Remotes - 14

Hide Overrides - 5

Hide Annunciators - 2

Malfunction Summary

Mal ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MRR023C		High Flow to Spray Chamber A	True	True				
MED282A		Fault on DC Safeguard Bus 1AD105	False	True		00:00:10		3
MRR441		Small Coolant Leak in Drywell (0-100%)	0.00	40.00000	00:12:00			4
MMS067		Steam Leak in Drywell (0-5000 gpm)	0.00	750.0000	00:10:00	00:04:00		5
MCS183D		Core Spray Pump 10 Flow to Auto Stop	True	True				
MPC476		Drywell Airspace Leak to Suppression Chamber Airspace	0.00	30.00000	00:04:00	00:10:00		5
MRO0160	14-23	Control Rod Failure Stuck	True	True				

☐ Timer Pause

Delete All

Active Pending

Override Summary

Tag ID	Description	Override Type	Current Value	Override Value	Throttle	Actime	Dactime	Trig
113 COOL A A3	113 COOL A A3	ON	ON	OFF		00:02:00		1
127 OFF GAS 1 H4	127 OFF GAS 1 H4	ON	ON	OFF		00:04:40		

☐ Timer Pause

Delete All

Active Pending

Annunciator Summary

Window	Description	Tagname	Override Type	DVal	AVal	Actime	Dactime	Trig
A3	1A / 1C Core Spray Pump Room Flood	113 COOL A A3	ON	ON	OFF	00:02:00		1
H4	Reactor Encl Floor Drain Sump Pump Hi-Hi Water Level	127 OFF GAS 1 H4	ON	ON	OFF	00:04:40		

☐ Timer Pause

Delete All


Active Pending

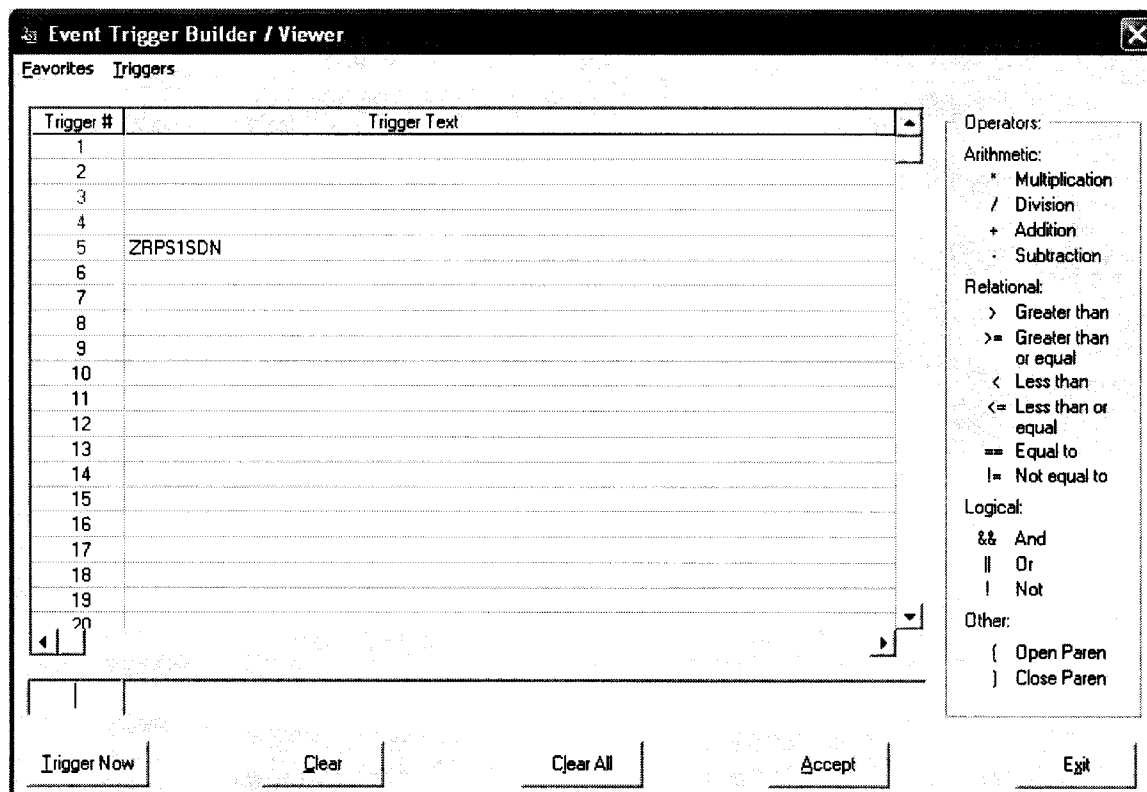
Interventions Summary								
Show Malfunctions - 7		Hide Remotes - 14		Show Overrides - 5		Show Annunciators - 2		
Malfunction Summary								
Mal ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MED262A		Fault on DC Safeguard Bus 1AD105	True	True				
MRR441		Small Coolant Leak in Drywell (0-100%)	0.00	40.00000	00:12:00			4
MMS067		Steam Leak in Drywell (0-5000 gpm)	0.00	750.0000	00:10:00	00:04:00		5
MPC476		Drywell Airspace Leak to Suppression Chamber Airspace	0.00	30.00000	00:04:00	00:10:00		5
MRO0160	14-23	Control Rod Failure Stuck	True	True				
MRO0160	14-23	Control Rod Failure Stuck	True	True				
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MRO0160	14-23	Control Rod Failure Stuck	True</					



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' Core Spray pump room flooding
	2	Manual	Initiates loss of Div 1 DC
	3	Manual	Initiates Small Coolant Leak in Drywell
	4	Auto / ZRPS1SDN	Initiates a Steam Leak in the Drywell and Downcomer Break



Event Trigger Builder / Viewer

Favorites Triggers

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

Operators:

Arithmetic:

- * Multiplication
- / Division
- + Addition
- Subtraction

Relational:

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

Logical:

- && And
- || Or
- ! Not

Other:

- { Open Paren
- } Close Paren

Trigger Now Clear Clear All Accept Exit

**E. EQUIPMENT REPORTS AND 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. QUANTITATIVE ATTRIBUTES**

QUANTITATIVE ATTRIBUTES			
ATTRIBUTE	MINIMUM NUMBER	ACTUAL NUMBER	DESCRIPTION (If Applicable)
TOTAL MALFUNCTIONS	5	7	See Assessment Items
MALFUNCTIONS AFTER EOP	1	2	See Assessment Items
ABNORMAL EVENTS	2	3	SE-4, E-1FA, OT-101
MAJOR TRANSIENTS	1	1	LOCA
EOPs USED BEYOND PRIMARY SCRAM RESPONSE	1	2	T-102, T-103
EOP CONTINGENCY PROCEDURES USED	1	1	T-112
CREW CRITICAL TASKS	2	4	T-103.4, T-101.7, T-102.1, T-102.2
TECHNICAL SPECIFICATIONS EXERCISED	1	5	3.8.2.1.c, 3.8.1.1, 3.5.1, 3.7.3
EOP RUN TIME	40-70%	40%	
SCENARIO RUN TIME	45 Minutes	80 Min.	

Enter the level of difficulty (LOD) of each scenario using a
1 – 5 (easy – difficult) rating scale (LOD > 1 and < 5 are acceptable)

3.0



X. CREW CRITICAL TASKS

- A. Critical Tasks are based on the current Crew Critical Task List revision, NUREG 1123 Rev 2 Supplement 1 and TQ-AA-150 requirements.

1. T-103.4 Isolate systems discharging into area

K/A	295032	EA1.05	3.7/3.9
K/A	295032	EA2.03	3.8/4.0
K/A	295033	EA1.05	3.9/4.0
K/A	295033	EA2.03	3.7/4.2
K/A	295036	EA1.02	3.5/3.6
K/A	295036	EA2.03	3.4/3.8

Standard: After it is determined that Secondary Containment temperature, radiation, or water levels cannot be restored and maintained below MNO value of Table SCC-1, systems known to be discharging into the area are isolated before MSO value of Table SCC-2 is exceeded.

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 T-101 entry condition has been exceeded, the reactor is manually scrammed. If the crew monitors the entry condition parameter and prior to the RPS setpoint exceeded, scrams the reactor, the intent of this standard is met.

SAT/UNSAT

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

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

Standard: When Drywell temperature and pressure are on the SAFE side of the Drywell Spray Initiation Limit (DSIL) curve (Curve PC/P-2), spray the Drywell (using the RHRSW System) before Drywell temperature exceeds 340 °F or Drywell pressure exceeds 55 psig.

SAT/UNSAT**4. T-102.2 Perform Emergency Blowdown per T-112.**

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

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

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.



EVENT 1 Synchronize Main Generator

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond as directed for floor support.

When requested to ensure all personnel clear of Main Transformers and Generator Output Breakers:

report: All personnel are clear of Main Transformers and Generator Output Breakers.
to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 1 Synchronize Main Generator		
EVALUATORS NOTE: The following steps are directed from GP-2, Normal Plant Startup, and S32.1.A, Synchronizing Main Generator To Grid.		
	[GP-2 3.4.31] SYNCHRONIZE Main Generator to Grid per S32.1.A, Synchronizing Main Generator To Grid.	
	[S32.1.A 4.2] Enter load set of 103% on digital EHC	
	[S32.1.A 4.3] NOTIFY TSO prior to synchronization	
	[S32.1.A 4.4] ENSURE SYNCH SPEED selected at 10C653 DEHC HMI	
	[S32.1.A 4.5] ENSURE 43-G103C/S, "TRANSFER" in "MANUAL"	
	[S32.1.A 4.6] ENSURE manual voltage control is at low limit	
	[S32.1.A 4.7/8] PLACE 41-G102/CS, "FIELD BKR", in "CLOSED" and check confirming indications of breaker closed	
	[S32.1.A 4.9 – 4.13] ADJUST 70-G103/CS, "MANUAL" to obtain generator terminal voltage of 20KV on V/G101	
	[S32.1.A 4.14] CONFIRM generator frequency is 60 Hz as indicated on F/G101	
	[S32.1.A 4.15] Slowly ADJUST 70-G103C/S, "MANUAL" to obtain generator terminal voltage of 22KV	
	[S32.1.A 4.17] Null Automatic and Manual voltage regulators, with voltage regulator left in AUTO position and set at Zero (0).	
	[S32.1.A 4.18 - 19] PLACE 43-G103/CS "TRANSFER" in "AUTO" and confirm red indicating light lit above switch 43-G103C/S	
	[S32.1.A 4.20] ENSURE "SYNC CK RELAY SEL" switch in "NORMAL"	
	[S32.1.A 4.21] PLACE Synch switch on for 535 OR 635 breaker	



EVENT 1 Synchronize Main Generator

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond as directed for floor support.

When requested to ensure all personnel clear of Main Transformers and Generator Output Breakers:

report: All personnel are clear of Main Transformers and Generator Output Breakers.
to MCR

If requested to remove Iso-Phase Heaters from service:

report: Iso Phase heaters will be removed as directed S34.1. A, Normal Operation of Iso-Phase Bus Cooling System to MCR

If requested to perform S10.7.C, Service Water Flow Adjustments

report: S10.7.C, Service Water Flow Adjustments will be performed to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 1 Synchronize Main Generator		
	[S32.1.A 4.22] CONFIRM S/UAS, "SYSTEM" rotating with synchronizing lights flashing AND V/I-UAS, "INCOMING," energized	
	[S32.1.A 4.23] ADJUST 90P-G103, "AUTO" to set V/I-UAS, "INCOMING" to 0 to 3 volts higher than V/R-UAS, "RUNNING"	
	[S32.1.A 4.24] ENSURE S/UAS, "SYSTEM", is rotating slowly in the FAST (clockwise) direction using 90-G101A, "INCREASE LOAD" or 90-G101B, "DECREASE LOAD"	
	[S32.1.A 4.25] PERFORM the following to synchronize the generator: <ul style="list-style-type: none">• ENSURE personnel clear of main transformers AND generator output breakers• WHEN S/UAS "SYSTEM", is approximately 3 degrees before vertical, CLOSE selected output breaker• CONFIRM generator output breaker closed.• CONFIRM S/UAS, "SYSTEM" stops in vertical position• ENSURE all Turbine Bypass Valves are closed	
	[S32.1.A 4.26] TURN Generator synch switch to "OFF" for generator breaker closed in	
	[S32.1.A 4.27] PLACE Synchronization switch to "ON" for other generator output breaker	
	[S32.1.A 4.28] VERIFY Generator is synchronized to grid	
	[S32.1.A 4.30] ADJUST Load Set to 10% higher than reactor power	
	[S32.1.A 4.31] VERIFY associated ring bus breakers are closed	
	[S32.1.A 4.32] PLACE "SYNCH CK RELAY SEL" switch in "BYPASS"	
	[S32.1.A 4.33] CLOSE second Generator Output Breaker	
	[S32.1.A 4.34] PLACE "SYNCH CK RELAY SEL" switch in "NORMAL"	



EVENT 1 Synchronize Main Generator

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond as directed for floor support.

If requested to remove Iso-Phase Heaters from service:

report: Iso Phase heaters will be removed as directed S34.1. A, Normal Operation of Iso-Phase Bus Cooling System to MCR

If requested to perform S10.7.C, Service Water Flow Adjustments

report: S10.7.C, Service Water Flow Adjustments will be performed to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 1 Synchronize Main Generator		
	[S32.1.A 4.35] PLACE Generator synch switch to "OFF" for generator breaker closed in	
	[S32.1.A 4.36] PERFORM the following at 10C653, DEHC HMI, LOAD CONTROL display: <ul style="list-style-type: none">• ENTER LOAD TARGET value of 105%• SELECT FAST 10%/MIN in TURBINE LOAD RAMP RATES window• SELECT GO in TURBINE LOAD CONTROL• VERIFY LOAD SET increasing• VERIFY LOAD SET and TARGET are at 105%	
	[S32.1.A 4.37] NOTIFY TSO and Portfolio Operations Generation Dispatcher that Main Generator Voltage Regulator is in "AUTO"	



EVENT 2 Raise Reactor Power with Control Rods

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond as requested for floor support.

Following synchronizing the generator to the grid, the crew will raise reactor power by withdrawing control rods. As control rod 14-23 is selected and withdrawal attempt made, the RO will determine the control rod is stuck.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 2 Raise Reactor Power with Control Rods		
EVALUATORS NOTE: The following steps are directed in S73.1.A, Normal Operation Of The Reactor Manual Control System, for <u>each</u> Control Rod withdrawn.		
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. <ul style="list-style-type: none">• 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
	[S73.1.A 4.3.14] IF control rod is positioned to notch position 48, THEN PERFORM an overtravel check per ST-6-107-730-1, Control Rod Coupling Check	RO
	Select next control rod in sequence	RO



EVENT 3 Stuck Control Rod

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 14-23 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 14-23, as directed by S73.1.A, step 4.4.4: **AND** at evaluators request:

DELETE MRD016D Control Rod 14-23 fails stuck allowing control rod movement.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 3 Stuck Control Rod		
EVALUATORS NOTE: The following steps are directed per S73.1.A, Normal Operation Of The Reactor Manual Control System, for <u>each</u> Control Rod withdrawn, and if required, ON-104, Control Rod Problems.		
EVALUATOR: As reactor operator makes several attempts to withdraw control rod 14-23, as directed by S73.1.A, step 4.4.4: NOTIFY simulator driver to: DELETE Control Rod 14-23 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 14-23	RO
	NOTIFY CRS that a control rod 14-23 failed to move on a withdraw command	RO
	CRS references Tech Spec 3.1.3.1 for Inoperable Control Rod.	CRS
	CRS directs PRO to attempt rod withdraw IAW S73.1.A, Normal Operation Of The Reactor Manual Control System section 4.4	CRS
	[S73.1.A 4.4.1] VERIFY no rod block exists	
	[S73.1.A 4.4.3] IF control rod is at notch position 00, depress and hold INSERT pushbutton for ~ 2 minutes	RO
	[S73.1.A 4.4.4] ATTEMPT several single notch withdrawals using WITHDRAW pushbutton	RO
EVALUATORS NOTE: 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.		



EVENT 4 '1C' Core Spray Pump Suction Leak

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Manually actuate Trigger # 2 when directed by Lead Evaluator to activate alarms for Core Spray Pump Room flooding.

When directed to investigate "1C" Core Spray Pump room flooding alarm, after 4 minutes report: "There were no indications of leakage around the outside of the pump room door so I cracked opened the door and there is approximately 3" of water on the floor. There is an active leak at the pump suction between the suction valve and the pump."

When the crew contacts the Radwaste Control room, report that both Unit 1 Reactor Enclosure Sump Pumps are running.

If requested for a leakage rate, report that leakage is approximately 1 gpm.

After the crew has taken action to close the Core Spray Pump suction valve, report that the leak appears to have stopped and level in the room is lowering.

After the crew has isolated the leak, after 5 minutes, delete annunciator 113 A-3. After an additional 5 minutes delete annunciator 127 H-4.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 4 '1C' Core Spray Pump Suction Leak		
	Respond to alarm: <ul style="list-style-type: none">113 A-3, CORE SPRAY PUMP ROOM FLOOD	RO/PRO
	Dispatch EO/FSSV to '1C' Core Spray Pump room and notify EO to check for indications of leakage around the Pump Room door before attempting to crack open the door	PRO
	Enter SE-4 following report of active leak in the room	SRO
	Enter T-103 following report of active leak in the room	SRO
	Establish Suppression Pool level as critical parameter	SRO
	Monitor Suppression Pool level	PRO
	Determine Suppression Pool level is lowering slowly	PRO
	Direct performance of T-290	SRO
	Respond to alarm: <ul style="list-style-type: none">127 H-4, REACTOR ENCLOSURE FLOOR DRAIN SUMP HI-HI WATER LEVEL	PRO
	Contact Radwaste Control Room to verify operation of U1 Reactor Enclosure Sump Pumps	PRO
	Re-enter T-103	SRO
	Direct closing HV-52-1F001C Suction Valve to isolate leak	SRO
	Place HV-52-1F001C keyswitch to CLOSE (Critical Task)	PRO
	Reference Tech Spec 3.5.1	CRS



EVENT 5 Loss of Div I DC (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Manually actuate Trigger # 3 when directed by Lead Evaluator to insert loss of DIV 1 DC.

Respond to request for assistance as appropriate.

At time 5 min after FSSV or EO action requested to investigate loss of DIV 1 DC:

report: A fault has occurred in the main fuse panel to MCR

At time 5 min after FSSV or EO action requested to investigate Steam Flooding Damper Panels 10C234 and 10C245 on loss of DIV 1 DC:

report: Half of the dampers indicate loss of power but no steam flooding dampers indicate closed (red lights) to MCR



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 Loss of Div I DC (Abnormal)		
	Reference appropriate ARCs: <ul style="list-style-type: none"> • 120 G-1, 1 UNIT DIV 1 SFGD BATTERY CHARGERS TROUBLE • 120 G-2, 1DA-1 250V DC MCC UNDERVOLTAGE • 120 G-3, 1PPA1/1PPA3 125VDC DIST PANELS UNDERVOLTAGE • 120 G-4, 1PPA2 125VDC DC DIST PANEL UNDERVOLTAGE • 120 D-1, D11 TROUBLE • 120 D-2, D11 STANDBY AC POWER SYS OUT OF SERVICE • 120 E-3, DIV 1 MCC SHUNT TRIP COIL AUX CIRCUIT UNDERVOLTAGE • 120 E-4, DIV 1 MCC SHUNT TRIP COIL UNDERVOLTAGE • 120 F-5, 1A RPS & UPS DIST PNL. TROUBLE • 120 A-5, 1A 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 	
	Recognize/report loss of Div 1 DC	RO/PRO
	Enter and execute E-1FA, Loss of Division 1 Safeguard 125/250 VDC Bus 1FA	CRS
EVALUATORS NOTE: The following steps are directed in E-1FA, Loss of Division 1 Safeguard 125/250 VDC Bus 1FA.		
	[E-1FA 1.1.3] Recognize RCIC and DIV 1 ADS unavailable upon loss of DC	CRS/PRO
	[E-1FA 2.2] VERIFY RE/RF isolations per S76.9.A, Verification of Reactor Enclosure or Refueling Floor Secondary Containment Isolation	PRO
	Verify SGBT and RERS fan start and maintain Secondary Containment due to Reactor Enclosure and Refueling Floor Secondary Containment Isolation	PRO
	[E-1FA 2.3] REFER to S94.2.B, By-passing and Removing the *ARPS and UPS Static Inverter from Service, and remove 1A RPS/UPS Inverter from service	PRO
	[E-1FA 3.3] Dispatch floor personnel to Steam Flooding Damper panels 10C234 and 10C245	PRO
	[E-1FA 3.4] Dispatch appropriate personnel to investigate loss of Div 1 DC	
	[E-1FA 3.5] CONSIDER using DIV 3 ADS from AER	CRS



EVENT 5 Loss of Div I DC (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 Loss of Div I DC (Abnormal)		
	[E-1FA 2.1] Direct to Manually INITIATE MCR Chlorine Isolation per S78.8.A	CRS
	Refer to E-1FA Attachment 1 for Confirming Indication Annunciators for loss of DIV 1 DC	CRS/PRO
	Initiate Chlorine Isolation per S78.8.A	PRO
EVALUATORS NOTE: The following steps are directed in S78.8.A, Manual Initiation of Control Room Radiation or Chlorine/Toxic Chemical Isolation. (section 4.4)		
	Initiate a manual MCR Chlorine Isolation per S78.8.A, (section 4.4) (Malfunction – Div 1 DC): <ul style="list-style-type: none">- Ensure HS-78-010A in AUTO- Ensure HS-78-010B in STANDBY- Place HS-78-017C in RESET C- Place HS-78-017A in RESET A- Place HSS-78-017C, TRIP C to "Cl2"- Place HSS-78-017A, TRIP A to "Cl2"- Place HS-78-017C in AUTO- Place HS-78-017A in AUTO- Depress and Release HSS-78-017C, TRIP C- Depress and Release HSS-78-017A, TRIP A- Record CREFAS Run time in log- Ensure CHLOR ISLN Channel A, C amber lights are lit- Verify CONTROL ROOM CHLORINE ISOLATION INITIATED annunciator is alarmed at 002 VENT A-2- Verify CONTROL ROOM ISOLATION NOT COMPLETE annunciator is <u>not</u> alarmed at 002 VENT A-3, after 25 seconds- Ensure 0A-V127 Emergency Air Fan A is running- Ensure 0A-V116, Control Room Air Supply Fan is running- Ensure 0A-V121, Control Room Air Return Fan is running- Verify PDI-78-054, Control Room Air Inside/Outside ΔPX, is 0 inches water, after allowing time for positive pressure to decay	PRO



EVENT 5 Loss of Div I DC (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 Loss of Div I DC (Abnormal)		
EVALUATORS NOTE: The following steps are directed in S78.8.A, Manual Initiation of Control Room Radiation or Chlorine/Toxic Chemical Isolation. (section 4.5)		
	Initiate a manual MCR Chlorine isolation per S78.8.A (section 4.5) <ul style="list-style-type: none">- Place HS-78-017D in RESET D- Place HS-78-017B in RESET B- Place HSS-78-017D, TRIP D to "Cl2"- Place HSS-78-017B, TRIP B to "Cl2"- Place HS-78-017D in AUTO- Place HS-78-017B in AUTO- Depress and Release HSS-78-017D, TRIP D- Depress and Release HSS-78-017B, TRIP B- Record CREFAS Run time in log- Ensure CHLOR ISLN Channel B, D amber lights are lit- Verify CONTROL ROOM CHLORINE ISOLATION INITIATED annunciator is alarmed at 002 VENT A-2- Ensure 0B-V127 Emergency Air Fan A is running- Ensure 0A-V116, Control Room Air Supply Fan is running- Ensure 0A-V121, Control Room Air Return Fan is running- Verify PDI-78-054, Control Room Air Inside/Outside ΔPX, is 0 inches water, after allowing time for positive pressure to decay	PRO
	CRS briefs crew on impact of loss of DIV 1DC including inability to remotely or automatically start: <ul style="list-style-type: none">• '1A' RHR• '1A' Core Spray• '1A' ADS• RCIC• '0A' ESW• '0A' RHRSW• D11 Diesel Generator	CRS
	Dispatches EO or Floor Supervisor to investigate loss of DC bus	PRO/RO
	Crew contacts I&C for support	
	Crew contacts WWM for support	
	SRO references Tech Spec due to loss of DIV 1 DC	



EVENT 5 Loss of Div I DC (Abnormal)

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

Respond to request for assistance as appropriate.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 Loss of Div I DC (Abnormal)		
EVALUATORS NOTE: The following Tech Specs will be referenced as directed by E-1DA, due to loss of DIV 1 DC depending on time allotted:		
	Reference the following Tech Specs due to loss of DIV 1 DC: <ul style="list-style-type: none">• 3.8.2.1.c DC Sources (2 hr. LCO)• 3.8.3.1.b Onsite Power Distribution (8 hr. LCO)• 3.7.3 RCIC• 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• 3.7.1.1 RHRSW• 3.8.1.1 One Offsite Source and D11 Diesel Generator	CRS



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger.

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

Ensure Trigger # 5 automatically actuates to initiate LOCA, when the RMS is placed in SHUTDOWN.

Respond to request for assistance as appropriate.

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
EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break		
	Reference appropriate ARCs: <ul style="list-style-type: none"> • 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	CRS
EVALUATOR NOTE: The following steps are directed by OT-101, High Drywell Pressure.		
	CRS establishes Drywell pressure as Critical Parameter	CRS
	CRS establishes Drywell pressure to perform manual scram	CRS
	CRS directs OT-101, High Drywell Pressure Attachment. 4	CRS
	[OT-101, Att. 4] PRO secures and isolates RWCU (time permitting) <ul style="list-style-type: none"> • SECURE operating RWCU pumo(s) • ENSURE the following valves closed: <ul style="list-style-type: none"> • HV-C-044-1F003 • HV-44-1F001, INBD • HV-44-1F004, OUTBD • HV-44-1F100, BOTTOM HEAD DRAIN • HV-44-1F105, INLET FLOW 	PRO
	[OT-101, Att. 4] IF RWCU removed from service, perform S44.2.A. (time permitting)	PRO
	[OT-101, Att. 4] ENSURE Main Steam Line drains closed	PRO
	[OT-101, Att. 4] Crew recognizes that Drywell pressure continues to rise following RWCU isolation	CRS/RO
	CRS directs GP-4 Rapid Plant Shutdown	CRS



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

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
EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break		
EVALUATORS NOTE: The following steps are directed by GP-4, Rapid Plant shutdown to Hot Shutdown, T-101, RPV Control and T-102, Primary Containment Control.		
	[GP-4 3.1] TRANSFER house loads to startup buses per S91.6.B.	PRO
	[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	RO
	CRS enters T-101 and T-102 on Hi Drywell Pressure	CRS
	[T-101 RC-4] Place Mode Switch in SHUTDOWN	RO
	RO reports to crew failure of 'A' RPS to de-energize	RO
	[T-101 RC-5] Initiate RRCS (Critical Task)	RO
	Report control rod motion and all rods inserted	RO
	Report downscale on all APRMs	RO
	[T-101 RC-6] Insert SRM's and IRM's	RO
	[T-101 RQ-2] Ensure Turbine trip and Generator Lockout	CRS/PRO
	[T-101 RC/L-4] Restore and maintain RPV level between +12.5 inches and +54 inches	
	[T-101 RC/P-4] Stabilize RPV pressure below 1096 psig	RO
	When Drywell temperature exceeds 145 °F, re-enter T-102	RO
	[T-102 DW/T-5] Maximize Drywell Cooling bypassing isolations per GP-8 as necessary	CRS
	When Drywell temperature exceeds 145 °F, verify DWCW Head Tank level, then bypass isolations and maximize Drywell cooling	PRO
	Secure Recirculation Pumps running without cooling	PRO



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

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
EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break		
	[T-101 RC-5] Verify isolations on RPV level <+12.5"	PRO
	[T-101 RC-5] Verify isolations on 1.68 psig Drywell pressure	PRO
	Verify HPCI System initiation on 1.68 psig Drywell pressure	PRO
	If not required for core cooling, minimize RCIC/HPCI System injection flow	RO/PRO
	[T-102 PC/P-5] DIRECT Before Supp Pool pressure reaches 7.5 psig Spray the Suppression Pool per T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation	CRS
	[T-102 PC/P-5] PERFORM 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
EVALUATOR NOTE: The following steps are performed as directed by T-225, Startup and Shutdown of Suppression Pool and Drywell Spray Operation. NOTE: Failure of DIV 1 DC will prevent 1AP202 "RHR Pump" and "0A" RHRSW from being placed in service. The crew will perform all RHR functions on the "B" Loop RHR Systems.		
	[T-225 4.2.3] IF RHR pump not running THEN start 1A(B)P202 "RHR Pump"	PRO
	[T-225 4.2.4] ENSURE the following valves open: <ul style="list-style-type: none"> HV-51-1F047A(B), "1A(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



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

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
EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break		
	[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
EVALUATOR NOTE: The following steps are performed as directed by S12.1.A, RHR Service Water System Startup. NOTE: Failure of DIV 1 DC will prevent 1AP202 "RHR Pump" and "0A" RHRSW from being placed in service. The crew will perform all RHR functions on the "B" Loop RHR/RHRSW Systems.		
	[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 4.1.10 or App1 1.6] IF 'B' Loop pump (0B(D)-P506) is to be placed in service, THEN ENSURE 0B-V543 OR 0D-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681. OR 0C-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-102 DW T-5] Maximize DW cooling bypassing isol per GP-8 as necessary	CRS/PRO



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

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
EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break		
	[T-225 4.2.9] CLOSE HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS)	PRO
	[T-225 4.2.10] IF more spray flow is required, THEN REDUCE flow through Full Flow Test line by throttling closed HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B))	PRO
	Recognize Suppression Pool pressure rising at faster rate and determine possible downcomer break	Crew
	[T-102 PC/P-9] Recognize SAFE side of the Pressure Suppression Pressure (PSP) curve (Curve PC/P-3) cannot be maintained	CRS
	[T-102 PC/P-12] WHEN (or BEFORE) UNSAFE side of the Pressure Suppression Pressure (PSP) curve (Curve PC/P-3) cannot be maintained, enter T-112	CRS
EVALUATORS NOTE: The following steps are directed from T-112, Emergency Blowdown. NOTE: Failure of DIV 1 DC will prevent using DIV 1 ADS. The crew will utilize DIV 3 ADS from the MCR or AER.		
	[T-112 EB-11] DIRECT Open all 5 ADS valves using (DIV 3 ADS)	CRS
	[T-112 EB-11] PERFORM Open all 5 ADS valves using DIV 3 ADS (Critical Task)	RO/PRO
EVALUATORS NOTE: 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. : Failure of DIV 1 DC will prevent 1AP202 "RHR Pump" and "0A" RHRSW from being used.		
	[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	PRO
	[T-225 4.5.1] ENSURE HV-51-1F004A(B), "1A(B) RHR Pump Suction PCIV" (SUCTION A(B)), open	PRO



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

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
EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break		
	[T-225 4.5.2] ENSURE the following valves closed: <ul style="list-style-type: none"> HV-51-1F006A(B), "1A(B) RHR Pp S/D Clg Suct Intertie Vlv" (SUCTION A(B)) HV-51-1F015A(B), "1A(B) Shutdown Clg Injection PCIV" (OUTBOARD A(B)) HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD A(B)) HV-51-1F017A(B), "1A(B) RHR LPCI Inj PCIV" (OUTBOARD A(B)) 	RO/PRO
	[T-225 4.5.3] IF RHR pump not running THEN START 1A(B)P202 "RHR Pump"	PRO
	[T-225 4.5.4] ENSURE the following valves open: <ul style="list-style-type: none"> HV-51-1F047A(B), "1A(B) RHR Htx Shell Side Inlet Vlv" (INLET) HV-51-1F003A(B), "1A(B) RHR Htx Shell Side Outlet Vlv" (OUTLET) HV-C-51-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Vlv" (HEAT EXCH BYPASS) 	PRO
	[T-225 4.5.5] TRIP Reactor Recirc Pumps	PRO
	[T-225 4.5.6] REMOVE Drywell Cooling Fans from service by placing all 16 Drywell Cooler Fan switches to "OFF"	PRO
	[T-225 4.5.7] IF Drywell High Pressure AND LOCA signals are present, THEN GO TO step 4.5.11	PRO
	[T-225 4.5.11] OPEN HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv" (SUPP POOL CLG A(B)), AND OBTAIN flow of 9,250 to 10,500 gpm as indicated on FI-51-1R603A(B), FL	PRO
	[T-225 4.5.12] OPEN only one loop HV-51-1F021A(B), "1A(B) RHR Cntmt Spray Line Inboard PCIV" (INBOARD)	PRO
	[T-225 4.5.13] REQUEST SSV verify drywell temperature AND drywell pressure are on SAFE side of Drywell Spray Initiation Limit Curve per T-102, Primary Containment Control OR SAMP-1, RPV and Primary Containment Flooding Control	PRO



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

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 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"



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break		
	[T-225 4.5.14] Throttle OPEN only one loop HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD) to initiate spray AND OBSERVE raising flowrate as indicated on FI-51-1R603A(B), FL.	PRO
	[T-225 4.5.15] MONITOR Drywell pressure.	Crew
	[T-225 4.5.16] Throttle OPEN HV-51-1F016A(B), "1A(B) RHR Cntmt Spray Line Outboard PCIV" (OUTBOARD) AND Fully CLOSE HV-51-1F024A(B), "1A(B) RHR Pp Full Flow Test Return Vlv", (SUPP POOL CLG A(B)) AND OBTAIN flow of 9,250 to 10,500 gpm as indicated on FI-51-1R603A(B), FL (Critical Task)	PRO
	[T-225 4.5.17] PLACE RHR Service Water Pump for RHR Heat Exchanger to be used in service per S12.1.A, RHR Service Water System Startup.	PRO
	[T-225 4.5.18] CLOSE HV-C-1F048A(B), "1A(B) RHR Htx Shell Side Bypass Valve" (HEAT EXCHANGER BYPASS).	PRO
EVALUATORS NOTE: The following steps are from SE-10, LOCA.		
NOTE: Failure of DIV 1 DC will prevent closing the 52-20124/CS, "D*14 Safeguard L.C. D*14-G-D MCC Bkr" (SAFEGUARDS A), on *AC661		
	Recognize LOCA signal when RPV pressure drops below 455 psig	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" <ul style="list-style-type: none"> 52-20224/CS, "D*24 Safeguard L.C. D*24-G-D MCC Bkr" (SAFEGUARDS B), on *BC661. NOTE: Failure of DIV 1 DC will prevent closing the 52-20124/CS, "D*14 Safeguard L.C. D*14-G-D MCC Bkr" (SAFEGUARDS A), on *AC661	RO



EVENT 6 Drywell Leak

EVENT 7 RPS Failure

EVENTS 8-9 Steam Leak in Drywell/Downcomer Break

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
	EVENT 6 Drywell Leak EVENT 7 RPS Failure EVENTS 8-9 Steam Leak in Drywell/Downcomer Break	
	[SE-10 3.2] PLACE to "RESET": <ul style="list-style-type: none">43-22322/CS, "Div. III Non SFGD Instr. Panel" (INST AC 201 CONTROL PNL), on *CC66143-22422/CS, "Div. IV Non SFGD Instr. Panel" (INST AC 202 CONTROL PNL), on *DC661	
	Restart CRD and SLC after LOCA signal (if required)	
	[SE-10 4.3] Maintain ECCS for injection IF Low Pressure ECCS is not required to restore RPV level, THEN ALIGN per SSV direction	



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EAL CLASSIFICATION at completion of scenario		
	The SRO declares an ALERT (FA1) due to Threshold: RC-3.1 Drywell Pressure >1.68 psig <u>OR</u> RC-3.2 Drywell Pressure rise due to RCS leakage	CRS



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
	<p>Rough Log maintained by the crew with the following items noted:</p> <ul style="list-style-type: none">• Synchronize Main Generator to grid• Raise reactor power• Control Rod 14-23 fails stuck• "1C" Core Spray Pump suction leak• "1C" Core Spray Pump inop, Tech Spec 3.5.1• Loss of Division 1 DC, E-1FA entry (Tech Spec 3.8.2)• ECCS systems OOS due to loss of DIV 1 DC• Drywell leak, OT-101 entry• T-101 and T-102 entries on Drywell pressure• SE-10, LOCA• Downcommer break• 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
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: _____

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XII. CREW PREBRIEF INSTRUCTIONS

- Unit 1 is in OPCON 1 at 18% power with STARTUP in progress
- Unit 2 is in OPCON 1 at 100% power

Specific Plant Conditions are as Follows:

- Main Generator is ready for synch per S32.1.A U/1, Synchronizing Main Generator To Grid

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

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Synch Main Generator to the Grid.
- Continue withdrawing Control Rods per Reactor move sheet.
- Reactor Engineering has determined there are no known Channel Distorted Control Rods.

Documents Provided:

- S32.1.A U/1, Synchronizing Main Generator To Grid
- GP-2, Normal Plant Startup



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

CODE NO:	SEG-6215E	REV NO:	000
AUTHOR:	L. S. STANFORD	APPROXIMATE RUN TIME:	70 minutes
TYPE:	SIMULATOR EVALUATION GUIDE	EFFECTIVE DATE:	
PROGRAM:	LICENSED OPERATOR TRAINING		
COURSE:	LICENSED OPERATOR (REQUALIFICATION/INITIAL) TRAINING		
TITLE:	Simulator Evaluation Guide for Individual and Crew Performance		

Prepared By: _____ Date: _____
Training Instructor - Signature

Reviewed By: _____ Date: _____
Program (ILT or LOR) Lead - Signature

Reviewed By: _____ Date: _____
EP (as appropriate) - Signature

Reviewed By: _____ Date: _____
RE (as appropriate) - Signature

Approval: _____ Date: _____
OPS Manager - Signature

Approved For Use: _____ Date: _____
Training Manager - Signature

**Appendix D****Scenario Outline****Form ES-D-1**Facility: Limerick 1 & 2 Scenario No.: 4 Rev 0 Op-Test No.: 1

Examiners: _____ Operators: _____

Initial Conditions:

Unit 1 is at 95 % power for rod recovery following control rod maintenance.

Turnover:

The crew is expected to withdraw the 2 maintenance rods per the ReMA and restore power to 100% with Recirc flow.

Event No.	Malfunction Number	Event Type*	Event Description
1	N/A	R-RO	Withdraw control rods and restore power to 100%
2	MPR011B	C-RO TS-SRO	RBM 'B' fails upscale
3	VIM116A01	C-PRO	'1A' EHC Pump vibrations
4	MRE001A MRE311A MRE311B MRE311C	C-PRO TS-SRO	Refuel Floor isolates with failure of SGTS
5	MAD141E	C-PRO C-RO	1E SRV fails open mechanically
6	MRD556 MSL559	M	Hydraulic ATWS with SLC Line rupture
7	MRD024	C-RO	RDSCS fails
8	MMT100 MEH108	C-RO C-PRO	Turbine High Vibration requiring manual trip/Bypass Valves fail closed
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor			



- I. **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.

II. **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-111, Loss of Secondary Containment
 - Direct and perform actions per OT-114, Inadvertent Opening of a Relief Valve
 - Direct and perform actions per SE-10, LOCA
 - Direct and perform actions per T-101, RPV Control
 - Direct and perform actions per T-102, Primary Containment Control
 - Direct and perform actions per T-117, ATWS Level Control



III. 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

IV. REVISION HISTORY:

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

Revision Number	Description of Revision and Affect on Training Content	Date of Revision
Rev000	This is a modified version of scenario 3 from the 2005 NRC Exam	10/12/14



V. SCENARIO EVENT AND EVALUATION SUMMARY:

- Event One: When the crew takes responsibility, the RO will be directed to withdraw control rods per the provided ReMA and restore power to 100% with Recirc flow.
- Evaluation: To evaluate the RO's ability to operate RMCS to withdraw control rods and raise Recirc flow using ASD controls.
- Event Two: When the 2nd control rod is selected, the '1B' RBM will fail upscale and generate a rod block.
- Evaluation: To evaluate the RO's ability to recognize the RBM failure and rod block. The SRO will direct the RO to bypass the RBM after referencing Tech Specs. After the RBM is bypassed, the RO will continue withdrawing the control rod.
- Event Three: Once both maintenance rods have been withdrawn and Reactor power has been restored to 100% with Recirc, the '1A' EHC Pump will experience high vibrations.
- Evaluation: To evaluate the PRO's ability to recognize rising vibrations using Vibration Monitoring. The SRO is expected to direct the PRO to place the '1B' EHC Pump in service and secure the '1A' Pump.
- Event Four: After the '1B' EHC Pump is in service, a loss of Refuel Floor ventilation will occur resulting in a Secondary Containment isolation, however, Standby Gas Treatment will fail to auto start to restore delta P on the Refueling floor.
- Evaluation: To evaluate the crew's ability to recognize failure of Standby Gas to start on a valid initiation signal and enter ON-111 for loss of Secondary Containment and manually start the '1B' Standby Gas fan. The SRO will reference Tech Specs and determine that both Standby Gas fans are inoperable and stop fuel handling activities on the Refuel Floor.
- Event Five: After Standby Gas has been placed in service, the '1E' SRV will fail open mechanically.
- Evaluation: To evaluate the crew's ability to enter and execute OT-114 for the stuck open SRV and place 2 loops of Suppression Pool Cooling in service and reduce Turbine Inlet pressure in an attempt to close the SRV.



- Event Six:** The SRV will remain open after Turbine Inlet pressure has been lowered requiring a rapid plant shutdown. When the RO attempts to scram the reactor, a hydraulic ATWS will occur with 175 control rods failing to scram. Complicating the event, the SLC injection line will rupture in the Drywell.
- Evaluation:** To evaluate the crew's ability to enter and execute T-101 and T-117 and direct performance of T-217 to insert control rods. The RO will also secure the SLC pumps after recognizing low discharge pressure.
- Event Seven:** The RO will manually insert rods until reactor power reaches 20% when Rod Drive Control will fail.
- Evaluation:** To evaluate RO's ability to diagnose RDCS failure and direct floor personnel to reset.
- Event Eight:** After Reactor level has been lowered to less than -50", the SRV will close but the Main Turbine will experience vibrations which will eventually result in a trip. Complicating the event will be a failure of the Turbine Bypass Valves.
- Evaluation:** To evaluate the crew's ability to control reactor pressure with SRV's after the Main Turbine trips and to terminate and prevent injection into the vessel per T-270 when Suppression Pool temperature exceeds 110 °F. The RO will control RPV level with Feedwater between -161" and -186" until T-217 has been completed to insert the control rods.
- Termination Point:** The scenario may be terminated when all rods have been inserted and RPV level has been stabilized above top of active fuel.



VI. REFERENCES

- A. Training Procedures
 - 1. TQ-AA-150, Operator Training Programs
 - 2. TQ-AA-155, Conduct of Simulator Training and Evaluation
 - 3. TQ-AA-155-F04, Simulator Evaluation Form – Individual
 - 4. TQ-AA-155-F05, Simulator Evaluation Form – Crew
 - 5. TQ-JA-155-03, Simulator Evaluation Job Aid
 - 6. TQ-JA-155-05, Evaluated Scenario Grading Flowchart
 - 7. TQ-JA-155-06, Simulator Evaluation Shift Manager Competency Standards
 - 8. TQ-JA-155-07, Simulator Evaluation STA or IA Competency Standards
 - 9. TQ-JA-155-08, Simulator Evaluation Individual Competency Standards
 - 10. TQ-JA-155-09, Simulator Evaluation Crew Competency Standards
 - 11. TQ-JA-155-11, Simulator Self Evaluation Form
- B. Annunciator Response Cards (ARC)
 - 1. 108 D-3, RBM UPSCALE/INOP
 - 2. 108 F-3, ROD OUT BLOCK
 - 3. 107 I-2, VIBRATION ALARM ALERT
 - 4. 107 I-3, VIBRATION ALARM DANGER
 - 5. 110 B-2, OPEN RELIEF VALVE
 - 6. 002 F-2, REFUELING FLOOR LOW DELTA P LOSS OF POWER / INOP
 - 7. 004 I-2, REAC ENCL / REFUELING FLOOR HVAC PANEL 10C206
 - 8. 108 E-4, RDCS INOPERATIVE
- C. System Procedures (S)
 - 1. S31.6.C, Swapping Operating EHC Pumps
- D. General Procedures (GP)
 - 1. GP-4, Rapid Plant Shutdown
- E. Off Normal Procedures (ON)
 - 1. ON-111, Loss of Secondary Containment
- F. Operating Transient Procedures (OT)
 - 1. OT-114, Inadvertent Opening of a Relief Valve
- G. Event Procedures (E)
- H. Special Event Procedures (SE)
 - 1. SE-10, LOCA
- I. Surveillance Test and Routine Test Procedures (ST and RT)
- J. Technical Specifications and TRM (TS)
 - 1. 3.1.4.3
 - 2. 3.3.6
 - 3. 3.6.5.3.5
 - 4. 3.0.3



- K. Transient Response Implementation Procedures (T-100 series)/SAMPs
 - 1. T-101, RPV Control
 - 2. T-102, Primary Containment Control
 - 3. T-117, ATWS Level Control
- L. TRIP 200 Series Procedures
 - 1. T-217, RPS/ARI Reset And Backup Method Of Draining Scram Discharge Volume
 - 2. T-251, Establish a HPCI Injection Flow Path via Feedwater Only
 - 3. T-270, Terminate And Prevent Injection Into the RPV
- M. EP-AA-1008, Limerick, Radiological Emergency Plan Annex for Limerick Generating Station



- N. Administrative Procedures
 - 1. OP-AA Procedures
 - a. OP-AA-1, Conduct of Operations
 - b. OP-AA-20, Conduct of Operations Process Description
 - c. OP-AA-101-111-1003, Operations Department Standards and Expectations
 - d. OP-AA-101-113, Operations Fundamentals
 - e. OP-AA-101-113-1006, 4.0 Crew Critique Guidelines
 - f. OP-AA-106-101-1006, Operational Decision Making Process
 - 2. OP-LG Procedures
 - a. OP-LG-101-111-1000, Licensed Operator Duties
 - b. OP-LG-102-106, Operator Response Time Program at Limerick
 - c. OP-LG-103-102-1000, Human Performance Continuing Good Practices
 - d. OP-LG-103-102-1002, Strategies for Successful Transient Mitigation
 - e. OP-LG-108-101-1001, Simple Quick Acts / Transient Acts
- O. Current Shift Night Orders Forced Outage Plan
- P. INPO Significant Operating Experience Reports (SOER), Significant Event Reports (SER) and INPO Event Reports (IER)
 - 1. IER-L1 11-3, Weaknesses in Operator Fundamentals
 - 2. SER 3-05, Weakness in Operator Fundamentals
 - 3. SOER 10-02, Engaged Thinking Organizations



VII. PREBRIEF INSTRUCTIONS

- Unit 1 is in OPCON 1 at 95% power
- Unit 2 is in OPCON 1 at 100% power

Specific Plant Conditions are as Follows:

- Power is lowered for maintenance rod recovery
- Refuel floor personnel are loading spent fuel into shipping casks

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

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Withdraw 2 rods inserted for maintenance per ReMA
- Raise power to 100% with Recirc per GP-5, Att. 1 per RE direction

Documents Provided:

- ReMA



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
	Complete Limerick Simulator Pre-Evaluation Checklist

B. SIMULATOR SETUP

✓	ITEM / MALFUNCTION / REMOTE FUNCTIONS
	Complete Limerick Simulator Pre-Evaluation Checklist
	Reset Simulator to IC- 129 OR Reset the simulator to IC-17 AND Load scenario file SEG-6215E 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 AND Fully insert control rods 02-23 and 54-23.
	Simulator Operator (Driver) perform the following: <ul style="list-style-type: none">• Momentarily place simulator in RUN• Acknowledge and clear all spurious alarms• Place the simulator back into FREEZE



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

Interventions Summary

Hide Malfunctions - 12

Show Remotes - 0

Show Overrides - 4

Show Annunciators - 0

Malfunction Summary

Mal ID	Mult ID	Description	Current Value	Target Value	Rmptime	Actime	Dactime	Trig
MPR217B		RBM Channel B Fails to Selected Value	0.00	125.0000		00:00:15		1
MRE312A		1A Refuel Floor Exhaust Fan Trips	False	True		00:00:20		3
MRE312B		1B Refuel Floor Exhaust Fan Trips	False	True		00:00:20		3
MRE312C		1C Refuel Floor Exhaust Fan Trips	False	True		00:00:20		3
MRE312D		1D Refuel Floor Exhaust Fan Trips	False	True		00:00:20		3
VIM116A01		1A EHC Fluid Pump VMS Probe 116A01 Fails	0.50	20.00000	00:10:00			2
MAD141E		Relief Valve (F013E) Fails (Fails Oper: Mechanical)	False	True		00:00:40		4
MRD556		Control Rods Fail to Scram (1-185) (Hydraulic Lock)	0.00	175.0000				2
MRD024		3A Injection Line Rupture Inside the Duct	True	True				
MRD024		Rod Drive Control System Failure	False	True		00:00:50		5
MMT100		Main Turbine High Vibration Bearings No. and 6	False	True		00:00:30		6
MEH108		Turbine Bypass Valves Fail to Selected Value (0-100%)	-4.63736	0.00	00:02:00			7

Timer Pause

Delete All

Active Pending

Interventions Summary

Show Malfunctions - 12

Show Remotes - 0

Show Overrides - 4

Show Annunciators - 0

Override Summary

Tag ID	Description	Position / Target	Actual Value	Target Value	Response	Active	Dactive	Trig
MPR217B	RBM Channel B Fails to Selected Value	0.00	0.00	125.00	OFF			1
MRE312A	1A Refuel Floor Exhaust Fan Trips	False	False	True	OFF			3
MRE312B	1B Refuel Floor Exhaust Fan Trips	False	False	True	OFF			3
MRE312C	1C Refuel Floor Exhaust Fan Trips	False	False	True	OFF			3
MRE312D	1D Refuel Floor Exhaust Fan Trips	False	False	True	OFF			3

☐ Timer Pause


Delete All

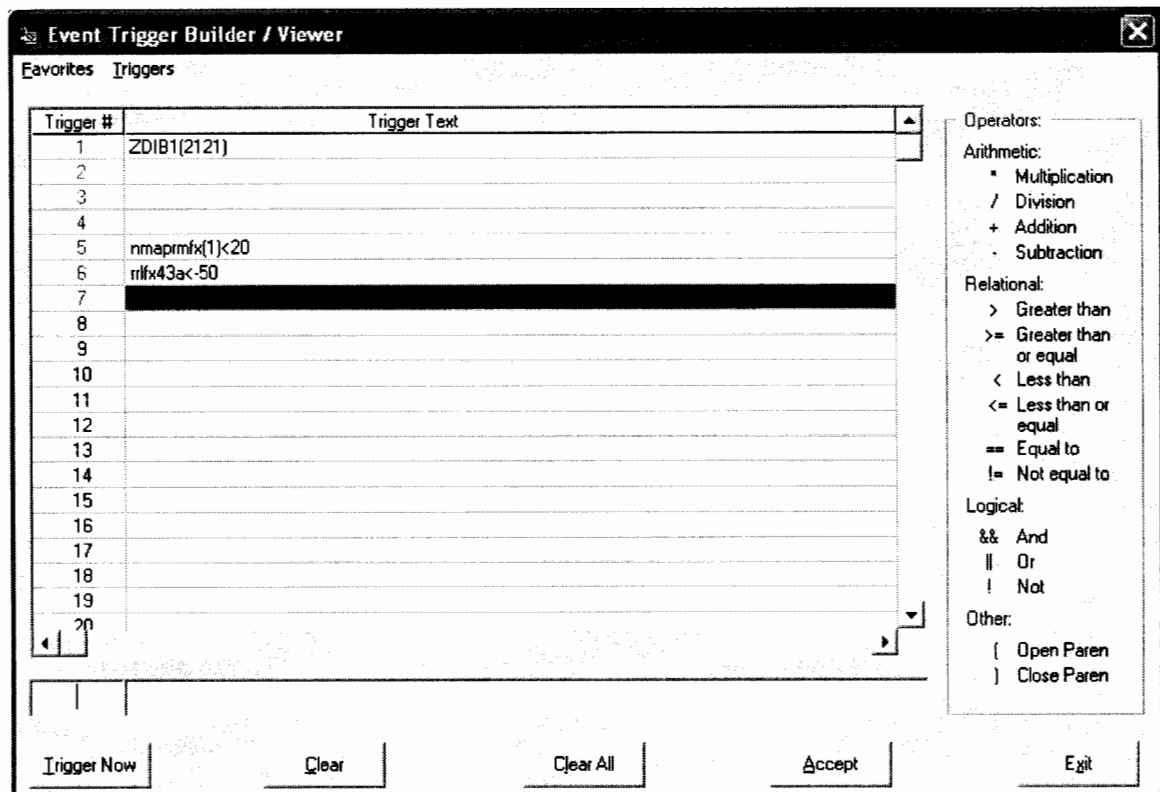
Active Pending



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	Auto / ZDIB1[2121]	Initiates 'B' RBM failure when rod 54-23 is selected
	2	Manual	Initiates 1A EHC Pump vibration
	3	Manual	Initiates Refuel Floor HVAC trip with failure of SGTS to auto start
	4	Manual	Initiates 1E SRV fails open mechanically
	5	Auto / NMAPRMFX(1)<20	APRM 1 < 20% initiates RDCS failure
	6	Auto / RRLWX43A<-50	Wide Range Level <-50" initiates Turbine vibration
	7	Manual	Activated after Turbine Trip to initiate BPV failure



Trigger #	Trigger Text
1	ZDIB1[2121]
2	
3	
4	
5	nmaprmfx(1)<20
6	rmlx43a<-50
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	

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 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. QUANTITATIVE ATTRIBUTES

QUANTITATIVE ATTRIBUTES			
ATTRIBUTE	MINIMUM NUMBER	ACTUAL NUMBER	DESCRIPTION (If Applicable)
TOTAL MALFUNCTIONS	5	6	See Assessment Items
MALFUNCTIONS AFTER EOP	1	2	See Assessment Items
ABNORMAL EVENTS	2	2	ON-111, OT-114
MAJOR TRANSIENTS	1	1	ATWS
EOPs USED BEYOND PRIMARY SCRAM RESPONSE	1	2	T-101, T-102
EOP CONTINGENCY PROCEDURES USED	1	1	T-117
CREW CRITICAL TASKS	2	4	T-117.1, T-117.7, T- 117.8, T-101.4
TECHNICAL SPECIFICATIONS EXERCISED	1	4	3.1.4.3, 3.3.6, 3.6.5.3.5, 3.0.3
EOP RUN TIME	40-70%	40%	
SCENARIO RUN TIME	45 Minutes	70 Min.	

Enter the level of difficulty (LOD) of each scenario using a
1 – 5 (easy – difficult) rating scale (LOD > 1 and < 5 are acceptable)

3.0



X. CREW CRITICAL TASKS

- A. Critical Tasks are based on the current Crew Critical Task List revision, NUREG 1123 Rev 2 Supplement 1 and TQ-AA-150 requirements.

T-117.1 Inhibit automatic ADS.

K/A	295037	EA2.06	4.0/4.1
K/A	218000	A4.04	4.1/4.1

Standard: Prevent automatic initiation of ADS.

SAT/UNSAT

T-117.7 Terminate and prevent injection into the RPV per T-270.

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: RPV level below -50" by Terminating and Preventing injection into the vessel per T-270.

SAT/UNSAT

T-117.8 Maintain RPV level between -186 inches and the level to which it was intentionally lowered.

K/A	295037	EA2.01	4.2/4.3
K/A	295037	EA2.02	4.1/4.2

Standard: RPV level maintained between -186 inches and -161 inches after initially raising RPV level into the required band. Any deviations from the RPV level band DO NOT require and Emergency Blowdown per T-117.

SAT/UNSAT



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

Standard: Direct the performance of T-217 to operations personnel located outside the control room.

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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EVENTS 1-2 WITHDRAW CONTROL RODS / RBM 'B' FAILS UPSCALE

Simulator Operator Instructions:

Ensure Trigger # 1 activates when control rod 54-23 is selected to initiate 'B' RBM failure.

Respond as directed for floor support.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENTS 1-2 WITHDRAW CONTROL RODS / RBM 'B' FAILS UPSCALE		
	Directs RO and PRO to raise reactor power via control rod withdrawal Evaluator Note: Scenario will proceed to next event, 1B RBM Inop failure, after the second rod is selected	SRO
	Applicant acquires S73.1.A, Normal Operation of RMCS, section 4.3 Establish 48 as target position for control rods Evaluator Note: If notch position 48 is the target position, then it is acceptable to hold CONTINUOUS WITHDRAW until position 48 is displayed	RO
	(Step 4.3.1) Applicant reviews Attachment 1, and determines that no rods are channel distortion susceptible (Step 4.3.2) Applicant verifies drive water pressure is 255 to 265 psid, as indicated on PDI-46-1R602, "Drive Water Differential Pressure Indicator." (Step 4.3.3) Selects the control rod to be withdrawn at 10C603, "Reactor Control Console." (Step 4.3.4) Verifies correct rod position is indicated on the Four Rod Display (Step 4.3.5) Applicant verbally informs peer checker of target position (48) and obtains peer checker concurrence (Step 4.3.6) Applicant verbally informs peer checker of notch position that the WITHDRAW and CONTINUOUS WITHDRAW push buttons will be released (48) and obtains peer checker concurrence (Step 4.3.7) Applicant simultaneously depresses WITHDRAW and CONTINUOUS WITHDRAW pushbuttons at 10C603	RO



EVENTS 1-2 WITHDRAW CONTROL RODS / RBM 'B' FAILS UPSCALE

Simulator Operator Instructions:

Respond as directed for floor support.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENTS 1-2 WITHDRAW CONTROL RODS / RBM 'B' FAILS UPSCALE		
	<div><p style="text-align: center;">NOTE</p><p>WHEN WITHDRAW AND CONTINUOUS WITHDRAW pushbuttons are depressed, THEN the proper RDCS light sequence is:</p><ol style="list-style-type: none">2. INSERT light Lit AND THEN extinguishes after approximately 0.6 seconds.3. WITHDRAW AND CONTINUOUS WITHDRAW lights it.</div> <p>(Step 4.3.8) Applicant verifies proper RDCS light sequence, and releases WITHDRAW and CONTINUOUS WITHDRAW pushbuttons when control rod reaches position 48.</p> <p>Evaluator Note: Applicant is expected to observe APRMs for proper NI response and monitor RBM indicated levels and rod position indication change to ensure proper rod motion. Applicant may receive an RBM rod block due to local power change around withdrawing control rod. If this happens, applicant will communicate to SRO, and deselect/reselect the desired control rod to re-initialize the RBM and continue with control rod withdrawal</p>	RO
	<p>(Step 4.3.11) Applicant verifies SETTLE light lit and then extinguishes after approximately 6.1 seconds</p> <p>(Step 4.3.13) Applicant verifies that the control rod has been withdrawn to target notch position (48) at Four Rod Display</p> <p>(Step 4.3.14) If control rod is positioned to notch position 48, then perform an overtravel check per ST-6-107-730-1, Control Rod Coupling Check</p>	RO
	<p>(ST-6-107-730-1, Step 4.3.2) When a control rod is withdrawn to FULL OUT position, the notch withdraw or continuous withdraw selected rod at panel 10C603</p> <p>(Step 4.3.3) Applicant verifies the following:</p> <ul style="list-style-type: none">-ROD OVERTRAVEL annunciator remains clear at panel 108 REACTOR-Individual rod selected indicates 48 on Four Rod Display (ROD HEIGHT) at panel 10C603-Individual rod selected RED <u>out</u> light is lit at the Full Core Display at panel 10C649 <p>(Step 4.3.4) Applicant documents successful completion of coupling check for selected control rod</p> <p>Evaluator Note: The above steps will be repeated for subsequent rods until RBM Inop failure begins Event 2</p>	RO



EVENTS 1-2 WITHDRAW CONTROL RODS / RBM 'B' FAILS UPSCALE

Simulator Operator Instructions:

Respond as directed for floor support.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENTS 1-2 WITHDRAW CONTROL RODS / RBM 'B' FAILS UPSCALE		
	Reports ARC-MCR-108 D-3 RBM UPSCALE/INOP alarm, and ARC-MCR-108 F-3 ROD OUT BLOCK.	RO
	Refers to the alarm response and verifies the indications on 10C653 and ODAs	RO
	Based on control room indications, reports INOP trip of 1B RBM	RO
	(ARC-MRC-108 D-3 Step 5) If the RBM is INOP, THEN perform the following: a. Determine IF the affected RBM can be bypassed (using the BYPASS joystick) per Tech Spec 3.1.4.3 AND 3.3.6 b. If RBM can be BYPASSED, then BYPASS the affected RBM AND contact I&C for troubleshooting	RO
	Consults Tech Specs 3.1.4.3 and 3.3.6, notes no required actions due to power >90% and MCPR >1.40	SRO
	Declares 1B RBM Inoperable and recognizes the failed RBM should be bypassed.	SRO
	Briefs crew on plant status and directs bypassing 1B RBM May contact RE to obtain concurrence to continue with rod withdrawal with RBM bypassed and direct ATC to continue rod withdrawal Evaluator Note: Once 1B RBM has been bypassed and Tech Specs referenced (or at discretion of chief examiner, control rod withdrawn), proceed to next event, Hotwell Level Controller Failure	SRO
	Places BLOCK CH BYPASS joystick down to B position	RO
	Verifies ARC-MCR-108 D-3 RBM UPSCALE/INOPERATIVE alarm, and ARC-MCR-108 F-3 ROD OUT BLOCK alarms clear. Report 1B RBM bypassed to SRO	RO
	Contacts WWM to investigate failure of 1B RBM	CREW



EVENT 3 'A' EHC PUMP VIBRATIONS

Simulator Operator Instructions:

Activate Trigger # 2 to initiate '1A' EHC Pump vibrations when directed by Lead Evaluator.

When dispatched to investigate '1A' EHC Pump, after 3 minutes report "'1A' EHC Pump is vibrating severely."

3 minutes after being directed to isolate PDI-31-101B for oncoming '1B' EHC Pump (step 4.3 of S31.6.C), report that step 4.3 is complete and that '1B' EHC Pump is ready for start.

If requested to verify oil pressure and no abnormal noise on '1B' EHC Pump (S31.6.C step 4.6) after 3 minutes report "EHC pressure is normal and '1B' EHC Pump is running SAT."

3 minutes after being directed to return PDI-31-101B to service for oncoming '1B' EHC Pump (step 4.8 of S31.6.C), report that step 4.8 is complete.

IMPORTANT DRIVER NOTE: When '1A' EHC Pump has been secured, delete malfunction VIM116A01 to remove vibrations.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 3 'A' EHC PUMP VIBRATIONS		
	Reference ARCs: <ul style="list-style-type: none">• 107 REACTOR I-2, VIBRATION ALARM ALERT• 107 REACTOR I-3, VIBRATION ALARM DANGER	PRO
	Acknowledge alarm at MCR vibration terminal and monitor VMS for indication of equipment being monitored	PRO
	Recognize/report rising vibration on '1A' EHC Pump	PRO
	Direct start of '1B' EHC Pump and removal of '1A' EHC Pump from service as directed by ARC with vibration greater than 8 mils	SRO
	Obtain copy of S31.6.C, Swapping Operating EHC Pumps	PRO
	[S31.6.C 4.3] Direct EO to perform step 4.3 of S31.6.C to isolate PDI-31-101B	PRO
	[S31.6.C 4.5] Place '1B' EHC Pump control switch to START	PRO
	[S31.6.C 4.6] Direct EO to verify EHC pressure on local indicator and no abnormal noise or vibration on '1B' EHC Pump per S31.6.C step 4.6	PRO
	[S31.6.C 4.7] <u>WHEN</u> on-coming pump has been running for 3 minutes AND EHC operation is stable <u>THEN</u> place '1A' EHC Pump control switch to STOP (Evaluator note: Crew may elect to secure '1A' EHC Pump prior to 3 minutes to prevent pump damage due to high vibrations after determining that '1B' EHC Pump is operating properly.)	PRO
	[S31.6.C 4.8] Direct EO to perform step 4.8 of S31.6.C to return PDI-31-101B to service	PRO
	[S31.6.C 4.9] Verify "EHC System Standby Pump Running" and "EHC System Standby Pump Not in Auto" alarms clear on 105 MAIN TURB	PRO
	[S31.6.C 4.10] Direct EO to perform S31.9.A, Routine Inspection of EHC system	PRO
	Contact WWM to investigate '1A' EHC Pump vibration	CREW



EVENT 4 REFUEL FLOOR ISOLATION WITH FAILURE OF SGTS

Simulator Operator Instructions:

Activate Trigger # 2 to initiate trip of Refuel Floor HVAC when directed by Lead Evaluator.

When dispatched to investigate 10C206 panel trouble, after 3 minutes report that all Unit 1 Refuel Floor Supply and Exhaust Fans have tripped.

IMPORTANT DRIVER NOTE: The handswitch for the "B" Standby Gas Fan is overridden OFF. When the candidate places the handswitch to RUN, delete the fan handswitch override to allow the "B" Standby Gas Fan to start.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 4 REFUEL FLOOR ISOLATION WITH FAILURE OF SGTS		
	Reference ARCs: <ul style="list-style-type: none"> 002 F-2, REFUELING FLOOR LOW DELTA P LOSS OF POWER / INOP 004 I-2, REAC ENCL / REFUELING FLOOR HVAC PANEL 10C206 	PRO
	Recognize/report lowering Refuel Floor Delta P (positive)	PRO
	Dispatch EO to 10C206 panel to investigate	PRO
	Reference ARCs: <ul style="list-style-type: none"> 004 E-3, A REFUELING FLOOR ISOLATION SIGNAL INITIATED 004 H-3, B REFUELING FLOOR ISOLATION SIGNAL INITIATED 	PRO
	Verify isolations per S76.9.A and GP-8	PRO
	Identify Secondary Containment isolation present using PMS	SRO
	S76.9.A Section 4.3 4.3.1 Verify Channel A <u>AND</u> B Channel Refuel Floor Secondary Containment Isolation signals are initiated by assuring the following annunciators have alarmed: <ol style="list-style-type: none"> A REFUELING FLOOR ISOLATION SIGNAL INITIATED B REFUELING FLOOR ISOLATION SIGNAL INITIATED IF Channel A <u>OR</u> Channel B did <u>not</u> alarm <u>THEN</u> initiate manual initiation per S76.8.B (N/A) 4.3.2 Verify Channel A <u>AND</u> Channel B Refuel Floor HVAC Isolation valves have repositioned by assuring following annunciators have <u>not</u> alarmed: <ol style="list-style-type: none"> A REFUELING FLOOR ISOLATION SIGNAL NOT COMPLETE B REFUELING FLOOR ISOLATION SIGNAL NOT COMPLETE 4.3.3 IF either alarm specified in 4.3.2 is received...(N/A) 4.3.4 ENSURE both SGTS Fans are running at 00C681	PRO
	Recognize/report 'A' SGTS Fan trip and 'B' SGTS Fan to auto start	PRO
	Enter ON-111, Loss of Secondary Containment	SRO
	Direct manual start of 'B' SGTS to restore Refuel Floor Secondary Cont.	SRO
	Place 'B' SGTS Fan handswitch in RUN (Malfunction)	PRO
	Monitor Refuel Floor Delta P to ensure SGTS is drawing down Refuel Floor	PRO
	Report start of 'B' SGTS Fan	PRO
	Dispatch EO to investigate trip of 'A' SGTS and failure of 'B' SGTS to start	PRO
	Reference Tech Spec 3.6.5.3.5 and determine that with both SGTS Fans inop, Tech Spec 3.0.3 applies	SRO
	Tech Spec 3.0.3, take action within 1 hour to be in Hot Shutdown within 6 hrs	SRO



EVENT 4 REFUEL FLOOR ISOLATION WITH FAILURE OF SGTS

Simulator Operator Instructions:

Respond as appropriate for plant support.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 4 REFUEL FLOOR ISOLATION WITH FAILURE OF SGTS		
	Direct Floor Personnel to suspend fuel handling activities per ON-111 and Tech Spec 3.6.5.3	SRO



EVENT 5 OPEN SRV

Simulator Operator Instructions:

Respond as appropriate for support.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 OPEN SRV		
	Reference ARC-MCR-110 B-2, OPEN RELIEF VALVE	PRO
	Recognize/report '1E' SRV open	PRO/RO
	Verify SRV open (Steam/Feed flow mismatch, Supp. Pool temp rise, etc)	PRO/RO
	Enter OT-114	SRO
	[OT-114 Immediate Operator Action] Place 2 loops of Suppression Pool Cooling in service per S51.8.A, App. 1	PRO
	START selected RHR Service Water Pump loop per S12.1.A, RHR Service Water System Startup	PRO
	[S12.1.A 4.1.4 or 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 4.1.10 or App1 1.6] IF 'B' Loop pump (0B(D)-P506) is to be placed in service, THEN ENSURE 0B-V543 OR 0D-V543, Spray Pond Pump Room Fans, in "RUN" at 00C681. OR 0C-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
	[S51.8.A App. 1 step 1.4] Start 1A(B)P202, RHR Pump (PUMP)	PRO
	[S51.8.A App. 1 step 1.5] OPEN HV-51-1F024A(B) "RHR Pump Full Flow Test Return" (SUPP POOL CLG), AND maintain flow indicated on FI-51-1R603A(B), "RHR Loop Flow" between 8000 to 8500 gpm	PRO
	[S51.8.A App. 1 step 1.6] CLOSE HV-C-51-1F048A(B), HEAT EXCH BYPASS	PRO



EVENT 5 OPEN SRV

Simulator Operator Instructions:

When directed to pull fuses for the '1E' SRV, after 6 minutes toggle remote function RAD208 to "OUT" and report that fuses have been pulled for '1E' SRV.

Respond as appropriate for support.



TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
EVENT 5 OPEN SRV		
	Direct performance of OT-114, Att. 1	SRO
	[OT-114, Att. 1 step 1] Dispatch EO to attempt SRV closure by pulling fuses for the appropriate SRV using Att. 2	PRO
	[OT-114, Att. 1 step 2] IF no ATWS, THEN reduce turbine inlet pressure to nominal 900 psig (895-905 psig) at panel 10C653, DEHC HMI as follows: a. Select "CONTROL" display b. Select "PRESSURE CONTROL" screen c. Enter target pressure of 870 psig d. Select ENTER e. Ensure "SLOW RATE" is <u>not</u> selected f. Select "GO" g. Monitor turbine inlet pressure on PI-001-103 to maintain 900 psig	PRO
	Recognize/report SRV remains open	CREW
	Establish Suppression Pool Temperature as Critical Parameter with reporting interval	SRO
	Direct GP-4 Rapid Plant Shutdown	SRO
	[GP-4 3.1] TRANSFER house loads to startup buses per S91.6.B.	PRO
	[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	RO



EVENTS 6-7 HYDRAULIC ATWS / RDCS FAILURE

Simulator Operator Instructions:

At time 11 min after FSSV or EO action requested for implementation of T-221 ;
Toggle Remote Function **RTR051** to **"BYPASS"** and **report:** 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 implementation of T-270

Manually perform T-270: **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 4.7 of T-270 is complete

At time 5 min after FSSV or EO action requested to investigate SLC, **report:** No sign of leakage on 253' or 283' elev at SLC skid.



EVENTS 6-7 HYDRAULIC ATWS / RDCS FAILURE		
TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
	Place Reactor Mode Switch in "SHUTDOWN"	RO
	Insert SRM and IRM detectors	RO
	Recognize/report ATWS	RO
	Enter T-101 on scram signal with power > 4%	SRO
	Manually initiate all divisions of RRCS	RO
	Recognize Scram Profile activated and take manual control of Feedwater	RO
	Recognize SLC Pumps are not injecting into RPV and secure SLC Pumps	RO
	Attempt SLC injection with '1C' SLC pump	RO
	Secure '1C' SLC Pumps after indication of low pressure	RO
	Trip Recirc Pumps 10 seconds apart	PRO
	Insert rods manually with RWM bypassed	RO
	Direct T-214	SRO
	Direct performance of T-217 to personnel outside MCR (Critical Task)	SRO
	Direct performance of T-218 to personnel outside MCR	SRO
	Direct performance of T-209 to personnel outside MCR	SRO
	Enter T-117	SRO
	Direct performance of T-221 to personnel outside Main Control Room (MCR)	SRO
	Manually inhibit automatic ADS (Critical Task)	PRO
	Perform T-270 to reduce RPV level to less than -50 inches (Critical Task)	RO/PRO
	Direct performance of Section 4.7 of T-270 to personnel outside MCR	RO/PRO
	[T-270 step 4.2.3] IF HPCI initiation signal is <u>not</u> present, <u>THEN</u> shutdown 10S211, "HPCI Turbine" as follows: - Simultaneously DEPRESS AND HOLD HS-056-161, "Pushbutton for HPCI Turbine Trip (E41A-S19) (TURBINE TRIP) <u>AND</u> CLOSE HV-55-1F003, "HPCI Main Steam Supply Outbd PCIV (OUTBOARD)	PRO
	[T-270 step 4.6.1] ENSURE HV-06-138A, 1A RFP BPV (BYPASS) closed at panel 10C651	RO
	[T-270 step 4.6.2] ENSURE LIC-06-138, A Feedwater Startup Level Control, (LV STARTUP BYPASS) in manual and set to 0% at panel 10C603	RO



EVENTS 6-7 HYDRAULIC ATWS / RDCS FAILURE

Simulator Operator Instructions:

IMPORTANT DRIVER NOTE: When Suppression Pool temperature reaches 105°F, delete MALF141E to close '1E' SRV.

Ensure automatic trigger #5 actuates when Rx Power is <20% to initiate RDCS failure.

Ensure automatic trigger #6 actuates when RPV level is lowered below -50" to initiate Main Turbine vibrations.

Activate trigger #7 after Main Turbine is tripped when directed by Lead Evaluator to fail BPVs closed on a 2 minute ramp.

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**

10 minutes after directed to reset RDCS in AER, delete malfunction **MRD024** and toggle remote function **RRD001** to RESET and report that RDCS has been reset.



EVENTS 6-7 HYDRAULIC ATWS / RDCS FAILURE		
TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
	[T-270 step 4.6.2] ENSURE LIC-06-120, Reactor Feedpumps Bypass Cont Valve, (PUMP BYPASS) in manual and set to 0% at panel 10C603	RO
	[T-270 step 4.6.3] ENSURE LIC-06-138, A Feedwater Startup Level Control, (LV STARTUP BYPASS) in manual and set to 0% at panel 10C603	RO
	[T-270 step 4.6.4] ENSURE FIC-M1-1R601A, B, C "A,B,C RFPT Speed Controller in manual for all three RFPTs at panel 10C603	RO
	[T-270 step 4.6.5] DEPRESS EMERGENCY STOP pushbutton for all three RFPTs at panel 10C603	RO
	[T-270 step 4.6.6] WHEN EMERGENCY STOP light goes out, THEN depress AUTO START pushbutton for all three RFPTs at panel 10C603	RO
	[T-270 step 4.6.7] CLOSE HV-06-108A, 1A RFP Discharge	RO
	[T-270 step 4.6.8] CLOSE HV-06-108B, 1B RFP Discharge	RO
	[T-270 step 4.6.9] CLOSE HV-06-108C, 1C RFP Discharge	RO
	Stabilize RPV level between -60" and -100"	RO
	Enter T-102 on Suppression Pool Temp > 95°F	SRO
	Verify isolations (-38 inches)	CREW
	Verify RCIC Start and Injection	PRO
	Direct performance of T-251 to personnel outside MCR	PRO
	Recognize and investigate inability to drive control rods	RO
	Direct reset of RDCS and drive Control Rods (Malfunction)	RO
	Respond to Vibration alarms	RO
	Monitor Main Turbine Vibration levels on VMS	PRO
	Recognize/report rising vibrations on VMS	PRO
	Brief/update crew on plan to trip Main Turbine on Hi Vibration	SRO
	Direct trip of Main Turbine	SRO
	Trip Main Turbine (Malfunction)	PRO



EVENTS 6-7 HYDRAULIC ATWS / RDCS FAILURE

Simulator Operator Instructions:

Inform Floor Instructor prior to each event trigger

Ensure Trigger # 5 automatically actuated after Mode Switch was taken to Shutdown to Initiate Turbine Trip with Control Valve and Bypass Valve failures (6 minutes)

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

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

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

report: All SE-10 Floor Actions are complete

When FSSV or EO action requested for T-217, and when RPV level is below -50 inches:

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.

AND Manually actuate Remotes **RTR181** and **RTR303**

When FSSV or EO action requested for T-217, **and** when RPV level is being maintained between -161 inches and -186 inches 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

Toggle RTR192 Open and Closed as required for Manual Draining SDV and

report (via phone): per 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

Insert Control Rods As Follows:

Delete Malfunction **MRD556**

AND Toggle Remote Function **RTR181** to **"Normal"** (control rods will insert)



EVENTS 6-7 HYDRAULIC ATWS / RDCE FAILURE		
TIME	ASSESSMENT ITEMS AND TASK PERFORMANCE	POSITION
	Recognize Main Turbine BPVs not controlling RPV pressure, and stabilize RPV pressure below 1096 psig with SRVs	PRO
	Establish pressure band 990-1096#	PRO
	If RPV pressure rises above 1096 psig, re-enter T-101	SRO
	When Suppression Pool temperature exceeds 110 °F, re-perform T-270	Crew
	Secure injection with Feedwater until RPV level is less than top of active fuel	RO
	Enter SE-10, LOCA when RPV level <-129"	SRO
	Perform SE-10 Immediate Operator actions: <ul style="list-style-type: none">- Place 52-20124/CS, SAFEGUARDS A to "CLOSE"- Place 52-20224/CS, SAFEGUARDS B to "CLOSE"- Place INST AC 201 CONTROL PANEL to "RESET"- Place INST AC 202 CONTROL PANEL to "RESET"	RO
	Ensure ECCS Pumps other than 'A' and 'B' RHR remain shutdown (T-270 performed)	PRO
	Direct floor personnel to perform SE-10 Floor Actions	PRO
	Stabilize RPV level -161" to -186"	RO
	Receive report that field actions from T-217 are complete	RO
	Perform MCR portions of T-217 to insert control rods <ul style="list-style-type: none">- Reset scram placing reset switch in Group 1/4 and 2/3 and verify all white RPS lights lit- Depress ARI reset pushbuttons	RO
	Direct floor personnel to continue with T-217 (Critical Task)	RO
	Update crew that rod motion should occur	RO
	Recognize rod motion	RO
	Recognize all control rods fully inserted	RO
	Exit T-117 and re-enter RC/L leg of T-101	SRO
	Slowly restore RPV level to between + 12.5 inches to + 54 inches	RO
EAL CLASSIFICATION at completion of scenario		
The SRO declares an SITE AREA EMERGENCY (MS2) due to Thresholds: 1. Automatic scram was <u>not</u> successful as indicated by Reactor Power >4% AND 2. Manual scram/ARI actions were <u>not</u> successful from the Reactor Console as indicated by Reactor Power > 4%		SRO

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: _____

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XII. CREW PREBRIEF INSTRUCTIONS

- Unit 1 is in OPCON 1 at 95% power
- Unit 2 is in OPCON 1 at 100% power

Specific Plant Conditions are as Follows:

- Power is lowered for maintenance rod recovery
- Refuel floor personnel are loading spent fuel into shipping casks

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

- None

Restrictions on Plant Operations:

- None

Planned Evolutions:

- Withdraw 2 rods inserted for maintenance per ReMA
- Raise power to 100% with Recirc per GP-5, Att. 1 per RE direction

Documents Provided:

- ReMA