Exelon Nuclear

Job Performance Measure

VERIFY STANDBY LIQUID CONTROL HEATER SURVEILLANCE

JPM Number: A-N-1-R

Revision Number: 01

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 New JPM developed for 2009 NRC Exam.

Revision 01 Revised for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.

DOCUMENT PREPARATION

1. Markup a copy of DOS 1100-02.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.

2. DOS 1100-02 was performed last shift.

3. The NLO reported all surveillance requirements were within specifications.

INITIATING CUE

1. The Unit Supervisor has directed you to verify all requirements are within specifications, and paperwork is correct.

2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

· Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Provide the examinee with the provided copy of DOS 1100-02.						
*	1.	Student should identify step I.4 should NOT have been initialed.	Identifies that step should NOT have been initialed.	_____	_____	_____
*	2.	Student should identify step I.9.g should NOT have been N/A'd.	Identifies that step should NOT have been N/A'd.	_____	_____	_____
	3.	Notify Unit Supervisor of discrepancies.	Notifies Unit Supervisor, to verify/correct issues.	_____	_____	_____
CUE: Acknowledge report of task completion.						
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: RO ☒

JPM Title: VERIFY STANDBY LIQUID CONTROL HEATER SURVEILLANCE
Revision Number: 01
JPM Number: A-N-1-R
Task Number and Title: 299L080 Perform the administrative duties for conduct of surveillance, special, or complex procedures.

K/A Number and Importance: Generic.2.1.18 3.6 / 3.8

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No

Time Critical: ☐ Yes ☒ No

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

References: DOS 1100-02, rev 17

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.

2. DOS 1100-02 was performed last shift.

3. The NLO reported all surveillance requirements were within specifications.

INITIATING CUE

1. The Unit Supervisor has directed you to verify all requirements are within specifications, and paperwork is correct.

2. Inform the Unit Supervisor when the task is complete.

Exelon Nuclear

Job Performance Measure

DETERMINE ISOLATION POINTS FOR CLEARANCE ORDER

JPM Number: A-N-2-R

Revision Number: 00

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 New JPM developed for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.

DOCUMENT PREPARATION

1. Copy of M-15 Sheet 1.
2. Copy of M-16.
3. Copy of OP-AA-109-101.
4. Copy of OP-DR-109-1001.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are an Extra NSO.
2. Unit 2 is at 500 MWe.
3. 2C Condensate/Condensate Booster pump requires removal from service due to a leak.
4. Vent and Drain paths do NOT require manipulation.
5. Condensate/Condensate Booster Pump seal isolation is not required.
6. Hydrogen Addition injection isolation is not required.
7. Passport is not available, but is expected to return this shift.
8. The Unit NSO has procured controlled copies of the required prints.
9. Authorization for an EXCEPTIONAL clearance order has been given if necessary.
10. Other NSOs are tasked with determining electrical and air isolations.

INITIATING CUE

1. The Unit Supervisor has directed you to determine the isolation points necessary to remove ONLY the 2C Condensate and 2C Condensate Booster pump from the condensate header.
2. Record recommended Isolation Points and Required Positions on the sheet provided.
3. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

· Denotes critical elements of a critical step.

Job Performance Measure (JPM)

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Provide the examinee with the provided copy of M-15 Sheet 1 and M-16. If the examinee requests Clearance and Tagging procedures, they may be provided. The following steps may be performed in any order						
	1.	Candidate identifies 2C Condensate/Condensate Booster pump on M-15 Sheet 1.	Candidate correctly locates and identifies 2C Condensate/Condensate Booster pump on M-15 Sheet 1.	_____	_____	_____
*	2.	Candidate determines isolation points and required positions for 2C condensate pump	Candidate identifies the following valves are necessary isolation points for 2C Condensate pump: (Located on M-15 Sht. 1) · 2-3301-C-500 (Closed) · 2-3302-C-500 (Closed)	_____	_____	_____
*	3.	Candidate determines isolation points and required positions for 2C condensate booster pump	Candidate identifies the following valves are necessary isolation points for 2C Condensate pump: · 2-3305-C-500 (Closed) (Located on M-15 Sht. 1) · 2-3401-C-500 (Closed) (Located on M-16)	_____	_____	_____

Job Performance Measure (JPM)

PERFORMANCE CHECKLIST			STANDARDS	SAT	UNSAT	Comment
*	4.	Completes worksheet with EPN and required hang position.	Notifies Unit Supervisor, to verify/correct issues.	_____	_____	_____
CUE: Acknowledge report of task completion.						
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: RO ☒

JPM Title: DETERMINE ISOLATION POINTS FOR CLEARANCE ORDER
Revision Number: 00
JPM Number: A-N-2-R
Task Number and Title: 299L012 Determine points of isolation in order to remove a piece of equipment from service.

K/A Number and Importance: Generic.2.2.41 3.5/3.9

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No

Time Critical: ☐ Yes ☒ No

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

References: OP-AA-109-101 Rev. 12, M-15 Sheet 1 Rev. M, M-16 Rev. AP

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are an Extra NSO.
2. Unit 2 is at 500 MWe.
3. 2C Condensate/Condensate Booster pump requires removal from service due to a leak.
4. Vent and Drain paths do NOT require manipulation.
5. Condensate/Condensate Booster Pump seal isolation is not required.
6. Hydrogen Addition injection isolation is not required.
7. Passport is not available, but is expected to return this shift.
8. The Unit NSO has procured controlled copies of the required prints.
9. Authorization for an EXCEPTIONAL clearance order has been given if necessary.
10. Other NSOs are tasked with determining electrical and air isolations.

INITIATING CUE

1. The Unit Supervisor has directed you to determine the isolation points necessary to remove ONLY the 2C Condensate and 2C Condensate Booster pump from the condensate header.
2. Record recommended Isolation Points and Required Positions on the sheet provided.
3. Inform the Unit Supervisor when the task is complete.

Job Performance Measure (JPM)

EPN	Hang Position

Exelon Nuclear

Job Performance Measure

PERFORM CCSW ACTIVITY CALCULATION

JPM Number: A-N-3-R

Revision Number: 02

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 New JPM.

Revision 01 Revised for 2010 NRC exam.

Revision 02 Revised for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.
3. Ensure a calculator is available and the memory/display has been cleared.

DOCUMENT PREPARATION

1. Provide a marked up copy of DOS 1500-08.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are an extra NSO.

2. The Unit 2 NSO started DOS 1500-08, DISCHARGE OF CONTAINMENT COOLING SERVICE WATER (CCSW) FROM LOW PRESSURE COOLANT INJECTION (LPCI) HEAT EXCHANGER DURING CCSW PUMP OPERATIONS then had to leave shift for medical reasons.

3. Only the "A" CCSW Heat Exchanger is going to be placed in service.

INITIATING CUE

1. Perform DOS 1500-08.

2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* * Denotes critical steps.
* · Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Provide the examinee with the provided copy of DOS 1500-08. The following steps can be performed in any order. If examinee states to stop, due to errors, inform him/her to continue calculations.						
*	1.	Examinee calculates Dilution flow (1,017,000 gpm).	See attached key.	_____	_____	_____
	2.	Examinee enters dilution flow (from above) to calculate CCSW Activity Limit.	See attached key.	_____	_____	_____
*	3.	Examinee calculates CCSW Activity Limit (2.91×10^{-5}).	See attached key.	_____	_____	_____
*	4.	Examinee verifies CCSW Heat Exchanger A sample activity is less than or equal to the calculated CCSW activity limit	Examinee determines CCSW Heat Exchanger A sample activity is greater than or equal to the calculated CCSW activity limit	_____	_____	_____
	5.	Recommends to the Unit Supervisor that the calculated sample limit exceeds the allowable discharge.	Makes recommendation to Unit Supervisor.	_____	_____	_____
	6.	Informs Unit Supervisor task is complete.	Examinee notifies the Unit Supervisor.	_____	_____	_____
CUE: Acknowledge report of task completion.						
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: RO ☒

JPM Title: PERFORM CCSW ACTIVITY CALCULATION
Revision Number: 02
JPM Number: A-N-3-R

Task Number and Title: 277L003, Perform discharge of CCSW from contaminated LPCI heat exchanger during CCSW pump operation surveillance.

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

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No

Time Critical: ☐ Yes ☒ No

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

References: DOS 1500-08, rev 17

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are an extra NSO.

2. The Unit 2 NSO started DOS 1500-08, DISCHARGE OF CONTAINMENT COOLING SERVICE WATER (CCSW) FROM LOW PRESSURE COOLANT INJECTION (LPCI) HEAT EXCHANGER DURING CCSW PUMP OPERATIONS then had to leave shift for medical reasons.

3. Only the "A" CCSW Heat Exchanger is going to be placed in service.

INITIATING CUE

1. Perform DOS 1500-08.

2. Inform the Unit Supervisor when the task is complete.

Exelon Nuclear

Job Performance Measure

DETERMINE ACTIONS FOR A FIRE

JPM Number: A-N-4-R

Revision Number: 01

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 New JPM for ILT 12-1 (2013-301) NRC Exam.

Revision 01 Revised for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.

DOCUMENT PREPARATION

1. Provide a copy of DOA 0010-10 and DOA 0010-S1.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. A fire is burning at the Lift Station, no explosion has occurred.
3. The fire has been classified as a major fire.
4. Hazmat and rescue response are not required.
5. The Fire brigade has been alerted and is attempting to combat the fire unsuccessfully.
6. A dedicated outside line is not available.

INITIATING CUE

1. The Unit supervisor has directed you to enter and execute DOA 0010-10, FIRE-EXPLOSION.
2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

· Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Provide the examinee with the supplied copy of DOA 0010-10. Provide the examinee with the supplied copy of DOA 0010-S1 when requested.						
*	1.	Notify Coal City Fire Protection District. (Refer to DOA 0010-S1, Key Phone Numbers for DOA 0010 Block Procedures.)	From DOA 0010-S1 determines that 815-942-0336 is the number needed to contact the CCFPD.	_____	_____	_____
*	2.	Dial 815-942-0336 and communicate the details of the fire.	Dials 815-942-0336 and communicates the location of the fire.	_____	_____	_____
CUE: If requested by the examinee, the TSO (NORTH and SOUTH) cannot contact the Coal City Fire Department because they are currently dealing with grid instabilities.						
	3.	Notifies TSO via direct line for major fire.	Notifies the TSO from a control room phone using the TSO direct line button and provides call back phone number.	_____	_____	_____
	4.	Notify Security Shift Supervisor that outside fire department will be responding AND request assistance in providing access to affected area if necessary.	Notifies the Security Shift Supervisor that the CCFPD will be responding to the Lift Station.	_____	_____	_____
	5.	Informs Unit Supervisor task is complete.	Examinee notifies the Unit Supervisor.	_____	_____	_____
CUE: Acknowledge report of task completion.						
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: RO ☒

JPM Title: DETERMINE ACTIONS FOR A FIRE
Revision Number: 01
JPM Number: A-N-4-R
Task Number and Title: 295L009, Respond to a fire/explosion
K/A Number and Importance: Generic.2.4.27 3.4 / 3.9

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No

Time Critical: ☐ Yes ☒ No

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

References: DOA 0010-10, rev 20; DOA 0010-S1, rev 14

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.

2. A fire is burning at the Lift Station, no explosion has occurred.

3. The fire has been classified as a major fire.

4. Hazmat and rescue response are not required.

5. The Fire brigade has been alerted and is attempting to combat the fire unsuccessfully.

6. A dedicated outside line is not available.

INITIATING CUE

1. The Unit supervisor has directed you to enter and execute DOA 0010-10, FIRE-EXPLOSION.

2. Inform the Unit Supervisor when the task is complete.

Exelon Nuclear

Job Performance Measure

REPORTABILITY DETERMINATION

JPM Number: A-N-1-S

Revision Number: 00

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 New JPM developed ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.

DOCUMENT PREPARATION

1. None.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 3 Unit Supervisor.

2. Unit 2 and Unit 3 are operating at rated power.

3. The following timeline occurred:

   - 2142 – Reactor Building differential pressure did not meet the required 0.25 inches of vacuum water gauge due to failure of the control system.
   - 2205 – Unit 3 Reactor Building Ventilation was secured and manually isolated.
   - 2207 – Reactor Building differential pressure returned to greater than 0.25 inches of vacuum water gauge.

INITIATING CUE

1. Utilizing the Reportability Manual, determine the earliest reportability requirement.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

· Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
		NOTE: Candidate locates a copy of Reportability Manual.				
*	1.	Determines the event is reportable per SAF 1.8.	Determines the event is reportable per SAF 1.8, Event or Condition that could have prevented fulfillment of a Safety Function.	_____	_____	_____
*	2.	Determines the time limit to Notify the NRC Operations Center via the ENS as soon as practical and in all cases, within 8 hours	Determines the time limit to Notify the NRC Operations Center via the ENS as soon as practical and in all cases within 8 hours of the occurrence (Time 0542).	_____	_____	_____
		END				

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: SRO ☒

JPM Title: REPORTABILITY DETERMINATION
Revision Number: 00
JPM Number: A-N-1-S
Task Number and Title: 299L001, Determine Reportability requirements as outlined in station Reportability manual.

K/A Number and Importance: Generic.2.1.2 4.1 / 4.4

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☒ Yes ☐ No

Time Critical: ☐ Yes ☒ No

Estimated Time to Complete: 12 **Actual Time Used:** _____ minutes

References: Reportability Tables and Decision Trees LS-AA-1020 Rev 23, Safety (SAF) LS-AA-1110 Rev. 22

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 3 Unit Supervisor.

2. Unit 2 and Unit 3 are operating at rated power.

3. The following timeline occurred:

   - 2142 – Reactor Building differential pressure did not meet the required 0.25 inches of vacuum water gauge due to failure of the control system.

   - 2205 – Unit 3 Reactor Building Ventilation was secured and manually isolated.

   - 2207 – Reactor Building differential pressure returned to greater than 0.25 inches of vacuum water gauge.

INITIATING CUE

1. Utilizing the Reportability Manual, determine the earliest reportability requirement.

Exelon Nuclear

Job Performance Measure

REACTIVATION OF AN SRO LICENSE

JPM Number: A-N-2-S

Revision Number: 01

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 Modified for 2010 Cert Exam.

Revision 01 Modified for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.

DOCUMENT PREPARATION

1. Marked up copy of OP-AA-105-102.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Shift Manager.
2. An SRO is in the process of license reactivation.
3. OP-AA-105-102, Attachment 2, Reactivation of License Log, is filled out up to the point of Shift Manager review for the licensee.

INITIATING CUE

1. The Shift Operation Superintendent directs you to "perform the Shift Manager review of OP-AA-105-102, Attachment 2 for the licensee and return it to me".

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

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· Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
		NOTE: Provide the Examinee the provided marked up copy of OP-AA-105-102.				
	1.	Review OP-AA-105-102, Attachment 2.	Reviews OP-AA-105-102, Attachment 2.	_____	_____	_____
	2.	Check that Hours on Shift are in the same calendar quarter.	Notes 12.0 hours listed on 6/26/16 are performed during the 2nd calendar quarter and cannot be counted towards license re-activation.	_____	_____	_____
	3.	Check that Hours on Shift are applicable for license reactivation.	Determines 12.0 hours as WEC listed on 07/3/16 cannot be credited towards license re-activation.	_____	_____	_____
*	4.	Check that licensee has the required 40 hours.	Determines that licensee does NOT have adequate hours to meet the 40 hour requirement.	_____	_____	_____
*	5.	Verifies Plant Tour completed per step 4.b	Determines that Plant Tour date and signature are not completed.	_____	_____	_____
	6.	Report the results of the review to the Shift Operations Superintendent (SOS).	Returns without signing OP-AA-105-102, Attachment 2 to the SOS. Informs the SOS that the licensee's license CANNOT be reactivated due to insufficient hours on shift and plant tour incomplete.	_____	_____	_____
		CUE: As the SOS, acknowledge the report.				
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: SRO ☒

JPM Title: REACTIVATION OF AN SRO LICENSE
Revision Number: 01
JPM Number: A-N-2-S
Task Number and Title: Title: 299L024, Maintain an Active License

K/A Number and Importance: Generic.2.1.4 3.3 / 3.8

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform
Alternate Path: ☐ Yes ☒ No
SRO Only: ☒ Yes ☐ No

Time Critical: ☐ Yes ☒ No

Estimated Time to Complete: 12 **Actual Time Used:** _____ minutes

References: OP-AA-105-102, Rev. 11

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Shift Manager.
2. An SRO is in the process of license reactivation.
3. OP-AA-105-102, Attachment 2, Reactivation of License Log, is filled out up to the point of Shift Manager review for the licensee.

INITIATING CUE

1. The Shift Operation Superintendent directs you to “perform the Shift Manager review of OP-AA-105-102, Attachment 2 for the licensee and return it to me”.

Exelon Nuclear

Job Performance Measure

VERIFY REVERSAL OF EDG COOLING WATER FLOW SURVEILLANCE

JPM Number: A-N-3-S

Revision Number: 04

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 01 Bank JPM.

Revision 02 Revised for 2010 NRC exam.

Revision 03 Revised for 2015 NRC exam

Revision 04 Revised for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.

DOCUMENT PREPARATION

1. Provide a marked up copy of DOS 6600-02.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 2 Unit Supervisor.

2. DOS 6600-02 was performed last shift, for the U2 Diesel Generator Cooling Water Flow Reversal.

3. The off-going Unit Supervisor was unable to verify the paperwork, and has turned it over to you.

4. The Equipment Operator reported all surveillance requirements were within specifications.

INITIATING CUE

1. Perform calculation verification and ensure paperwork is correct.

2. Inform me when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* * Denotes critical steps.
* · Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Provide the examinee with the provided copy of DOS 6600-02.						
*	1.	Candidate should identify step I.1.e has a mathematical error.	Identifies differential pressure should read 4.	_____	_____	_____
*	2.	Candidate should identify step I.1.w OR step I.1.v is signed off as verified dP of <6 (actual is 7).	Identifies incorrect verification of dP <6.	_____	_____	_____
*	3.	Candidate should identify that steps I.1.ab have been initialed by the same person performing the surveillance and were NOT independently verified.	Identifies step NOT independently verified.	_____	_____	_____
	4.	Notify Unit Supervisor of discrepancies.	Notifies Unit Supervisor, may dispatch Operators to verify/correct issues, also may initiate IR.	_____	_____	_____
CUE: Acknowledge report of task completion.						
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: SRO ☒

JPM Title: VERIFY REVERSAL OF EDG COOLING WATER FLOW SURVEILLANCE
Revision Number: 04
JPM Number: A-N-3-S
Task Number and Title: 299L080 Perform the administrative duties for conduct of surveillance, special, or complex procedures
K/A Number and Importance: Generic.2.2.12 3.7 / 4.1

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☒ Yes ☐ No

Time Critical: ☐ Yes ☒ No

Estimated Time to Complete: 12 **Actual Time Used:** _____ minutes

References: DOS 6600-02, rev 20

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the Unit 2 Unit Supervisor.

2. DOS 6600-02 was performed last shift, for the U2 Diesel Generator Cooling Water Flow Reversal.

3. The off-going Unit Supervisor was unable to verify the paperwork, and has turned it over to you.

4. The Equipment Operator reported all surveillance requirements were within specifications.

INITIATING CUE

1. Perform calculation verification and ensure paperwork is correct.

2. Inform me when the task is complete.

Exelon Nuclear

Job Performance Measure

REVIEW CCSW ACTIVITY CALCULATION

JPM Number: A-N-4-S

Revision Number: 02

Date: 02/16

Developed By: _____ _____

Instructor **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 New JPM.

Revision 01 Revised for 2010 NRC exam.

Revision 02 Modified for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.
3. Ensure a calculator is available and the memory/display has been cleared.

DOCUMENT PREPARATION

1. Provide a marked up copy of DOS 1500-08.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the U2 US.

2. The Unit 2 NSO has completed DOS 1500-08, DISCHARGE OF CONTAINMENT COOLING SERVICE WATER (CCSW) FROM LOW PRESSURE COOLANT INJECTION (LPCI) HEAT EXCHANGER DURING CCSW PUMP OPERATIONS.

3. Only the "A" CCSW Heat Exchanger is going to be placed in service.

INITIATING CUE

1. Review and Verify DOS 1500-08.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

· Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Provide the examinee with the provided copy of DOS 1500-08. The following steps can be performed in any order.						
*	1.	Verifies Dilution flow calculation (1,017,000 gpm).	Determines Dilution flow was incorrectly determined. Correct Dilution flow is 1,017,000 gpm.	_____	_____	_____
*	2.	Enters dilution flow (1,017,000 gpm) to calculate CCSW Activity Limit.	Determines 2.91 x 10^{-5} is the correct CCSW sample activity limit.	_____	_____	_____
NOTE: If the candidate attempts to terminate the review based on incorrect dilution flow previously calculated: Direct the candidate to complete the review and make any necessary adjustments as necessary and another SRO will review.						
	3.	Verifies CCSW Heat Exchanger A sample activity is less than or equal to the calculated CCSW activity limit	Determines 2.01 x 10^{-5} is less than 2.91 x 10^{-5}.	_____	_____	_____
*	4.	Re-Performs Canal Activity Calculation.	Uses 1,017,000 gpm as Dilution Flow. Determines incorrect activity level used for "A" Activity level of CCSW Heat Exchanger. Correct value is 2.01 x10^{-5}.	_____	_____	_____
*	5.	Determines Canal Activity Concentration.	Determines Canal Activity Concentration is 6.9 x10^{-8}	_____	_____	_____

Job Performance Measure (JPM)

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
	6.	Determines need for NSO to re-perform calculations.	Examinee directs NSO to re-perform calculations	____	____	____
CUE: Acknowledge report of task completion.						
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: SRO ☒

JPM Title: PERFORM CCSW ACTIVITY CALCULATION
Revision Number: 02
JPM Number: A-N-4-S
Task Number and Title: 277L003, Perform discharge of CCSW from contaminated LPCI heat exchanger during CCSW pump operation surveillance.

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

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☒ Yes ☐ No

Time Critical: ☐ Yes ☒ No

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

References: DOS 1500-08, rev 17

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. You are the U2 US.

2. The Unit 2 NSO has completed DOS 1500-08, DISCHARGE OF CONTAINMENT COOLING SERVICE WATER (CCSW) FROM LOW PRESSURE COOLANT INJECTION (LPCI) HEAT EXCHANGER DURING CCSW PUMP OPERATIONS.

3. Only the “A” CCSW Heat Exchanger is going to be placed in service.

INITIATING CUE

1. Review and Verify DOS 1500-08.

2. Inform the Unit 2 Supervisor when the task is complete.

Exelon Nuclear

Job Performance Measure

DETERMINE AN EP PROTECTIVE ACTION RECOMMENDATION

JPM Number: A-N-5-S

Revision Number: 00

Date: 02/16

Developed By: _____ _____
Instructor **Date**

Approved By: _____ _____
Facility Representative **Date**

SRRS: 3D.105 (when utilized for operator initial or continuing training)

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 New JPM developed for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

1. This is a tabletop JPM utilizing simulator procedures.
2. No Simulator setup needed.

DOCUMENT PREPARATION

1. For exam purposes/exam security provide a colored copy of a blank NARS form.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. This is a time critical JPM.
2. You are the Shift Emergency Director.
3. Unit 2 was operating at near rated conditions.
4. Security reported a HOSTILE ACTION is occurring and terrorists gained access to the reactor building. An explosive device was detonated in the spent fuel pool resulting in a loss of fuel pool level and visible damage to spent fuel.
5. Fuel pool level is lowering at 1 foot per minute.
6. A large hole is present in the Reactor Building wall.
7. There is NO verifier available.

INITIATING CUES

1. Determine EAL(s) (ignore discretionary EALs) and complete a NARS form. Give the NARS form to the WEC Supervisor, who will make the state notification.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

· Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Examinee locates a copy of Radiological Emergency Plan Annex for Dresden EP-AA-1004 charts. Provide the supplied NARS Form. Provide the supplied screen shot of the meteorological data.						
*	1.	Determines a classification of GENERAL EMERGENCY, due to notification from the Security Force that a HOSTILE ACTION is occurring within the protected area AND Damage to spent fuel pool has occurred.	Determines highest classification is a GENERAL EMERGENCY per EAL **HG1** (15 minute requirement).	_____	_____	_____
NOTE: Determines classification start time _____ and stop time _____ . (15 minute limit)						
*	2.	Properly fills out NARS form.	See attached key for the areas that must be filled out correctly (12 minute requirement) NARS form Block 8 either meters/sec or miles/hr may be annotated. Only one is required. Ground level parameters must be used.	_____	_____	_____
NOTE: Fill out NARS form start time (when declaration completed) _____ and stop time _____ . (12 minute limit)						
			END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: SRO ☒

JPM Title: DETERMINE EP PROTECTIVE ACTION RECOMMENDATION
Revision Number: 00
JPM Number: A-N-5-S
Task Number and Title: 295L160, Given a plant in an off normal condition, determine the EP classification

K/A Number and Importance: Generic.2.4.44 2.4 / 4.4

Suggested Testing Environment: Simulator

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

Testing Method: ☐ Simulate ☒ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☒ Yes ☐ No

Time Critical: ☒ Yes ☐ No

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

References: EP-AA-1004 Addendum 3 Rev. 002

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. This is a time critical JPM.
2. You are the Shift Emergency Director.
3. Unit 2 was operating at near rated conditions.
4. Security reported a HOSTILE ACTION is occurring and terrorists gained access to the reactor building. An explosive device was detonated in the spent fuel pool resulting in a loss of fuel pool level and visible damage to spent fuel.
5. Fuel pool level is lowering at 1 foot per minute.
6. A large hole is present in the Reactor Building wall.
7. There is NO verifier available.

INITIATING CUES

1. Determine EAL(s) (ignore discretionary EALs) and complete a NARS form. Give the NARS form to the WEC Supervisor, who will make the state notification.

Job Performance Measure

SBLC - INJECTION WITH PUMP AND RWCU FAILURES

JPM Number: S-N-a

Revision Number: 03

Date: 02/16

EXAM MATERIAL

Developed By: _____ _____
Instructor Date

Approved By: _____ _____
Facility Representative Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DOP 1100-02 Rev: 19
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

Revision Record (Summary)

Revision 02 Revised for 2013 NRC exam.

Revision 03 Revised for ILT 15-1 (2016-301) NRC Exam

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC _51_.

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

2. Run CAEP file S-N-a.cae.
3. If the CAEP file cannot be run then insert the following Expert Commands:
   a. Insert following Malfunctions and/or Remotes:
      - IMF CIRWCUAP (2-1201-1 valve failure to close – and allows manual closure).
      - IMF CIRWCUBP (2-1201-2 valve failure to close – and allows manual closure).
      - IMF SCRLFVAD 0.0 (Inserts BOTH SBLC Pump relief valve setpoint drift to 0.0 so # whichever pump is started first will not develop flow)
      - IMF SCRLFVBD 0.0 (Inserts BOTH SBLC Pump relief valve setpoint drift to 0.0 so # whichever pump is started first will not develop flow)
      - IOR SCD3013 OFF (Overrides SBLC SYS1&2 and SYS2&1 positions OFF)
   b. Setup the following Triggers:
      - TRGSET 1 "SCD301_DRW(1)" (Trigger 1 Activates when SBLC control switch is placed to SYS1 position)
      - TRG 1 "DMF SCRLFVBD" (Deletes 2B SBLC relief valve setpoint drift malfunction)
      - TRGSET 2 "SCD301_DRW(2)" (Trigger 2 Activates when SBLC control switch is placed to SYS2 position)
      - TRG 2 "DMF SCRLFVAD" (Deletes 2A SBLC relief valve setpoint drift malfunction)

DOCUMENT PREPARATION

Clean copy of DOP 1100-02 hardcard.

INITIAL CONDITIONS

1. You are the Unit 2 NSO.
2. A transient has occurred, resulting in an ATWS.
3. The Unit Supervisor has authorized the use of Hard Cards.

INITIATING CUE

1. The Unit Supervisor has ordered you to inject SBLC per the Hard Card.
2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
Note	Examinee should locate the hard card, then provide the included copy.				
1.	Selects the correct procedure step.	Determines correct procedure step is per DOP 1100-02 Page 6, Initiate SBLC for Boron Injection or Level Control (ATWS)	___	___	___
2.	Place the SBLC INJECTION CONTROL keylock switch to the SYS 1 OR SYS 2 position.	Turns the SBLC INJECTION CONTROL keylock switch to either the intermediate right OR intermediate left position.	___	___	___
3.	Verifies applicable SQUIB pilot light NOT lit.	SQUIB "A" or "B" light off.	___	___	___
Note	The selected pump starts but does not develop flow (relief valve failure in the JPM setup).				
4.	Verifies applicable PUMP pilot light lit.	PUMP light on.	___	___	___
BEGIN ALTERNATE PATH					
5.	Verifies FLOW pilot light lit.	FLOW light off (SBLC is NOT injecting).	___	___	___
6.	SBLC SQUIB VLV CKT FAILURE annunciator alarms (902-5 H-6).	Annunciator 902-5 H-6 illuminated.	___	___	___
*7.	Places SBLC INJECTION CONTROL keylock switch to opposite position taken to in step 1.	Turns the SBLC INJECTION CONTROL keylock switch to the opposite direction turned in step 1.	___	___	___
8.	Verifies opposite PUMP pilot light lit.	Opposite PUMP light on.	___	___	___
Note	Flow light will illuminate when SBLC INJECTION CONTROL keylock switch is re-positioned.				
9.	Verifies RWCU valve 2-1201-1 closed.	Examinee recognizes that valve 2-1201-1 valve did **NOT** close.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*10.	Closes RWCU valve 2-1201-1.	Takes manual action for a failed automatic action and closes 2-1201-1 valve, by placing c/s in the CLOSED position.	___	___	___
11.	Verifies RWCU valve 2-1201-1A closed.	GREEN light illuminated.	___	___	___
12.	Verifies RWCU valve 2-1201-2 closed.	Examinee recognizes that valve 2-1201-2 valve did **NOT** close.	___	___	___
*13.	Closes RWCU valve 2-1201-2.	Takes manual action for a failed automatic action and closes 2-1201-2 valve, by placing c/s in the CLOSED position.	___	___	___
14.	Verifies RWCU valve 2-1201-3 closed.	GREEN light illuminated.	___	___	___
15.	Verifies RWCU valve 2-1201-7 closed.	RED light illuminated.	___	___	___
16.	Informs Unit Supervisor task is complete.	Reports SBLC is injecting but the first pump did not inject and valves 2-1201-1 and 2-1201-2 failed to close automatically.	___	___	___
Cue	Acknowledge report of task completion.				
END					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: SBLC - Injection with Pump and RWCU Failures
JPM Number: S-N-a **Revision Number**: 03
Task Number and Title: 211L002, Injection of Standby Liquid Control System
K/A Number and Importance: 211000.A4.08 4.2 / 4.2
Suggested Testing Environment: Simulator
Alternate Path: ☒ Yes ☐ No **SRO Only**: ☐ Yes ☒ No **Time Critical**: ☐ Yes ☒ No
Reference(s): DOP 1100-02-02, Rev 19

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 9 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**: _____

INITIAL CONDITIONS

1. You are the Unit 2 NSO.
2. A transient has occurred, resulting in an ATWS.
3. The Unit Supervisor has authorized the use of Hard Cards.

INITIATING CUE

1. The Unit Supervisor has ordered you to inject SBLC per the Hard Card.
2. Inform the Unit Supervisor when the task is complete.

Job Performance Measure

PLACE A FRV IN SERVICE IN AUTO DURING UNIT STARTUP

JPM Number: S-N-b

Revision Number: 04

Date: 02/16

EXAM MATERIAL

Developed By: _____ _____
Instructor Date

Approved By: _____ _____
Facility Representative Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DOP 0600-06 Rev: 44
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

Revision Record (Summary)

Revision 02 Bank JPM.

Revision 03 Revised for 2009 NRC Exam.

Revision 04 Revised for ILT 15-1 (2016-301) NRC Exam

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to IC _52_.

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

2. Verify BOTH FW REG ISOL VALVES are OPEN:
   - MO 2-3206A
   - MO 2-3206B
3. Verify 2A & 2B REG VLV CONTROL STATIONS in MAN and CLOSED.
4. Verify MASTER CONTROL STATION is in MAN.
5. Low Flow Reg Valve is controlling level at 30" in AUTO.
6. Insert following Malfunctions and/or Remotes:
   - None.
7. Setup the following Triggers:
   - None.

DOCUMENT PREPARATION

1. Copy of DOP 0600-06 marked up through limitations and actions.

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. Unit Startup is in progress.
3. The FWLCS is controlling level with the Low Flow Reg Valve.
4. 2A & 2B REG VLV CONTROL STATIONS are closed in manual mode.
5. 2A & 2B FRVs have been pre-operationally tested.

INITIATING CUE

1. The Unit Supervisor has directed you to place 2B FRV in service (Unit Startup) in the Master Automatic mode in accordance with DOP 0600-06 per step G.2.
2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
Note	Provide the examinee with the provided copy of DOP 0600-06.				
1.	Verify 2A and 2B FWRVs have been pre-operationally tested per Step G.1.	Condition met in initial conditions.	___	___	___
2.	Verify the following valves are open: · MO 2-3205A, FW LINE STOP. · MO 2-3205B, FW LINE STOP. · MO 2-3206A, 2A FW REG ISOL. · MO 2-3206B, 2B FW REG ISOL.	GREEN lights illuminated on the following: · MO 2-3205A · MO 2-3205B · MO 2-3206A · MO 2-3206B	___	___	___
3.	Adjust MASTER CONTROL STATION OR RX LO FLOW CONTROL STATION, setpoint to match actual RPV level.	Depresses appropriate pushbutton to verify setpoint to match actual RPV level on MASTER CONTROL STATION OR RX LO FLOW CONTROL STATION.	___	___	___
4.	Select appropriate FWLCS RPV level signal per Section G.17.	Depresses appropriate FWLCS RPV level signal pushbutton.	___	___	___
5.	Place RX LO FLOW CONTROL STATION to AUTO.	Verifies AUTO light illuminated on RX LO FLOW CONTROL STATION.	___	___	___
*6.	Place one REG VLV CONTROL STATION in AUTO.	Depresses AUTO pushbutton on 2B REG VLV CONTROL STATION.	___	___	___
7.	Verify other REG VLV CONTROL STATION in MAN.	Verifies MAN light illuminated on 2A REG VLV CONTROL STATION.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*8.	Place MASTER CONTROL STATION in AUTO.	Depresses AUTO pushbutton on FWLC MASTER CONTROL STATION.	___	___	___
Note	The LOW FLOW FWRV will automatically transfer to the 2B FWRV when the LOW FLOW FWRV position is 85% feedwater flow.				
9.	Informs Unit Supervisor task is complete.	Examinee notifies the Unit Supervisor.	___	___	___
Cue	Acknowledge report of task completion.				
END					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: Place a FRV in Service in Auto During Unit Startup
JPM Number: S-N-b **Revision Number**: 04
Task Number and Title: 259L021, Place FRV in service in AUTO (unit startup).
K/A Number and Importance: 259002.A4.03 3.8 / 3.6
Suggested Testing Environment: Simulator
Alternate Path: ☐ Yes ☒ No **SRO Only**: ☐ Yes ☒ No **Time Critical**: ☐ Yes ☒ No
Reference(s): DOP 0600-06, Rev 44

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 9 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:_____

_____

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_____

_____

Evaluator's Name (Print):_____

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

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. Unit Startup is in progress.
3. The FWLCS is controlling level with the Low Flow Reg Valve.
4. 2A & 2B REG VLV CONTROL STATIONS are closed in manual mode.
5. 2A & 2B FRVs have been pre-operationally tested.

INITIATING CUE

1. The Unit Supervisor has directed you to place 2B FRV in service (Unit Startup) in the Master Automatic mode in accordance with DOP 0600-06 per step G.2.
2. Inform the Unit Supervisor when the task is complete.

Job Performance Measure

DEHC - ESTABLISH RPV COOLDOWN WITH BYPASS VALVES

JPM Number: S-N-c

Revision Number: 02

Date: 02/16

EXAM MATERIAL

Developed By: _____ _____
Instructor Date

Approved By: _____ _____
Facility Representative Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DGP 02-03 Rev: 105
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

Revision Record (Summary)

Revision 00 New JPM

Revision 01 Revised for 2010 NRC exam

Revision 02 Revised for ILT 15-1 (2016-301) NRC Exam

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to an IC with the Reactor shutdown, but at full pressure (IC 52 used for validation).

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

2. Ensure that Both DEHC monitors are displaying the STATUS screen.
3. Ensure Shell/Chest Warming is OFF.
4. Ensure cooldown temperature (300°F) is < RPV Temperature
5. Insert following Malfunctions and/or Remotes:
   - None.
6. Setup the following Triggers:
   - None.
7. Be prepared to acknowledge various alarms on other panels during this JPM (candidate to acknowledge 902-7 panel only).

DOCUMENT PREPARATION

Copy of DGP 02-03 Attachment F

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. A transient has occurred and the Unit Supervisor has determined a reactor cooldown is required.
3. Another NSO will acknowledge annunciators not associated with this task.
4. Hard Card use has been authorized.

INITIATING CUE

1. The Unit Supervisor has directed you to begin a 75.0°F/hr reactor cooldown to 300°F utilizing the Turbine Bypass valves.
2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
Note	When candidate locates correct procedure, hand them the provided copy. All the below actions can be performed on either of the Digital EHC control stations.				
*1.	Select <CONTROL>.	Utilizing the trackball controller, clicks on <CONTROL>.	___	___	___
*2.	Select <RX COOLDOWN>.	Utilizing the trackball controller, clicks on <RX COOLDOWN>.	___	___	___
3.	Verify REACTOR COOLDOWN is OFF.	Observes the REACTOR COOLDOWN OFF select button is orange.	___	___	___
*4.	Select STPT/RAMP.	Utilizing the trackball controller, clicks on the <STPT/RAMP>.	___	___	___
*5.	Enter desired target temperature setpoint.	Clicks in the Set Point box. Utilizing the keyboard, enters 300.0.	___	___	___
*6.	Enter desired cooldown rate in the Ramp box.	Clicks in the Ramp Rate box. Utilizing the keyboard, enters 75.0.	___	___	___
*7.	Select <OK>.	Utilizing the trackball controller, clicks on <OK>. Clicks <OK> on the Confirm Setpoint pop up window.	___	___	___
*8.	Initiate Reactor cooldown by selecting ON for REACTOR COOLDOWN.	Utilizing the trackball controller, clicks on <ON>. Clicks <OK> on the “Begin Reactor Cooldown” pop up window.	___	___	___
9.	On <CONTROL> <PRESSURE CONTROL> screen, adjust pressure setpoint as necessary to maintain at least 50 psig above Reactor pressure.	Utilizing the trackball controller, clicks on <PRESSURE CONTROL>.	___	___	___
Note	The Examinee may wait to proceed until RPV pressure has decreased ~ 50 psig.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
10.	Select STPT/RAMP and input value for RPV pressure setpoint and ramp rate.	Utilizing the trackball controller, clicks on <STPT/RAMP > and input value greater than RPV pressure.	___	___	___
11.	On <CONTROL> <BPV JACK> screen, verify BPV Jack position setpoint is -5.0%.	If uses other DEHC screen, utilizing the trackball controller, clicks on <CONTROL>. Utilizing the trackball controller, clicks on < BPV JACK >. Observes BPV Jack position setpoint is -5.0%.	___	___	___
12.	Informs Unit Supervisor task is complete.	Examinee notifies the Unit Supervisor.	___	___	___
Cue	Acknowledge report of task completion.				
END					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: DEHC - Establish RPV Cooldown with Bypass Valves
JPM Number: S-N-c **Revision Number**: 02
Task Number and Title: 29501LP040, Respond to a Reactor Scram IAW DGP 02-03.
K/A Number and Importance: 241000.A4.06 3.9 / 3.9
Suggested Testing Environment: Simulator
Alternate Path: ☐ Yes ☒ No **SRO Only**: ☐ Yes ☒ No **Time Critical**: ☐ Yes ☒ No
Reference(s): DGP 02-03, Rev 105

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 9 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**: _____

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. A transient has occurred and the Unit Supervisor has determined a reactor cooldown is required.
3. Another NSO will acknowledge annunciators not associated with this task.
4. Hard Card use has been authorized.

INITIATING CUE

1. The Unit Supervisor has directed you to begin a 75.0°F/hr reactor cooldown to 300°F utilizing the Turbine Bypass valves.
2. Inform the Unit Supervisor when the task is complete.

Job Performance Measure

LPCI – MITIGATE HIGH SUCTION PRESSURE WHILE LINING UP TO CST SUCTION FOR INJECTION

JPM Number: S-N-d

Revision Number: 09

Date: 2/16

EXAM MATERIAL

Developed By: _____ Instructor _____ Date

Approved By: _____ Facility Representative _____ Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DEOP 0500-03 Rev: 23
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

Revision Record (Summary)

Revision 06 Bank JPM.

Revision 07 Revised for ILT 12-1 Cert Exam.

Revision 08 Revised for ILT 14-1 NRC Exam.

Revision 09 Revised for ILT 15-1 (2016-301) NRC Exam.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any IC (IC _53__ used for validation).

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

2. Verify ALL LP ECCS Pumps are in PTL.
3. Run the following CAEP file: S-N-d.cae
4. If the CAEP cannot be ran, insert the following Expert Commands:
   - Insert the following Malfunctions, Remotes, and/or Overrides:
     - imf ser0016 on
     - imf ser0155 on
     - ior lpdvlvcl25 close
     - ior lpdvlvop16 open
     - ior rrd5bcls close
   - Assign the following trigger assignment:
     - irf lpcstppc (15) true

DOCUMENT PREPARATION

Markup a copy of DEOP 0500-03, Alternate Water Injection Systems.

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. A transient has occurred requiring Alternate Water Injection.

Examiner Note: The following parameters do not match the simulator indications.

3. RPV level is –65 inches and slowly dropping.
4. RPV pressure is 140 psig and slowly dropping.
5. All LP ECCS Pumps are in PTL due to the Ring Header being plugged.
6. 'B' Loop is selected for injection.

INITIATING CUE

1. The Unit Supervisor has directed you to line up the 2A LPCI pump with CST suction and inject to raise RPV water level per DEOP 0500-03.
2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
NOTE: Provide the Examinee with the provided copy of DEOP 0500-03.						
	1.	Verifies 2A LPCI PP control switch in Pull-to-Lock.	ALL lights extinguished.	_____	_____	_____
	2.	Place PP SUCT VLV MO 2-1501-5A control switch in Manual Bypass and verify closed.	RED light illuminated.	_____	_____	_____
	3.	Verify MIN FLOW VLV 2-1501-13A closed if not needed.	RED light illuminated.	_____	_____	_____
CUE: 2-1501-13A is not required for 2B LPCI pump.						
NOTE: The following valves may be verified in any order						
	4.	Verify TORUS CLG/TEST valves 2-1501-20A and 2-1501-38A closed.	GREEN lights illuminated.	_____	_____	_____
	5.	Verify TORUS SPRAY VLVs 2-1501-19A and 2-1501-18A closed.	GREEN lights illuminated.	_____	_____	_____
	6.	Verify DW SPRAY VLVs 2-1501-28A and 2-1501-27A closed.	GREEN lights illuminated.	_____	_____	_____
	7.	Verify TORUS CLG/TEST valves 2-1501-20B and 2-1501-38B closed.	GREEN lights illuminated.	_____	_____	_____
	8.	Verify TORUS SPRAY VLVs 2-1501-19B and 2-1501-18B closed.	GREEN lights illuminated.	_____	_____	_____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
	9.	Verify DW SPRAY VLVs 2-1501-28B and 2-1501-27B closed.	GREEN lights illuminated.	____	____	____
		NOTE: For bleeding off the pressure in the suction piping, the examinee may communicate each of the following steps individually OR instruct the EO to complete actions of DEOP 0500-03 step G.12.c.(5 thru 8).				
		CUE: When directed, as the EO in the field, communicate that the steps (either individually of as a whole) have been completed.				
	10.	Unlock AND open 2-1501-74A, U2 LPCI A PMP VENT VLV.	Instructs EO to complete step G.12.c.(5).(a).	____	____	____
	11.	Crack open 2-1501-15A, U2 LPCI A PMP VENT VLV until flow is observed from pipe.	Instructs EO to complete step G.12.c.(5).(b).	____	____	____
	12.	Close 2(3)-1501-15A, U2 LPCI A PMP VENT VLV.	Instructs EO to complete step G.12.c.(5).(c).	____	____	____
	13.	Close AND lock 2-1501-74A, U2(3) LPCI A PMP VENT VLV.	Instructs EO to complete step G.12.c.(5).(d).	____	____	____
	14.	Open 2-1501-47A-R, U2 LPCI A PUMP SUCT PI 2-1501-47A ROOT VLV (at pump) and verify PI 2-1501-47A indicates less than 15 psig.	Instructs EO to obtain PI 2-1501-47A reading per step G.12.c.(6). & G.12.c.(7).	____	____	____
		CUE: PI 2-1501-47A indicates 15.5 psig.				
	15.	Recognizes reading is NOT less than 15 psig.	Determines reading is greater than 15 psig.	____	____	____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
	16.	Close 2-1501-47A-R, U2 LPCI A PUMP SUCT PI 2-1501-47A ROOT VLV.	Instructs EO to close 2-1501-47A per step G.12.c.(8).	____	____	____
		CUE: 2-1501-47A-R is Closed.				
	17.	Open PP SUCT VLV MO 2-1501-5A.	GREEN light illuminated.	____	____	____
	18.	Notify Unit Supervisor that 2A LPCI pump cannot be used with suction from the CST.	Examinee notifies Unit Supervisor of 2A LPCI pump suction pressure problem when aligned to CST. May recommend using another LPCI pump.	____	____	____
		CUE: Notify the examinee that injection is still needed and to line up 2C LPCI pump suction to the CST. Maintain the 2A LPCI pump in PTL.				
		BEGIN ALTERNATE PATH				
	19.	Verifies 2C LPCI PP control switch in Pull-to-Lock.	ALL lights extinguished.	____	____	____
*	20.	Place PP SUCT VLV MO 2-1501-5C control switch in Manual Bypass and verify closed.	RED light illuminated.	____	____	____
	21.	Verify MIN FLOW VLV 2-1501-13B closed if not needed.	RED light illuminated.	____	____	____
		CUE: 2-1501-13B is not required for 2D LPCI pump.				
	22.	Verify TORUS CLG/TEST valves 2-1501-20A and 2-1501-38A closed.	GREEN lights illuminated.	____	____	____

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
	23.	Verify TORUS SPRAY VLVs 2-1501-19A and 2-1501-18A closed.	GREEN lights illuminated.	____	____	____
	24.	Verify DW SPRAY VLVs 2-1501-28A and 2-1501-27A closed.	GREEN lights illuminated.	____	____	____
	25.	Verify TORUS CLG/TEST valves 2-1501-20B and 2-1501-38B closed.	GREEN lights illuminated.	____	____	____
	26.	Verify TORUS SPRAY VLVs 2-1501-19B and 2-1501-18B closed.	GREEN lights illuminated.	____	____	____
	27.	Verify DW SPRAY VLVs 2-1501-28B and 2-1501-27B closed.	GREEN lights illuminated.	____	____	____
	28.	Unlock AND open 2-1501-74C, U2 LPCI C PMP VENT VLV.	Instructs EO to complete step G.12.e.(5).(a).	____	____	____
	29.	Crack open 2-1501-15C, U2 LPCI C PMP VENT VLV until flow is observed from pipe.	Instructs EO to complete step G.12.e.(5).(b).	____	____	____
	30.	Close 2(3)-1501-15C, U2 LPCI C PMP VENT VLV.	Instructs EO to complete step G.12.e.(5).(c).	____	____	____
	31.	Close AND lock 2-1501-74C, U2 LPCI C PMP VENT VLV.	Instructs EO to complete step G.12.e.(5).(d).	____	____	____
	32.	Open 2-1501-47C-R, U2 LPCI C PUMP SUCT PI 2-1501-47C ROOT VLV (at pump) and verify PI 2-1501-47C indicates less than 15 psig.	Instructs EO to obtain PI 2-1501-47C reading per step G.12.e.(6).	____	____	____

CUE:

Pressure is 10 psig. .

		PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
	33.	Recognizes reading is less than 15 psig.	Determines reading is LESS than 15 psig.	____	____	____
	34.	Close 2-1501-47C-R, U2 LPCI C PUMP SUCT PI 2-1501-47C ROOT VLV.	Instructs EO to close 2-1501-47C per step G.12.e.(8).	____	____	____
*	35.	Unlock AND open 2-1501-31C, U2 LPCI C PMP SUCT VLV FROM CST [at 2 C LPCI Pump]	Directs EO to perform step G.12.e.(10)(a)	____	____	____
		CUE: 2-1501-31C is open.				
*	36.	Unlock AND open 2-1501-37, U2 LPCI & CS SUCT FROM 2/3A CST SV (located at 2/3A CST)	Directs EO to perform step G.12.e.(10)(b)	____	____	____
		Simulator Operator / Evaluator: Activate **Trigger 15** to lineup 2C LPCI pump suction to the CST.				
		CUE: 2-1501-37 is open.				
*	37.	Start 2C LPCI PP	Places control switch to start. RED light illuminated.	____	____	____
	38.	Inform Unit Supervisor that 2C LPCI pump is lined up to the CST and the task is complete.	Informs Unit Supervisor that 2C LPCI pump is lined up to the CST and injecting; the task is complete.	____	____	____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment
CUE: Acknowledge report of task completion.				
END				

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: LPCI – Mitigate High Suction Pressure While Lining up to CST suction for Injection
JPM Number: S-N-d **Revision Number**: 09
Task Number and Title: 29502LK061, Lineup LPCI to the CST
K/A Number and Importance: 203000.A1.04 3.6 / 3.6
Suggested Testing Environment: Simulator
Alternate Path: ☒ Yes ☐ No **SRO Only**: ☐ Yes ☒ No **Time Critical**: ☐ Yes ☒ No
Reference(s): DEOP 0500-03, Rev 23

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 38 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**: _____

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. A transient has occurred requiring Alternate Water Injection.
3. RPV level is –65 inches and slowly dropping.
4. RPV pressure is 140 psig and slowly dropping.
5. All LP ECCS Pumps are in PTL due to the Ring Header being plugged.
6. 'B' Loop is selected for injection.

INITIATING CUE

1. The Unit Supervisor has directed you to line up the 2A LPCI pump with CST suction and inject to raise RPV water level per DEOP 0500-03.
2. Inform the Unit Supervisor when the task is complete.

Job Performance Measure

CONTAINMENT - VENT CONTAINMENT WITH APCV – (A)

JPM Number: S-N-e

Revision Number: 00

Date: 2/16

EXAM MATERIAL

Developed By: _____ _____
Instructor Date

Approved By: _____ _____
Facility Representative Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DEOP 0500-04 Rev: 16
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

Revision Record (Summary)

Revision 00 Created for ILT 15-1 (2016-301) NRC Exam.

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to an IC with the mode switch NOT in run, so that the proper alarms and interlocks will work. (IC _51__ used for validation).

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

2. Ensure Torus water level is <30 feet.
3. Run the following CAEP file: S-N-e.cae
4. If the CAEP file cannot be ran insert the following Expert Commands:
   a. Insert following Malfunctions, Remotes, and/or Overrides:
      - IMF CIGP2I (Spurious Group II Isolation)
      - Adjusts Torus Level indications to ~20 feet.
        - ior atl10 25.0
        - ior pcltr10a 20
        - ior pcltr10b 20
      - Adjusts Torus Bottom Pressure to 58.0 psig
        - ior pcptr103 58.0
      - Prevents the 2-1601-61 from opening
        - ior pcdcl61 close
        - ior pcdop61 off
      - Pulls ECCS Initiation Logic fuses so when Drywell pressure is forced high, NO ECCS starts.
        - irf lp1aaf1f pulled
        - irf lp701af pulled
        - irf lp1aaf2f pulled
        - irf lp701bf pulled
        - irf csalgoff pulled
        - irf csblgoff pulled
        - irf hp2a1f1 pulled
        - irf hp2b1f1 pulled
      - Adjusts Drywell & Torus pressures to 50.0 psig.
        - ior pcp8524 50.0
        - ior pcpdw102 50.0
        - ior pcp85401 5.0
        - ior pcptr1 5.0
5. Verify the SBGT system operating and verify flow ~4000 scfm.
6. Start ALL available ventilation exhaust fans as directed in DEOP 0500-04.
7. Place CRM ISOL switch to ISOLATE – wait 10 seconds then verify a C/R Booster Fan is running.

DOCUMENT PREPARATION

Markup a copy of DEOP 0500-04, Containment Venting.

INITIAL CONDITIONS

1. You are the Aux 2 NSO.
2. A break inside the Unit 2 Primary Containment has occurred.
3. Torus bottom pressure is about to exceed the PCP limit in DEOP 0200-01.
4. Torus water level is 20 feet.
5. Control Room ventilation has been isolated.
6. Reactor Building and Turbine Building have been evacuated.
7. The Instrument Bus and ESS Bus are energized.
8. The Instrument Air System is available.
9. The N2 System is in its normal lineup.

INITIATING CUE

1. The Unit Supervisor has directed you to vent the Unit 2 Primary Containment in accordance with DEOP 0500-04, to control Primary Containment pressure.
2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
Note	Provide examinee the marked up copy of DEOP 0500-04. Annunciator 902-3 A-15, Pri Cnmt Vent/Sample Isol Bypass, will be received during this JPM.				
1.	Verify SBGT is operating and flow is ~ 4000 scfm.	Verifies 2/3A SBGT train FI 7540-13 is reading ~4000 scfm.	___	___	___
2.	Verify Reactor Mode switch NOT in RUN.	Verifies Reactor Mode switch NOT in RUN.	___	___	___
3.	Place VENT ISOL SIGNAL BYPASS switch on 902-5 panel to TORUS.	Momentarily places Bypass switch to Torus Position.	___	___	___
4.	Open AO 2-1601-61, TORUS 2-INCH VENT VLV.	Places AO 2-1601-61 control switch to OPEN position and determines that the valve will not open.	___	___	___
*5.	Place the VENT ISOL SIGNAL BYPASS Switch on 902-5 to DRYWELL.	Places the VENT ISOL SIGNAL BYPASS Switch on 902-5 to DRYWELL	___	___	___
*6.	Open AO 2-1601-62, DW 2-INCH VENT VLV.	Places AO 2-1601-62 control switch to OPEN. Green light extinguishes and Red light illuminates.	___	___	___
*7.	Open AO 2-1601-63, VENT TO SBGT.	Places AO 2-1601-63 control switch to OPEN. Green light extinguishes and Red light illuminates.	___	___	___
8.	Determine if SBGT flow is adequate to control and maintain Torus Bottom pressure below the Primary Containment Pressure Limit.	Determines Containment pressure trend.	___	___	___
Cue	If examinee reads TORUS BOTTOM PRESS PI 2-1640-103, inform him/her that the meter displays 58 psig and is trending UP slowly.				
BEGIN ALTERNATE PATH					

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
9.	Determines use of AUGMENTED PRI CNMT VENT (APCV) System is required.	Proceeds to Attachment 1 step 6.	___	___	___
*10.	Place AUGMENTED PRI CNMT VENT MODE SWITCH to APCV on Panel 902-3	Rotates control switch clockwise to APCV position	___	___	___
11.	Verify closed AO 2-1601-63, VENT TO SBGT	Verifies AO-2-1601-63 in closed. GREEN light lit, RED light extinguished.	___	___	___
12.	Verify closed AO 2-1601-91, VENT TO RX BLDG EXH SYS	Verifies AO-2-1601-91 in closed. RED light lit, GREEN light extinguished.	___	___	___
*13.	Place TORUS ISOLATION GROUP 2 OVERRIDE 2-1601-60 switch to OVERRIDE and hold on 902-3 Panel	Rotates TORUS ISOLATION GROUP 2 OVERRIDE 2-1601-60 keylock switch clockwise and holds	___	___	___
*14.	Place DRYWELL ISOLATION GROUP 2 OVERRIDE 2-1601-23 switch to OVERRIDE and release on 902-3 Panel	Rotates DRYWELL ISOLATION GROUP 2 OVERRIDE 2-1601-23 keylock switch clockwise and releases	___	___	___
*15.	Release TORUS ISOLATION GROUP 2 OVERRIDE 2-1601-60 on 902-3 Panel	Releases TORUS ISOLATION GROUP 2 OVERRIDE 2-1601-60 keylock switch	___	___	___
*16.	Place CMNT ISOLATION GROUP 2 OVERRIDE 2-1601-24 switch to OVERRIDE and release on 902-3 Panel	Rotates CMNT ISOLATION GROUP 2 OVERRIDE 2-1601-24 keylock switch clockwise and releases	___	___	___
*17.	Open AO 2-1601-60, TORUS VENT VLV.	Determines Torus Water Level is less than 30 feet and opens AO 2-1601-60, TORUS VENT VLV.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*18.	Open AO 2-1601-24, VENT TO RX BLDG EXH SYS.	Rotates AO 2-1601-24, VENT TO RX BLDG EXH SYS control switch clockwise and verifies GREEN light extinguishes and RED light illuminates	___	___	___
*19.	Open AO 2-1601-92 VENT TO MAIN CHIMNEY to control and maintain Primary Containment pressure below limit.	Rotates AO 2-1601-92 VENT TO MAIN CHIMNEY control switch clockwise and verifies GREEN light extinguishes and RED light illuminates	___	___	___
Cue	DW pressure is being controlled and maintained below the Primary Containment Pressure Limit. If examinee asks reading on TORUS BOTTOM PRESS PI 2-1640-103, inform him/her that the meter has decreased to 53 psig (5 psig less than original report).				
20.	Informs Unit Supervisor task is complete.	Examinee notifies the Unit Supervisor.	___	___	___
Cue	Acknowledge report of task completion.				
END					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: Containment - Vent Containment with APCV – (A)

JPM Number: S-N-e **Revision Number**: 00

Task Number and Title: 295L101, Vent the primary containment through the augmented primary containment vent (APCV) to stay below the Primary Containment Pressure Limit.

K/A Number and Importance: 223001.A4.07 4.2*/4.1

Suggested Testing Environment: Simulator

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

Reference(s): DEOP 0500-04, Rev 16

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 9 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:_____

_____

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Evaluator's Name (Print):_____

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

INITIAL CONDITIONS

1. You are the Aux 2 NSO.
2. A break inside the Unit 2 Primary Containment has occurred.
3. Torus bottom pressure is about to exceed the PCP limit in DEOP 0200-01.
4. Torus water level is 20 feet.
5. Control Room ventilation has been isolated.
6. Reactor Building and Turbine Building have been evacuated.
7. The Instrument Bus and ESS Bus are energized.
8. The Instrument Air System is available.
9. The N2 System is in its normal lineup.

INITIATING CUE

1. The Unit Supervisor has directed you to vent the Unit 2 Primary Containment in accordance with DEOP 0500-04, to control Primary Containment pressure.
2. Inform the Unit Supervisor when the task is complete.

Job Performance Measure

Restore Normal Feed to 28-7/29-7 from Bus 29

JPM Number: S-N-f

Revision Number: 03

Date: 2/16

EXAM MATERIAL

Developed By: _____ _____
Instructor Date

Approved By: _____ _____
Facility Representative Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DOP 6700-18 Rev: 13
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

Revision Record (Summary)

Revision 02 Updated to comply with rev 4 of DOP 6500-10

Revision 03 Revised for ILT 15-1 (2016-301) NRC Exam

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any IC (IC _52_ used for validation).

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

2. Hold MCC 29-7/28-7 Feed from Bus 29 in TRIP until MCC 29-7/28-7 Feed from Bus 28 CLOSES.
3. This completes the setup for this JPM.

DOCUMENT PREPARATION

Mark up copy of DOP 6700-18, Bus 28 Outage.

INITIAL CONDITIONS

1. MCC 28-7/29-7 is powered from Bus 28.
2. Power has been restored to Bus 29.
3. You are the Unit 2 Assistant NSO.
4. DOP 6700-18 Attachment F loads are in the desired position as specified by Unit Supervisor.

INITIATING CUE

1. You have been directed by the Unit Supervisor to restore the normal feed to MCC 28-7/29-7 per DOP 6700-18 Step G.5
2. Notify the Unit 2 Supervisor when the task is complete

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
1.	Declare BOTH LPCI subsystems inoperable	Informs the Unit Supervisor BOTH LPCI subsystems must be declared inoperable. Reference TS 3.5.2	___	___	___
Cue	Respond: Division 1 and 2 LPCI subsystems are inoperable.				
*2.	Open the feed breaker from Bus 28, MCC 29-7/28-7 FEED FROM BUS 28, by placing control switch in TRIP AND maintain switch in TRIP.	Opens the feed breaker AND maintains the switch in TRIP.	___	___	___
*3.	Close feed breaker from Bus 29, MCC 29-7/28-7 FEED FROM BUS 29.	Closes the feed breaker	___	___	___
*4.	Release feed breaker from Bus 28, MCC 29-7/28-7 FEED FROM BUS 28, control switch.	Releases feed breaker control switch	___	___	___
5.	Notify the Unit 2 Supervisor that normal feed has been restored to MCC 28-7/29-7.	Unit 2 Supervisor notified.	___	___	___
Cue	Acknowledge report of task completion.				
END					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: Restore Normal Feed to 28-7/29-7 from Bus 29
JPM Number: S-N-f **Revision Number**: 03
Task Number and Title: 262L026, Restore Normal Feed to 28-7/29-7 from Bus 29
K/A Number and Importance: 262001.A4.01 3.4 / 3.7
Suggested Testing Environment: Simulator
Alternate Path: ☐ Yes ☒ No **SRO Only**: ☐ Yes ☒ No **Time Critical**: ☐ Yes ☒ No
Reference(s): DOP 6700-18, Rev 13

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 12 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:_____

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Evaluator's Name (Print):_____

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

INITIAL CONDITIONS

1. MCC 28-7/29-7 is powered from Bus 28.
2. Power has been restored to Bus 29.
3. You are the Unit 2 Assistant NSO.
4. DOP 6700-18 Attachment F loads are in the desired position as specified by Unit Supervisor.

INITIATING CUE

1. You have been directed by the Unit Supervisor to restore the normal feed to MCC 28-7/29-7 per DOP 6700-18 Step G.5
2. Notify the Unit 2 Supervisor when the task is complete

Job Performance Measure

Withdraw SRM Detectors with a Stuck SRM Detector (AP)

S-N-g

Revision Number: 02

Date: 2/16

EXAM MATERIAL

Developed By: _____ _____
Instructor Date

Approved By: _____ _____
Facility Representative Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DOP 0700-01 Rev: 15
Procedure DOA 0700-02 Rev: 13
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

Revision Record (Summary)

Revision 00 New JPM for the 2010 LORT exam.

Revision 01 Updated for the 2012 LORT exam.

Revision 02 Revised for ILT 15-1 (2016-301) NRC Exam

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to a 2-3% power IC (IC _53_ used for validation).

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

2. Position SRM detectors for a 10^4 to 10^5 count rate. (Should not be in the fully withdrawn position)
3. Run CAEP file: S-N-f.cae
4. If CAEP file cannot be ran, insert the following Expert Commands:
   a. Malfunctions required:
      1) imf nis22det (Inserts SRM 22 stuck malfunction)
   b. Triggers required:
      1) trgset 1 “nilsdet(2) .and. nil104do”
      2) trgset 2 “et_array(1) .and. nilsdet(2) .and. nil101di”
      3) trg 2 “dmf nis22det”

DOCUMENT PREPARATION

Clean copies of the following procedures:

- DOP 0700-01, Source Range monitor Operation (SRM)
- DOA 0700-02, SRM or IRM Detector Stuck

INITIAL CONDITIONS

1. Unit 2 startup is in progress.
2. You are an extra NSO assisting the startup.
3. Primary Containment has been established.

INITIATING CUE

1. The Unit 2 Supervisor directs you to fully withdraw SRM detectors per DOP 0700-01, Source Range Monitor Operation (SRM).
2. Your Pre-Job Brief has been completed.
3. Notify the Unit supervisor upon completion of the task.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
Note	Provide the Examinee a copy of DOP 0700-01.				
1.	WHEN IRM down scale alarms have cleared, THEN start SRM withdrawal and maintain SRM count rate 290 cps to $8.85x10^4$ cps.	IRM down scales are cleared by initial conditions. Monitors count rate when withdrawing SRMs.	___	___	___
*2.	Depress the applicable SELECT switch (LIT when selected).	Depresses each SRM's SELECT switch. Verifies SELECT light lit.	___	___	___
*3.	Depress and hold the DRIVE OUT switch to withdraw SRMs to maintain SRM count rate of 290 cps to $8.85x10^4$ cps.	Depress and hold the DRIVE OUT switch to withdraw SRMs	___	___	___
BEGIN ALTERNATE PATH					
4.	Verify that SRMs indication is changing as expected.	For SRMs 21, 23 & 24: · Count rate drops. · Period indicates negative. · OUT light is lit when detector reaches full out position. **For SRM 22 indications remain unchanged.**	___	___	___
5.	Report SRM 22 detector did not move and/or appears to be stuck.	Reports SRM 22 detector did not move and/or appears to be stuck.	___	___	___
Note	The Examinee should allow SRMs 21, 23, 24 to fully withdraw.				
Cue	Acknowledge report. Announce "entering DOA 0700-02, SRM or IRM Detector Stuck". Direct the Examinee to "perform DOA 0700-02". When the Examinee locates DOA 0700-02, give him the provided copy of DOA 0700-02.				
Note	The Examinee may have already deselected SRMs earlier.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*6.	Depress SRM SELECT switches to establish ONLY SRM 22 selected	Depresses SRM SELECT switches to establish ONLY SRM 22 SELECT light lit.	___	___	___
Note	An automatic Trigger is setup to delete the SRM stuck detector malfunction when it is inserted.				
*7.	Use DRIVE IN AND DRIVE OUT switches to move stuck SRM detector in both directions to free it.	Depresses DRIVE IN switch to move SRM 22.	___	___	___
8.	Verify indication that SRM 22 is moving.	Observes SRM 22: · Count rate rises. · Period indicates positive.	___	___	___
*9.	Depress DRIVE IN switch to stop SRM 22.	Depresses DRIVE IN switch to stop SRM 22.	___	___	___
*10.	Use DRIVE IN AND DRIVE OUT switches to move stuck SRM detector in both directions to free it.	Depresses and holds DRIVE OUT switch to move SRM 22. Drives SRM 22 fully out.	___	___	___
11.	Verify that SRM 22 indication is changing as expected.	Observes SRMs 22: · Count rate drops. · Period indicates negative. · OUT light is lit when detector reaches full out position.	___	___	___
12.	Report SRM 22 detector is fully withdrawn.	Reports SRM 22 detector is fully withdrawn.	___	___	___
Cue	Acknowledge report.				
END					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: Withdraw SRM Detectors with a Stuck SRM Detector (AP)
JPM Number: S-N-g **Revision Number**: 02
Task Number and Title: 215L022 Respond to an SRM or IRM stuck detector.
K/A Number and Importance: 215004A4.04 3.2 / 3.2
Suggested Testing Environment: Simulator
Alternate Path: ☒ Yes ☐ No **SRO Only**: ☐ Yes ☒ No **Time Critical**: ☐ Yes ☒ No
Reference(s): DOP 0700-01, Rev 15
DOA 0700-02, Rev 13

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

Testing Method: ☐ Simulate ☒ Perform

Estimated Time to Complete: 18 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:_____

_____

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_____

Evaluator's Name (Print):_____

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

INITIAL CONDITIONS

1. Unit 2 startup is in progress.
2. You are an extra NSO assisting the startup.
3. Primary Containment has been established.

INITIATING CUE

1. The Unit 2 Supervisor directs you to fully withdraw SRM detectors per DOP 0700-01, Source Range Monitor Operation (SRM).
2. Your Pre-Job Brief has been completed.
3. Notify the Unit supervisor upon completion of the task.

Job Performance Measure

SBGT - START SBGT WITH A FAILURE OF RX BLDG VENT TO ISOLATE

JPM Number: S-N-h

Revision Number: 03

Date: 2/16

EXAM MATERIAL

Developed By: _____ _____
Instructor Date

Approved By: _____ _____
Facility Representative Date

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 and 13 below.

_____ 1. Task description and number, JPM description and number are identified.

_____ 2. Knowledge and Abilities (K/A) references are included.

_____ 3. Performance location specified. (in-plant, control room, simulator, or other)

_____ 4. Initial setup conditions are identified.

_____ 5. Initiating cue (and terminating cue 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 DOP 7500-01 Rev: 36
Procedure DAN 902(3)-3 F-14 Rev: 20
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

Revision Record (Summary)

Revision 01 Bank JPM.

Revision 02 Revised for 2010 Cert Exam.

Revision 03 Modified for ILT 15-1 (2016-301) NRC Exam

SIMULATOR SETUP INSTRUCTIONS

1. Reset the simulator to any IC with Rx Bldg Vent operating normally (IC _53_ used for validation).

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

2. Place the 2/3A SBGT train control switch in STBY.
3. Place the 2/3B SBGT train control switch in PRI.
4. Verify the following fans operating:
   - 2A RX BLDG VENT FAN
   - 2B RX BLDG VENT FAN
   - 2A RX BLDG EXH FAN
   - 2B RX BLDG EXH FAN
   - 3A RX BLDG VENT FAN
   - 3B RX BLDG VENT FAN
   - 3A RX BLDG EXH FAN
   - 3B RX BLDG EXH FAN
5. Run CAEP file S-N-h.cae
6. If the CAEP file cannot be ran, insert the following Expert Commands:
   a. ior vrdtp3c trip (Prevents autostart of 2C RB vent fan)
   b. ior vrdtp4c trip (Prevents autostart of 2C RB exhaust fan)
   c. irf cirbvall lifted (Prevents Secondary Containment Isolation on U2)
   d. trgset 16 "vgdstrta_drw" (Trigger 16 automatically activates when 2/3A SBGT is placed to START)
   e. imf radrbvah (16 30) (After 30 sec, inserts RX Bldg Rad Mon failed high to cause a Secondary Containment Isolation signal)
   f. imf x04 (16 30) (After 30 sec, trips 2A RBV Supply Fan).
   g. imf x05 (16 30) (After 30 sec, trips 2B RBV Supply Fan).
   h. imf x07 (16 30) (After 30 sec, trips 2A RBV Exhaust Fan).
   i. imf x08 (16 30) (After 30 sec, trips 2B RBV Exhaust Fan).

DOCUMENT PREPARATION

Clean copy of DOP 7500-01.

Clean copy of DAN 902(3)-3 F-14

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. U2 HPCI surveillance is in progress and is at the point of starting a SBGT train.
3. DOP 7500-M1/E1 is not required per the Unit Supervisor.
4. The 2/3A SBGT Initial Cumulative Run Time has been recorded.
5. There has been **NO** painting or operation of propane powered equipment in the power block in the last 72 hours.

INITIATING CUE

1. The Unit 2 Supervisor has directed you to start the 2/3A SBGT train per DOP 7500-01.
2. Inform the Unit Supervisor when the task is complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
Note	Provide the Examinee a copy of DOP 7500-01.				
*1.	Place the 2/3A SBGT SELECT switch to A PRI position.	Places the 2/3A SBGT SELECT switch to the A PRI position.	___	___	___
*2.	Place the 2/3B SBGT SELECT switch to B STBY position.	Places the 2/3B SBGT SELECT switch to the B STBY position.	___	___	___
3.	Verify the 2/3A and B AIR HEATERs are OFF.	Both GREEN lights illuminated.	___	___	___
4.	Verify the 2/3A and B Fans are OFF.	Both GREEN lights illuminated.	___	___	___
5.	Verify annunciators 923-5 A-6 and 923-5 B-6 are NOT in alarm.	Both annunciator tiles extinguished.	___	___	___
6.	Verify 2/3B SBGT SELECT SWITCH in B STBY position.	Verifies 2/3 B SBGT Select switch in B STBY.	___	___	___
Note	When 2/3A SBGT train starts, a Trigger auto activates which inserts a RBV Rad Mon Hi Hi condition after 30 seconds. The resulting Secondary Containment Isolation fails and the operator should complete the isolation.				
*7.	Starts 2/3A SBGT train.	Places 2/3 A SBGT Select switch to START A position.	___	___	___
8.	Verifies the 2/3A SBGT train initiated properly.	Begins verifying the 2/3A SBGT train operating properly.	___	___	___
9.	Records the Start Time on Operator Aid.	Records the Start Time on Operator Aid	___	___	___
BEGIN ALTERNATE PATH					
Note	The examinee should recognize the Secondary Containment Isolation did NOT occur, and perform the Limitations and Actions.				
Cue	If examinee does not react to the alarm on the 902-3 panel, make the following update: "Attention for an Update. RX BLDG VENT CH A RAD HI-HI is in. End of Update."				
Note	If the examinee starts to head to the 902-3 panel to respond to the 902-3 F-14 annunciator stop them and hand them the provided copy of the DAN.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*10.	Verifies trip of 3A RX BLDG VENT FAN.	Determines 3A RX BLDG VENT FAN is NOT tripped. (BLUE lights illuminated). Places control switch 3A RX BLDG VENT FAN to the Trip position. Determines 3A RX BLDG VENT FAN tripped (GREEN light illuminated).	___	___	___
*11.	Verifies trip of 3B RX BLDG VENT FAN.	Determines 3B RX BLDG VENT FAN is NOT tripped. (BLUE lights illuminated). Places control switch 3B RX BLDG VENT FAN to the Trip position. Determines 3B RX BLDG VENT FAN tripped (GREEN light illuminated).	___	___	___
12.	Verifies trip of 3C RX BLDG VENT FAN.	GREEN light illuminated.	___	___	___
*13.	Verifies trip of 3A RX BLDG EXH FAN.	Determines 3A RX EXH VENT FAN is NOT tripped. (BLUE lights illuminated). Places control switch 3A RX BLDG EXH FAN to the Trip position. Determines 3A RX BLDG EXH FAN tripped (GREEN light illuminated).	___	___	___
*14.	Verifies trip of 3B RX BLDG EXH FAN.	Determines 3B RX EXH VENT FAN is NOT tripped. (BLUE lights illuminated). Places control switch 3B RX BLDG EXH FAN to the Trip position. Determines 3B RX BLDG EXH FAN tripped (GREEN light illuminated).	___	___	___
15.	Verifies trip of 3C RX BLDG EXH FAN.	GREEN light illuminated.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
16.	Verifies trip of 2A RX BLDG VENT FAN.	GREEN and AMBER lights illuminated.	___	___	___
17.	Verifies trip of 2B RX BLDG VENT FAN.	GREEN and AMBER lights illuminated.	___	___	___
18.	Verifies trip of 2C RX BLDG VENT FAN.	GREEN light illuminated.	___	___	___
19.	Verifies trip of 2A RX BLDG EXH FAN.	GREEN and AMBER lights illuminated.	___	___	___
20.	Verifies trip of 2B RX BLDG EXH FAN.	GREEN and AMBER lights illuminated.	___	___	___
21.	Verifies trip of 2C RX BLDG EXH FAN.	GREEN light illuminated.	___	___	___
*22.	Verifies 3A INLET DAMPER AO 3-5741A closed. Verifies 3B INLET DAMPER AO 3-5741B closed.	Determines 3A & 3B INLET DAMPERs AO 3-5741A & B are NOT closed (GREEN lights illuminated). Places control switch 3A & 3B RX BLDG VENT INLET ISOL DAM 3-5741A & 3-5741B to the CLOSE position. Determines 3A & 3B INLET DAMPERs AO 3-5741A & B did not close (GREEN lights illuminated). Directs EO to locally close dampers.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*23.	Verifies 3A OUTLET DAMPER AO 3-5742A closed. Verifies 3B OUTLET DAMPER AO 3-5742B closed.	Determines 3A & 2B OUTLET DAMPERs AO 3-5742A & B are NOT closed (GREEN lights illuminated). Places control switch 3A & 3B RX BLDG VENT OTLT ISOL DAM 3-5742A & 3-5742B to the CLOSE position. Determines 3A & 3B OUTLET DAMPERs AO 3-5742A & B did not close (GREEN lights illuminated). Directs EO to locally close dampers.	___	___	___
*24.	Verifies 2A INLET DAMPER AO 2-5741A closed. Verifies 2B INLET DAMPER AO 2-5741B closed.	Determines 3A & 3B INLET DAMPERs AO 2-5741A & B are NOT closed (GREEN lights illuminated). Places control switch 2A & 2B RX BLDG VENT INLET ISOL DAM 2-5741A & 2-5741B to the CLOSE position. Determines 2A & 2B INLET DAMPERs AO 2-5741A & B did not close (GREEN lights illuminated). Directs EO to locally close dampers.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*25.	Verifies 2A OUTLET DAMPER AO 2-5742A closed. Verifies 2B OUTLET DAMPER AO 2-5742B closed.	Determines 2A & 2B OUTLET DAMPERs AO 2-5742A & B are NOT closed (GREEN lights illuminated). Places control switch 2A & 2B RX BLDG VENT OTLT ISOL DAM 2-5742A & 2-5742B to the CLOSE position. Determines 2A & 3B OUTLET DAMPERs AO 2-5742A & B did not close (GREEN lights illuminated). Directs EO to locally close dampers.	___	___	___
26.	Verifies trip of 2A D/W & Torus Purge Fan.	Condition met from previous steps in the procedure.	___	___	___
27.	Verifies trip of 2B D/W & Torus Purge Fan.	Condition met from previous steps in the procedure.	___	___	___
28.	Verifies trip of 3A D/W & Torus Purge Fan.	Condition met from previous steps in the procedure.	___	___	___
29.	Verifies trip of 3B D/W & Torus Purge Fan.	Condition met from previous steps in the procedure.	___	___	___
30.	Notifies US of Secondary Containment Isolation Failure and successful manual completion of the isolation.	Examinee notifies the Unit Supervisor.	___	___	___
Cue	Acknowledge report.				
END					

JPM Stop Time: _____

JPM SUMMARY

Operator's Name: _____ **Emp. ID#**: _____

Job Title: ☐ RO ☐ SRO ☐ SRO Cert

JPM Title: SBGT – Start SBGT with a Failure of RX BLDG VENT to Isolate (AP)
JPM Number: S-N-h **Revision Number**: 03
Task Number and Title: 261L002, Start the SBGT system.
K/A Number and Importance: 261000.A4.09 2.7 / 2.7
Suggested Testing Environment: Simulator
Alternate Path: ☒ Yes ☐ No **SRO Only**: ☐ Yes ☒ No **Time Critical**: ☐ Yes ☒ No
Reference(s): DOP 7500-01, Rev 36

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**: _____

INITIAL CONDITIONS

1. You are the Unit 2 Aux NSO.
2. U2 HPCI surveillance is in progress and is at the point of starting a SBGT train.
3. DOP 7500-M1/E1 is not required per the Unit Supervisor.
4. The 2/3A SBGT Initial Cumulative Run Time has been recorded.
5. There has been **NO** painting or operation of propane powered equipment in the power block in the last 72 hours.

INITIATING CUE

1. The Unit 2 Supervisor has directed you to start the 2/3A SBGT train per DOP 7500-01.
2. Inform the Unit Supervisor when the task is complete.

Exelon Nuclear

Job Performance Measure

Lineup IAC to Unit 2 Instrument Air Header

JPM Number: S-N-i

Revision Number: 00

Date: 02/16

Developed By: _____ _____

Exam Author **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 8 and 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 cue (and terminating cue 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure DOP 4700-03 Rev: 22
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 9. Verify cues both verbal and visual are free of conflict.

_____ 10. Verify performance time is accurate

_____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 12. 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

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 00 Created for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

N/A: In-Plant JPM.

DOCUMENT PREPARATION

Provide a copy of DOP 4700-03, Unit 2/3 Instrument Air Cross-Connect Operation to examinee.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. Unit 3 is shutdown for a refuel outage.
2. 2A IAC is unavailable due to an oil leak.
3. 2B, 3A, 3B, and 3C IACs are supplying their own unit.
4. Unit 2 is at 100% power and is experiencing an Instrument Air transient that is causing the Unit 2 Instrument Air header pressure to drop slowly.
5. The Unit Supervisor has determined a Unit 3 Instrument air compressor must be aligned to Unit 2.
6. Unit 2 SAC is running.
7. Main Control Room is monitoring IA parameters.

INITIATING CUE

1. The Unit 2 Unit Supervisor has directed you to Cross-connect 3C Instrument Air Compressor to Unit 2 ONLY .
2. All applicable prerequisites of DOP 4700-03 have been met.
3. Your Pre Job Brief has been completed.
4. Notify the Unit Supervisor when you are complete with the task.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

Job Performance Measure (JPM)

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

PERFORMANCE CHECKLIST		STANDARDS	SAT	UNSAT	Comment #
Provide examinee a current copy of DOP 4700-03.					
1.	Identifies Step G.9 as the correct step in DOP 4700-03.	Proceeds to Step G.9.	_____	_____	_____
2.	Verify closed 3-4799-501A, 3C IAC DISCH TO U-3 INST AIR HEADER ISOL VLV.	Verifies 3-4799-501A, 3C IAC DISCH TO U-3 INST AIR HEADER ISOL VLV stem is in. (Valve is located above 3B IAC)	_____	_____	_____
CUE The component is in the position you described.					
*3.	Close 2/3-4799-424, U2/U3 X-TIE SV.	Rotates 2/3-4799-424, U2/U3 X-TIE SV clockwise until stem is in. (Valve is located North of 3A IAC)	_____	_____	_____
CUE The component is in the position you described.					
*4.	Open 2/3-4799-425, 3C IAC TO U2 AIR SYS X-TIE SV.	Rotates 2/3-4799-425, 3C IAC TO U2 AIR SYS X-TIE SV counter clockwise until stem is out. (Valve is located North of 3A IAC)	_____	_____	_____
CUE The component is in the position you described.					

PERFORMANCE CHECKLIST		STANDARDS	SAT	UNSAT	Comment #
*5.	Open 2-47350-500, U2 INST AIR SYS XTIE FROM THE U3 INST AIR SYS.	Rotates 47350-500, U2 INST AIR SYS XTIE FROM THE U3 INST AIR SYS counter clockwise until stem is out. (Valve is located North of Cardox tank)	____	____	____
CUE The component is in the position you described.					
*6.	Open 2-47350-329, U2 INST AIR HDR ISOL VLV.	Rotates 2-47350-329, U2 INST AIR HDR ISOL VLV counter clockwise until stem is out. (Valve is located North of 2B IAC)	____	____	____
CUE The component is in the position you described.					
7.	Report completion of task to Unit Supervisor.	Reports completion of task to Unit Supervisor.	____	____	____
END					

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name: _____

Job Title: q RO q SRO

JPM Title: Align IACs to Unit 2 Instrument Air header
Revision Number: 00
JPM Number: S-N-i
Task Number and Title: 278N013 Lineup Unit 3 C Instrument Air Compressor to Unit 2

K/A Number and Importance: 295019.A1.02 3.3 / 3.1

Suggested Testing Environment: In-Plant

Suggested Testing Environment: q Simulator þ Plant q Control Room

Testing Method: ☒ Simulate ☐ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No

Time Critical: ☐ Yes ☒ No

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

References: DOP 4700-03, Rev. 22

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

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

Comments: _____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. Unit 3 is shutdown for a refuel outage.
2. 2A IAC is unavailable due to an oil leak.
3. 2B, 3A, 3B, and 3C IACs are supplying their own unit.
4. Unit 2 is at 100% power and is experiencing an Instrument Air transient that is causing the Unit 2 Instrument Air header pressure to drop slowly.
5. The Unit Supervisor has determined a Unit 3 Instrument air compressor must be aligned to Unit 2.
6. Unit 2 SAC is running.
7. Main Control Room is monitoring IA parameters.

INITIATING CUE

1. The Unit 2 Unit Supervisor has directed you to Cross-connect 3C Instrument Air Compressor to Unit 2 ONLY .
2. All applicable prerequisites of DOP 4700-03 have been met.
3. Your Pre Job Brief has been completed.
4. Notify the Unit Supervisor when you are complete with the task.

Job Performance Measure (JPM)

Exelon Nuclear

Job Performance Measure

Bypass the Trip of Drywell Coolers

JPM Number: S-N-j

Revision Number: 10

Date: 02/16

Developed By: _____ _____

Exam Author **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 8 and 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 cue (and terminating cue 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure DEOP 500-02 Rev: 16
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 9. Verify cues both verbal and visual are free of conflict.

_____ 10. Verify performance time is accurate

_____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 12. 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

Job Performance Measure (JPM)

Revision Record (Summary)

Rev 08: Updated for the 2007 LORT exam

Rev 09: Updated for the 2010 LORT exam

Revision 10 Revised for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS

N/A: In-Plant JPM.

DOCUMENT PREPARATION

Provide a clean copy of current revision of DEOP 0500-02, Bypassing Interlocks and Isolations to provide to examinee.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. A fire has occurred resulting in a loss of the feeder breakers to Busses 33-1 AND 34-1 from Busses 33 AND 34.
2. The Unit 3 and 2/3 Diesel Generators have started AND are powering Busses 33-1 and 34-1.
3. The loss of Busses 33-1 AND 34-1 caused a spurious trip of the Unit 3 Drywell Coolers.
4. RBCCW pressure is normal with the 2/3 RBCCW pump in operation.
5. Drywell temperature and pressure are rising.

INITIATING CUE

1. Unit Supervisor has directed you to perform the in-plant actions to bypass the Drywell Cooler trip signals to allow the restart of the Unit 3 Drywell Coolers for Drywell temperature control in accordance with DEOP 500-02.
2. Your Pre Job Brief has been completed.
3. Notify the Unit Supervisor when the in-plant actions are complete.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information For Evaluator's Use:

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

The timeclock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment #
Provide examinee a current copy of DEOP 500-02.				
1 Proceed to Step G.3 of procedure.	Locates Step G.3	_____	_____	_____
NOTE The DEOP Equipment Storage Cabinet key must be obtained from the Unit Supervisor.				
NOTE Examinee should locate the proper Equipment Box in the cabinet. Tools required are: Electrical Tape, Standard Straight Screwdriver, Split Blade Screwdriver, and Insulated Gloves				
NOTE **Do NOT allow examinee to remove the Equipment Box from the DEOP Equipment Storage Cabinet.** Lock cabinet and return DEOP key to Unit Supervisor PRIOR to leaving the Control Room.				
2 Obtain appropriate Equipment Box from the Control Room DEOP Equipment Storage Cabinet.	OBTAINS appropriate EQUIPMENT BOX from the Control Room DEOP Equipment Storage Cabinet.	_____	_____	_____
CUE DEOP Equipment Box you have identified is in your hand.				
NOTE DS key is required for entry into the AEER				
3 Proceed to the AEER and panel 903-32.	Locates Panel 903-32.	_____	_____	_____
NOTE Simulated JPM - Examinee must explain the task.				

Job Performance Measure (JPM)

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment #
*4 Lift AND tape lead on 903-32 panel terminal block AA terminal point 6 OR terminal point 7.	On 903-32 panel terminal block AA terminal point 6 OR terminal point 7 · Puts on insulated gloves. · Loosens screw with standard screwdriver. · Uses split blade screwdriver to grasp screw and remove it. · Tapes the loose wire with electricians tape.	_____	_____	_____
CUE 903-32 panel terminal block AA terminal point 6 OR terminal point 7 screw is removed and the loose wire is taped.				
*5 Lift AND tape lead on 903-33 panel terminal block AA terminal point 6 OR terminal point 7.	On 903-33 panel terminal block AA terminal point 6 OR terminal point 7 · Puts on insulated gloves. · Loosens screw with standard screwdriver. · Uses split blade screwdriver to grasp screw and remove it. · Tapes the loose wire with electricians tape.	_____	_____	_____
CUE 903-33 panel terminal block AA terminal point 6 OR terminal point 7 screw is removed and the loose wire is taped.				
6 Notify Unit Supervisor upon completion of task.	Notifies Unit Supervisor upon completion of task.	_____	_____	_____
CUE Acknowledge report of task completion.				
	END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name:_____

Job Title: q RO q SRO

JPM Title: Bypass the Trip of Drywell Coolers
Revision Number: 10
JPM Number: S-N-j
Task Number and Title: 295L074, Bypass the Trip of Drywell Coolers.

K/A Number and Importance: 295028.A1.03 3.9 / 3.9

Suggested Testing Environment: q Simulator þ Plant q Control Room

Testing Method: ☒ Simulate ☐ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No

Time Critical: ☐ Yes ☒ No

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

References: DEOP 500-02, Rev 16

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

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

Comments:_____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. A fire has occurred resulting in a loss of the feeder breakers to Busses 33-1 AND 34-1 from Busses 33 AND 34.
2. The Unit 3 and 2/3 Diesel Generators have started AND are powering Busses 33-1 and 34-1.
3. The loss of Busses 33-1 AND 34-1 caused a spurious trip of the Unit 3 Drywell Coolers.
4. RBCCW pressure is normal with the 2/3 RBCCW pump in operation.
5. Drywell temperature and pressure are rising.

INITIATING CUE

1. Unit Supervisor has directed you to perform the in-plant actions to bypass the Drywell Cooler trip signals to allow the restart of the Unit 3 Drywell Coolers for Drywell temperature control in accordance with DEOP 500-02.
2. Your Pre-Job Brief has been completed.
3. Notify the Unit Supervisor when the in-plant actions are complete

Exelon Nuclear

Job Performance Measure

Swap CRD Flow Control Valves

JPM Number: S-N-k

Revision Number: 15

Date: 02/16

Developed By: _____ _____

Exam Author **Date**

Approved By: _____ _____

Facility Representative **Date**

Job Performance Measure (JPM)

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation.
Prior to JPM usage, revalidate JPM using steps 8 and 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 cue (and terminating cue 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. Verify the procedure(s) referenced by this JPM reflects the current revision:
Procedure DOP 0300-03 Rev: 25
Procedure _____ Rev: _____
Procedure _____ Rev: _____

_____ 9. Verify cues both verbal and visual are free of conflict.

_____ 10. Verify performance time is accurate

_____ 11. If the JPM cannot be performed as written with proper responses, then revise the JPM.

_____ 12. 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

Job Performance Measure (JPM)

Revision Record (Summary)

Revision 14 Updated for the 2007 LORT exam.

Revision 15 Revised for ILT 15-1 (2016-301) NRC Exam.

Job Performance Measure (JPM)

SIMULATOR SETUP INSTRUCTIONS:

N/A: In-Plant JPM.

DOCUMENT PREPARATION

Provide a copy of DOP 0300-03, CRD System Flow Control Valve Transfer, to provide to examinee.

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. Unit 2 is at 100% power when 2A CRD FCV developed a small air leak that requires the FCV to be taken OOS for maintenance, but NOT big enough to immediately affect valve operation.
2. The Unit 2 NSO has already performed all control room procedure actions in preparation for the CRD FCV transfer.
3. The Unit Supervisor has reviewed the TRM and has taken required actions.

INITIATING CUE

1. The Unit Supervisor has directed you to perform the in-plant actions to transfer Unit 2 CRD FCVs, placing the 2B CRD FCV in service in "Automatic" per DOP 0300-03.
2. Prerequisites have been met.
3. Your Pre-Job Brief is complete.
4. Notify the Unit Supervisor upon completion of in-plant actions.

Fill in the JPM Start Time when the student acknowledges the Initiating Cue.

Information for Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

· Denotes critical elements of a critical step.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section at the bottom of the page. The comment section should be used to document the reason that a step is marked as unsatisfactory and to document unsatisfactory performance relating to management expectations.

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

The time clock starts when the candidate acknowledges the initiating cue.

Job Performance Measure (JPM)

JPM Start Time: _____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment #
1. Proceed to Unit 2 CRD Flow Control Valves (FCVs) and establish communications with the control room.	CRD FCVs located and communications established with control room.	_____	_____	_____
NOTE Step G.2 is N/A.				
2. Verify OPEN 2-0301-30, U2 CRD SYS FCV CONT AIR PRV ISOL VLV.	Verifies 2-0301-30 stem/handwheel backed out.	_____	_____	_____
CUE Valve 2-0301-30 stem/ handwheel is backed out.				
3. Verify OPEN 2-0301-144B, U2 CRD SYS FCV 2-0302-6B AIR ISOL VLV.	Verifies 2-0301-144B valve stem/handwheel backed out.	_____	_____	_____
CUE Valve 2-0301-144B stem/handwheel is backed out.				
4. Verify OPEN 2-0301-40B, U2 CRD SYS B FCV INLET VLV.	Verifies 2-0301-40B valve stem/handwheel backed out.	_____	_____	_____
CUE Valve 2-0301-40B stem/handwheel is backed out.				
5. Cycle the 2B FCV full open and full closed by adjusting PRV 2-0301-34 locally.	Adjusts PRV 2-0301-34 locally to cycle 2B FCV. Verifies cycling by observing stem position and/or light indication on the CRD FCV electrical transfer station.	_____	_____	_____
CUE 2B FCV cycles full open and then full closed.				

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment #
NOTE The Unit Supervisor has addressed the TRM per the Initial Conditions (addresses note preceding G.5 of DOP).				
6. Verify PRV 2-0301-34 closed.	Verifies PRV 2-0301-34 valve stem backed out and turning freely.	_____	_____	_____
CUE PRV 2-0301-34 valve stem is backed out and turning freely.				
7. Verify Pressure gauge PI 2-0302-60 indicates 0 psig.	Verifies pressure gauge PI 2-0302-60 reading 0 psig.	_____	_____	_____
CUE After examinee locates and observes the indicator, then cue: PI 2-0302-60 is reading 0 psig.				
8. Verify via U2 NSO that CRD FCV Controller in MANUAL and demand is set to minimum.	Calls U2 NSO to verify CRD FCV Controller configuration	_____	_____	_____
CUE The Unit 2 CRD Flow Controller is in MANUAL and demand is set to minimum.				
*9. At CRD Electrical Transfer, place the transfer switch TS160 to the "Valve B" position to place FCV 2-0302-6B in service.	At CRD Electrical Transfer Station, places the transfer switch to the "Valve B" position to place FCV 2-0302-6B in service	_____	_____	_____
CUE The transfer switch is in the "Valve B" position.				
*10. Select the 2B E/P converter by placing U2 CRD SYS FCV A/B SELECTOR VLV 2-0301-29 to ‘B”.	Selects the 2B E/P converter by placing 2-0301-29 to “B”.	_____	_____	_____

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment #
CUE The 2-0301-29 Unit 2 CRD MANUAL E/P SELECTOR VALVE is in the 'B' position.				
*11. Place U2 CRD SYS FCV 2-0302-6B MAN/AUTO SELECTOR VLV, 2-0301-38, switch to the automatic position.	Places 2-0302-6B selector switch to the automatic position.	_____	_____	_____
CUE 2-0302-6B selector switch is in automatic.				
*12. Place the U2 CRD SYS FCV 2-0302-6A MAN/AUTO SELECTOR VLV, 2-0301-37, to the manual position.	Places the 2-0302-6A selector switch to the manual position.	_____	_____	_____
CUE The 2-0302-6A selector switch is in manual.				
*13. Open 2-0301-41B, U2 CRD SYS A/B FCV OUTLET VLV.	Opens 2-0301-41B valve. Full CCW, stem/handwheel backed out.	_____	_____	_____
CUE The 2-0301-41B valve is full CCW, stem/handwheel backed out.				
14. Notify Unit NSO that the 2B CRD FCV can now be controlled from the 902-5 Panel AND that system flow should be adjusted to maintain stable flow rate.	Notifies Unit NSO of 2B CRD FCV status and directs Unit NSO to adjust system flow rate to maintain stable flow.	_____	_____	_____
CUE Acknowledge report of CRD FCV Status and report that system flow has been adjusted to maintain stable flow rate.				
*15. Slowly close 2-0301-41A, U2 CRD SYS A/B FCV OUTLET VLV.	Closes 2-0301-41A valve slowly (full CW or stem/ handwheel in).	_____	_____	_____

Job Performance Measure (JPM)

PERFORMANCE CHECKLIST	STANDARDS	SAT	UNSAT	Comment #
CUE The 2-0301-41A valve stem/handwheel is full CW or in.				
16. Notifies Unit Supervisor of completion of in-plant actions per DOP and that the remaining steps are from the 902-5 panel.	Unit Supervisor notified of completion of in-plant actions.	_____	_____	_____
CUE Acknowledge report of task completion.				
	END			

JPM Stop Time:_____

Job Performance Measure (JPM)

Operator's Name:_____

Job Title: r RO r SRO

JPM Title: Swap CRD Flow Control Valves
Revision Number: 14
JPM Number: S-N-k
Task Number and Title: 201L011, Respond to a CRD Flow Control Valve Failure

K/A Number and Importance: 201001.A4.03 2.9/2.8

Suggested Testing Environment: In-Plant

Suggested Testing Environment: q Simulator þ Plant q Control Room

Testing Method: ☒ Simulate ☐ Perform Alternate Path: ☐ Yes ☒ No SRO Only: ☐ Yes ☒ No

Time Critical: ☐ Yes ☒ No

Estimated Time to Complete: __23__ minutes **Actual Time Used:** _____ minutes

References: DOP 0300-03, Rev. 25

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

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

Comments:_____
_____
_____
_____
_____
_____
_____
_____

Evaluator's Name: _____
(Print)

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

Job Performance Measure (JPM)

INITIAL CONDITIONS

1. Unit 2 is at 100% power when 2A CRD FCV developed a small air leak that requires the FCV to be taken OOS for maintenance, but NOT big enough to immediately affect valve operation.
2. The Unit 2 NSO has already performed all control room procedure actions in preparation for the CRD FCV transfer.
4. The Unit Supervisor has reviewed the TRM and has taken required actions.

INITIATING CUE

1. The Unit Supervisor has directed you to perform the in-plant actions to transfer Unit 2 CRD FCVs, placing the 2B CRD FCV in service in "Automatic" per DOP 0300-03.
2. Prerequisites have been met.
3. Your Pre-Job Brief is complete.
4. Notify the Unit Supervisor upon completion of in-plant actions.

Dresden Generating Station

ILT-N-1

SWAP AUX POWER

INSERT CONTROL RODS TO LOWER POWER

APRM FAILS UPSCALE (RPS FAILURE)

GENERATOR FAILS TO TRIP ON REVERSE POWER

TBCCW PUMP TRIP

2A RECIRCULATION FLOW CONTROLLER FAILS UPSCALE

LOCA IN DW - MANUAL SCRAM

LOSS OF RFPS - USE HPCI TO RESTORE LEVEL

Rev. 00

02/16

Developed By: _____ _____
Exam Author Date

Approved By: _____ _____
Facility Representative Date

Scenario Outline

Facility: Dresden Generating Station Scenario No.: ILT-N-1 Op-Test No.: 15-1 (2016-301)

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit 2 is operating at 170 MWe. Shutdown in progress per DGP 02-01. No LCO actions are in effect. 2/3 RBCCW pump and Reactor Feed Pump Standby Selector Switch are OOS.

Turnover: Transfer Buses 21 and 23 to TR-22. Continue shutdown via control rod insertion per DGP 02-01. Insert control rods until 130 MWe and remove turbine from service.

Event No.	Malf. No.	Event Type*	Event Description
1	NONE	N (BOP)	Transfer Aux Power
2	NONE	R (ATC)	Insert Control Rods to lower power
3	LP32117BU B12	I/T (ATC)(T/S)	APRM Fails upscale– RPS failure
4	T45	C (BOP)	Generator fails to trip on reverse power
5	Q11	C (BOP)	TBCCW – Pump Trip
6	ILT-N-1 Recir.cae	I/T (ATC) (T/S)	RECIRC – 2A Recirculation Flow Controller Fails Upscale
7	F41	M (ALL)	Manual Scram – LOCA in drywell
8	H32 H33 H34 HP2A1F1 HP2B1F1	M (ALL)	Loss of RFPs – Use HPCI to restore level HPCI – Auto-start failure
*	(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor		

Scenario Objective

Evaluate the Team's ability to operate the plant with a Loss of Coolant Accident (LOCA) and a subsequent loss of Reactor Feed System.

Scenario Summary

1. Unit is at ~25%.
2. The following equipment is OOS:
   a. 2/3 RBCCW Pump
   b. Reactor Feed Pump Standby Selector Switch
3. LCOs:
   a. None

Scenario Sequence

- After completing shift turnover, the BOP operator will transfer aux power from TR-21 to TR-22.
- Following the transfer of TR-21 loads to TR-22, the ATC will insert control rods to allow removing the Main Generator from Service.
- During the power reduction, APRM Channel 5 will fail upscale. RPS will fail to actuate. The team will respond by manually inserting a B channel RPS half scram. The Unit Supervisor will reference Tech Specs and declare Technical Specification3.3.1.1 Condition A applies.
- After power is reduced to 100 MWe, the BOP will reduce load on the Main Generator in preparation for tripping the Main Turbine.
- When Main Generator load has been reduced to approximately 10 MWe, the BOP will attempt to trip the Main Turbine. The turbine will fail to trip and the BOP will be required to open GCB 1-2 and 1-7 from the 923-2 panel.
- The 2A TBCCW pump will trip on overcurrent. The BOP will respond and start the 2B TBCCW pump per DOA 3800-01. The BOP will execute DOP 6700-20 to address the 480V breaker trip.
- The 2A Reactor Recirculation Pump speed will increase due to a Recirc Run-up. The ATC operator will place the 2A Reactor Recirculation Pump in speed hold and perform actions per DOA 0202-03. The Unit Supervisor will declare Technical Specification 3.4.1 Condition B not met.
- After the actions of DOA 0202-03 and Technical Specifications have been addressed, a small leak from the Recirc System will develop. The team will respond to indications and enter DOA 0040-01k, Slow leak and take actions in preparation for a reactor scram per DGP 02-03, Reactor Scram. The team will insert a manual scram when RPS actuation thresholds are challenged.
- After the team has stabilized the plant following the scram a loss of Reactor Feed pumps will occur. The team will transition to the middle leg of DEOP 100, RPV Control and restore RPV level with High Pressure Coolant Injection.
- Completion criteria: When the RPV level is restored to level band directed by the Unit Supervisor and at the discretion of the Lead Examiner, Place the simulator in FREEZE.

Event One – Transfer Aux Power

- The BOP will transfer power supplies for Buses 21 and 23 from TR-21 to TR-22 in preparation for Unit Shutdown.

Malfunctions required: 0

- (None)

Success Path:

- Transfers Bus 21 feed from TR-21 to TR-22 IAW DOP 6500-01, Transfer of 4160 Volt Bus Power Supply
- Transfers Bus 23 feed from TR-21 to TR-22 IAW DOP 6500-01, Transfer of 4160 Volt Bus Power Supply

Event Two – Insert Control Rods to Lower Reactor Power

- The ATC operator will insert control rods per DGP 02-1, Reactor Shutdown.

Malfunctions required: 0

- (None)

Success Path:

- Inserts to control rods per DGP 02-1, Reactor Shutdown until Generator Output is 130 MWe.
- Performs DGP 03-04, Control Rod Movements
- Performs DOP 0400-01, Reactor Manual Control System Operation

Event Three – APRM fails upscale (RPS fails to actuate)

- APRM 5 fails upscale without a half scram due to an APRM Trip Unit problem.

Malfunctions required: 2

- (APRM fails upscale)
- (Failure of RPS)

Success Path:

- Inserts a half scram per DOP 0500-07, Insertion-Reset of Manual Half Scram.
- Determines Technical Specifications requirements.
- Bypasses the APRM and resets the half scram per DOP 0500-07, Insertion-Reset of Manual Half Scram.

Event Four – Main Generator Fails to trip on reverse power

- Generator Field Breaker fails to open.

Malfunctions required: 1

- (Reverse Power Trip Failure)

Success Path:

- Opens GCB 1-2 and 1-7 from the 923-2 panel.

Event Five – TBCCW Pump Trip

- The running (2A) TBCCW pump trips on overcurrent and TBCCW temperatures begin to rise.

Malfunctions required: 1

- (2A TBCCW Pump Trip)

Success Path:

- Performs DOA 3800-01, TBCCW System Failure.
- Starts standby (2B) TBCCW pump and executes DOP 6800-20 for 480V Breaker Failure.

Event Six – 2A Recirculation Flow Controller Fails Upscale

- The 2A Recirculation Flow Controller fails upscale.

Malfunctions required: 1 (CAEP)

- (2A Recirculation Flow Controller fails upscale)

Success Path:

- DOA 0202-03, Reactor Recirculation System Flow Control Failure.

Event Seven – Manual Scram / LOCA in Drywell

- A LOCA in the Drywell occurs, causing DW pressure to rise, and requiring a manual scram.

Malfunctions required: 1

- (Recirc loop leak)

Success Path:

- Performs DGP 02-03, Reactor Scram.
- Performs DEOP 0100, RPV Control
- Performs DEOP 0200-01, Primary Containment Control.

Event Eight – Loss of RFPs / Restore RPV level with HPCI

- A loss of RFPs results in RPV level dropping.

Malfunctions required: 4

- (Loss of RFPs)
- (HPCI failure to Autostart)

Success Path:

- Performs DOA 2300-02, HPCI Fast Startup.

PRE-SCENARIO ACTIVITIES

1 If applicable, conduct pre-scenario activities in accordance with TQ-JA-155-04, SIMULATOR EXAMINATION BRIEFING.

   a. Direct the Team to perform their briefs prior to entering the simulator.

   b. Provide the Team the following procedures:

      1) Marked up copy of DGP 02-01, Reactor Shutdown

      2) Control Rod Sequence Package

      3) REMA

      4) **2 c**lean copies of DOP 6500-01, Transfer of 4160 Volt Bus Power Supply

      5) Clean copy of DGP 03-04, Control Rod Movements.

      6) Clean copy of DOP 0400-01, Reactor Manual Control System Operation.

2 Simulator Setup (the following steps can be done in any logical order)

   a. Initialize simulator in IC 54 (password protected IC – Password = 2017stroke)

   b. Place Reactor Feed Pump Standby Selector Switch to OFF

   c. Place Control Switch for 2/3 RBCCW pump in PTL on Bus 34-1

   d. Place Control Switch for 2/3 RBCCW pump in PTL on Bus 24-1

   e. Place OOS on 2/3 RBCCW pump control switches and RFP Standby Selector Switch

   f. Place Protected Pathway donuts on 2A, 2B, 3A, and 3B RBCCW pumps.

   g. Run the sump pump caep

   h. Verify CRD F-02 is inserted

   i. Verify RWCU flowrate is 600 gpm

3 Verify the following simulator conditions:

   a. Verify one Service Air Compressor supplying both Units and SA crosstie open.

   b. Verify 2A TBCCW pump is running and 2B is in standby

   c. Verify 2B RFP is running.

   d. Verify A and B Recirc Loop flows are not matched, with A Recirc loop approximately 5% higher than B

NOTE: Do NOT run the initial setup CAEP file until the above setup is completed.

4 Run the initial setup CAEP file: 15-1 ILT-N-1.cae

5 Open but do NOT RUN YET CAEP file: ILT-N-1 Recirc.cae

6 Complete the Simulator Setup Checklist.

Symbols are used throughout the text to identify specific items as indicated below:

Ö Critical Tasks

6 Time Critical / Sensitive Actions (Includes PRA Actions)

n Required Actions

q Optional Actions

Event One – Transfer Loads from TR-21 to TR-22		
Trigger	Position	Crew Actions or Behavior
1		**SIMULATOR OPERATOR / ROLE PLAY:** If requested to set gains to 1, (wait 3 min) activate **trigger 1**, then report: "gains set to 1". (This trigger can be toggled OFF, then back ON to adjust the gains more than once).
		FLOOR INSTRUCTOR CUE: When the BOP reaches the step to "verify Transformer Load Tap Changer for TR- 86 (supplies TR 22) set in accordance with DOP 6400-14, TR-86 LOAD TAP CHANGER OPERATION", inform the BOP you are an extra NSO assigned to monitor TR-86 Transformer Load Tap Changer and it is set correctly.
		NOTE: The Team may transfer the loads in any order.
	CRS	q Directs transferring loads from TR-21 to TR-22 per DOP 6500-01, Transfer of 4160 Volt Bus Power Supply.
	BOP	Performs DOP 6500-01, Transfer of 4160 Volt Bus Power Supply, to transfer Bus 21 to TR-22 as follows: n Positions TR-22 TO BUS 21 ACB SYNCHROSCOPE selector switch to ON. q Verifies incoming and running voltages on INCOMING VOLTS and RUNNING VOLTS meters approximately equal. q Verifies SYNCHRONIZING meter at "12 o'clock" and NOT rotating. q Verifies SYNCHRONIZING meter lights NOT glowing. n Positions TR-22 TO BUS 21 ACB breaker control switch to CLOSE. q Verifies: o SYNCHRONIZING meter at "12 o'clock". o Appropriate breaker indicates CLOSED. o Alarm 902-8 D-1, Bus 21 MAIN & RES ACB IN PARALLEL, sounds. n Positions TR-21 TO BUS 21 ACB control switch to TRIP. q Verifies: o Breaker indicates OPEN. o Alarm 902-8 D-1, Bus 21 MAIN & RES ACB IN PARALLEL, clears. n Positions TR-22 TO BUS 21 ACB SYNCHROSCOPE selector switch to OFF. q Verifies Transformer Load Tap Changer for TR- 86 (supplies TR 22) set in accordance with DOP 6400-14, TR-86 LOAD TAP CHANGER OPERATION". q Verifies appropriate Bus 21 ammeter and voltmeter indications normal.

Event One – Transfer Loads from TR-21 to TR-22		
Trigger	Position	Crew Actions or Behavior
	BOP	Performs DOP 6500-01, Transfer of 4160 Volt Bus Power Supply, to transfer Bus 23 to TR-22 as follows:: n Positions TR-22 TO BUS 23 ACB SYNCHROSCOPE selector switch to ON. q Verifies incoming and running voltages on INCOMING VOLTS and RUNNING VOLTS meters approximately equal. q Verifies SYNCHRONIZING meter at "12 o'clock" and NOT rotating. q Verifies SYNCHRONIZING meter lights NOT glowing. n Positions TR-22 TO BUS 23 ACB breaker control switch to CLOSE. q Verifies: o SYNCHRONIZING meter at "12 o'clock". o Appropriate breaker indicates CLOSED. o Alarm 902-8 C-3, Bus 23 MAIN & RES ACB IN PARALLEL, sounds. n Positions TR-21 TO BUS 23 ACB control switch to TRIP. q Verifies: o Breaker indicates OPEN. o Alarm 902-8 C-3, Bus 23 MAIN & RES ACB IN PARALLEL, clears. n Positions TR-22 TO BUS 23 ACB SYNCHROSCOPE selector switch to OFF. q Verifies Transformer Load Tap Changer for TR 86 (supplies TR 22) set in accordance with DOP 6400-14, TR-86 LOAD TAP CHANGER OPERATION". q Verifies appropriate Bus 23 ammeter and voltmeter indications normal.
	ATC	Assists as directed.

Event 1 Completion Criteria:

- **Bus 21 and Bus 23 transferred to TR-22,**

AND / OR,

- **At the discretion of the Lead Evaluator.**

Event Two – Insert Control Rods to Lower Power		
Trigger	Position	Crew Actions or Behavior
	CRS	Directs inserting control rods: q Reviews REMA. q Designates second verifier. q Directs ATC to insert rods.
	ATC	Performs the following actions per DOP 0400-01, Reactor Manual Control System Operation, and DGP 03-04, Control Rod Movements, as directed <u>Verifies the following prior to moving any control rod:</u> n Control rod selected on the select matrix is correct rod. n Second Verification requirements satisfied. n Rod Out Permit light is illuminated. <u>Inserts rods as follows</u>: n Moves the Rod Movement Control switch to ROD IN. n Verifies ON light and proper Control Rod Timer operation. n Releases switch before target position is reached. n Verifies rod settles to target position and proper response of nuclear instrumentation.
	BOP	Performs second verification checks. <u>For first rod in a step:</u> n Verifies correct control rod pattern n Verifies correct step and array. n Verifies RWM rod blocks enabled <u>For all rods moved:</u> n Verifies correct control rod selected. n Verifies planned control rod motion is correct. n Verifies control rod at target position.
	ATC	q Informs the Unit Supervisor when Generator Load is 130 MWe.

<u>Event 2 Completion Criteria:</u>

- **Generator Load is approximately 130 MWe,**

AND / OR,

- **At the discretion of the Lead Examiner.**

Event Three – APRM Fails Upscale (RPS Failure)		
Trigger	Position	Crew Actions or Behavior
2 **3** **4**		**SIMULATOR OPERATOR:** At the discretion of the Lead Examiner, activate **trigger 2**, which fails APRM channel 5 upscale and defeats the half scram. Verify the following Triggers automatically activate: o **Trigger 3** - Deletes RPS system fail to scram malfunction when B channel scram pushbutton is depressed. o **Trigger 4** - Restores alarm 902-5 D-13 to NORMAL when APRM is taken to bypass.
		ROLE PLAY: IMD to troubleshoot APRM 5: Wait a few minutes and report that "the APRM 5's scram trip unit failed. The problem is isolated to only APRM 5.
	ATC	q Announces the following alarms: o 902-5 A-6, APRM HI o 902-5 B-4, OPRM TOUBLE/INOP o 902-5 B-11, CHANNEL A/B NEUTRON MONITOR o 902-5 C-3, ROD OUT BLOCK o 902-5 D-13, Channel 4-6 APRM Hi-Hi/INOP q Verifies APRM 5 readings against other APRMs on 902-5 panel. n Performs DOP 0500-07, Insertion-Reset of Manual Half Scram, as follows: o Verifies both RPS Channels are reset AND the attendant annunciators are reset. · Depresses the Manual Scram CH B pushbutton. o Verifies RED backlighting under Manual Scram pushbutton illuminates. o Verifies ALL (four) Scram Solenoid Group lights extinguish for the appropriate RPS Channel. o Verifies Annunciator 902-5, A-15, (Channel B Manual Trip) alarms as appropriate. q Verifies NO Control Rod movement has occurred. n Bypasses APRM 5 after T.S. compliance verified by CRS. n Resets RPS channel B per DOP 0500-07 (the team may opt to utilize DAN 902-5 D-13), Insertion/Reset of Manual Half Scram, as follows: o Verifies half scram no longer required · Turns the Scram Reset switch in each direction and verifies all eight white group solenoid lights are lit. o Verifies alarm 902-5 A-10, Channel A Manual Trip, resets.
	CRS	n Directs a Channel B half scram be inserted per DOP 0500-07, Insertion-Reset of Manual Half Scram.

Event Three – APRM Fails Upscale (RPS Failure)		
Trigger	Position	Crew Actions or Behavior
	BOP	Performs the following actions per DAN 902-5 A-6: q Verifies APRM 5 readings against other APRMs on 902-37 panel. q Verifies APRM 5 function switch in operate.
	CRS	n References TS 3.3.1.1, Condition A, and determines that sufficient channels are available. n References TS 3.3.1.1, Condition C, and determines that restoration of RPS trip capability is required within 1 hour. n References TRM 3.3.a, Condition A, and determines that sufficient channels are available. q Directs team to continue inserting control rods once Technical Specifications have been addressed.

Event 3 Completion Criteria:

- **APRM 5 bypassed,**
- **Half scram reset, AND**
- **Tech Spec determination complete.**

AND / OR

- **At the direction of the Lead Examiner.**

Event Four – Reduce Generator Load / Reverse Power Trip Failure		
Trigger	Position	Crew Actions or Behavior
10 **11**		**ROLE PLAY:** If contacted to reset the Main Generator Lockout Relay (86 device), wait 3 minutes and insert **Trigger 10**, which resets the Main Generator Lockout Relay. If contacted to set the Turbine Lube Oil TCV to 90°F, wait 3 minutes, insert **Trigger 11**, and report completion.
	CRS	When Generator output is < 130 MWe, directs team to prepare for and separate the Main Generator from the grid q May contact the TSO to inform them of intent to separate from the grid
	BOP	n Starts the following pumps on the 902-7 panel per DGP 02-01: · MSP (motor suction pump) · TGOP (turning gear oil pp) n Adjusts Main Generator VARs to zero n Reduces Generator Load via: o May utilize Auto Ramping or Manual Ramping function OR Generator GOVERNOR control switch o When Generator Load Set is slightly above the value when the turbine/speed control module will control the Turbine Control Valves utilizes generator GOVERNOR control switch to lower generator load to 10 MWe. n Verifies control valves closing and Main Turbine Bypass Valves opening
	ATC	q Monitors RPV pressure, power, and Generator Output.
	BOP	Informs the US when Generator load has been lowered to 10 MWe.
	CRS	Directs the BOP to trip the Main Turbine using TURBINE TRIP buttons on 902-7 panel.
	BOP	n Determines/announces the Main Generator failed to trip on Reverse Power
	ATC	q Verifies Main Generator Output is < 0 MWe.
	CRS	q Directs opening GCB 1-2 and GCB 1-7 from the 923-2 Panel after 90 seconds.
	BOP	n Opens GCB 1-2 and 1-7 from the 923-2 Panel after waiting 90 seconds.
	CRS	q May direct IR to be generated and failure to trip recorded in log.
	ATC	q Directs EO to AEER to reset the generator lockout relay.
	CRS	q Contacts TSO for switching orders to reclose the 345 KV ring bus.

Event Four – Reduce Generator Load / Reverse Power Trip Failure		
Trigger	Position	Crew Actions or Behavior
Event 4 Completion Criteria: · **GCB 1-2 and 1-7 are opened from the 923-2 panel** **AND / OR** · **At the discretion of the Lead Examiner**		

Event Five – TBCCW Pump Trip		
Trigger	Position	Crew Actions or Behavior
5		**Floor Instructor / Simulator Operator / Role Play:** At the discretion of the Lead Examiner, activate **trigger 5**, which will cause the 2A TBCCW Pump to trip. EO to investigate: wait 2 min, then report that "the 2B TBCCW pump is operating normally and the 2A TBCCW pump motor is very hot". EO to check 2A TBCCW pump breaker: wait 2 min. and report "the breaker appears is tripped open on overload".
	BOP	q Announces trip of 2A TBCCW pump. n Per DOA 3800-01, Loss of Turbine Building Closed Cooling Water, DAN 923-1 C-2, U2 or U3 TBCCW PP Trip, and DAN 923-1 D-2, U2 or U3 TBCCW Press Lo, starts 2B TBCCW pump. q Monitors TBCCW temperature and pressure. q Performs DOP 6700-20, 480V Circuit Breaker Trip. q Sends operator to investigate.
	ATC	n Monitors panels, provide assistance as directed.
	CRS	q Directs operator actions and makes appropriate notifications.
	TEAM	May contact any/all of the following to inform of situation or request assistance: q Shift Manager q WEC Supervisor q Operations Manager q Shift Operating Supervisor q Duty Maintenance Supervisor q Duty Engineering Manager q Work Week Manager

Event 5 Completion Criteria:

- **2B TBCCW Pump has been started AND,**
- **TBCCW parameters have stabilized AND,**
- **DOP 6700-20 actions are complete,**

And / OR,

- **At the discretion of the Floor Instructor / Lead Evaluator.**

Event Six – Master Recirculation Flow Controller Fails Upscale		
Trigger	Position	Applicant's Actions or Behavior
CAEP: ILT N-1 Recirc.cae		**SIMULATOR OPERATOR:** At the discretion of the Lead Examiner, run **CAEP: ILT N-1 Recirc.cae,** which will cause 2A Recirc Flow Controller to fail upscale. If CAEP runs to completion and the crew has not recognized failure, with the concurrence of the chief examiner, re-open and re-run CAEP: ILT-N-1 Recirc.cae
		ROLE PLAY: QNE to check core parameters: Wait 5 min, and then report "all core parameters are within limits".
	ATC	n Determines and announces Recirculation Flow transient occurring by observing any of the following: o Increase in Recirc Loop Flow as indicated on FR 2-260-7. o Increase in Rx Power indicated on WI 2-6040-59. o Increase in Core Flow and DP on DPR/FR 2-263-110. o Increase in Total Stm Flow on UR 2-640-27. o Increase in Rx Pressure on P/FR 2-640-28. o Increase in Total Feedwater Flow on UR 2-640-26. o Increase in Power Level on RR 2-750-10A/D, & RR 2-750-10B/C.
	CRS	n Enters and directs actions of DOA 0202-03, Reactor Recirc System Flow Control Failure. q Enters DGA-07, Unpredicted Reactivity Addition.
	ATC	Performs the following actions per DOA 0202-03, Reactor Recirc System Flow Control Failure: n Momentarily places 2A ASD SPEED HOLD switch 2-202-60-302A to HOLD at Panel 902-4. q Verifies Core thermal power <2957 MWt. q Verifies NOT operating in the unstable region of the Power / Flow Map.
	ATC	Completes actions of DOP 0202-16, Reactor Recirculation System Manual Hold and Local Manual Operation. (None required)
	BOP	q Assists NSO as directed.
	CRS	n Enters TS 3.4.1 Condition B.1, Recirculation loop flow mismatch not within limits. n Declares "B' Recirc loop "not in operation" and must restore mismatch within 2 hours.

Event Six – Master Recirculation Flow Controller Fails Upscale		
Trigger	Position	Applicant's Actions or Behavior
Event 6 Completion Criteria: · **Both Recirc pumps in Speed Hold;** **AND / OR,** · **At the direction of the Lead Examiner.**		

Event Seven – Manual Scram / LOCA In DW		
Trigger	Position	Applicant's Actions or Behavior
6		**SIMULATOR OPERATOR:** At the discretion of the Lead examiner, activate **trigger 6**, which causes a small Recirc Loop leak to develop in the Drywell.
		Role Play: U-3 NSO to report Drywell pressure status: Report "U-3 Drywell pressure is 1.2 psig and steady".
	TEAM	n Recognizes and announces that Drywell pressure is slowly rising. q May direct an operator to check the Unit 2 Drywell CAM. q May direct operators to search for leaks.
		Role Play: EO to check Drywell CAM: (wait 2 min.) Report, "The Drywell CAM is trending up". EO to search for leak Report, "I am on my way out to check for leaks". EO to check Cribhouse inlet temperature: (wait 5 min.) Report, "Cribhouse inlet temp is 70°F".
	CRS	n Enters and directs performance of DOA 0040-01, Slow Leak. q Set Scram contingency of 1.5 psig DW pressure. (Since DW pressure starts much lower than normal, may set a lower pressure Scram contingency q May enter DGP 02-03, Reactor Scram, and direct taking scram preparatory actions. n Prior to reaching the Drywell Pressure scram setpoint, directs a manual reactor scram per DGP 02-03, Reactor Scram.
	ATC	Performs the following actions per DOA 0040-01, Slow Leak, as directed: q Maintain Level with FWLCS (immediate action). q Monitors leakage rate, reactor water level, and Drywell pressure. n Inserts manual reactor scram prior to 1.5 psig DW pressure

Event Seven – Manual Scram / LOCA In DW		
Trigger	Position	Applicant's Actions or Behavior
	BOP	Performs the following actions per DOA 0040-01 Slow Leak, as directed: q Notifies Shift Supervisor and Rad Protection. q Monitors for EP conditions. q Directs search for leak. q Shutdown H_2 Addition. q Makes PA announcement. q Verify Crib House inlet temperature is <95°F. q Initiates Torus cooling per "Hard Card". o Places 316A/B and 318A/B keylock switches in MANUAL OVERRD. o Verifies the third circ water pump is secured prior to starting the first CCSW pump. o IF starting torus cooling during a LOCA, THEN verifies RWCU recirc pump is tripped PRIOR to starting the first CCSW pump. o Starts one CCSW pump in each loop and verifies 3A/B valves open. o Starts at least one LPCI pump in each loop. (Starts additional LPCI pumps as required.) o Adjusts CCSW flow controller to approximately 3500 gpm for one pump; > 5000 gpm two pumps. [Maintain LPCI/CCSW dP ≥ 7 psid (1 LPCI Pump/loop) OR ≥ 20 psid (two LPCI Pumps/loop)] o Momentarily places 11A/B valve control switches to close. (IF 11A/B remain open or re-opened due to LPCI logic, then close valves as soon as possible.) o IF required, obtains Unit Supervisor permission, THEN places 317 keylock switches to MANUAL OVERRD. o Opens 21A/B and 20A/B valves in desired loop. o Throttles open 38A/B valves until > 5000 gpm per LPCI pump is established (maintains LPCI pump discharge pressure > 125 psig). o Starts additional CCSW pumps if desired: v IF TR 86(32) LTC in MANUAL, THEN PRIOR to starting 3rd OR 4th CCSW PP, verifies voltage on applicable ECCS bus > 4000 volts, preferred target 4160V. v (Unit 2 Only) If 2/3 EDG is loaded, then refers to DOP 1500-02 prior to starting additional pumps. o Adjusts CCSW flow controller to > 5000 gpm for two CCSW pumps [Maintain LPCI/CCSW dP ≥ 7 psid (1 LPCI Pump/loop) OR ≥ 20 psid (two LPCI Pumps/loop)].
	ATC / BOP	Performs scram preparatory actions per DGP 02-03, Reactor Scram, as directed. q Starts MSP and TGOP. q Trips H_2 addition.

Event Seven – Manual Scram / LOCA In DW		
Trigger	Position	Applicant's Actions or Behavior
	ATC	Performs the following actions per DGP 02-03, Reactor Scram, as directed: n Presses scram pushbuttons n Places mode switch in shutdown q Check rods inserted. q Verifies Recirc Pumps run back. q Maintains RPV/L between +25 and +35 inches or as directed by Unit Supervisor. q Inserts SRM/IRMs.
	TEAM	Verifies the following as time allows: q Group Isolations q Automatic start of ECCS systems q Automatic start of EDGs.
<u>Event 7 Completion Criteria</u>: · **Team has performed a reactor scram,** **AND / OR** · **At the discretion of the Lead Examiner.**		

Event Eight – Loss Of RFPs - Use HPCI To Restore Level		
Trigger	Position	Crew Actions or Behavior
7 **8**		**SIMULATOR OPERATOR:** After the Team has stabilized the plant and at the discretion of the Lead Evaluator, activate **trigger 7**, which causes the following: v Increases the size of the recirc leak. v After 1 min, **trigger 8** trips the running 2B RFP and prevents the available RFP from starting. **ROLE PLAY:** EO sent to check EDG operation: wait 3 min, then report: "Both EDGs are operating normally". **ROLE PLAY:** Acknowledge other requests; delay as necessary.
	TEAM	n Determines/announces Drywell pressure rapidly rising.
	CRS	Enters DEOP 100, RPV Control, q Directs actions of DEOP 100. q Verification of all isolations, ECCS and EDG starts. q Holding RPV/L +8 to +48 inches. q Maintaining RPV/P <1060 psig using Turbine Bypass valves.
	CRS	Enters DEOP 0200-01, Primary Containment Control, when PC/P reaches 2 psig and performs/directs: q Monitoring of PC/P. q Initiation of torus sprays before PC/P of 9 psig. n When PC/P is above 9 psig or before DW/T reaches 281°F: · Verification of DSIL. · Tripping of recirc pumps. · Tripping of DW coolers. · ÖInitiation of DW sprays. q Monitoring of DW/T. (D/W sprays may be initiated for temp control) n Monitoring of SP/T and initiation of torus cooling. q Monitors SP/L. q Verifies initiation of drywell and torus H_2/O_2 monitors.

Event Eight – Loss Of RFPs - Use HPCI To Restore Level

Trigger	Position	Crew Actions or Behavior
	BOP	Performs DEOP 0200-01, Primary Containment Control, actions as directed: q Monitors PC/P and initiates torus sprays as directed: v Opens the 19A/B valve in desired loop. v Opens the 18A/B valve in desired loop. q ÖInitiates drywell sprays per Hard Card LPCI/CCSW OPERATION, as directed: v Opens the 27A/B and 28A/B valves in desired loop. v Adjusts sprays to maintain < 9 psig, but high enough to ensure ECCS NPSH by any combination of the following: o Open or close 27A/B <u>AND</u> 28A/B valves in the desired containment spray loop. o Throttling 21A/B <u>OR</u> 38A/B valves in the desired containment spray loop. (Maintain LPCI pump discharge pressure > 125 psig.) q Monitors DW/T. q Monitors SP/T and initiates torus cooling per Hard Card LPCI/CCSW OPERATION as directed. (May already be initiated for previous Event) q Monitors SP/L. q Verifies initiation of drywell and torus H_2/O_2 monitors.
	ATC	q Determines/announces RFP trip. q Attempts to start the available RFPs. q Announces loss of all RFPs.
	CRS	n ÖDirects starting HPCI to restore and maintain RPV Level at the DEOP directed level band (+8 to +48).
	BOP	n Determines HPCI did not start on initiation signal n ÖStarts HPCI as directed and restores level to the DEOP directed level band (+8 to +48): v Depresses AND holds the HPCI AUTO-START Pushbutton. v Adjusts flow in Auto <u>OR</u> Manual Mode. v Starts HPCI Room Cooler.

<u>Event 8 / Scenario Completion Criteria:</u>

- **Drywell Sprays have been initiated; AND,**
- **HPCI has been started to restore RPV level to DEOP directed level band.**

AND / OR,

- **At the direction of the Lead Examiner.**

Critical Tasks	
(PC-1.1)	While executing DEOP 200-1, Primary Containment Control, when drywell pressure exceeds 9 psig and only if operating within the safe region of the drywell spray initiation limit (DSIL), initiate drywell sprays.
(PC-1.2)	After initiating drywell sprays per the primary containment pressure or temperature legs of DEOP 200-1, Primary Containment Control, terminate drywell sprays before drywell pressure drops to < 0 psig. (This may not apply based on scenario run time)

REFERENCES

PROCEDURE	TITLE
DAN 902-5 A-6	APRM HI
DAN 902-5 A-10	CHANNEL A MANUAL TRIP
DAN 902-5 A-15	CHANNEL B MANUAL TRIP
DAN 902-5 B-4	OPRM TROUBLE/INOP
DAN 902-5 B-11	CHANNEL A-B NEUTRON MONITOR
DAN 902-5 C-3	ROD OUT BLOCK
DAN 902-5 D-13	CHANNEL 4-6 APRM HI-HI INOP
DAN 902-8 C-3	BUS 23 MAIN & RES BRK IN PARALLEL BUS 33 MAIN & RES BRK IN PARALLEL
DAN 902-8 D-1	BUS 21 MAIN & RES BRK IN PARALLEL BUS 31 MAIN & RES BRK IN PARALLEL
DAN 923-1 C-2	U2 OR U3 TBCCW PP TRIP
DAN 923-1 D-2	U2 OR U3 TBCCW PRESS LO
DGA-07	UNEXPECTED REACTIVITY CHANGE
DGP 02-03	REACTOR SCRAM
DGP 03-04	CONTROL ROD MOVEMENTS
DOA 0040-01	SLOW LEAK
DOA 0202-03	REACTOR RECIRCULATION SYSTEM FLOW CONTROL FAILURE
DOA 2300-02	HPCI FAST STARTUP
DOA 3800-01	LOSS OF TURBINE BUILDING CLOSED COOLING WATER
DOP 0202-16	REACTOR RECIRCULATION SYSTEM MANUAL HOLD AND LOCAL MANUAL OPERATION
DOP 0400-01	REACTOR MANUAL CONTROL SYSTEM OPERATION
DOP 0500-07	INSERTION / RESET OF MANUAL HALF-SCRAM
DOP 6400-14	TR 86 LOAD TAP CHANGER OPERATION
DOP 6500-01	TRANSFER OF 4160 VOLT BUS POWER SUPPLY
DOP 6700-20	480V CIRCUIT BREAKER TRIP
DEOP 100	RPV CONTROL
DEOP 200-1	PRIMARY CONTAINMENT CONTROL
TS 3.3.1.1	REACTOR PROTECTION SYSTEM (RPS) INSTRUMENTATION
TS 3.4.1	RECIRCULATION LOOPS OPERATING
TRM 3.3.a	CONTROL ROD BLOCK INSTRUMENTATION

Simulator Scenario Review Checklist

ILT-N-1 Quantitative Attributes	
6	Total malfunctions (5 to 8)
2	Malfunctions after EOP entry (1 to 2)
4	Abnormal events (2 to 4)
2	Major transients (1 to 2)
1	EOPs entered/requiring substantive actions (1 to 2)
1	EOPs contingency requiring substantive actions (0 to 2)
2	Crew critical tasks (2 to 3)

CAEP Files

```
# ILT-N-1.cae
# Revision 00
# Written by WC
# 03/16

# Initial Conditions

# Inserts RPS Failure to Scram - Event 3
imf b12

# Inserts Generator Reverse Power Trip Failure - Event 4
imf t45

# Inserts the trips for 2A & 2C RFPs - Event 8
imf h31
imf h33|2
imf h34|2

# Prevents HPCI Autostart
set hcipremaninfg = false|2

# Event Trigger 1 sets gain for all 6 APRMs.
trgset 1 "0"|4
trg 1 "irf niagainf true"|4

# Event Trigger 2 APRM 5 drifts upscale. The half scram is defeated. - Event 3
Trgset 2 "0"|4
imf nia5pot (2) 125.0 1:00 21.0|4

# Event Trigger 3 Auto activates when CH B MAN SCRAM pushbutton is depressed. - Event 3
# Deletes RPS system fail to scram malfunction.
trgset 3 "rpd301b"|6
trg 3 "dmf b12"|6
imf ser1086 (3) on|6
imf ser1088 (3) on|6

# Event Trigger 4 Auto activates when APRM 5 is bypassed. - Event 3
# Restores alarm 902-5 D-13 to NORMAL.
trgset 4 "nilapby(5)"|6
```

```
trg 4 "mmf ser1165 normal"|8

# Event Trigger 5 trips the 2A TBCCW pump on overcurrent - Event 5
trgset 5 "0"|8
imf q11 (5)|8

# Event Trigger 6 Inserts a small recirc loop leak. - Major
trgset 6 "0"|10
imf f41 (6) 0.01 2:00|10

# Event Trigger 7 Increases the recirc loop leak. - Post Major
# After 1 min, trips 2B RFP
trgset 7 "0"|10
trg 7 "mmf f41 0.5"|12

# Event Trigger 8 trips the 2B RFP 60 seconds after Trigger 7 is activated
trgset 8 "et_array(7)"|12
imf h32 (8 60)|12

# Event Trigger 9 allows HPCI to be started manually
trgset 9 "hpdinit"|12
trg 9 "set hcipremaninfg = true"|14

# Event Trigger 10 resets the Main Generator 86 device
trgset 10 "0"|14
irf t21 (10) reset|14

# Event Trigger 11 sets the Turbine Lube Oil TVC to 90F
trgset 11 "0"|16
irf sp1 (11) 90|16

# End
```

#2A Recirc Runup CAEP
#Written by WC
#03/16

set rrdaraisehi = true|2
set rrdaraisehi = false|3
set rrdaraisehi = true|4
set rrdaraisehi = false|5
set rrdaraisehi = true|6
set rrdaraisehi = false|7
set rrdaraisehi = true|8
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set rrdaraisehi = true|10
set rrdaraisehi = false|11
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set rrdaraisehi = true|68
set rrdaraisehi = false|69

Unit 2 Risk: GREEN	Unit 3 Risk: GREEN
Unit 2 is 170 MWe	Unit 3 is in Mode 1 at Full Power
Leading Thermal Limit: MAPRAT @ 0.818	Leading Thermal Limit: MAPRAT @ 0.819
Action limit: 0.980	Action Limit: 0.980
Equipment Unavailable: 2/3 RBCCW Pp, RFP Standby Switch	Equipment Unavailable: 2/3 RBCCW Pp
Protected Equipment: 2A and 2B RBCCW Pps	Protected Equipment: 3A and 3B RBCCW pps

Current Action Statements

None	LCO Started:	LCO Expires:
TS		
Cause:		

Unit 1 Plant Status

Today	U1 Diesel Oil Storage Tank Transfer House has grating removed. Currently roped off with pump installed to pump to U1 Oil Separator Pit as required. Outside operator monitor and pump as necessary.
Today	Chem Cleaning ventilation status: HV-1A/EF-1A are secured due to HV-1A inlet and outlet dampers being shut with fan on, IR# 913157, WO 1239746. HV-1B/EF-1B are secured due to HV-1B throwing its belts. WO 1156150. HVAC-1 ON. HV-2 running.

Switchyard Status

Today	TSO notified of pending Unit 2 shutdown

Unit 2 Plant Status

Today	Unit 2 Activities
	**** Shift 1 Activities ****
	□
	□
	**** Shift 2 Activities ****
	□ Immediately after assuming the shift, Transfer TR-21 loads per DOP 6500-01, Transfer of 4160 Volt Bus Power Supplies
	□ Continue Unit Shutdown per DGP 02-01, Unit Shutdown.
	**** Shift 3 Activities ****
	□
	□
Today	**** Unit 2 Procedures In-Progress **** Do Not Delete ****
	□ DGP 02-01, Unit Shutdown
	□ DGP 03-04, Control Rod Movements

Dresden Generating Station

ILT-N-2

RAISE POWER USING RECIRC FLOW

PLACE 2C RFP IN SERVICE

HPCI SPURIOUS ISOLATION – INCOMPLETE

LOSS OF CONTROL ROD INDICATION

RFP VENT FAN TRIP WITH FAILURE OF STANDBY TO AUTO-START

RWCU PUMP TRIP – INCOMPLETE ISOLATION

EARTHQUAKE / MANUAL SCRAM

STEAM LEAK IN DRYWELL / EMERGENCY DEPRESSURIZE DUE TO LOW TORUS LEVEL

Rev. 00

02/16

Developed By: _____ _____
Exam Author Date

Approved By: _____ _____
Facility Representative Date

Scenario Outline

Facility: Dresden Generating Station Scenario No.: ILT-N-2 Op-Test No.: 15-1 (2016-301)

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit 2 is operating at 680 MWe for maintenance on 2C RFP. 2C RFP returned to service late last shift.

Turnover: Raise Power with Recirc Flow to 750 MWe. Place 2C RFP in service on Bus 21.

Event No.	Malf. No.	Event Type*	Event Description
1	None	R (ATC)	Raise power with flow
2	None	N (BOP)	Place 2C RFP in service
3	HPGP4RLY AT46	I/T (BOP) (T/S)	HPCI spurious isolation - incomplete
4	RDFAILF5	I/T (ATC) (T/S)	CRD – RPIS, Loss of Control Rod Indication
5	FWSACBV	C (ATC)	RFP vent fan trip with failure of standby to auto-start
6	U11	C (BOP)	RWCU pump trip on overcurrent with incomplete isolation
7	CSBRKSEV	M (ALL)	Manual Scram – Earthquake Causes Plant Damage/Torus Leak
8	F41	M (ALL)	Small Steam Leak/Emergency Depressurize Due Low Torus Level

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

Scenario Objective

Evaluate the Team's ability to operate the plant with a Torus leak that requires an Emergency Depressurization.

Scenario Summary

1. Unit is at ~70%.
2. The following equipment is OOS:
   a. None.
3. LCOs:
   a. None

Scenario Sequence

- After completing shift turnover, the Team will raise power using Recirc Flow per DGP 03-01, Power Changes and DOP 0202-03, Reactor Recirculation Flow Control System Operation
- After completing the power change, the crew will place the 2C RFP in service per DOP 3200-03, Startup of Second or Third Reactor Feed Pump or Shifting to Alternate Reactor Feed Pump.
- After the 2C RFP has been placed in service, a HPCI isolation signal is received, and the HPCI isolation valves fail to close. The BOP must take manual action to complete the isolation per DAN 902(3)-3 C-7, HPCI AUTO ISOL INITIATED.
- After the HPCI system isolation is completed, the US will review TS and determine TS 3.5.1 Action F.1 and TS 3.3.6.1 Action A.1 are applicable.
- After the HPCI failure and TS have been addressed, CRD F-05 RPIS indication fails. The operating team will take action per DOA 0300-06, RPIS FAILURE. The ATC operator will enter a substitute position for CRD F-05 an attempt to restore RPIS indication. Ultimately, the ATC operator will select and fully insert CDR F-05.
- The US will review TS and determine TS 3.1.3 condition C.1 and C.2 apply and directs fully inserting and disarming CRD F-05.
- After CRD F-05 has been taken out of service and Tech Specs have been addressed, the running Reactor Feed Pump Vent Fan trips and the Standby Fan fails to start. The ATC operator will take start the standby fan and perform actions per DOA 5750-01.
- When the RFP vent fan has been started, the RWCU Recirc pump will trip. This will result in a pressure transient in the RWCU system. This pressure transient will cause an isolation signal to be generated, but the isolation will not occur. The team will take action to complete the RWCU system isolation.
- After the RWCU isolation has been completed, an earthquake causes plant damage, including a torus leak, which will require the Team to implement DOA 0010-03, Earthquakes, and manually scram the reactor.
- After the scram, a small steam leak occurs. Emergency Depressurization will ultimately be required due to torus level.
- Completion criteria: When the RPV is depressurized and at the discretion of the Lead Examiner, Place the simulator in FREEZE.

Event One – Raise Power Using Recirc Flow

- The Team will raise power by increasing Recirc Flow.

Malfunctions required: 0

- (None)

Success Path:

- Performs DGP 03-01, Power Changes.
- Performs DOP 0202-03, Reactor Recirculation Flow Control System Operation

Event Two – Place 2C RFP in service

- The BOP will start and place in service the 2C Reactor Feed Pump.

Malfunctions required: 0

- (None)

Success Path:

- Performs DOP 3200-03, Startup of Second or Third Reactor Feed Pump or Shifting to Alternate Reactor Feed Pump.

Event Three – Incomplete HPCI isolation

- 902-3 C-12, HPCI STM LINE FLOW HI is received and HPCI fails to isolate. The team will isolate HPCI per DAN 902(3)-3 C-7, HPCI AUTO ISOL INITIATED

Malfunctions required: 2

- (HPCI spurious isolation)
- (PCIS Group IV relay failure)

Success Path:

- Take actions of DAN 902(3)-3 C-7 and isolate HPCI.
- Verifies Isolation Condenser administratively operable
- Determines Technical Specifications requirements.

Event Four – Loss of RPIS indication

- CRD F-05 loses RPIS indication.

Malfunctions required: 1

- (CRD F-05 RPIS indication failure)

Success Path:

- Performs DOA 0300-06, RPIS Failure. Full insertion of CRD F-05 is required.

Event Five – RFP Vent Fan trip with failure of standby to auto-start

- Running RFP Vent Fan trips, standby fails to auto-start

Malfunctions required: 1

- (RFP Vent Fan Trip)

Success Path:

- Performs actions of DOA 5750-01, Ventilation System Failure
- Starts standby RFP Vent Fan

Event Six – RWCU pump trip on overcurrent with incomplete isolation

- RWCU pump trip

Malfunctions required: 2

- (Overcurrent trip of RWCU pump)
- (RWCU Isolation Failure)

Success Path:

- .Perform actions of DAN 902(3)-4 F-12, RWCU SYS AFTER NON-REGEN HX PRESS HI

Event Seven – Earthquake Causes Plant Damage / Torus Leak / Manual Scram

- An earthquake causes plant damage, including a torus leak.

Malfunctions required: 1

- (Earthquake Causing Torus Leak)

Success Path:

- Performs DGP 02-03, Reactor Scram.
- Performs DEOP 0100, RPV Control
- Performs DEOP 0200-01, Primary Containment Control.

Event Eight – Small Steam Leak / Emergency Depressurize Due Low Torus Level

- A small steam leak occurs. Emergency Depressurization will ultimately be required due to torus level

Malfunctions required: 1

- (Small Steam Leak)

Success Path:

- Performs DEOP 0200-01, Primary Containment Control.
- Performs DEOP 0400-02, Emergency Depressurization.

PRE-SCENARIO ACTIVITIES

1 If applicable, conduct pre-scenario activities in accordance with TQ-AA-155-J004, SIMULATOR EXAMINATION BRIEFING JOB AID.

   a. Direct the Team to perform their briefs prior to entering the simulator.

   b. Provide the Team a copy of DOP 3200-03, Startup of Second or Third Reactor Feed Pump or Shifting to Alternate Reactor Feed Pump.

   c. Provide the Team a copy of DGP 03-01, Power Changes, marked-up for plant conditions below.

   d. Provide the Team a copy of DOP 0202-03, Reactor Recirculation Flow Control System Operation.

   e. Provide the Team a copy of REMA.

2 Simulator Setup (the following steps can be done in any logical order)

   a. Initialize simulator in an IC with the following (IC 83 used for validation):

      1) Reactor power ~70%.

      2) Adjust Core flow to 58-60 Mlbm/hr. (MWe ~680)

3 Verify the following simulator conditions:

   a. Verify 2C RFP is OFF and selected to STANDBY

   b. Verify CDR F-05 is NOT at 00

NOTE: Do NOT run the initial setup CAEP file until the above setup is completed.

4 Run the initial setup CAEP file: 15-1 ILT-N-2.cae

5 Place the following equipment out of service:

   a. None

6 Complete the Simulator Setup Checklist.

Symbols are used throughout the text to identify specific items as indicated below:

- Ö Critical Tasks
- 6 Time Critical / Sensitive Actions (Includes PRA Actions)
- n Required Actions
- q Optional Actions

Event One – Raise Power Using Recirculation Flow		
Trigger	Position	Crew Actions or Behavior
		Simulator Operator: If requested, cut in condensate demins to maintain 26-55 psid. Respond as support groups contacted. If contacted as QNE respond there is no QNE available to come to the control room and you will monitor core parameters from your current location.
	CRS	Directs raising power: q Reviews REMA. q Directs ATC operator to raise power with flow to target of 750 MWe.
	ATC	q Reviews DGP 03-01, POWER CHANGES and REMA to verify conditions to raise power are met. Performs the following actions per DOP 0202-03, REACTOR RECIRCULATION FLOW CONTROL SYSTEM OPERATION: n Raises Recirc Pump speed as desired to achive power change using: q Panel 902-5 Master Manual Control speed pushbuttons OR q Panel 902-4 2A/2B Recirc ASD Individual Manual Control speed pushbuttons
	BOP	n Provides peer check and monitors plant parameters during power change. n May dispatch operator to walkdown FW Heaters n Requests WEC/FS to dispatch operator to operate condensate demins as required to maintain 26-55 psid.
Event 1 Completion Criteria: · **Main Generator output is 750 MWe** **AND/OR** · **At the direction of the Lead Examiner.**		

Event Two – Place 2C RFP in Service		
Trigger	Position	Crew Actions or Behavior
		ROLE PLAY: When asked, report the 2C RFP is operating normally Respond to all other communications as required.
	CRS	n Directs ATC to start 2C RFP
	BOP	Starts 2C RFP DOP 3200-03, Startup Of Second Or Third Reactor Feed Pump Or Shifting To Alternate Reactor Feed Pump. q Places RFPs Standby Selector switch, STBY PP SELECT in OFF position. q Closes MO 2-3201C, q Opens 2C RFP RECIRC VLV PCV 2-3201C by placing control switch in OPEN. q Verifies reactor water level is stable. q Verifies sufficient system pressures. q If previously closed, places MO 2-3201C, 2C PP DISCH VLV control switch to OPEN position. n Starts 2C RFP. q Verifies reactor water level is stable. n Verify RFP Auxiliary Oil Pump AUTO stops. q WHEN MO 2-3201C, 2C PP DISCH VLV, is fully open (the RED valve position indicating light is extinguished), THEN places 2C RFP RECIRC VLV PCV 2-3201A control switch in AUTO. q Directs EO to perform checks on 2C RFP.
	ATC	q Monitors RPV level and FRV position for proper response q Provides peer check as required.

Event 2 Completion Criteria:

- **2C RFP in running on Bus 21,**

AND/OR,

- **At the discretion of the Lead Examiner.**

Event Three – SPURIOUS INCOMPLETE HPCI ISOLATION		
Trigger	Position	Crew Actions or Behavior
1 2		**Simulator Operator:** At the discretion of the Lead examiner, activate **TRIGGER 1**, which causes a HPCI steam flow GP 4 isolation instrument failure resulting in an isolation signal. The HPCI steam valves fail to isolate. **TRIGGER 2** will auto actuate when the 2-2301-4 control switch is taken to close and will delete the binding that was part of the initial setup. **ROLE PLAY:** (Assign someone on the floor to handout the alarm sheet) Approximately 60 seconds after the HPCI initiation inform the team that the XL-3 is alarming and hand a team member the XL-3 alarm sheet provided with this scenario. After about 3 minutes, call on the phone as the EO sent to the AEER. Report that there is a smell of smoke in the room. There is a small amount of smoke coming from the 902-39 cabinet. You have carefully opened the cabinet, and you can see some damaged components. THERE IS NO FIRE. If contacted as IMD, inform the team that you will send someone to the AEER ASAP. If dispatched to the HPCI Room, wait approximately 3 minutes, and then report that there appears to nothing wrong in the HPCI Room. After 5 minutes, as the IM Foreman, inform the team that initial investigation of the problem has revealed extensive damage to many of the HPCI isolation logic relays. You cannot tell him at this time which ones are damaged. You estimate at least 2 days to repair the damage. Respond as the appropriate person. If asked for assistance, respond that you will come to the control room shortly.
	BOP	n Announces alarm 902-3 C-12, HPCI Stm Line Flow Hi.
	TEAM	n Determines HPCI GP 4 isolation should have occurred.
	CRS	n Directs BOP to close the HPCI GP 4 isolation valves.
	BOP	n Isolates HPCI as directed: v Closes MO 2-2301-4. v Closes MO 2-2301-5.
	TEAM	q May enter DEOP 0300-01, Secondary Containment Control.
	CRS	q Notifies Shift Manager and IMD of Event.
	ATC	q Monitors panels and assists as directed. **Note:** The Tech Spec LCOs apply once the Team learns the length of time to repair.

Event Three – SPURIOUS INCOMPLETE HPCI ISOLATION		
Trigger	Position	Crew Actions or Behavior
	CRS	n References Technical Specifications and determines: v TS 3.3.6.1 Action A.1, Place Channel in trip within 24 hrs. v TS 3.3.6.1 Action B.1, Restore isolation capability in 1 hour v TS 3.5.1 Action F.1, Verify Isolation Condenser is OPERABLE immediately AND restore HPCI System to OPERABLE status within 14 days.

Event 3 Completion Criteria:

- **Actions taken to isolate HPCI steam line,**
- **And, Tech Specs addressed,**

AND/OR,

At the direction of the Lead examiner.

Event Four – LOSS OF CONTROL ROD INDICATION		
Trigger	Position	Crew Actions or Behavior
3		**SIMULATOR OPERATOR:** At the direction of the Lead Examiner, activate **Trigger 3**, RPIS failure for control rod F-05.
		ROLE PLAY: Respond as Support Groups notified.
	ATC	Reports and responds to DANs 902-5 A-3 ROD DRIFT, and B-3 ROD WORTH MIN BLOCK. n Views Full Core Display and identifies CRD with Rod Drift light. n Selects Control Rod F-05 and reports no indication on Four Rod Display for Control Rod F-05.
	ATC	Recognizes loss of control rod F-05 position indication on Full Core Display, Four Rod Display, RWM, and/or Process Computer.
	CRS	n Enters DOA 0300-06, RPIS Failure, and directs its actions. q May direct entry into DGA-07, Unexpected Reactivity Change
	ATC	Performs subsequent actions of DOA 0300-06, RPIS Failure: n Stops any power change or control rod motion in progress. q May insert Rod F-05 to 00 prior to entering DOA 0300-06. q Enters substitute position of 48 for F-05. q Inserts control rod F-05 one notch. q Determines no control rod position indication at alternate position. n Drives rod F-05 to fully inserted position. q Calls WEC to electrically or hydraulically isolate the control rod F-05 HCU. q May enter a substitute position and take OOS on the RWM per DOP 0400-02, Rod Worth Minimizer.
	CRS	References appropriate plant licensing documents and determines: n TS 3.1.3, condition C, required actions: v C.1 Fully insert inoperable control rod within 3 hours; AND, v C.2. Disarm the associated CRD within 4 hours. q Directs electrically or hydraulically isolating control rod F-05 HCU.
		ROLE PLAY As QNE acknowledge reports. If concurrence is requested for any action, report “I concur with (insert requested action here)”
	BOP	q Monitors panel, provides assistance as directed.

Event Four – LOSS OF CONTROL ROD INDICATION		
Trigger	Position	Crew Actions or Behavior
	TEAM	q May enter DOA 0300-12, Mispositioned Control Rod. q Notifies the Shift Manager, QNE, Work Week Manager, Fin team, IMD, OR EMD.
		ROLE PLAY: When EO directed to disarm control rod F-05, report: "I'll disarm F-05 after I receive a pre-job brief" (it is not intended for this to be completed).
	ATC	q Records failed RPIS indication per DOS 0300-06, CRD Abnormality Record.

Event 4 Completion Criteria:

- **DOA 0300-06 actions have been taken,**
- **Technical Specifications have been referenced,**

AND/OR,

- **At the direction of the Lead Examiner.**

Event Five – RFP Vent Fan Trip with Failure of the Standby Fan to Autostart		
Trigger	Position	Crew Actions or Behavior
4		**NOTE:** Ensure the ATC operator performs this Event
		Simulator Operator: At the discretion of the Lead Examiner, activate **Trigger 4**, which causes 2A RFP vent fan to trip. The initial setup prevents 2B RFP vent fan from auto starting.
		Role Play: EO to check operation of 2B RFP vent fan: Wait 2 min, and then report that "2B RFP vent fan is operating normally". EO to check 2A RFP vent fan breaker: Wait 2 min, and then report "2A RFP vent fan breaker tripped on over current".
		Note: Per DOP 5750-06, Reactor Feed Pump Motor Ventilation System, fan control switches should be held in CLOSE for 45 seconds to allow airflow to develop. If the Team does not successfully start 2B RFP Vent fan due to not holding the control switch long enough and to avoid RFP high stator temperature computer alarms, provide the following Role Play: **Role Play:** Cue as the Shift Manager to the CRS: "I recommend holding the 2B RFP Vent fan control switch to CLOSE for 45 sec."
	ATC	Acknowledges and announces alarm 902-6 F-8, RFP Vent Fan Trip: n Determines 2B RFP Vent Fan did not auto start as expected and manually starts it. q Sends operator to check status of the 2A RFP vent fan breaker at Bus 25. q Sends operator to check operation of the 2B RFP vent fan. q Performs DOP 6700-20, 480V Circuit Breaker Trip. q May place Control Switch for 2A RFP Vent Fan in PTL
	CRS	n Directs starting 2B RFP vent fan. q Enters DOP 6700-20, 480V Circuit Breaker Trip.
	BOP	q Assists as directed.
	TEAM	q May reference DOP 5750-06, Reactor Feed Pump Motor Ventilation System. q May reference DOA 5750-01, Ventilation System Failure.

Event 5 Completion Criteria:

- **2B RFP vent fan is started,**

AND / OR;

- **At the direction of the Lead Examiner.**

Event Six – RWCU Recirc Pump Trip with Incomplete Isolation		
Trigger	Position	Applicant's Actions or Behavior
5		**Simulator Operator:** At the discretion of the Lead Examiner, activate **Trigger 5**, which causes 2A RWCU RR Pump to trip and fails the system isolation logic. If contacted as the QNE, acknowledge the report. If a core evaluation is requested, wait 3 minutes and report, no core limits have been violated. If QNE presence in the control room is requested, inform them you are on the way and will be in the control room in 30 minutes. If dispatched to Bus 23-1 to investigate 2A RWCU Recirc Pump Bkr, wait 3 minutes and report: the breaker for 2A RWCU Recirc Pump is open with an overcurrent target up.
	BOP	Acknowledges and announces alarm 902-4 A-10, RWCU Recirc PP Trip: n Determines 2A RWCU Recirc Pump tripped. n References DAN 902(3)-4 F-12, RWCU Sys After Non-Regen HX Press Hi n Determines RWCU system should have isolated and did not. n Takes manual action to close the following valves: · MO 2-1201-1, RX OUTLET ISOL · MO 2-1201-2, INLET ISOL q Verifies the following valves are closed: o MO 2-1201-1A, RX OUTLET BYP o MO 2-1201-3, AUX PP SUCT q Informs US of failure and that isolation is complete q Performs DOA 6500-10, 4KV Circuit Breaker Trip q Places Control Switch for 2A RWCU Recirc Pump in PTL (with Unit Supervisor concurrence)
	US	q Acknowledges report q Directs BOP to take action per DAN 902(3)-4 F-12, RWCU Sys After Non-Regen HX Press Hi q Contacts QNE q Directs entry into DGA-07, Unexpected Reactivity Change q Directs actions of DOA 6500-10, 4KV Circuit Breaker Trip q Directs placing Control Switch for 2A RWCU Recirc Pump in PTL per DOA 6500-10.
	ATC	q Performs DGA-07 actions as directed q Provides team with 902-5 panel update q Assists as directed

Event Six – RWCU Recirc Pump Trip with Incomplete Isolation		
Trigger	Position	Applicant's Actions or Behavior
Event 6 Completion Criteria: · **DOA 6500-10 actions and completed** · **RWCU system is isolated** **AND/OR** · **At the discretion of the chief examiner**		

Event Seven – Earthquake Causes Plant Damage / Torus Leak / Manual Scram		
Trigger	Position	Applicant's Actions or Behavior
6		**Role Play:** At the discretion of the Lead Examiner, call the Control Room, as Security and report there has been a confirmed earthquake felt throughout the plant. **SIMULATOR OPERATOR:** After the above report, activate **Trigger 6**, which starts an ECCS suction line break in the torus basement. **Note:** It takes about 20 minutes for torus level to reach 11 feet. *At the discretion of the lead examiner, use the cues in this event to jump ahead in time to expedite level drop if desired.*
	BOP	n Reports the following alarms: · 923-4 A-3 (B-2), U2 E(W) RBFD SUMP LVL HI-HI · 902-4 C-23, Torus Narrow Range Wtr Lvl Lo n Checks the torus narrow range level indicator. Reports level dropping. q Directs EO to perform DOS 1600-02, Torus Level Verification Using Local Sight Glass. n Directs EO to investigate leakage to torus basement. n Verifies proper operation of the RBFD Sump pumps. (Will require resetting the Group 2 isolation at both the 902-5 panel and the 923-4 panel for the sump pumps to operate if a Group 2 Isolation occurs).
		ROLE PLAY: As the EO sent to verify Torus level locally using sight glass (wait 4 min), then report: "Local Torus level is … (use value from variable ppc232, unless it is <20", then report it is below the sightglass)". As the EO sent to investigate leakage (wait 2 min) or if not sent, then as the EO on his round, report: "there is a large rupture from a pipe attached between the Torus shell and the Torus suction ring header near the East LPCI Corner room. The Torus basement floor is covered with water. There is no valve on the line". As the EO sent to report LPCI corner status (wait 2 min), then report: "there is no water in either LPCI corner room". As Maintenance sent to determine if the leak could be stopped (wait 3 min), then report: "Maintenance cannot stop the leak". As the EO sent to check the seismic monitor, report: "the seismic monitor has been activated (red light lit)". If contacted as any outside agencies, regarding the earthquake, confirm there has been an earthquake in the area but there is no more information at this time.
	CRS	q May enter DOA 0040-02, Localized Flooding in Plant. q May reference DOA 0010-03, Earthquakes.

Event Seven – Earthquake Causes Plant Damage / Torus Leak / Manual Scram		
Trigger	Position	Applicant's Actions or Behavior
	BOP	Performs the following actions per DOA 0040-02, Localized Flooding in Plant, as directed: n Makes PA announcement. n Directs EO to investigate leakage to torus basement. q Notifies Radiation Protection and Security as time permits.
		CUE (if desired for time compression): When torus level is < 14.5 feet and/or at the discretion of the lead examiner, cue the crew that we are taking a time jump and that both torus wide range level meters indicate 12.5 feet and are dropping at about 6 inches every 5 minutes.
	CRS	Enters and directs performance of DEOP 0200-01, Primary Containment Control: q May attempt to add water to the Torus per DOP 1600-02. q May direct scram preparatory actions per DGP 02-03, Reactor Scram. q May conservatively direct the Team to perform a manual reactor scram while determining if leak can be isolated.
	ATC / BOP	q Performs scram preparatory actions per DGP 02-03, Reactor Scram, as directed. o IF FCL > 93%, THEN reduce FCL to < 93% by inserting CRAM rods per DGP 03-04 OR in sequence rods per DGP 03-04. o Start the motor suction pump AND turning gear oil pump. o Trip hydrogen addition.
	ATC / BOP	n Performs manual scram per DGP 02-03, Reactor Scram, as directed. · Depresses BOTH Scram buttons. · Places RX MODE SW in SHUTDOWN. o Verifies Recirc pumps run back to minimum. o Inserts SRMs and IRMs. o Controls reactor water level +25 to +35 inches or as directed by the Unit Supervisor. o Verifies turbine tripped. o Verifies generator tripped. o Verifies aux power transfers.
	BOP	Performs the following actions per DEOP 200-01, Primary Containment Control, as directed: q May attempt to add water to the torus by opening MO-2-2301-14, MIN FLOW BYPASS. q Monitors/Reports DEOP 0200-01 entry parameters.

Event Seven – Earthquake Causes Plant Damage / Torus Leak / Manual Scram		
Trigger	Position	Applicant's Actions or Behavior
	CRS	q May decide to anticipate RPV Blowdown: q Directs opening turbine bypass valves.
	BOP	q Opens turbine bypass valves. (If directed to anticipating Blowdown)
	CRS	Enters DEOP 0300-01, Secondary Containment Control, and directs: q If Reactor Building Ventilation isolates when unit is scrammed, directs restarting Reactor Building Ventilation.
	BOP	Performs DEOP 0300-01, Secondary Control, as directed: q Time permitting, restarts Reactor Building Ventilation (if it isolates when the reactor is scrammed).

Event 7 Completion Criteria:

- **Team has performed a reactor scram,**

AND/OR

- **At the discretion of the Lead Examiner.**

Event Eight – Small Steam Leak / Emergency Depressurize Due Low Torus Level		
Trigger	Position	Crew Actions or Behavior
7		**SIMULATOR OPERATOR:** After the Team has stabilized the plant and at the discretion of the Lead Evaluator, activate **Trigger 7**, which causes a small steam leak. **ROLE PLAY:** EO sent to check EDG operation: wait 3 min, then report: "Both EDGs are operating normally". **ROLE PLAY:** Acknowledge other requests; delay as necessary.
	TEAM	n Determines/announces Drywell pressure rapidly rising.
	CRS	Re-enters DEOP 0200-01, Primary Containment Control, when PC/P reaches 2 psig and performs/directs: q Monitoring of PC/P. q Initiation of torus sprays before PC/P of 9 psig. n When PC/P is above 9 psig or before DW/T reaches 281°F: · Verification of DSIL. · Tripping of recirc pumps. · Tripping of DW coolers. · Ö Initiation of DW sprays. **(PC-1.1)** n Ö Directs terminating drywell sprays before drywell pressure drops to < 0 psig. **(PC-1.2)** (This may not apply based on scenario run time)
	BOP	n Ö Initiates Torus sprays and Drywell sprays as directed. **(PC-1.1)**
	BOP	n Ö Secures torus sprays and Drywell sprays before 0.0 psig. **(PC-1.2)** (This may not apply based on scenario run time)
		n Re-enters DEOP 0200-01, Primary Containment Control, when torus bulk temperature reaches 95°F and performs/directs: · 6 Initiation of Torus Cooling. **(TCA13, 10 min.)** (May already be running)
		n 6 Initiates Torus Cooling per the Hardcard. **(TCA13, 10 min.)** (May already be running)
		Note: Once the Team determines the Torus leak cannot be stopped, they may anticipate blowdown by using the Isolation Condenser and the Turbine Bypass valves. Performance of these actions meets critical task **(RPV-2.1)** of blowdown if RPV is within 66 psid of the drywell before ERVs are required to be opened.

Event Eight – Small Steam Leak / Emergency Depressurize Due Low Torus Level		
Trigger	Position	Crew Actions or Behavior
	CRS	q May anticipate blowdown and directs: o Initiating the Isolation Condenser. o Opening the Turbine Bypass valves.
	BOP	Anticipates blowdown as directed: q Initiates Isolation Condenser to full flow. q Opens the Turbine Bypass valves.
		CUE (if desired for time compression): 10 minutes after the initial time compression cue was given and/or at the discretion of the lead examiner, cue the crew that both the Torus wide range level meters indicate 11.5 feet and are dropping at a rate of about 1 foot per 10 minutes.
	CRS	ÖWhen suppression pool water level cannot be held above 11 feet, manually scrams and then performs an emergency depressurization. Enters DEOP 0400-02, Emergency Depressurization, and directs: **(PC-4.4)** Enters DGP 02-03, Reactor Scram, and directs a manual scram. (May be already done) Enters DEOP 0400-02, Emergency Depressurization, and directs: q Initiation of Isolation Condenser to maximum flow. n Verification that SP/L >6 feet. n ÖOpening all ADS valves. **(RPV-2.1)** n Verification relief valves are open.
	BOP	ÖPerforms DGP 02-03, Reactor Scram. (May be already done, see actions earlier in previous Event) **(PC-4.4)** ÖPerforms DEOP 0400-02, Emergency Depressurization, actions as directed: **(PC-4.4)** n Initiates Isolation Condenser to maximum flow q Verifies that SP/L >6 feet. n ÖOpens ADS valves. **(RPV-2.1)**
	BOP	n Opens turbine bypass valves. (May already be open due to anticipating Blowdown)

Event 8 / Scenario Completion Criteria:

- **Containment parameters stabilized, AND,**
- **RPV depressurization in progress,**

AND / OR,

- **At the direction of the Lead Examiner.**

Critical Tasks	
(PC-4.4)	When executing DEOP 200-1, Primary Containment Control, when suppression pool water level cannot be held above 11 feet, manually scram and then perform an emergency depressurization of the reactor.
(RPV-2.1)	When conditions are met per DEOP 400-2, Emergency Depressurization, the minimum number of available SRV's required for emergency depressurization (MNSRED) are opened.
(PC-1.1)	While executing DEOP 200-1, Primary Containment Control, when drywell pressure exceeds 9 psig and only if operating within the safe region of the drywell spray initiation limit (DSIL), initiate drywell sprays.
(PC-1.2)	After initiating drywell sprays per the primary containment pressure or temperature legs of DEOP 200-1, Primary Containment Control, terminate drywell sprays before drywell pressure drops to < 0 psig. (This may not apply based on scenario run time)

REFERENCES

PROCEDURE	TITLE
DAN 902-4 C-23	TORUS NARROW RANGE WTR LVL LO
DAN 902(3)-4 A-10	RWCU RECIRC PP TRIP
DAN 902(3)-4 B-11	RWCU DEMIN INLET FLOW LO
DAN 902(3)-4 C-12	RWCU RECIRC PP DISCH PRESS LO
DAN 902(3)-4 C-23	TORUS NARROW RANGE WTR LVL LO
DAN 902(3)-4 F-12	RWCU SYS AFTER NON-REGEN HX PRESS HI
DAN 902-5 A-3	ROD DRIFT
DAN 902-5 B-3	ROD WORTH MIN BLOCK
DAN 902(3)-3 C-12	HPCI STM LINE FLOW HI
DAN 902(3)-3 C-7	HPCI AUTO ISOL INITIATED
DAN 902(3)-6 F-8	RFP VENT FAN TRIP
DAN 902(3)-6 G-9	RFP RECIRC VLV OPEN
DAN 923-4 A-3 (B-2)	U2 E(W) RBFD SUMP LVL HI-HI
DEOP 0100	RPV CONTROL
DEOP 0200-01	PRIMARY CONTAINMENT CONTROL
DEOP 0300-01	SECONDARY CONTAINMENT CONTROL
DEOP 0400-02	EMERGENCY DEPRESSURIZATION
DGA-07	UNPREDICTED REACTIVITY ADDITION
DGP 03-01	POWER CHANGES
DGP 02-03	REACTOR SCRAM
DGP 03-04	CONTROL ROD MOVEMENTS
DOA 0010-03	EARTHQUAKES
DOA 0040-02	LOCALIZED FLOODING IN PLANT
DOA 0300-01	CONTROL ROD DRIVE SYSTEM FAILURE
DOA 0300-05	INOPERABLE OR FAILED CONTROL ROD DRIVES
DOA 0300-06	RPIS FAILURE
DOA 0300-12	MISPOSITIONED CONTROL ROD
DOA 6500-10	4KV CIRCUIT BREAKER TRIP
DOP 0202-03	REACTOR RECIRCULATION FLOW CONTROL SYSTEM OPERATION
DOP 0400-02	ROD WORTH MINIMIZER
DOP 0600-06	FEEDWATER REGULATING VALVE (FWRV) OPERATION
DOP 1200-03	RWCU SYSTEM OPERATION WITH THE REACTOR AT PRESSURE
DOP 1600-02	TORUS WATER LEVEL CONTROL

PROCEDURE	TITLE
DOP 3200-03	STARTUP OF SECOND OR THIRD REACTOR FEED PUMP OR SHIFTING TO ALTERNATE REACTOR FEED PUMP
DOP 5750-01	TURBINE BUILDING VENTILATION
DOP 5750-06	REACTOR FEED PUMP MOTOR VENTILATION
DOP 6700-20	480V CIRCUIT BREAKER TRIP
DOS 0300-06	CONTROL ROD ABNORMAILTY RECORD
DOS 1600-02	TORUS LEVEL VERIFICATION USING LOCAL SIGHT GLASS
TS 3.1.3	CONTROL ROD OPERABILITY
TS 3.3.6.1	PRMARY CONTAINMENT ISOLATION INSTRUMENTATION
TS 3.5.1	ECCS – OPERATING

Simulator Scenario Review Checklist

ILT-N-1 Quantitative Attributes	
8	Total malfunctions (5 to 8)
1	Malfunctions after EOP entry (1 to 2)
4	Abnormal events (2 to 4)
2	Major transients (1 to 2)
2	EOPs entered/requiring substantive actions (1 to 2)
1	EOPs contingency requiring substantive actions (0 to 2)
4	Crew critical tasks (2 to 3)

CAEP Files

```
# 15-1 ILT-N-2.cae
# For ILT Class 15-1 NRC Exam
# Written by DSS
# Rev 00
# Date 5/16


# INITIAL CONDITIONS

# Sets APRM Master Gain pot to 1.0
irf niagain 1.0

# Binds the 2-2301-4 valve 50% open
imf hp4vlbn 50.0

# Prevents auto start of 2B RFP Vent Fan
imf x13

# Prevents RWCU from isolating
imf cirwcuap|2
imf cirwcubp|2


# EVENT TRIGGERS

# Event Trigger 1 causes indications of a spurious HPCI isolation
trgset 1 "0"|2
imf ser0160 (1) on|2
ior hpdcl4 (1) close|4

# Event Trigger 2 will auto delete the 2-2301-4 valve binding
trgset 2 "hwhpdcl4"|4
trg 2 "dmf hp4vlbn"|4

# Event Trigger 3 Fails all control rod F-05 RPIS indications
trgset 3 "0"|6|6
imf rdfailf5 (3)|6
imf rpis_pos_cr043s (3) bad|6
```

```
# Event Trigger 4 trips the 2A RFP Vent Fan
trgset 4 "0"|8
Imf x10 (4)|8

# Event Trigger 5 trips the 2A RWCU Recirc Pump
trgset 5 "0"|8
imf u11 (5)|8

# Event Trigger 6 Inserts an ECCS suction line break
trgset 6 "0"|10
trg 6 "ramp wamwlps 200.0 201.0 1:00:00"|10
imf csbrksev (6) 100.0|10
imf csppbbrk (6 4:00) 100.0|10

# Event Trigger 7 Starts a small steam leak in the DW over a 3 minute ramp
trgset 7 "0"|14
imf i21 (7) 0.4 3:00|14

# Event Trigger 28 sets gain for all 6 APRMs
trgset 28 "0"|14
trg 28 "irf niagainf true"|14

# END
```

Unit 2 Risk: GREEN	Unit 3 Risk: GREEN
Unit 2 is 560 MWe	Unit 3 is in Mode 1 at Full Power
Leading Thermal Limit: MAPRAT @ 0.818	Leading Thermal Limit: MAPRAT @ 0.819
Action limit: 0.980	Action Limit: 0.980
Equipment Unavailable: None	Equipment Unavailable: None
Protected Equipment: None	Protected Equipment: None

Current Action Statements

None	LCO Started:	LCO Expires:
TS		
Cause:		

Unit 1 Plant Status

Today	U1 Diesel Oil Storage Tank Transfer House has grating removed. Currently roped off with pump installed to pump to U1 Oil Separator Pit as required. Outside operator monitor and pump as necessary.
Today	Chem Cleaning ventilation status: HV-1A/EF-1A are secured due to HV-1A inlet and outlet dampers being shut with fan on, IR# 913157, WO 1239746. HV-1B/EF-1B are secured due to HV-1B throwing its belts. WO 1156150. HVAC-1 ON. HV-2 running.

Switchyard Status

Today	TSO notified of oil leaks on 345 Kv BT 2-3 CB (IR 810135) ComEd WO 6396128
Today	138 KV Bus 1 Feed To TR 22 Combi Units has low oil in the 'C' phase, ComEd WO #276162
Today	HVO: Exercise CAUTION while in the 345 kV Yard due to excavation being performed in the area. Marv Evans reports holes being dug near manual switch disconnects 345kV Blue Bus. Plywood will be installed over the holes if access is needed, but be aware there are holes under the plywood. SSC called from the 345Kv yard reporting that the cable trough covers are removed to prep for upcoming work. Be careful.

Unit 2 Plant Status

Today	Unit 2 Activities **** Shift 1 Activities **** □ □ **** Shift 2 Activities **** □ Immediately after assuming the shift, raise power with Rector Recirculation Flow to 750 MWe □ When Generator Output is 750 MWe, place the 2C Reactor Feed Pump in service on Bus 21. **** Shift 3 Activities **** □ □
Today	**** Unit 2 Procedures In-Progress **** Do Not Delete **** □ DGP 03-01, Power Changes □ DOS 6620-07, SBO 2(3) Diesel Generator Surveillance Tests

XL3 Alarm

****

DEVICE 81-12 IN ALARM **AEER ABOVE 902-39**

****

Dresden Generating Station

ILT-N-3

CIRC WATER FLOW REVERSAL

LOSS OF FW HEATER

ISOLATION CONDENSER TUBE LEAK

LOSS OF TURBINE SEAL OIL PUMP

CIRCULATING WATER PUMP TRIP

RPS MG SET TRIP

LOSS OF INSTRUMENT AIR / MANUAL SCRAM

HYDRAULIC ATWS – REPEATED SCRAM/RESETS

Rev. 00

02/16

Developed By: _____ _____
Exam Author Date

Approved By: _____ _____
Facility Representative Date

Scenario Outline

Facility: Dresden Generating Station Scenario No.: ILT-N-3 Op-Test No.: ILT 15-1 (2016-301)

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Unit 2 is operating at 980 MWe. No equipment OOS and no LCO actions in effect.

Turnover: Perform DOP 4400-08. EO and field supervisor have been briefed and are in the field awaiting direction. Maintain load per TSO direction

Event No.	Malf. No.	Event Type*	Event Description
1	None	N (BOP)	Circ Water Flow Reversal
2	FW3502AU FWHDRO18	C (ATC)	Loss of a Feedwater Heater
3	ICTUBLK	C/T (BOP) (T/S)	Isolation Condenser Tube Leak
4	K50	C (BOP)	Loss of all turbine seal oil - ESOP failure to auto-start
5	HP5	C (BOP)	Circulating Water Pump Trip
6	B02	C/T (ATC) (T/S)	RPS – MG Set, Trips / Re-energize from reserve power
7	NP2	M (ALL)	Manual Scram - Loss of Instrument Air - Unisolable
8	RDHLVFPA RDHLDEGA RDHLVFPB RDHLDEGB SCPMPOCA SCPMPOCB	M (ALL)	ATWS – Hydraulic – Repeated Scram/Resets

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

Scenario Objective

Evaluate the Team's ability to operate the plant with a loss of Instrument Air and a Failure to Scram.

Scenario Summary

1. Unit is at ~100%.
2. The following equipment is OOS:
   a. None.
3. LCOs:
   a. None

Scenario Sequence

- After completing shift turnover, the team will perform DOP 4400-08, Circulating Water System Flow Reversal.
- When Circulating Water System Flow Reversal is complete, 2B1 HTR Normal Drain unlatches due to mechanical failure of the latch. 2B1 HTR level rises and the Emergency drain opens. However level continues to slowly rise until a 2B1 HTR trip occurs. The operator places the 2B1 HTR Extraction valve in PTS to prevent it from closing or re-opens it after it closes. This results in the 2B1 HTR level dropping with the Emergency drain controlling.
- The Isolation Condenser develops a tube leak and must be isolated.
- The Main Hydrogen Seal Oil pump trips with a failure of the Emergency Hydrogen Seal Oil pump to start. The team starts the Emergency Hydrogen Seal Oil pump and verifies the generator load does not exceed the capacity limit curves for possibly reduced generator hydrogen pressure.
- Circulating water pump 2A then trips on overload and the BOP manually starts circulating water pump 2B to maintain condenser vacuum.
- The Team receives a report that the Engineering department determined that EPAs 2B-1 and 2B-2 are inoperable. The CRS determines Tech Spec requirements and then a trip of RPS EPA 2B-1 causes a loss of RPS Bus A. The Team will reenergize RPS Bus A from reserve power and begin restoration of affected systems to a normal condition.
- When Power restoration is in progress, a large leak develops in the Instrument Air system. The Team will scram the reactor prior to the MSIVs failing closed.
- A hydraulic ATWS occurs when the Reactor scrams. The SBLC system fails to inject when started. The Team inserts control rods by manually driving them in and performing repeated scrams.
- Completion criteria: When the RPV is depressurized and at the discretion of the Lead Examiner, Place the simulator in FREEZE.

Event One – Circulating Water System Flow Reversal

- The BOP will reverse Circulating Water System Flow

Malfunctions required: 0

- (None)

Success Path:

- Performs DOP 4400-08, Circulating Water System Flow Reversal

Event Two – High Level in FW Heater

- 2B1 HTR Normal Drain unlatches due to mechanical failure of the latch. 2B1 HTR level rises and the Emergency drain opens. However level continues to slowly rise until a 2B1 HTR trip occurs.

Malfunctions required: 1

- (2B1 HTR trip)

Success Path:

- Places the 2B1 HTR Extraction valve in PTS to prevent it from closing or re-opens it after it closes.

Event Three – Isolation Condenser Tube Leak

- Isolation condenser develops a tube leak.

Malfunctions required: 1

- (Isolation Condenser Tube Leak)

Success Path:

- Team isolates the Isolation Condenser
- References Tech Specs

.

Event Four – Main Seal Oil Pump Trip / Failure of Emergency Seal Oil Pump to Auto Start

- The Main Hydrogen Seal Oil pump trips with a failure of the Emergency Hydrogen Seal Oil pump to start
- Malfunctions required: 1
- (Stator Cooling Water Pump Trip / Failure of Standby pump to auto start)

Success Path:

- Team starts the Emergency Hydrogen Seal Oil Pump

Event Five – Circulating Water Pump Trip

- The team will recognize and respond to a trip of the 2A Circulating Water Pump

Malfunctions required: 1

- (Circulating Water Pump Trip)

Success Path:

- Start 2B Circulating Water Pump

Event Six – RPS MG Set Trip / Re-energize from Reserve power

- The Team receives a report that the Engineering department determined that EPAs 2B-1 and 2B-2 are inoperable. Then a trip of RPS EPA 2B-1 causes a loss of RPS Bus A.

Malfunctions required: 1

- (RPS EPA 2B-1 trips)

Success Path:

- The CRS determines Tech Spec requirements.
- Re-energize RPS Bus A from Reserve Power.

Event Seven – Loss of Instrument Air / Manual Scram

- A large leak develops in the Instrument Air System

Malfunctions required: 1

- (Instrument Air Leak)

Success Path:

- Performs manual reactor scram.

Event Eight – Hydraulic ATWS/ARI Unsuccessful

- A Hydraulic ATWS occurs when the reactor is scrammed. ARI is unsuccessful

Malfunctions required: 2

- (Hydraulic ATWS)
- (SBLC Failure to inject)

Success Path:

- Team inserts control rods by manually driving control rods and performing repeated scrams.

PRE-SCENARIO ACTIVITIES

1 If applicable, conduct pre-scenario activities in accordance with TQ-JA-155-04, SIMULATOR EXAMINATION BRIEFING.

   a. Direct the Team to perform their briefs prior to entering the simulator.

   b. Provide the Team a copy of DOP 4400-08, Circulating Water System Flow Reversal

   c. Provide the Team a copy of DOP 4400-02, Circulating Water System Startup and Shutdown.

2 Simulator Setup (the following steps can be done in any logical order)

   a. Initialize simulator in an IC with the following:

      1) Reactor power ~100%. (Old Training Load IC 184 used for validation.

      2) Adjust Core flow to 97-98 Mlbm/hr. (MWe ~980)

3 Verify the following simulator conditions:

   a. Verify 2A, 2B and 2C Circ Water Pumps are running

   b. Verify one Service Air Compressor supplying both Units.

   c. Verify Unit 2/Unit 3 Service Air Cross-tie valve is open

NOTE: Do NOT run the initial setup CAEP file until the above setup is completed.

4 Run the initial setup CAEP file: 15-1 ILT-N-3.cae

5 Place the following equipment out of service:

   a. None

6 Complete the Simulator Setup Checklist.

Symbols are used throughout the text to identify specific items as indicated below:

- Ö Critical Tasks
- 6 Time Critical / Sensitive Actions (Includes PRA Actions)
- n Required Actions
- q Optional Actions

Event One – Reverse Circulating Water Flow		
Trigger	Position	Crew Actions or Behavior
		Simulator Operator/Communicator: Turnover included Field Supervisor and Extra EO briefed and in the field for execution of DOP 4400-08. When contacted respond as appropriate. Use communications below: Standing by MCC 25-21 All circ water flow reversal valves have power
	CRS	n Directs BOP to perform DOP 4400-08, CIRCULATING WATER SYSTEM FLOW REVERSAL
	BOP	Reverses Circulating Water Flow. q Verifies LOCAL-REMOTE switch on 2252-71 panel is in the REMOTE position. q Verifies all circ water flow reversal valves have power q Verifies operator stationed (with communications established) at MCC 25-2. n Places CIRC WTR FLOW SELECT switch from WEST to EAST q Verifies: q First half circ water flow reversal valves reposition in 30 seconds q CONDR OFF GAS SUCTION VLVS reposition q 2nd half circ water flow reversal valves reposition in 30 seconds q CONDR SEAL TROUGH LVL fill and drain valves change over q N BRCH DP and SBRCH DP indications reverse q Changes light bulb lenses to maintain green board operations
	ATC	q Monitors panels q Provides peer check as required.
	CRS	q Directs securing 2B Circ Water Pump per DOP 4400-02
	BOP	q Places Control Switch for 2B Circulating Water Pump in Trip. q Verifies Discharge valve MO 2-4401B is closed

Event 1 Completion Criteria:

- **Circ Water system flow is aligned to EAST**
- **Light Bulb Lenses have been swapped**

AND/OR,

- **At the discretion of the Lead Examiner.**

Event Two – Loss of a Feedwater Heater		
Trigger	Position	Crew Actions or Behavior
1		**FLOOR INSTRUCTOR / SIMULATOR OPERATOR / ROLE PLAY:** If the team announces that they will adjust gains, inform them an extra NSO will perform the adjustment. Then: v Tell the team you are time compressing. v Direct the simulator operator to activate **trigger 1** and verify gains within limits. v Inform the team the gains are adjusted. (Note: trigger 1 can be toggled OFF, then back ON as many times as necessary to adjust gains)
2		**SIMULATOR OPERATOR:** At the discretion of the Lead Examiner, activate **trigger 2,** which causes 2B1 HTR normal drain to unlatch.
3-9		**SIMULATOR OPERATOR:** Verify the following automatic triggers activate as expected: **Trigger 3:** Activates when 2B1 HTR Emergency Drain opens. Holds 2B1 HTR Emergency Drain at 15% open. Forces up alarm 902-6 E-04, 2B1 Heater Emerg Drain Vlv Open **Trigger 4:** Activates when 902-6 E-01, 2B1 Heater Lvl Hi, alarms. Holds 2B1 HTR Emerg Drain at 3.0% open. **Trigger 5:** Activates when Trigger 5 is active and 2B1 Htr Extr Vlv CLOSE light is ON. After 30 sec, Holds 2B1 HTR Emerg Drain at 8.0% open. **Trigger 6:** Activates when alarm 902-6 E-01, 2B1 Heater Lvl Hi, clears. Holds 2B1 HTR Emerg Drain at 0.0% open. **Trigger 7:** Activates when 2B1 Heater Extraction control switch is placed to PTS or OPEN. Holds 2B1 HTR Emerg Drain at 12% open. **Trigger 8:** Activates when 2B1 Heater Level is below 14.0 inches and trigger 7 is active. Removes hold on 2B1 HTR Emerg Drain. **Trigger 9:** Activates when trigger 8 is active. Returns alarm 902-6 E-04, 2B1 Heater Emerg Drain Vlv Open, to NORMAL.

Event Two – Loss of a Feedwater Heater

Trigger	Position	Crew Actions or Behavior
		ROLE PLAY: EO to check 2B1 level controllers: wait 2 min, then report the following for each component: v SO 2-3502A, 2B1 FW HTR LCV 2-3502A SO VLV: report "the SO 2-3502A is tripped due to its latch mechanically broken". v LIC 2-3541-17A, B1 DRAIN TO A1 FLASH TANK, setpoint: report "the LIC 2-3541-17A setpoint is 12 inches". v LIC 2-3541-10A, B1 SPILL TO COND, setpoint: report "the LIC 2-3541-10A setpoint is 14 inches". v LIC 2-3541-10A, B1 SPILL TO COND, demand: report "the LIC 2-3541-10A demand is 10 psig" If asked: "I see no obvious malfunction or instrument air leakage". If asked: "All heater level controller MODE switches are in AUTOMATIC". If asked for local heater level indication, report the value displayed on Instructor station drawing 902-6-03
	ATC	q Announces alarms: o 902-6 D-7, 2B1 Heater Normal Drain Vlv Closed. o 902-6 E-4, 2B1 Heater Emerg Drain Vlv 33% Open. q Sends an operator to check 2B1 Heater level controllers.
	ATC	q Announces alarm 902-6 E-1, 2B1 Heater Lvl Hi. q Verifies automatic actions: o MO 2-3101A, 2B1 FW HTR EXTR STM MOV, closes. o FCV 2-3102A, 2B1 FW HTR EXTR STM BYP FCV, opens.
	CRS	n Due to 2B1 Heater trip, enters DOA 3500-02, Loss of Feedwater Heaters.
	ATC	Performs DOA 3500-02, Loss of Feedwater Heaters, immediate actions: q Monitors feedwater temperature and heater levels. n Places 2B1 Heater extraction valve control switch in pull to stop (PTS). **OR** n Re-opens 2B1 Heater extraction valve when the 2B1 heater Hi level alarm resets.
	BOP	q Assists as directed.

Event 2 Completion Criteria:

- **2B1 Heater level controlling on its emergency drain valve,**

AND / OR,

- **At the discretion of the Lead Examiner.**

Event Three – Isolation Condenser Tube Leak		
Trigger	Position	Crew Actions or Behavior
10		**Simulator Operator:** At the discretion of the Floor Instructor/Evaluator, activate **TRIGGER 10** which initiates a tube leak in the Isolation Condenser.
		ROLE PLAY: EO to IC Area: (wait 3 min.) Report, "there is no evidence of steam leakage in the area but the IC is making noises. It sounds like metal parts expanding (creaking)".
		ROLE PLAY: **NOTE:** (IC temps may be viewed on RNI display IC1, Isolation Condenser) EO to check IC Vent outside: (WAIT 3 MIN.) If IC shell temp is > 190°F, report "some fog/steam exiting from the vent" If IC shell temp is < 190°F, report "NO steam exiting vent".
		ROLE PLAY: Chemistry to sample IC shell side: Report "shell side sample results will take approximately 90 minutes".
		ROLE PLAY: Rad Protection to survey IC Vent outside: Report "the radiological surveys will be initiated". Security to control access to IC Vent outside: Report "the area will be roped off".
	BOP	Announces alarms for the Isolation Condenser (IC) and refers to the following DANs: q 902-3 B-3, IC Hi Rad q 902-3 C-4, IC Hi Temp q Monitors temperature and radiation levels for the Isolation Condenser
	CRS	q Directs/verifies Operators take action per DAN 902-3 C-4. q After determining there is a leak in the IC, enters DOA 1300-01, Isolation Condenser Tube Leak. q Declares the Isolation Condenser Inoperable. q Requests Chemistry to sample Iso-Condenser shell side for change in activity.
	BOP	Performs DOA 1300-01, Isolation Condenser Tube Leak, as directed and monitors: q IC vent rad levels. q IC shell side water level. q IC temperatures from TR 1340-1. q IC area temperatures from 902-21 panel. q IC area rad levels from 902-2 panel
	BOP	q Reports IC vent rad above 3 mr/hr and IC shell side level and temperatures rising.

Event Three – Isolation Condenser Tube Leak		
Trigger	Position	Crew Actions or Behavior
	BOP	Isolates the IC by closing the following valves per DAN 902-3 B-3 or DOA 1300-01. n MO 2-1301-1 n MO 2-1301-2 q MO 2-1301-3 n MO 2-1301-4 n AO 2-1301-17 n AO 2-1301-20 q MO-2-1301-10 q MO 2-4399-74
	BOP	q May dispatch an EO to the Isolation Condenser area. q May bypass the IC area hi rad input to the Rx Bldg Hi Rad alarm.
	TEAM	q Dispatches personnel outside to investigate discharge from the vent.
	TEAM	q Calls Chemistry and requests a sample of the shell side water to analyze for a change in activity.
	TEAM	q Directs Rad Protection to conduct radiological surveys.
	TEAM	q Directs Security to limit access underneath the IC vent.
	CRS	q References Tech Specs and determines: n LCO 3.5.3.A.1: Verify HPCI is OPERABLE immediately. n LCO 3.5.3.A.2: Restore IC System to OPERABLE status within 14 days.

Event 3 Completion Criteria:

- **DOA 1300-01 is addressed,**
- **The IC is isolated,**
- **Tech Spec requirements are determined,**

AND / OR,

- **At the discretion of the Lead Examiner.**

Event Four – Main Seal Oil Pump Trip / Failure Of Emergency Seal Oil Pump To Auto Start		
Trigger	Position	Crew Actions or Behavior
11		**Simulator Operator:** At the direction of the Lead Evaluator, insert **TRIGGER 11** to trip the Main Hydrogen Seal Oil Pump (MSOP).
12		**Simulator Operator / Role Play:** EO directed to investigate local panel trouble alarm, wait 1 min., activate **TRIGGER 12**, and then report that "The local alarm is Differential seal oil pressure low". If the ESOP is running, add to the report "and it reset". EO to report local Generator H_2 pressure: Wait 1 min, and then report "the local Generator H_2 pressure indicates (use value from Monitor program) psig."
		Role Play: EO sent to check the MSOP breaker: Wait 3 min. then report, "The MSOP breaker is tripped in the tripped free position". If directed to check the MSOP, report, "I can't find anything wrong with the MSOP. EO to align Seal Oil and H_2 valves: Wait 2 min, then report "the (Insert nomenclature of requested valves) are (insert position requested)". **Note:** The simulator does not model the Seal Oil and H_2 valves.
	BOP	Announces: q 902-7 A-11, H_2 Seal Oil Sys Oil Pp/Vac Pp Trip, alarm. q MSOP tripped. q Generator machine gas pressure dropping.
	BOP	q Determines ESOP did NOT automatically start as expected. n Starts the ESOP.
	TEAM	q Makes PA announcement warning of H_2 and /or oil vapor around the main generator.
	CRS	q Directs starting ESOP. q Enters DOP 6700-20, 480V Circuit Breaker Trip.
	BOP	q Announces 902-7 E-11, H_2 Seal Oil & Alterrex Pnl Trouble, alarm q Dispatches EO to investigate local panel trouble alarm.
	BOP	Performs DOP 6700-20, 480V Circuit Breaker Trip, as directed: q Dispatches EO to MCC 28-2 to investigate the MSOP trip. q Places MSOP in PTL.

Event Four – Main Seal Oil Pump Trip / Failure Of Emergency Seal Oil Pump To Auto Start		
Trigger	Position	Crew Actions or Behavior
	BOP	Performs DAN 902-7 A-11, H_2 Seal Oil Sys Oil Pp/Vac Pp Trip, additional actions: q Directs EO to close: o H-09, U2 H2 SEAL OIL VACUUM TK INLET SPRYA SV. o H-13, U2 MAIN SEAL OIL PMP DISCH STOP CHC VLV. q Stops the Seal Oil Vacuum Pump. q Monitors 250 VDC electrical system (DOP 6900-01). q Periodically monitors seal oil bearing pressure, hydrogen purity, and hydrogen differential pressure. q Enters DOP 5320-11, Filling and Venting the Generator with Hydrogen to Raise Purity and/or Pressure during Normal Operation, if necessary. q Directs an Operator to check for hydrogen at Generator shaft seal in Alterrex housing.
	ATC	Assists as directed.

Event 4 Completion Criteria:

· **ESOP started,**

AND/OR,

· **At the discretion of the Floor Instructor**

Event Five – Circ Water Pump Trip		
Trigger	Position	Crew Actions or Behavior
13		**Floor Instructor / Simulator Operator / Role Play:** At the discretion of the Lead Examiner, activate **TRIGGER 13**, which trips 2A Circulating Water pump. As the EO sent to 2A Circulating Water pump breaker (wait 3 min), then report: "2A Circulating Water pump breaker has an overcurrent target up". As the EO sent to 2A Circulating Water pump (wait 3 min), then report: "2A Circulating Water pump motor is hot to the touch". As the EO sent to check 2B Circulating Water pump operation (wait 2 min), then report: "2B Circulating Water pump is operating normally". As the EO sent to check Cribhouse bar racks and traveling screens (wait 3 min), then report: "the Cribhouse bar racks and traveling screens are clear".
	BOP	Performs the following actions per DAN 902-7 A-15, Circ Wtr PP Trip, DOA 4400-01, Circulating Water System Failure, and DOA 6500-10, 4KV Circuit Breaker Trip, as directed: n Starts 2B Circulating Water pump. (immediate action) q Verifies condenser vacuum returning to normal. q Verifies 2A Circulating Water pump discharge valve closes. q Sends EO to check 2A Circulating Water pump breaker and operation of 2B Circulating Water pump. q Places 2A Circulating Water pump control switch in PTL. q Verifies Circulating Water Flow reversal valves lined up normally. q May send EO to check Cribhouse bar racks and traveling screens.
	CRS	n Enters and directs performance of DOA 4400-01, Circulating Water System Failure, and DOA 6500-10, 4KV Circuit Breaker Trip. q May set contingency for DOA 4400-07, Reactor Operation with Only One Circulating Water Pump Available. q Notifies the Shift Manager and EMD.
	ATC	q Monitors panels and assists as directed.

Event 5 Completion Criteria:

2B Circ Water Pump has been started AND,

DOA 4400-01 and DOA 6500-01 actions are addressed,

OR,

At the discretion of the Floor Instructor / Lead Evaluator.

Event Six – RPS MG Set Trips / Re-energize from Reserve Power		
Trigger	Position	Applicant's Actions or Behavior
		NOTE: Ensure the ATC operator performs this Event
		ROLE PLAY: At the discretion of the Floor Instructor/Evaluator, call as the Shift Manager and report: "Engineering has determined the following equipment inoperable due to Quad Cities Part 21 issue: · 2-500-2B-1, 2B RPS MG SET 2B-1 EPA BKR · 2-500-2B-2, 2B RPS MG SET 2B-2 EPA BKR ALL other EPA breakers are operable".
14		**SIMULATOR OPERATOR ACTIONS:** After The Team has determined the Tech Spec requirements or at the discretion of the Floor Instructor/Evaluator, activate **TRIGGER 14**, which inserts a 2B RPS MG Set overcurrent trip to simulate trip of 2B RPS MG SET 2B-1 EPA BKR.
		NOTE: Communications from the AEER should be over the phone (not the radio) **ROLE PLAY:** EO to check 2B RPS MG set: wait 2 min. and call on the phone and report: v "The 2B RPS MG Set motor is running with normal output of 120 volts". v "The 2A RPS Bus voltage is 0.0". v "The 2B RPS MG SET 2B-1 EPA BKR has tripped but ONLY has the POWER IN, MOTOR GEN red indicating light lit ". (All other lights are NOT lit) v "The 2B RPS MG SET 2B-2 EPA BKR has NO indicating lights lit".
15		**NOTE:** When the team begins to re-power 2A RPS bus, report: "Another NSO has completed the steps for bypassing OPRMs". EO to power the 2A RPS bus from the Reserve source: wait five minutes, call the U2 NSO on the phone and report "I am at step G.3.I.(1) of DOP 0500-03, for supplying power to RPS 2A bus. The next several steps are yours. When notified by the NSO to resume at step G.3.L.(6) then after ~ 1 min, **activate TRIGGER 15**. Call on the phone and report "I have completed DOP 0500-03 thru step G.3.L.9. RPS Bus 2A has been reenergized from the reserve power supply". If asked: "RPS Bus 2A AC voltage is 120".
	CRS	q References Technical Specifications and determines: § TS 3.3.8.2 (RPS Electric Power Monitoring) Condition A: Remove associated in-service power supply(s) from service within 72 hr. § TS 3.3.8.2 (RPS Electric Power Monitoring) Condition B: Remove associated in-service power supply(s) from service within 1 hr. q May direct WEC to brief an operator to swap RPS Bus A to the alternate power supply per DOP 0500-03, RPS Power Supply Operation.

Event Six – RPS MG Set Trips / Re-energize from Reserve Power		
Trigger	Position	Applicant's Actions or Behavior
	ATC	q Announces loss of 2A RPS Bus. q Perform actions of DOA 0500-05, Loss of RPS. q Bypasses APRM 6.
	CRS	q Enters DOA 0500-05, Loss of Reactor Protection System Bus, and directs actions. n Directs swapping 2A RPS Bus to Reserve Power per DOP 0500-03, RPS Power Supply Operation.
	ATC	q Coordinates with an EO to restore power to the 2A RPS Bus per DOP 0500-03, RPS Power Supply Operation. q Bypasses APRM 6. (May already done per DOA actions) n Resets the RPS CH A half scram per DOP 0500-07, Insertion/Reset of Manual Half Scram.
	CRS	q References Technical Specifications and determines: § TS 3.3.7.1 (Control Room Emergency Ventilation (CREV) System Instrumentation) v Condition A1: Declare CREV System inoperable 1 hour from discovery of loss of CREV System Instrumentation alarm capability in both trip systems. v Condition A2: Restore CREV instrumentation to operable within 6 hrs.
		NOTE: After restoring the RPS Bus, the Team should begin to identify and plan for system restoration back to their normal lineups.
	CRS	q Coordinates restoration of affected plant systems. q May direct shutdown of 2B RPS MG Set.
	TEAM	q Resets the Division 2 Refuel Floor Rad Monitor and Reactor Building Vent Rad Monitor. q Restores Reactor Building Ventilation IAW DOP 5750-02, Reactor Building Ventilation and secures SBGT IAW DOP 7500-01, SBGT Operation. q Resets ACAD/CAM system per DOP 2400-01 to reclose the 2-2499-3B and 4B valves. q Restarts RWCU per DOP 1200-03, RWCU System Operation with the Reactor at Pressure.

Event 6 Completion Criteria:

- **RPS Bus 2A reenergized and plans for restoration of affected plant systems in progress,**

AND / OR;

- **At the direction of the Lead Examiner.**

Event Seven – Instrument Air Leak / Reactor Scram		
Trigger	Position	Applicant's Actions or Behavior
16		**SIMULATOR OPERATOR:** At the direction of the Lead Examiner, activate **TRIGGER 16** to initiate a large Instrument Air leak. **ROLE PLAY:** EO sent to check air compressor and air dryer operation, wait 3 min. then report, "The air compressors are all running loaded and there are no problems at the air dryers." Personnel sent to inspect IA system for rupture, acknowledge the order. If asked, U1 air system is not is service
	BOP	q Announces alarm 923-1 F-4, U2 INST AIR PRESS LOW. q Verifies U2 SA to IA Auto Crosstie Valve opens at 85 psig
	CRS	n Announces entry into DOA 4700-01, Instrument Air System Failure, and directs team actions. n Briefs team to be prepared to manually scram the reactor and close the outboard MSIVs IF Instrument Air pressure drops to 55 psig. q Announces entry into DOA 0600-01, Transient Level Control, and directs concurrent performance with DOA 4700-01, IA System Failure.
	BOP	q Directs EO(s) to check air compressors and air dryers for proper operation q Directs in-plant personnel to inspect U2 IA system for proper lineup and leaks. q May direct EO to cross-connect U2 to U3 IA Systems per DOP 4700-03, U2/3 IA Cross-Connect Operation. q May dispatch EO to prepare Unit 3 SAC for start
	CRS	q May direct scram preparations per DGP 02-03, Reactor Scram.
	ATC	q Performs scram preparations per DGP 02-03, Reactor Scram, as directed: o Reduces power with Recirc flow to 56 Mlbm/hr core flow o Starts the turbine motor suction pump AND turning gear oil pump. o Trips H2 addition.
	CRS	When IA pressure drops to 55 psig, directs team to: n Scram the reactor per DGP 02-03, Reactor Scram. n Control Outboard MSIVs per DOA 4700-01.

Event Seven – Instrument Air Leak / Reactor Scram		
Trigger	Position	Applicant's Actions or Behavior
	ATC	Performs the following actions per DGP 02-03, Reactor Scram, and DEOP 100, RPV Control, as directed: n Places Mode Switch to Shutdown and depresses the Scram pushbuttons. n Determines rods did not insert. q Initiates ARI. n Provides an Update. · Rods did NOT go in. · ARI actuated. · Hydraulic ATWS · Reports reactor level, Rx Press, DW Press, AND power.
	BOP	q Performs Reactor Scram actions per Hardcard.

Event 7 Completion Criteria:

· **Team has performed a reactor scram,**

AND/OR

· **At the discretion of the Lead Examiner.**

Event Eight – Hydraulic ATWS		
Trigger	Position	Crew Actions or Behavior
17 **18** **19**		**<u>Simulator Operator / Role Play:</u>** When requested: Wait several min, activate the appropriate trigger and report completed. **TRIGGER 17:** bypasses MSL GP 1 RPV/L and Offgas High Rad. **TRIGGER 18:** installs scram jumpers. **TRIGGER 19:** pulls ARI fuses.
	ATC	Per DGP 02-03, Reactor scram Hardcard: n Runs back Recirc Pumps. n If RX power >6%: · Trips recirc pumps. o Initiates SBLC. (Neither SBLC pump will inject) n Maintains RPV/L between +8 and +48 inches or as directed by Unit Supervisor.
	CRS	q Enters DEOP 100, RPV Control, and directs actions. Due to report of ATWS condition, exits DEOP 100 AND enters DEOP 0400-05, Failure to Scram, and directs/performs actions: q Placing ADS to inhibit. (Not expected to be a Critical Task for this scenario) q Placing Core Spray pumps in PTL. n ÖInserting control rods using Alternate Rod Insertion. · Directs driving control rods. · Directs performing Scram/Reset/Scram. q Verifying required auto actions. q Installing of the jumpers for the MSIV low level isolations and the Off Gas high Rad isolations. IF DEOP 400-5 level override criteria is met: n ÖIf RX power >6%, terminating and preventing all injection except boron and CRD until RPV level £ -35 inches. n ÖHolding RPV level between –191 inches and the level lowered to. n Stabilizing RPV pressure below 1060 psig.
	ATC	n ÖTerminates and prevents all injection except boron and CRD at the 902-5 panel in automatic as follows: (May not apply) · Using the RX LOW FLOW CONTROL STATION, 2(3)-640-20, lowers FWLC SETPOINT to –40 inches. n ÖDrives control rods · Maximizes CRD pressure and inserts control rods to lower reactor power

Event Eight – Hydraulic ATWS		
Trigger	Position	Crew Actions or Behavior
	BOP	n ÖTerminates and prevents all injection except boron and CRD at the 902-3 panel as follows: (May not apply) · PLACES HPCI 4 and 14 valves in Pull-to-Close. · PLACES LPCI 22 valves in Pull-to-Close.
	BOP	n Controls RPV pressure using the following as directed: · Turbine Generator / Bypass valves. · ADSVs.
	ATC / BOP	n ÖPerforms Scram/Reset/Scram per DEOP 0500-05, Alternate Insertion Of Control Rods, as follows: (RPV-6.1) · Directs ARI fuses pulled if RPV level is lowered below – 59 in. · Directs scram jumpers installed. · Places SDV Hi Water Bypass in the BYPASS position. · Closes the SDV vent and drain valves. · Resets the scram. · Opens SDV Vent and Drain valves. · Manually scrams the reactor when the SDV is drained. · Repeats as necessary.
		NOTE: Two repeated scrams are expected to insert ALL the control rods.
	ATC / BOP	n ÖRe-establishes injection using available injection systems to MAINTAIN RPV water level above -191" (in band directed by Unit Supervisor).
	CRS	q Based on report that all control rods are inserted, q Exits DEOP 0400-05 and enters DEOP 0100. · Restoring RPV level to +8 to +48 in.
	ATC	n Performs as directed: · Restores RPV level to +8 to +48 in.
	CRS	May contact any/all of the following people to inform them of situation or request assistance: q Operations Manager q Shift Operating Supervisor q Duty Maintenance Supervisor q Duty Engineering Manager q Work Week Manager

Event Eight – Hydraulic ATWS		
Trigger	Position	Crew Actions or Behavior
Event 8 / Scenario Completion Criteria: · **Reactor Power is less than 6% with control rod insertion in progress.** **AND/OR,** · **At the discretion of the Lead Examiner.**		

Critical Tasks	
RPV-5.1	With a reactor scram required and the reactor not shutdown, take action per DEOP 400-5, Failure to Scram, to reduce power by inserting control rods.
RPV-5.4	Per DEOP 400-5, Failure to Scram, with a reactor scram required, the reactor not shutdown, and the automatic ADS timer initiated, inhibit ADS before an automatic actuation occurs.
RPV-5.5	Once DEOP 400-5, Failure to Scram power/level control leg, is entered with reactor power is > 6% -AND- RPV level is greater than -35 inches, terminate and prevent injection (with exception of boron and CRD) into the RPV.
RPV-5.7	Per DEOP 400-5, Failure to Scram, after terminate and prevent conditions are no longer required once any of the level control overrides have cleared, RPV injection is re-commenced and RPV level is maintained > the Minimum Steam Cooling RPV Water Level.
RPV-5.12	When executing DEOP 400-5, Failure to Scram, reactor pressure is controlled as necessary to prevent an uncontrolled positive reactivity excursion of > 5% power.

REFERENCES

PROCEDURE	TITLE
DAN 902-3 B-3	ISOL CONDR VENT RAD HI
DAN 902-3 C-4	ISOL CONDR TEMP HI
DAN 902-6 D-7	2B1 HEATER NORMAL DRAIN VLV CLOSED
DAN 902-6 E-1	2B1 HEATER LEVEL HI
DAN 902-6 E-4	2B1 HEATER EMERG DRAIN VLV 33 PERCENT OPEN
DAN 902-7 A-11	H2 SEAL OIL SYS OIL PPVAC PP TRIP
DAN 902-7 A-15	CIRC WTR PP TRIP
DAN 902-7 E-11	H2 SEAL OIL AND ALTERREX PNL TROUBLE
DAN 923-1 F-4	U2 INST AIR PRESS LO
DEOP 100	RPV CONTROL
DEOP 400-5	FAILURE TO SCRAM
DEOP 500-5	ALTERNATE INSERTION OF CONTROL RODS
DGP 02-03	REACTOR SCRAM
DOA 0500-05	LOSS OF REACTOR PROTECTION SYSTEM BUS
DOA 0600-01	TRANSIENT LEVEL CONTROL
DOA 1300-01	ISOLATION CONDENSER TUBE LEAK
DOA 3500-02	LOSS OF FEEDWATER HEATERS
DOA 4700-01	INSTRUMENT AIR SYSTEM FAILURE
DOA 4400-01	CIRCULATING WATER SYSTEM FAILURE
DOA 4400-07	REACTOR OPERATION WITH ONLY ONE CIRCULATING WATER PUMP AVAILABLE
DOA 6500-10	4KV CIRCUIT BREAKER TRIP
DOP 0500-03	REACTOR PROTECTION SYSTEM POWER SUPPLY OPERATION
DOP 1200-03	RWCU SYSTEM OPERATION WITH THE REACTOR AT PRESSURE
DOP 2400-01	CAM SYSTEM H2 AND O2 DETECTION SUBSYSTEM OPERATION
DOP 4400-08	CIRCULATING WATER SYSTEM FLOW REVERSAL
DOP 4700-03	UNIT 2-3 INSTRUMENT AIR CROSS-CONNECT OPERATION
DOP 5320-11	FILLING AND VENTING THE GENERATOR WITH HYDROGEN TO RAISE PURITY AND OR PRESSURE DURING NORMAL OPERATION
DOP 5750-02	REACTOR BUILDING VENTILATION
DOP 6700-20	480V CIRCUIT BREAKER TRIP
DOP 6900-01	250VDC ELECTRICAL SYSTEM
DOP 7500-01	STANDBY GAS TREATMENT SYSTEM OPERATION
TS 3.3.6.2	SECONDARY CONTAINMENT ISOLATION INSTRUMENTATION
TS 3.3.7.1	CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM INSTRUMENTATION
TS 3.3.8.2	REACTOR PROTECTION SYSTEM (RPS) ELECTRIC POWER MONITORING

PROCEDURE	TITLE
TS 3.5.3	IC SYSTEM

Simulator Scenario Review Checklist

ILT-N-3 Quantitative Attributes	
8	Total malfunctions (5 to 8)
2	Malfunctions after EOP entry (1 to 2)
5	Abnormal events (2 to 4)
2	Major transients (1 to 2)
2	EOPs entered/requiring substantive actions (1 to 2)
1	EOPs contingency requiring substantive actions (0 to 2)
5	Crew critical tasks (2 to 3)

```
# 15-1 ILT-N-3.cae
# For ILT Class 15-1 NRC Exam
# Written by DSS
# Rev 00
# Date 5/16


#### INITIAL CONDITIONS ####

# Sets APRM Master Gain pot to 1.0
irf niagain 1.0

# Sets scram discharge volume hydraulic blockage and degradation to 94%.
imf rdhlvfpa 94.0
imf rdhlvfpb 94.0
imf rdhldega 94.0
imf rdhldegb 94.0

# Inserts failure of ESOP to auto start.
imf t53

# Sets Crib House Water Temp
irf wp3 60

# EVENT TRIGGERS

# Event Trigger 1 sets gain for all 6 APRMs.
trgset 1 "0"|2
trg 1 "irf niagainf true"|2

# Event Trigger 2 Unlatches 2B1 HTR Normal Drain.
trgset 2 "0"|2
irf fw3502au (2) unlatch|2

# Event Trigger 3 Activates when 2B1 HTR Emerg Drain opens.
# Holds 2B1 HTR Emerg Drain at 17% open.
# Forces up alarm 902-6 E-04, 2B1 Heater Emerg Drain Vlv Open.
trgset 3 "hdvdrain(1,2) .gt. 0.05"|4
irf fwhdro1b (3) 17.0|4
```

```
irf fwhdrc1b (3) true|4
imf ser1243 (3) on|4

# Event Trigger 4 Activates when 902-6 E-01, 2B1 Heater Lvl Hi, alarms.
# Holds 2B1 HTR Emerg Drain at 0.0% open.
trgset 4 "sezpoint(1231)"|6
trg 4 "irf fwhdro1b 0.0"|6

# Event Trigger 5 Activates when Trigger 4 is active and 2B1 Htr Extr Vlv CLOSE light is ON.
# After 30 sec, Holds 2B1 HTR Emerg Drain at 8.0% open.
trgset 5 "et_array(4) .and. hdl3101c(1)"|6
trg 5 "irf fwhdro1b (0 30) 8.0"|6

# Event Trigger 6 Activates when alarm 902-6 E-01, 2B1 Heater Lvl Hi, clears.
# and 2B1 Htr Extr Vlv OPEN light is OFF.
# Holds 2B1 HTR Emerg Drain at 0.0% open.
trgset 6 "(.not. sezpoint(1231)) .and. (.not. hdl3101o(1))"|8
trg 6 "irf fwhdro1b 0.0"|8

# Event Trigger 7 Activates when 2B1 Heater Extraction control switch is placed to PTS or OPEN.
# Holds 2B1 HTR Emerg Drain at 12% open.
trgset 7 "hdd3101s(1) .or. hdd3101o(1)"|8
trg 7 "irf fwhdro1b 12.0"|8

# Event Trigger 8 Activates when 2B1 Heater Level is below 14.0 inches and trigger 7 is active.
# Removes hold on 2B1 HTR Emerg Drain.
trgset 8 "(hdlinst(1,2) .lt. 14.0) .and. et_array(7)"|10
trg 8 "irf fwhdrc1b false"|10

# Event Trigger 9 Activates when trigger 8 is active.
# Returns alarm 902-6 E-04, 2B1 Heater Emerg Drain Vlv Open, to NORMAL.
trgset 9 "et_array(8)"|10
trg 9 "imf ser1243 normal"|10

# Event Trigger 10 inserts an IC tube to shell leak at 1% severity
trgset 10 "0"|12
imf ictublk (10) 1.0|12

# Event Trigger 11 Trips Generator MSOP.
trgset 11 "0"|12
```

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imf k50 (11)|12

# Event Trigger 12 acknowledges stator cooling water & H2 Seal Oil/Alterrex Pnl trouble alarms.
trgset 12 "0" |14
irf t81 (12) true|14
irf t22 (12) acknowledge|14

# Event Trigger 13 trips the 2A Circ Water pump on overcurrent
trgset 13 "0"|16
imf hp6 (13)|16

# Event Trigger 14 causes 2B RPS MG Set to trip simulating trip of 2B RPS MG SET 2B-1 EPA Bkr
trgset 14 "0"|16
imf b02 (14)|16

# Event Trigger 15 places 2A RPS Bus on reserve power
trgset 15 "0"|18
irf b03 (15) true|18

# Event Trigger 16 Starts an IA leak to cause IA pressure to slowly drop.
trgset 16 "0"|18
imf np2 (16) 90.0 10:00 5.0|18

# Event Trigger 17 installs MSL Grp 1 RPV level and Offgas High Radiation bypass jumpers
trgset 17 "0"|20
irf ci59jp in (17)|20
irf ogogjp in (17)|20

# Event Trigger 18 installs scram jumpers
trgset 18 "0"|22
irf rpjumpas on (18)|22

# Event Trigger 19 pulls ARI fuses
trgset 19 "0"|22
irf aw4 pulled (19)|22

#### END ####
```

Unit 2 Risk: GREEN

Unit 2 is 980 MWe

Leading Thermal Limit: MAPRAT @ 0.818

Action limit: 0.980

Equipment Unavailable: None

Protected Equipment: None

Unit 3 Risk: GREEN

Unit 3 is in Mode 1 at Full Power

Leading Thermal Limit: MAPRAT @ 0.819

Action Limit: 0.980

Equipment Unavailable: None

Protected Equipment: None

Current Action Statements

None	LCO Started:	LCO Expires:
TS		
Cause:		

Unit 1 Plant Status

Today	U1 Diesel Oil Storage Tank Transfer House has grating removed. Currently roped off with pump installed to pump to U1 Oil Separator Pit as required. Outside operator monitor and pump as necessary.
Today	Chem Cleaning ventilation status: HV-1A/EF-1A are secured due to HV-1A inlet and outlet dampers being shut with fan on, IR# 913157, WO 1239746. HV-1B/EF-1B are secured due to HV-1B throwing its belts. WO 1156150. HVAC-1 ON. HV-2 running.

Switchyard Status

Today	TSO notified of oil leaks on 345 Kv BT 2-3 CB (IR 810135) ComEd WO 6396128
Today	138 KV Bus 1 Feed To TR 22 Combi Units has low oil in the 'C' phase, ComEd WO #276162
Today	HVO: Exercise CAUTION while in the 345 kV Yard due to excavation being performed in the area. Marv Evans reports holes being dug near manual switch disconnects 345kV Blue Bus. Plywood will be installed over the holes if access is needed, but be aware there are holes under the plywood. SSC called from the 345Kv yard reporting that the cable trough covers are removed to prep for upcoming work. Be careful.

Unit 2 Plant Status

Today	Unit 2 Activities
	**** Shift 1 Activities ****
	□
	□
	**** Shift 2 Activities ****
	□ Perform DOP 4400-08 Circulating Water Flow Reversal. When Circulating Water Flow Reversal is complete, secure 2B Circulating Water Pump for maintenance next shift.
	**** Shift 3 Activities ****
	□
	□

Today