NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM RO-ADMJPM01, FINAL

QPTR CALCULATION N42 INOP

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position RO

SBK 0150200501 Perform a Manual QPTR Calculation

2. Conditions:

A. Plant is now at 100% power after recovering a dropped rod at EOL.
B. The Main Plant Computer has been inoperable since yesterday (It was inoperable when the rod dropped).
C. Power Range NI N42 failed and was declared INOP 2 hours ago.
D. The QPTR surveillance is required to be performed on this shift.
E. Incore/Excore calibration was performed yesterday (before the rod dropped).

3. Standards:

Perform a manual QPTR surveillance in accordance with RX1703 Quadrant Power Tilt Ratio Surveillance.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of RX1703 Quadrant Power Tilt Ratio Surveillance, Rev 07 Chg 02
Copy of RE-17 Rev 01-16-06
Copy of Data Sheet for RO ADMIN JPM 01
Calculator

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- RX1703, Quadrant Power Tilt Ratio Surveillance, Rev 07 Chg 02.
- OS1000.05 Power Increase.
- ON1251.01 Loss of Plant Computer.

Sys	KA	Description	Value RO/SRO
015	A1.04	Ability to monitor changes in QPTR	3.5/3.7
015	K5.12	Knowledge of QPTR	3.2/3.6
015	K5.16	Definition and calculation of QPTR	2.9/3.4
	2.1.7	Ability to evaluate plant performance and make operational judgments based on the operating characteristics, reactor behavior, and instrument interpretation.	4.4/4.7

7. Setting:

Classroom.
1. Give student a copy of the data sheet for 100% power NI cabinet values.
2. Use values listed in RE-17.

8. Safety Considerations:

None.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Primary Operator. You are going to perform the QPTR surveillance.

B. The following information is provided to you:

1. The plant is now at 100% power following recovery of a dropped rod at EOL.
2. The main plant computer has been inoperable since yesterday (It was inoperable when the rod dropped).
3. Power Range NI N42 failed and was declared INOP 2 hours ago.
4. The QPTR surveillance, per Tech Spec Surveillance Requirement 4.2.4.1(b), has been entered and the work order has been generated.
5. Incore/Excore calibration was performed yesterday (before the rod dropped).

C. We will begin after the Initiating Cue is read.

11. Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or student's name), perform the QPTR surveillance per RX1703 section 4.1. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
1. P	Start time _____	Initiating cue read	

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: When the student demonstrates the ability to obtain a controlled copy of RX1703, QPTR surveillance, provide the student with a copy. Student should refer to section 4.1 QPTR alarm inoperable above 50% RTP surveillance.

NOTE: Provide student with data sheet that has the values for detector currents. Detector current units are in microamps. Student should make the determination that one Power Range detector is inoperable when given the detector current data.

2.	P	Power range channel is inop. Record INOP in rows 1, 2, 3, and 5 on Form A for the inoperable channel	Records INOP in rows 1, 2, 3, and 5 for N42.	_____	_____

NOTE: Provide the student with a copy of RE-17 NIS Channel and Loop Delta-T Scaling when asked for.

3.	P	Record time, date, and RE-17 revision date on Form A.	Records time, date, and RE-17 revision date on Form A.	_____	_____

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
4. S	Record the current output in microamperes for the operable top (A) and bottom (B) detectors of each power range channel on Form A Quadrant Power Tilt Calculation Sheet Row 1:	Records the current output in microamperes for the operable top (A) and bottom (B) detectors of each power range channel on Form A Quadrant Power Tilt Calculation Sheet Row 1:	

N41 top (A) detector current	_____	_____
N42 top (A) detector current (INOP should be recorded)	_____	_____
N43 top (A) detector current	_____	_____
N44 top (A) detector current	_____	_____
N41 bottom (B) detector current	_____	_____
N42 bottom (B) detector current (INOP should be recorded)	_____	_____
N43 bottom (B) detector current	_____	_____
N44 bottom (B) detector current	_____	_____

CUE: When the student asks for independent verification of the values recorded on Form A, provide the following cue, evaluator to student, **"Form A detector currents have been independently verified."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
5. P	Record on Form A row 2 the 100% power 0% AFD current for the operable top and bottom detectors for each power range channel using TDB Figure RE-17:	Records on Form A row 2 the 100% power 0% AFD current for the operable top and bottom detectors for each power range channel using TDB Figure RE-17:	
		N41 top (A) detector	____ ____
		N42 top (A) detector (INOP should be recorded)	____ ____
		N43 top (A) detector	____ ____
		N44 top (A) detector	____ ____
		N41 bottom (B) detector	____ ____
		N42 bottom (B) detector (INOP should be recorded)	____ ____
		N43 bottom (B) detector	____ ____
		N44 bottom (B) detector	____ ____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
6. P	Calculate the normalized detector currents by dividing each operable detector current (row 1) by its 100% power 0% AFD current (row 2) and record on Form A row 3:	Calculates the normalized detector currents by dividing each operable detector current (row 1) by its 100% power 0% AFD current (row 2) and records on Form A row 3:	
		N41 top (A) normalized detector current	____ ____
		N42 top (A) normalized detector current (INOP should be recorded)	____ ____
		N43 top (A) normalized detector current	____ ____
		N44 top (A) normalized detector current	____ ____
		N41 bottom (B) normalized detector current	____ ____
		N42 bottom (B) normalized detector current (INOP should be recorded)	____ ____
		N43 bottom (B) normalized detector current	____ ____
		N44 bottom (B) normalized detector current	____ ____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
7. P	Calculate the average normalized detector currents as follows:	Calculates the average normalized detector currents as follows:		
	a. Divide the sum of the operable top normalized detector currents by the number of operable top detectors and record on Form A row 4.	a. Divides the sum of the operable top normalized detector currents by the number of operable top detectors and records on Form A row 4.	_____	_____
	b. Divide the sum of the operable bottom normalized detector currents by the number of operable bottom detectors and record on Form A row 4.	b. Divides the sum of the operable bottom normalized detector currents by the number of operable bottom detectors and records on Form A row 4.	_____	_____
*8. P	Calculate the QPTR for each detector as follows:	Calculates the QPTR for each detector as follows:		
	*a. Divide each operable top normalized detector current (row 3) by the top average normalized detector current (row 4) and record on Form A row 5:	*a. Divides each operable top normalized detector current (row 3) by the top average normalized detector current (row 4) and records on Form A row 5:		
		N41 top (A) detector	_____	_____
		N42 top (A) detector (INOP should be recorded)	_____	_____
		N43 top (A) detector	_____	_____
		N44 top (A) detector	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
	*b. Divide each operable bottom normalized detector current (row 3) by the bottom average normalized detector current (row 4) and record on Form A row 5.	*b. Divides each operable bottom normalized detector current (row 3) by the bottom average normalized detector current (row 4) and records on Form A row 5.	
		N41 bottom (B) detector	_____ _____
		N42 bottom (B) detector (INOP should be recorded)	_____ _____
		N43 bottom (B) detector	_____ _____
		N44 bottom (B) detector	_____ _____

NOTE: If the student expresses a rounded off value, then that value shall be compared against the standard. The only value that is critical is the out of tolerance (circled) QPTR value.

9.	P	Indicates the maximum QPTR by circling the largest QPTR in row 5.	Circles the largest QPTR in row 5.	_____ _____

CUE: When the student asks for independent verification of the calculations for Form A, provide the following cue, evaluator to student, **"Form A calculations have been independently verified."**

*10.	P	Determines if LCO 3.2.4 is/is not met based on maximum QPTR.		_____ _____
		*a. Notify US/SM that LCO 3.2.4 is/is not met.	*a. Notifies US/SM that LCO 3.2.4 is/is not met	

CUE: When US/SM notified, repeat back information provided by student concerning QPTR and LCO 3.2.4.

		*b. On Form A row 6 circle YES/NO	*b. On Form A row 6 circles YES/NO	

NOTE: Information given must agree with results shown on the key. See key for the correct item to circle in row 6.

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
CUE:	**"The JPM is complete."**			
11.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes	_____	_____
12.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Primary Operator. You are going to perform the QPTR surveillance.

B. The following information is provided to you:

1. The plant is now at 100% power following recovery of a dropped rod at EOL.
2. The main plant computer has been inoperable since yesterday (It was inoperable when the rod dropped).
3. Power Range NI N42 failed and was declared INOP 2 hours ago.
4. The QPTR surveillance, per Tech Spec Surveillance Requirement 4.2.4.1(b), has been entered and the work order has been generated.
5. Incore/Excore calibration was performed yesterday (before the rod dropped).

C. We will begin after the Initiating Cue is read.

Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or student's name), perform the QPTR surveillance per RX1703 section 4.1. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM RO-ADMJPM02, FINAL

SHUTDOWN MARGIN CALCULATION (MODE 3)

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position RO

SBK 0010100401 Perform Shutdown Margin Calculation

2. Conditions:

A. The plant is in Mode 3 at 557°F following a trip from 100% 9 hours ago.
B. An inadvertent dilution has occurred.

3. Standards:

Using RX1707 Shutdown Margin Surveillance calculate the boron concentration required to satisfy SDM for the present conditions using the figures from the Primary Tech Data Book provided by the instructor.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of RX1707, Shutdown Margin Surveillance Rev 7 Chg 7.
Copy of Primary TDB, Figure RE-2 Shutdown Boron Concentration vs. Temperature, Rev 01-16-06.
Copy of Primary TDB, Figure RE-18 Shutdown Margin Values, Rev 01-16-00.
Calculator.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- RX1707, Shutdown Margin Surveillance.

Technical Specifications:

- 3.1.1.1 Shutdown Margin greater than 200°F.

Manuals:

- Primary TDB, Figure RE-2 Shutdown Boron Concentration vs. Temperature.
- Primary TDB, Figure RE-18 Shutdown Margin Values.

Sys	KA	Description	Value RO/SRO
192002	K1.13	Calculate SDM using procedures and given plant parameters.	3.5/3.7
	2.2.12	Knowledge of Surveillance Procedures	3.7/4.1

7. Setting:

Use the simulator or the classroom. A key must be setup using RE curves (RE curves may not be the latest revision). The required RE curves are included in the student material package and must be given to the student when reaching for the Primary Tech Data Book. Failure to do this will cause unrealistic numbers for the student. Since an inadvertent dilution has occurred, pick a value for the current boron concentration that is below the value required by RE-2. SDM may or may not be adequate depending on the value selected (i.e., how large the dilution was).

8. Safety Considerations:

None.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Primary Operator. An inadvertent dilution has occurred. The chemist has sampled the RCS for the current boron concentration. Determine the boron concentration required, taking credit for xenon, to satisfy the SDM. State if the shutdown margin is adequate or not.

B. The following information is provided to you:

1. The plant is in Mode 3 at 557°F following a trip from 100% 9 hours ago.
2. An inadvertent dilution has occurred.
3. Chemistry reports that the RCS boron concentration is 1220 ppm.
4. Cycle burnup is 9600 MWD/MTU.
5. Xenon worth is 5850 pcm.

C. We will begin after the Initiating Cue is read.

11. Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or student's name), an inadvertent dilution has occurred. Determine the required boron concentration to satisfy SDM requirements for the current RCS conditions taking credit for xenon. Using RX1707, determine if SDM is satisfactory. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: When student demonstrates the ability to obtain a controlled copy of RX1707, Shutdown Margin Surveillance provide the student with RX1707, Shutdown Margin Surveillance.

1.	P	Start time _____	Initiating cue read		

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

2.	P	For the existing RCS temperature, obtain the required shutdown boron concentration from Primary TDB, Figure RE-2 Shutdown Boron Concentration vs. Temperature.	For the existing RCS temperature, obtains the required shutdown boron concentration from Primary TDB, Figure RE-2 Shutdown Boron Concentration vs. Temperature.	____	____

NOTE: See key for all values that student should enter on Form A line 1.

*3.	P	Record RCS T_{avg} and the corresponding RE-02 required shutdown boron concentration value (A) on Form A Shutdown Margin Determination - Modes 3, 4, and 5.	Records RCS T_{avg} and the corresponding RE-02 required shutdown boron concentration value (A) on Form A Shutdown Margin Determination - Modes 3, 4, and 5.	____	____
4.	P	Obtain xenon worth from the MPCS point C0036 or from Reactor Engineering. Record the xenon worth value (B) on Form A.	Obtains xenon worth from the MPCS point C0036 or from Reactor Engineering. Record the xenon worth value (B) on Form A.	____	____
*5.	P	Obtain the correct value of differential boron worth (DBW) from Primary TDB, Figure RE-18 Shutdown Margin Values. Record the DBW value (C) on Form A.	Obtains the correct value of differential boron worth (DBW) from Primary TDB, Figure RE-18 Shutdown Margin Values. Records the DBW value (C) on Form A.	____	____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
*6. P	Using the equation as shown on Form A calculate the shutdown boron concentration (xenon credit) value (D). Record the calculated value (D) on Form A. If number is negative record zero.	Using the equation as shown on Form A calculates the shutdown boron concentration (xenon credit) value (D). Record the calculated value (D) on Form A. If number is negative records zero.	_____	_____

NOTE: SDM may or may not be adequate depending on the value of the current RCS boron concentration determined by the evaluator in the setup and required shutdown boron concentration obtained from RE-2.

7. P	Record the existing RCS boron concentration value (E) on Form A.	Records the existing RCS boron concentration value (E) on Form A.	_____	_____
*8. P	Check if existing RCS boron value (E) is greater than the shutdown boron concentration (xenon credit) (D). Mark the associated block yes or no as applicable.	Checks if existing RCS boron value (E) is greater than the shutdown boron concentration (xenon credit) (D). Marks the associated block yes or no as applicable.	_____	_____

CUE: If student asks for independent verification, provide the following cue, **"Form A has been independently verified. Please continue."**

9. P	If existing RCS boron is less than shutdown boron concentration (xenon credit) (D), notify SM/US that the shutdown margin surveillance is not being satisfied.	If existing RCS boron is less than shutdown boron concentration (xenon credit) (D), notifies SM/US that the shutdown margin surveillance is not being satisfied.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
CUE:	**"The JPM is complete."**		
10.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes	
11.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		____ ____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Primary Operator. An inadvertent dilution has occurred. The chemist has sampled the RCS for the current boron concentration. Determine the boron concentration required, taking credit for xenon, to satisfy the SDM. State if the shutdown margin is adequate or not.

B. The following information is provided to you:

1. The plant is in Mode 3 at 557°F following a trip from 100% 9 hours ago.
2. An inadvertent dilution has occurred.
3. Chemistry reports that the RCS boron concentration is 1220 ppm.
4. Cycle burnup is 9600 MWD/MTU.
5. Xenon worth is 5850 pcm.

C. We will begin after the Initiating Cue is read.

Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or student's name), an inadvertent dilution has occurred. Determine the required boron concentration to satisfy SDM requirements for the current RCS conditions taking credit for xenon. Using RX1707, determine if SDM is satisfactory. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM RO-ADMJPM03, FINAL

SPENT FUEL POOL BLENDED MAKEUP CALCULATION

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____
TRAINING SUPERVISOR

1. Task Number and Description

Position RO

SBK 0040100601 Perform a boron change calculation.

2. Conditions:

A. A manual blended makeup to the Spent Fuel Pool is required to raise pool level.

3. Standards:

Calculate the required flow controller and totalizer setpoints for a 550 gallon manual blended makeup to the Spent Fuel Pool.

4. Student Materials:

Copy of Tear Off Sheet
Copy of RS1735, Reactivity Calculations, Rev 6
Daily Chemistry Report
Calculator

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- RS1735, Reactivity Calculations, Rev 6

Sys	KA	Description	Value RO/SRO
	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3/4.6

7. Setting:

Classroom.
1. Use values listed in Daily Chemistry Report.

8. Safety Considerations:

None.

9. Approximate Completion Time:

15 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Primary Operator. You are going to perform calculations for a 550 gallon blended makeup to the Spent Fuel Pool.

B. The following information is provided to you:

1. A 550 gallon manual blended makeup to the Spend Fuel Pool is required for pool inventory addition.
2. Makeup total flow rate will be 50 gpm.
3. The makeup boron concentration will be at the current Spent Fuel Pool boron concentration.
4. 'A' Boric Acid Storage Tank will be used for the blended makeup.
5. The makeup line contains a blend from a previous SFP makeup based on the same SFP and BAST values.

C. We will begin after the Initiating Cue is read.

D. I will act as the Unit Supervisor and provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or student's name), determine the required flow controller and totalizer setpoints for a 550 gallon manual blended makeup to the Spent Fuel Pool. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
1. P	Start time _____	Initiating cue read	

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: When the student demonstrates the ability to obtain a controlled copy of RS1735, Reactivity Calculations, provide the student with a copy. Student should refer to section 4.4 Blended Makeup Calculation (Form E, Blended Makeup Worksheet) and the Daily Chemistry Report to determine Spent Fuel Pool (SFP) and boric acid storage tank boron concentration.

2.	P	Determine the required flow controller and totalizer setpoints for a 550 gallon manual blended makeup to the Spent Fuel Pool				
		1. ENTER the desired makeup boron concentration (C_{MU}).	1.	Enters the desired makeup boron concentration (C_{MU}) for the SFP from the Daily Chemistry Report in step 1 of Form E. (2512 ppm)	____	____
		2. ENTER the desired makeup flow rate SETPOINT: FIQ-111 (F_{TOT}).	2.	Enters the desired makeup flow rate SETPOINT: FIQ-111 (F_{TOT}) in step 2 of Form E. (50 gpm)	____	____
		3. ENTER the actual Boric Acid Storage Tank concentration (C_{BAST}).	3.	Enters the actual Boric Acid Storage Tank concentration (C_{BAST}) from the Daily Chemistry Report in step 3 of Form E. (7361 ppm)	____	____
		4. ENTER the desired makeup quantity TARGET: FIQ-111 (G_{TOT}).	4.	Enters the desired makeup quantity TARGET: FIQ-111 (G_{TOT}) in step 4 of Form E. (550 gallons)	____	____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
	*5. CALCULATE the boric acid flow rate SETPOINT: FIQ-111 (F_{BA}):	*5. Enters the values from steps 1, 2 & 3 in the equation and calculates the boric acid flow rate SETPOINT: FIQ-111 (F_{BA}).	____	____
	*6. CALCULATE the boric acid quantity TARGET: FIQ-111 (G_{BA}):	*6. Enters the values from steps 1, 3 & 4 in the equation and calculates the boric acid quantity TARGET: FIQ-111 (G_{BA}).	____	____
	7. Calculated By signature and Date.	7. Signs and dates the Calculated By signature and Date line.	____	____

CUE: If the student asks for an Independent Verification of Form E during the JPM respond, **"For the purpose of this JPM an independent verification will not be performed."**

CUE: **"The JPM is complete."**

3.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤15 minutes	____	____
4.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		____	____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Primary Operator. You are going to perform calculations for a 550 gallon blended makeup to the Spent Fuel Pool.

B. The following information is provided to you:

1. A 550 gallon manual blended makeup to the Spend Fuel Pool is required for pool inventory addition.
2. Makeup total flow rate will be 50 gpm.
3. The makeup boron concentration will be at the current Spent Fuel Pool boron concentration.
4. 'A' Boric Acid Storage Tank will be used for the blended makeup.
5. The makeup line contains a blend from a previous SFP makeup based on the same SFP and BAST values.

C. We will begin after the Initiating Cue is read.

Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or student's name), determine the required flow controller and totalizer setpoints for a 550 gallon manual blended makeup to the Spent Fuel Pool. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM RO-ADMJPM04, FINAL

INITIATE A LIQUID EFFLUENT WASTE SAMPLE REQUEST

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position RO

SBK

2. Conditions:

A. The plant is in MODE 1 with two ocean Service Water and two Circulating Water pumps running with no expected change of configuration.
B. WL-TK-63A, "A" Waste Test Tank has been filled to 18,000 gallons.
C. WL-TK-63A, "A" Waste Test Tank, was placed on recirculation at 0800 today per ON1018.07, Waste Test Tank Recirculation.
D. WL-TK-63A, "A" Waste Test Tank has to be sampled to prepare a LEW permit for a release to the transition Structure.
E. Projected release start time is normally 8 hours after placing the tank on recirc.

3. Standards:

Using CP-4.1, Effluent Sampling Program and ON1018.07, Waste Test Tank Recirculation, initiate the following:

- Form CP4.1A, Liquid Effluent Waste Sample Request

4. Student Materials:

Calculator
Copy of Tear Off Sheet.
Copy of CP-4.1, Effluent Sampling Program
Copy of ON1018.07, Waste Test Tank Recirculation

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- CP-4.1, Effluent Sampling Program
- ON1018.07, Waste Test Tank Recirculation

Sys	KA	Description	Value RO/SRO
	2.3.11	Ability to control radiation releases.	3.8/4.3

7. Setting:

Simulator or Classroom.

8. Safety Considerations:

None.

9. Approximate Completion Time:

15 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Primary Operator. You are going to initiate a Liquid Effluent Waste Sample Request.

B. The following information is provided to you:

1. The plant is in MODE 1 with two ocean Service Water and two Circulating Water pumps running with no expected change of configuration.
2. WL-TK-63A, "A" Waste Test Tank has been filled to 18,000 gallons.
3. WL-TK-63A, "A" Waste Test Tank, was placed on recirculation at 0800 today per ON1018.07, Waste Test Tank Recirculation.
4. WL-TK-63A, "A" Waste Test Tank has to be sampled to prepare a LEW permit for a release to the transition Structure.
5. Projected release start and time is normally 8 hours after placing the tank on recirc.

C. We will begin after the Initiating Cue is read.

D. I will act as the Unit Supervisor and provide the cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or students name), initiate a Liquid Effluent Waste Sample Request for WL-TK-63A, 'A' Waste Test Tank. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT

NOTE: When the student demonstrates the ability to obtain a controlled copy of CP-4.1, Effluent Sampling Program and ON1018.07, Waste Test Tank Recirculation, provide the student with the required document(s).

1. P Start time _____ Initiating cue read

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: It is assumed that the student will use CP 4.1 to process through the verification and check ON1018.07 to verify the tank volumes and recirculation flow rate. The student may choose to verify the tank volume and recirculation rate prior to referring to CP 4.1. These steps can be performed in any order as long as all steps are completed correctly.

*2. P Complete section 1 of CP 4.1A.

a. Name of tank, sump, or SG demin vessel to be sampled. — a. Enters WTT 'A'. _____ _____

CUE: If the student wants to verify the amount of liquid in the 'A' Waste Test Tank using the Main Plant Computer, tell them that the MPCS indicates 18,000 gallons.

b. Total tank or sump volume to be discharged or transferred. — b. Verifies and enters 18,000 gallons for total tank or sump volume. _____ _____

NOTE: The recirculation rate for WTT 'A' is 150 gpm.

c. Recirculation rate. — *c. Enters the recirculation rate of 150 gpm and calculates the recirculation required time to be 240 minutes. _____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
	d. Recirculation starting time and date.	d. Enters 0800 and today's date.	_____	_____
	e. Sample date and time,	*e. Enters 1200 and today's date.	_____	_____
	f. Disposition of tank.	f. Enters DISCHARGE as disposition.	_____	_____
	g. The projected CW and SW pump combination for the discharge.	g. Enters 2 CW pumps and 2 SW pumps.	_____	_____
	h. Projected release start date and time.	h. Enters 1600 and today's date.	_____	_____
	i. Date, time of request, and initials of originator.	i. Enters time, date and initials are.	_____	_____
	j. Date, time, and initials of individual that performed verification of operational data.	j. Hands form to Unit Supervisor for verification.	_____	_____

CUE: "The JPM is complete."

3.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 15 minutes	_____	_____
4.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

JOB PERFORMANCE WORKSHEET

Directions To The Student:

A. You are the Primary Operator. You are going to initiate a Liquid Effluent Waste Sample Request.

B. The following information is provided to you:

1. The plant is in MODE 1 with two ocean Service Water and two Circulating Water pumps running with no expected change of configuration.
2. WL-TK-63A, "A" Waste Test Tank has been filled to 18,000 gallons.
3. WL-TK-63A, "A" Waste Test Tank, was placed on recirculation at 0800 today per ON1018.07, Waste Test Tank Recirculation.
4. WL-TK-63A, "A" Waste Test Tank has to be sampled to prepare a LEW permit for a release to the transition Structure.
5. Projected release start time is normally 8 hours after placing the tank on recirc.

C. We will begin after the Initiating Cue is read.

D. I will act as the Unit Supervisor and provide the cues and communications for this JPM. Do you have any questions?

Initiating Cue:

Unit Supervisor to Primary Operator, **"Primary Operator (or students name), initiate a Liquid Effluent Waste Sample Request for WL-TK-63A, 'A' Waste Test Tank. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM SRO-ADMJPM01, FINAL

VERIFY QPTR CALCULATION N42 INOP

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position SRO

SBK 1190202602 Review Results of Surveillance Tests

2. Conditions:

A. Plant is now at 100% power after recovering a dropped rod at EOL.
B. The main plant computer has been inoperable since yesterday (It was inoperable when the rod dropped).
C. Power Range NI N42 failed and was declared INOP 2 hours ago.
D. The QPTR surveillance has been entered and the work order has been generated.
E. Incore/Excore calibration was performed yesterday (before the rod dropped).
F. The Primary Operator has completed the QPTR surveillance.
G. The Secondary Operator has completed the independent verification.
H. The Secondary Operator has given the completed forms to you for your verification.

3. Standards:

Verify a manual QPTR surveillance in accordance with RX1703 Quadrant Power Tilt Ratio Surveillance.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of RX1703, Quadrant Power Tilt Ratio Surveillance, Rev 07 Chg 02
Copy of RE-17 Rev 01-16-06
Copy of Data Sheet for SRO ADMIN JPM 01
Copy of completed QPTR surveillance form.
Calculator

5. Limitations On Performance:

Verify all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- RX1703, Quadrant Power Tilt Ratio Surveillance, Rev 07 Chg 02.
- OS1000.05 Power Increase.
- ON1251.01 Loss of Plant Computer.

Sys	KA	Description	Value RO/SRO
015	A1.04	Ability to monitor changes in QPTR	3.5/3.7
015	K5.12	Knowledge of QPTR	3.2/3.6
015	K5.16	Definition and calculation of QPTR	2.9/3.4
	2.1.7	Ability to evaluate plant performance and make operational judgments based on the operating characteristics, reactor behavior, and instrument interpretation.	4.4/4.7

7. Setting:

Classroom.

1. Give student a copy of the data sheet for 100% power NI cabinet values.
2. Examiner must prepare a completed RX1703 Form A in advance. It shall reflect the JPM values for the NI cabinet detector currents and RE-17 100% values.
3. Use values listed in RE-17.

8. Safety Considerations:

None.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Unit Supervisor. You are going to verify the QPTR surveillance.

B. The following information is provided to you:

1. The plant is now at 100% power following recovery of a dropped rod at EOL.
2. The main plant computer has been inoperable since yesterday (It was inoperable when the rod dropped).
3. Power Range NI N42 failed and was declared INOP 2 hours ago.
4. The QPTR alarm surveillance has been entered and the work order generated.
5. Incore/Excore calibration was performed yesterday (before the rod dropped).
6. The Primary Operator has completed the QPTR surveillance.
7. The Secondary Operator has completed the independent verification.
8. The Secondary Operator has given the completed forms to you for your verification.

C. We will begin after the Initiating Cue is read.

11. Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), verify the QPTR surveillance per RX1703. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
1. P	Start time _____	Initiating cue read	

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: When the student demonstrates the ability to obtain a controlled copy of RX1703, QPTR surveillance, provide the student with a copy. Student should refer to section 4.1 QPTR alarm inoperable above 50% RTP surveillance.

NOTE: Provide student with data sheet that has the values for detector currents. Detector current units are in microamps. Student should make the determination that one Power Range detector is inoperable when given the detector current data.

2.	P	Power range channel is inop. Record INOP in rows 1, 2, 3, and 5 on Form A for the inoperable channel	Verifies that INOP in rows 1, 2, 3, and 5 for N42 has been recorded.	_____	_____

NOTE: Provide the student with a copy of RE-17 NIS Channel and Loop Delta-T Scaling when asked for.

3.	P	Record time, date, and RE-17 revision date on Form A.	Verifies time, date, and RE-17 revision date on Form A.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
4. S	Record the current output in microamperes for the operable top (A) and bottom (B) detectors of each power range channel on Form A Quadrant Power Tilt Calculation Sheet Row 1:	Verifies the current output in microamperes for the operable top (A) and bottom (B) detectors of each power range channel on Form A Quadrant Power Tilt Calculation Sheet Row 1 have been recorded:		
		N41 top (A) detector current	_____	_____
		N42 top (A) detector current (INOP should be recorded)	_____	_____
		N43 top (A) detector current	_____	_____
		N44 top (A) detector current	_____	_____
		N41 bottom (B) detector current	_____	_____
		N42 bottom (B) detector current (INOP should be recorded)	_____	_____
		N43 bottom (B) detector current	_____	_____
		N44 bottom (B) detector current	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
5. P	Record on Form A row 2 the 100% power 0% AFD current for the operable top and bottom detectors for each power range channel using TDB Figure RE-17:	Verifies on Form A row 2 the 100% power 0% AFD current for the operable top and bottom detectors for each power range channel using TDB Figure RE-17 have been recorded:		
		N41 top (A) detector	____	____
		N42 top (A) detector (INOP should be recorded)	____	____
		N43 top (A) detector	____	____
		N44 top (A) detector	____	____
		N41 bottom (B) detector	____	____
		N42 bottom (B) detector (INOP should be recorded)	____	____
		N43 bottom (B) detector	____	____
		N44 bottom (B) detector	____	____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
6. P	Calculate the normalized detector currents by dividing each operable detector current (row 1) by its 100% power 0% AFD current (row 2) and record on Form A row 3:	Verifies calculation for the normalized detector currents by dividing each operable detector current (row 1) by its 100% power 0% AFD current (row 2) and verifies values have been recorded on Form A row 3:		
		N41 top (A) normalized detector current	____	____
		N42 top (A) normalized detector current (INOP should be recorded)	____	____
		N43 top (A) normalized detector current	____	____
		N44 top (A) normalized detector current	____	____
		N41 bottom (B) normalized detector current	____	____
		N42 bottom (B) normalized detector current (INOP should be recorded)	____	____
		N43 bottom (B) normalized detector current	____	____
		N44 bottom (B) normalized detector current	____	____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
7. P	Calculate the average normalized detector currents as follows:	Verifies calculations for the average normalized detector currents as follows:		
	a. Divide the sum of the operable top normalized detector currents by the number of operable top detectors and record on Form A row 4.	a. Divides the sum of the operable top normalized detector currents by the number of operable top detectors and verifies values have been recorded on Form A row 4.	_____	_____
	b. Divide the sum of the operable bottom normalized detector currents by the number of operable bottom detectors and record on Form A row 4.	b. Divides the sum of the operable bottom normalized detector currents by the number of operable bottom detectors and verifies values have been recorded on Form A row 4.	_____	_____
*8. P	Calculate the QPTR for each detector as follows:	Verifies calculations for the QPTR for each detector as follows:		
	*a. Divide each operable top normalized detector current (row 3) by the top average normalized detector current (row 4) and record on Form A row 5:	*a. Divides each operable top normalized detector current (row 3) by the top average normalized detector current (row 4) and verifies values have been recorded on Form A row 5:		
		N41 top (A) detector	_____	_____
		N42 top (A) detector (INOP should be recorded)	_____	_____
		N43 top (A) detector	_____	_____
		N44 top (A) detector	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
	*b. Divide each operable bottom normalized detector current (row 3) by the bottom average normalized detector current (row 4) and record on Form A row 5.	*b. Verifies calculations that divide each operable bottom normalized detector current (row 3) by the bottom average normalized detector current (row 4) and verifies values have been recorded on Form A row 5.	
		N41 bottom (B) detector	_____ _____
		N42 bottom (B) detector (INOP should be recorded)	_____ _____
		N43 bottom (B) detector	_____ _____
		N44 bottom (B) detector	_____ _____

NOTE: If the student expresses a rounded off value, then that value shall be compared against the standard. The only value that is critical is the out of tolerance (circled) QPTR value.

9.	P	Indicates the maximum QPTR by circling the largest QPTR in row 5.	Verifies that the largest QPTR in row 5 has been circled.	_____ _____

CUE: If the Shift Manager (Evaluator) is informed that the LCO statement performed by the Primary Operator is incorrect, say **"Use your corrected LCO statement and complete the verification."**

*10.	P	Determines if LCO 3.2.4 is/is not met based on maximum QPTR.		
		*a. Notify US/SM that LCO 3.2.4 is/is not met.	*a. Notifies SM that LCO 3.2.4 is/is not met	_____ _____

CUE: When SM notified, repeat back information provided by student concerning QPTR and LCO 3.2.4.

		*b. On Form A row 6 circle YES/NO	*b. Verifies on Form A row 6 YES/NO has been circled.	_____ _____

NOTE: Information given must agree with results shown on the key. See key for the correct item to circle in row 6.

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

CUE: "The JPM is complete."

11.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes	_____	_____
12.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Unit Supervisor. You are going to verify the QPTR surveillance.

B. The following information is provided to you:

1. The plant is now at 100% power following recovery of a dropped rod at EOL.
2. The main plant computer has been inoperable since yesterday (It was inoperable when the rod dropped).
3. Power Range NI N42 failed and was declared INOP 2 hours ago.
4. The QPTR alarm surveillance has been entered and the work order has been generated.
5. Incore/Excore calibration was performed yesterday (before the rod dropped).
6. The Primary Operator has completed the QPTR surveillance.
7. The Secondary Operator has completed the independent verification.
8. The Secondary Operator has given the completed forms to you for your verification.

C. We will begin after the Initiating Cue is read.

Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), verify the QPTR surveillance per RX1703. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM SRO-ADMJPM02, FINAL

REVIEW SHUTDOWN MARGIN CALCULATION (MODE 3)

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position SRO

SBK 1190202602 Review Results of Surveillance Tests

2. Conditions:

A. The plant is in Mode 3 at 557°F following a trip from 100% 9 hours ago.
B. On the trip, rod H-8 remained fully withdrawn. Rod H-8 will not move.
C. An inadvertent dilution has occurred.
D. Chemistry reports that the RCS boron concentration is 1220 ppm.
E. Cycle burnup is 9600 MWD/MTU.
F. MPCS point C0036 Xenon worth is 5850 pcm.

3. Standards:

Using RX1707, Shutdown Margin Surveillance, review the boron concentration required to satisfy SDM for the present conditions using the figures from the Primary Tech Data Book provided by the instructor.

4. Student Materials:

Copy of Tear-Off Sheet
Copy of RX1707, Shutdown Margin Surveillance Rev 7 Chg 7
Completed RX1707, Shutdown Margin Surveillance Form A
Copy of Primary TDB, Figure RE-2, Shutdown Boron Concentration vs. Temperature, Rev 01-16-06.
Copy of Primary TDB, Figure RE-18, Shutdown Margin Values, Rev 01-16-00.
Calculator

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:
- RX1707, Shutdown Margin Surveillance.

Technical Specifications:
- 3.1.1.1 Shutdown Margin greater than 200°F.

Manuals:
- Primary TDB, Figure RE-2 Shutdown Boron Concentration vs. Temperature.

- Primary TDB, Figure RE-18 Shutdown Margin Values.

Sys	KA	Description	Value RO/SRO
192002	K1.13	Calculate SDM using procedures and given plant parameters.	3.5/3.7
	2.2.12	Knowledge of Surveillance Procedures	3.7/4.1

7. Setting:

Use the simulator or the classroom. A key must be setup using RE curves (RE curves may not be the latest revision). The required RE curves are included in the student material package and must be given to the student when reaching for the Primary Tech Data Book. Failure to do this will cause unrealistic numbers for the student. Since an inadvertent dilution has occurred, pick a value for the current boron concentration that is below the value required by RE-2. SDM may or may not be adequate depending on the value selected (i.e., how large the dilution was).

8. Safety Considerations:

None.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Unit Supervisor. An inadvertent dilution has occurred. Review the completed RX1707, Shutdown Margin Surveillance Form A. State if the shutdown margin is adequate or not.

B. The following information is provided to you:

1. The plant is in Mode 3 at 557°F following a trip from 100% 9 hours ago.
2. On the trip, rod H-8 remained fully withdrawn. Rod H-8 will not move.
3. An inadvertent dilution has occurred.
4. Chemistry reports that the RCS boron concentration is 1220 ppm.
5. Cycle burnup is 9600 MWD/MTU.
6. Xenon credit is desired. MPCS point C0036 Xenon worth is 5850 pcm.
7. The board operators have performed and independently verified a Shutdown Margin Surveillance per RX1707, Shutdown Margin Surveillance.

C. We will begin after the Initiating Cue is read.

D. I will act as the Shift Manager and provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), an inadvertent dilution has occurred. Review the completed RX1707, Shutdown Margin Surveillance form. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT

NOTE: When student demonstrates the ability to obtain a controlled copy of RX1707, Shutdown Margin Surveillance provide the student with RX1707, Shutdown Margin Surveillance.

1. P Start time _____ Initiating cue read

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

CUE: If the Shift Manager (Evaluator) is informed that the board operators did not factor in the stuck rod in the Shutdown Margin Surveillance respond, **"The board operators are unavailable, use the correct forms and complete the Shutdown Margin Surveillance."**

NOTE: Student recognizes that section 4.4, Shutdown Margin Verification With Inoperable Rod(s) Immovable, Untrippable Or Dropped, is correct and that the plant is in Mode 3 and proceeds to step 4.4.2.

2. COMPLETE Part II of Form C, Shutdown Margin Determination - Immovable, Untrippable or Dropped Rod(s).

P	a.	Number of Immovable and Untrippable Rod(s)	a. Enters 1 rod for (g).	_____	_____
P	b.	Boron Equivalent Worth of Worst Case Immovable or Untrippable Rod (Figure RE-18)	b. Enters 175 ppm/rod from RE-18 for (h).	_____	_____
P	c.	Required Increase in Shutdown Boron Concentration (ΔC_B) [g X h = i]	c. Performs calculation and enters 175 ppm (value i).	_____	_____
P	d.	Completed By signature.	d. Signs block.	_____	_____

CUE: When the student requests the Independent Verification respond, **"Independent Verification has been performed. Please continue with the task."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate		ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
3.	P	For the existing RCS temperature, obtain the required shutdown boron concentration from Primary TDB, Figure RE-2 Shutdown Boron Concentration vs. Temperature.	For the existing RCS temperature, obtains the required shutdown boron concentration from Primary TDB, Figure RE-2 Shutdown Boron Concentration vs. Temperature.	_____	_____
4.	*P	RECORD the RCS Tavg and the corresponding RE-02 required shutdown boron concentration value (F) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	Records the RCS Tavg of 557°F and the corresponding RE-02 required shutdown boron concentration value of 1410 ppm (F) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	_____	_____
5.	*P	TRANSFER the value (i) from Form C, Shutdown Margin Determination - Immovable, Untrippable or Dropped Rod(s), to item (G) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	Transfers 175 ppm from Form C, Shutdown Margin Determination - Immovable, Untrippable or Dropped Rod(s), to item (G) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	_____	_____
6.	*P	On Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s), ADD together items (F) and (G) to calculate the adjusted shutdown boron concentration (H).	On Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s), Adds together items (F) and (G) to calculate the adjusted shutdown boron concentration (H) and enters 1585 ppm.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
7.	If credit for xenon is desired, PERFORM the following:	Xenon credit is desired.		
P	a. OBTAIN the xenon worth from the MPCS point C0036 or from Reactor Engineering.	a. Obtains the xenon worth from MPCS point C0036 as stated in the student information.	_____	_____
P	b. RECORD the xenon worth value (J) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	b. Enters the xenon worth value (J) of 5850 pcm on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	_____	_____
P	c. OBTAIN the correct value of Differential Boron Worth (DBW) from TDB Figure RE –AND- RECORD the DBW value (K) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	c. Records the DBW value (K) of 8.596 on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	_____	_____
*P	d. Using the equation [L = H - (J/K)] as shown on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s), CALCULATE the Adjusted Shutdown Boron –AND- RECORD the Adjusted Shutdown Boron Concentration value (L) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s). If the number is negative, RECORD a zero.	d. Performs calculation and records the Adjusted Shutdown Boron Concentration value (L) of 904 ppm on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	_____	_____
8. P	RECORD the Existing RCS Boron value (M) on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	Record the Existing RCS Boron value (M) of 1220 ppm on Form D, Shutdown Margin Verification - MODEs 3, 4 And 5 With Inoperable Rod(s).	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate		ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
9.	*P	CHECK if existing RCS Boron (M) is greater than the Shutdown Boron (L) and mark the associated block as Yes or No as applicable.	Checks if existing RCS Boron (M) is greater than the Shutdown Boron (L) and mark the associated block as YES.	_____	_____
10.	P	Performed by initials.	Initials Performed by line.	_____	_____
CUE:		**"The JPM is complete."**			
11.		Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes		
12.		Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

TEAR OFF SHEET FOR SRO ADMIN JPM 02

Directions To The Student:

A. You are the Unit Supervisor. An inadvertent dilution has occurred. Review the completed RX1707, Shutdown Margin Surveillance Form A. State if the shutdown margin is adequate or not.

B. The following information is provided to you:

1. The plant is in Mode 3 at 557°F following a trip from 100% 9 hours ago.
2. On the trip, rod H-8 remained fully withdrawn. Rod H-8 will not move.
3. An inadvertent dilution has occurred.
4. Chemistry reports that the RCS boron concentration is 1220 ppm.
5. Cycle burnup is 9600 MWD/MTU.
6. Xenon credit is desired. MPCS point C0036 Xenon worth is 5850 pcm.
7. The board operators have performed and independently verified a Shutdown Margin Surveillance per RX1707, Shutdown Margin Surveillance.

C. We will begin after the Initiating Cue is read.

D. I will act as the Shift Manager and provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), an inadvertent dilution has occurred. Review the completed RX1707, Shutdown Margin Surveillance form. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM SRO-ADMJPM03, FINAL

APPROVE SPENT FUEL POOL BLENDED MAKEUP CALCULATION

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position RO

SBK 0040100601 Perform a boron change calculation.

2. Conditions:

A. A manual blended makeup to the Spent Fuel Pool is required to raise pool level.

3. Standards:

Approve a calculation of the required flow controller and totalizer setpoints for a 550 gallon manual blended makeup to the Spent Fuel Pool.

4. Student Materials:

Copy of Tear Off Sheet
Copy of RS1735, Reactivity Calculations, Rev 6
Copy of RS1735, Reactivity Calculations completed Form E
Daily Chemistry Report
Calculator

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- RS1735, Reactivity Calculations, Rev 6

Sys	KA	Description	Value RO/SRO
	2.1.37	Knowledge of procedures, guidelines, or limitations associated with reactivity management.	4.3/4.6

7. Setting:

Classroom.
1. Give student a copy of the RS1735, Reactivity Calculations completed Form E.
2. Examiner must prepare a completed RS1735, Reactivity Calculations, Form E in advance. It shall reflect the JPM values for the values listed in Daily Chemistry Report.

8. Safety Considerations:

None.

9. Approximate Completion Time:

15 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

Student:

1. Ensure task is done correctly.
2. You may be asked follow up questions to confirm knowledge of the task.

A. You are the Unit Supervisor. You are going to approve calculations for a 550 gallon blended makeup to the Spent Fuel Pool on RS1735, Reactivity Calculations, Form E.

B. The following information is provided to you:

1. A 550 gallon manual blended makeup to the Spend Fuel Pool is required for pool inventory addition.
2. Makeup total flow rate will be 50 gpm.
3. The makeup boron concentration will be at the current Spent Fuel Pool boron concentration.
4. 'A' Boric Acid Storage Tank will be used for the blended makeup.
5. The makeup line contains a blend from a previous SFP makeup based on the same SFP and BAST values.

C. We will begin after the Initiating Cue is read.

D. I will act as the Shift Manager and provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), approve calculations for a 550 gallon blended makeup to the Spent Fuel Pool on RS1735, Reactivity Calculations, Form E. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
1. P	Start time _____	Initiating cue read	

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: When the student demonstrates the ability to obtain a controlled copy of RS1735, Reactivity Calculations, provide the student with a copy. Student should refer to section 4.4 Blended Makeup Calculation (Form E, Blended Makeup Worksheet) and the Daily Chemistry Report to determine Spent Fuel Pool (SFP) and boric acid storage tank boron concentration.

2.	P	Approve calculations for a 550 gallon blended makeup to the Spent Fuel Pool on RS1735, Reactivity Calculations, Form E.			
	1.	ENTER the desired makeup boron concentration (C_{MU}).	1.	Verifies the desired makeup boron concentration (C_{MU}) for the SFP from the Daily Chemistry Report in step 1 of Form E.	____ ____
	2.	ENTER the desired makeup flow rate SETPOINT: FIQ-111 (F_{TOT}).	2.	Verifies the desired makeup flow rate SETPOINT: FIQ-111 (F_{TOT}) in step 2 of Form E. (50 gpm)	____ ____
	3.	ENTER the actual Boric Acid Storage Tank concentration (C_{BAST}).	3.	Verifies the actual Boric Acid Storage Tank concentration (C_{BAST}) from the Daily Chemistry Report in step 3 of Form E.	____ ____
	4.	ENTER the desired makeup quantity TARGET: FIQ-111 (G_{TOT}).	4.	Verifies the desired makeup quantity TARGET: FIQ-111 (G_{TOT}) in step 4 of Form E. (550 gallons)	____ ____
	*5.	CALCULATE the boric acid flow rate SETPOINT: FIQ-111 (F_{BA}):	*5.	Verifies the values from steps 1, 2 & 3 are entered in the equation and the calculated value for the boric acid flow rate SETPOINT: FIQ-111 (F_{BA}) is correct.	____ ____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
	*6. CALCULATE the boric acid quantity TARGET: FIQ-111 (G_{BA}):	*6. Verifies the values from steps 1, 3 & 4 are entered in the equation and calculated value for the boric acid quantity TARGET: FIQ-111 (G_{BA}) is correct.	_____	_____
	7. SRO Approval By signature and Date.	7. Signs and dates the Approval By signature and Date line.	_____	_____
CUE:	**"The JPM is complete."**			
3.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤15 minutes	_____	_____
4.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

TEAR OFF SHEET FOR RO ADMIN JPM 03

Directions To The Student:

A. You are the Unit Supervisor. You are going to approve calculations for a 550 gallon blended makeup to the Spent Fuel Pool on RS1735, Reactivity Calculations, Form E.

B. The following information is provided to you:

1. A 550 gallon manual blended makeup to the Spend Fuel Pool is required for pool inventory addition.
2. Makeup total flow rate will be 50 gpm.
3. The makeup boron concentration will be at the current Spent Fuel Pool boron concentration.
4. 'A' Boric Acid Storage Tank will be used for the blended makeup.
5. The makeup line contains a blend from a previous SFP makeup based on the same SFP and BAST values.

C. We will begin after the Initiating Cue is read.

D. I will act as the Shift Manager and provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), approve calculations for a 550 gallon blended makeup to the Spent Fuel Pool on RS1735, Reactivity Calculations, Form E. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM SRO-ADMJPM04, FINAL

VERIFY A LIQUID EFFLUENT WASTE SAMPLE REQUEST

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position SRO

SBK 0690301502 Authorize a release of liquid waste.

2. Conditions:

A. The plant is in MODE 1 with two ocean Service Water and two Circulating Water pumps running with no expected change of configuration.
B. WL-TK-63A, "A" Waste Test Tank has been filled to 18,000 gallons.
C. WL-TK-63A, "A" Waste Test Tank, was placed on recirculation at 0800 today per ON1018.07, Waste Test Tank Recirculation.
D. WL-TK-63A, "A" Waste Test Tank has to be sampled to prepare a LEW permit for a release to the transition Structure.
E. Projected release start time is normally 8 hours after placing the tank on recirc.
F. The Primary Operator has completed Section 1 of CP 4.1A, Liquid Effluent Waste Sample Requests.

3. Standards:

Using CP-4.1, Effluent Sampling Program and ON1018.07, Waste Test Tank Recirculation, verify the following:

- Form CP4.1A, Liquid Effluent Waste Sample Request

4. Student Materials:

Calculator
Copy of Tear Off Sheet.
Copy of CP-4.1, Effluent Sampling Program
Copy of blank Form CP4.1A, Liquid Effluent Waste Sample Request
Copy of ON1018.07, Waste Test Tank Recirculation
Copy of completed Form CP4.1A, Liquid Effluent Waste Sample Request

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- CP-4.1, Effluent Sampling Program
- ON1018.07, Waste Test Tank Recirculation

Sys	KA	Description	Value RO/SRO

7. Setting:

Simulator or Classroom.

8. Safety Considerations:

None.

9. Approximate Completion Time:

15 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

Student:

1. Ensure task is done correctly.
2. You may be asked follow up questions to confirm knowledge of the task.

A. You are the Unit Supervisor. You are going to perform the verification of a Liquid Effluent Waste Sample Request, using the information provided.

B. The following information is provided to you:

1. The plant is in MODE 1 with two ocean Service Water and two Circulating Water pumps running with no expected change of configuration.
2. WL-TK-63A, "A" Waste Test Tank has been filled to 18,000 gallons.
3. WL-TK-63A, "A" Waste Test Tank, was placed on recirculation at 0800 today per ON1018.07, Waste Test Tank Recirculation.
4. WL-TK-63A, "A" Waste Test Tank has to be sampled to prepare a LEW permit for a release to the transition Structure.
5. Projected release start time is normally 8 hours after placing the tank on recirc.
6. The Primary Operator has completed Section 1 of CP 4.1A, Liquid Effluent Waste Sample Request.

C. We will begin after the Initiating Cue is read.

D. I will act as the Shift Manager and provide the cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), Section 1 of Form CP 4.1A is complete. Please perform the verification. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT

NOTE: When the student demonstrates the ability to obtain a controlled copy of CP-4.1, Effluent Sampling Program and ON1018.07, Waste Test Tank Recirculation, provide the student with the required document(s).

1. P Start time _____ Initiating cue read

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: It is assumed that the student will use CP 4.1 to process through the verification and check ON1018.07 to verify the tank volumes and recirculation flow rate. The student may choose to verify the tank volume and recirculation rate prior to referring to CP 4.1. These steps can be performed in any order as long as all steps are completed correctly.

*2. P Section 1 of CP 4.1A is completed by Operations and provides the following information:

a. Name of tank, sump, or SG demin vessel to be sampled. — a. Verifies WTT "A" is entered. _____ _____

CUE: If the student wants to verify the amount of liquid in the "A" Waste Test Tank using the Main Plant Computer, tell them that the MPCS indicates 18,000 gallons.

b. Total tank or sump volume to be discharged or transferred. — b. Notes 18,000 gallons are consistent with initial conditions and indications. _____ _____

NOTE: The recirculation rate for WTT A is actually 150 gpm. Waste Holdup Sump recirculation rate is 400 gpm. The student must correct this mistake to ensure adequate tank recirculation prior to sampling.

CUE: If the Shift Manager (Evaluator) is informed that the recirculation rate is incorrect, say **"The Primary Operator must have been thinking about the Waste Holdup Sump recirculation rate."**

CUE: If the student (Unit Supervisor) gives the form back to the Primary Operator to correct, say: **"Use your corrected values and complete the verification."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
	c. Recirculation rate.	*c. Corrects the recirculation rate to 150 gpm and the recirculation required time to be 240 minutes.	_____	_____
	d. Recirculation starting time and date.	d. Verifies 0800 and today's date.	_____	_____
	e. Sample date and time,	*e. Corrects sample time to 1200.	_____	_____
	f. Disposition of tank.	f. Verifies DISCHARGE as disposition.	_____	_____
	g. The projected CW and SW pump combination for the discharge.	g. Verifies 2 CW pumps and 2 SW pumps entered.	_____	_____
	h. Projected release start date and time.	h. Corrects projected start time to 2000.	_____	_____
	i. Date, time of request, and initials of originator.	i. Verifies time, date and initials are entered.	_____	_____
	j. Date, time, and initials of individual that performed verification of operational data.	j. Enters date, time, and initials.	_____	_____
CUE:	**"The JPM is complete."**			
3.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 15 minutes	_____	_____
4.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

TEAR OFF SHEET FOR SRO ADMIN JPM 04

Directions To The Student:

A. You are the Unit Supervisor. You are going to perform the verification of a Liquid Effluent Waste Sample Request, using the information provided.

B. The following information is provided to you:

1. The plant is in MODE 1 with two ocean Service Water and two Circulating Water pumps running with no expected change of configuration.
2. WL-TK-63A, "A" Waste Test Tank has been filled to 18,000 gallons.
3. WL-TK-63A, "A" Waste Test Tank, was placed on recirculation at 0800 today per ON1018.07, Waste Test Tank Recirculation.
4. WL-TK-63A, "A" Waste Test Tank has to be sampled to prepare a LEW permit for a release to the transition Structure.
5. Projected release start time is normally 8 hours after placing the tank on recirc.
6. The Primary Operator has completed Section 1 of CP 4.1A, Liquid Effluent Waste Sample Request.

C. We will begin after the Initiating Cue is read.

D. I will act as the Shift Manager and provide the cues and communications for this JPM. Do you have any questions?

Initiating Cue:

Shift Manager to Unit Supervisor, **"Unit Supervisor (or student's name), Section 1 of Form CP 4.1A is complete. Please perform the verification. Record any issues that you find on the tear-off sheet. Correct any issues that you find. Discuss the results with me."**

NEXTera ENERGY SEABROOK

JOB PERFORMANCE MEASURE 2013 NRC EXAM SRO-ADMJPM05, FINAL

GENERAL EMERGENCY PROTECTIVE ACTION REQUIREMENTS (PARS) DETERMINATION

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position SRO

SBK 1190402003 Perform Required Notification of On-Site and Off-Site Personnel for Emergency Events

2. Conditions:

A. The plant has tripped from 100% power due to a LOP today at 1300.
B. The US has transitioned from E-0 to ECA-0.0.
C. No Emergency Diesel Generators or SEPS Diesels are available.
D. The event has been classified as a General Emergency based on EAL SG1, Prolonged loss of both AC emergency buses. Restoration of either emergency bus is not expected within 4 hours.
E. The time of E-Plan declaration was 1323.
F. A release has not occurred.
G. The Remote Monitoring Area (RMA) has not been activated.
H. Form ER 2.0B, State Notification Fact Sheet is complete and the states were notified at 1333.
I. There is a 10 mph wind.
J. LOWER wind direction is coming FROM 285 degrees.
K. UPPER wind direction is coming FROM 305 degrees.
L. The appropriate PAR Group A has been recommended to the states.
M. At 1355 the Shift Manager is re-assessing plant conditions in accordance with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment.
N. Critical Safety Functions (CSF) have been verified and are as follows:
   - CORE COOLING (C) ORANGE Path – go to FR-C.2
   - HEAT SINK (H) RED Path – go to FR-H.1
   - CONTAINMENT (Z) RED Path – go to FR-Z.1
   - INVENTORY (I) YELLOW Path – go to FR-H.1

3. Standards:

- The student will start in ER 1.2, Emergency Plan Activation, Form D, General Emergency Checklist – STED, Step 11.
- The student will transition to ER 1.2G, General Emergency PAR Worksheet, to determine if upgraded protective action recommendations are warranted.
- The student will notify the STED of the PAR recommendation within 15 minutes.

4. Student Materials:

Copy of Tear-Off Sheet
Copy of Form ER 2.0B, State Notification Fact Sheet
Copy of ER 1.2, Emergency Plan Activation, Form D, General Emergency Checklist – STED, place kept up to Step 11.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- ER 1.2, Emergency Plan Activation
- ER 2.0, Emergency Notification Documentation Forms Procedure

Sys	KA	Description	Value RO/SRO
	2.4.44	Knowledge of emergency plan protective action recommendations.	2.4/4.4

7. Setting:

Simulator or Classroom

8. Safety Considerations:

None.

9. Approximate Completion Time:

15 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. This is a TIME CRITICAL task. You are the Work Control Supervisor. The STED directs you to re-assess plant conditions in accordance with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment, to determine if upgraded protective action recommendations are warranted. If upgraded PARs are warranted, inform the STED of your upgraded PAR recommendation at the completion of ER 1.2G, step 4.

B. The following information is provided to you:

1. The plant has tripped from 100% power due to a LOP today at 1300.
2. The US has transitioned from E-0 to ECA-0.0.
3. No Emergency Diesel Generators or SEPS Diesels are available.
4. The event has been classified as a General Emergency based on EAL SG1, Prolonged loss of both AC emergency buses. Restoration of either emergency bus is not expected within 4 hours.
5. The time of E-Plan declaration was 1323.
6. A release has not occurred.
7. The Remote Monitoring Area (RMA) has not been activated.
8. Form ER 2.0B, State Notification Fact Sheet is complete and the states were notified at 1333.
9. There is a 10 mph wind.
10. LOWER wind direction is coming FROM 285 degrees.
11. UPPER wind direction is coming FROM 305 degrees.
12. The appropriate PAR Group A has been recommended to the states.
13. At 1355 the Shift Manager is re-assessing plant conditions in accordance with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment.
14. Critical Safety Functions (CSF) have been verified and are as follows:
    - CORE COOLING (C) ORANGE Path – go to FR-C.2
    - HEAT SINK (H) RED Path – go to FR-H.1
    - CONTAINMENT (Z) RED Path – go to FR-Z.1
    - INVENTORY (I) YELLOW Path – go to FR-H.1

C. We will begin after the Initiating Cue is read.

D. I will act as the Short Term Emergency Director (STED) and provide the cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

STED to Work Control Supervisor, **"Work Control Supervisor (or student's name):**

- **Re-assess plant conditions in accordance with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment, to determine if a PARs upgrade is warranted.**
- **If upgraded PARs are warranted, inform me of your upgraded PAR recommendation at the completion of ER 1.2G, step 4.**
- **This is a TIME CRITICAL task.**
- **Record any issues that you find on the tear-off sheet.**
- **Discuss the results with me."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: This is a TIME CRITICAL task. A new PAR recommendation is required within 15 minutes of starting the JPM.

1. P Start time _____ Initiating cue read

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

2. P Student starts at with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment to determine if a PARs upgrade is warranted. Student transitions to form ER 1.2G, General Emergency PAR Worksheet. _____ _____

3. P Using form ER 1.2G, General Emergency PAR Worksheet, student determines if upgraded protective action recommendations are warranted.

1.	Block 1: GENERAL EMERGENCY	1.	Student recognizes the plant is in a GENERAL EMERGENCY.	_____ _____
2.	Block 2: IS THE CORE COOLING CSFST PROCEEDING ALONG A RED PATH?	2.	Student recognizes that NO, CORE COOLING CSFST is ORANGE.	_____ _____
3.	Block 3: IS THE CONTAINMENT CSFST PROCEEDING ALONG A RED PATH?	3.	Student recognizes that YES, CONTAINMENT CSFST is RED.	_____ _____
*4.	PAR GROUP B GO TO PAGE 2 OF THIS FORM	*4.	Student identifies transition to PAR Group B and goes to page 2 of Form G.	_____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD *denotes a critical step	EVALUATION SAT UNSAT
3. P	For a PAR Group B selection, the student uses the following instructions and table to determine Protective Action Recommendations.		
	1. If a release is in progress from the plant vent, enter the current upper wind.	1. Student identifies no release is in progress from the plant vent.	_____ _____
	2. If a release from the plant vent is NOT in progress, enter the current lower wind direction.	2. Student enters the current lower wind direction of 285 degrees.	_____ _____
	3. Identify the appropriate PAR GROUP B column based on the above wind direction to determine the towns to be evacuated and sheltered.	3. Student identifies the correct PAR GROUP B column based on the above wind direction and determines the towns to be evacuated and sheltered.	_____ _____
	4. Check off the evacuated and sheltered towns and evacuated and closed beaches on form ER 2.0B, Block 4.	4. Student checks off the evacuated and sheltered towns and evacuated and closed beaches on form ER 2.0B, Block 4.	_____ _____
	5. Check off "Implement KI plans for the general public" on form ER 2.0B, Block 4.	5. Student checks off "Implement KI plans for the general public" on form ER 2.0B, Block 4.	_____ _____
4. *P	Student informs STED of new PAR recommendation. End time _____	Time to complete task ≤ 15 minutes	_____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
CUE:	**"The JPM is complete."**		
5.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 15 minutes	_____ _____
6.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____ _____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. This is a TIME CRITICAL task. You are the Work Control Supervisor. The STED directs you to re-assess plant conditions in accordance with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment, to determine if upgraded protective action recommendations are warranted. If upgraded PARs are warranted, inform the STED of your upgraded PAR recommendation at the completion of ER 1.2G, step 4.

B. The following information is provided to you:

1. The plant has tripped from 100% power due to a LOP today at 1300.
2. The US has transitioned from E-0 to ECA-0.0.
3. No Emergency Diesel Generators or SEPS Diesels are available.
4. The event has been classified as a General Emergency based on EAL SG1, Prolonged loss of both AC emergency buses. Restoration of either emergency bus is not expected within 4 hours.
5. The time of E-Plan declaration was 1323.
6. A release has not occurred.
7. The Remote Monitoring Area (RMA) has not been activated.
8. Form ER 2.0B, State Notification Fact Sheet is complete and the states were notified at 1333.
9. There is a 10 mph wind.
10. LOWER wind direction is coming FROM 285 degrees.
11. UPPER wind direction is coming FROM 305 degrees.
12. The appropriate PAR Group A has been recommended to the states.
13. At 1355 the Shift Manager is re-assessing plant conditions in accordance with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment.
14. Critical Safety Functions (CSF) have been verified and are as follows:
    - CORE COOLING (C) ORANGE Path – go to FR-C.2
    - HEAT SINK (H) RED Path – go to FR-H.1
    - CONTAINMENT (Z) RED Path – go to FR-Z.1
    - INVENTORY (I) YELLOW Path – go to FR-H.1

C. We will begin after the Initiating Cue is read.

D. I will act as the Short Term Emergency Director (STED and provide the cues and communications for this JPM. Do you have any questions?

Initiating Cue:

STED to Work Control Supervisor, **"Work Control Supervisor (or student's name):**

- **Re-assess plant conditions in accordance with ER 1.2D, General Emergency Checklist – STED, Step 11, Follow up PAR Assessment, to determine if a PARs upgrade is warranted.**
- **If upgraded PARs are warranted, inform me of your upgraded PAR recommendation at the completion of ER 1.2G, step 4.**
- **This is a TIME CRITICAL task.**
- **Record any issues that you find on the tear-off sheet.**
- **Discuss the results with me."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'A', FINAL

PRESSURZER LEVEL CHANNEL FAILURE

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position RO

SBK 0110400101 Identify A Pressurizer Instrument Failure

2. Conditions:

A. The plant is at 100% power and all systems are normal.

3. Standards:

Identify a failed Pressurizer level instrument channel and restore the system per OS1201.07, PZR Level Instrument Failure.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of OS1201.07, PZR Level Instrument Failure Rev.14.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- OS1201.07, PZR Level Instrument Failure.

Technical Specifications:

- 3.3.1 Reactor Trip System Instrumentation.
- 3.3.3.6 Accident Monitoring Instrumentation.

Sys	KA	Description	Value RO/SRO
011	A2.11	Ability to (a) predict the impacts of the following malfunctions or operations on the PZR LCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of PZR level instrument - low	3.4/3.6

5. Setting:

Simulator:

Reset the simulator to IC #154 or any 100% IC which contains the following:

A. Initialize the simulator to a 100% power IC.
B. Place the simulator in RUN.
C. Ensure that LT-459 is selected for master PZR level control and for the PZR level recorder.

Malfunctions have additional time added so that alarms can be acknowledged. Do not exceed 60 seconds of run time during setup to ensure malfunctions do not initiate. Place the simulator in FREEZE.

6. Safety Considerations:

None.

7. Approximate Completion Time:

20 minutes

8. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Primary Operator. An event will occur. You are expected to identify the event and recommend actions and/or procedures to implement.

B. The following information is provided to you:

   1. The plant is at 100% power and all systems are normal.

C. We will begin after the Initiating Cue is read.

D. I will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Primary Operator, **"You are the Primary Operator respond to any condition that arises."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
1. P	Start time _____	Initiating cue read	

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

CUE: Insert PZR Level 459 fails low as follows:
SELECT: Malfunction List
SELECT: Reactor Coolant (Component)
SELECT: ltRCSLT459
SELECT: Fails Low
SELECT: Insert

CUE: If student recommends using 'Skill of the Operator' to reduce charging to seals only, US respond, **"I concur."**

2.	P	Recognize and report that LT-459 is failed low.	Recognizes and reports that LT-459 is failed low.	_____ _____

CUE: If student recommends entering OS1201.07 PZR Level Instrument Failure, US respond. **"I concur."**

CUE: Give the student a copy of OS1201.07, PZR Level Instrument Failure.

3.	P	Check PZR level channels: • Controlling channel failed -OR- • Backup channel failed -OR- • Recorder channel failed.	Checks PZR level channels and reports LT-459 is the controlling channel and is failed low.	_____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: Caution and Note prior to step 2 of OS1201.07 should be read.

*4.	P	Realign PZR level instruments:	Realigns PZR level instruments:		
		a. Manually control PZR level at program:	a. Reduces charging flow. Adjusts seal injection flow as necessary.	_____	_____
		*b. Select an alternate level channel for Control/Backup as necessary.	*b. Selects alternate level channels L-461/ L-460.	_____	_____
		c. Select an alternate level channel for recorder as necessary.	c. Selects an alternate level channel for recorder as necessary: • L-460 OR • L-461	_____	_____
*5.	P	Verify PZR heaters ON as follows: Reset or manually control PZR heaters as necessary.	Resets the PZR control group of heaters.	_____	_____
6.	P	Check if letdown was isolated: Letdown isolation valves - closed • RC-LCV-459 -OR- • RC-LCV-460	Checks if letdown was isolated and identifies that RC-LCV-459 is closed.	_____	_____
*7.	P	Check if normal letdown can established:	Checks if normal letdown can be established:		
		*a. Verify charging flow – greater than 50 gpm.	*a. Verifies or adjusts charging flow - greater than 50 gpm.	_____	_____
		b. PZR level – greater than 17%	b. Verifies PZR level – greater than 17%.	_____	_____

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
*8. P	Establish normal letdown:	Establishes normal letdown:	
	a. Align PCCW to the letdown heat exchanger: • CC-V-341 - open • CS-TK-130 - auto	a. Verifies PCCW to the letdown heat exchanger • CC-V-341- open • CS-TK-130 - auto	_____ _____
	*b. Close letdown flow control valves: • CS-HCV-189 • CS-HCV-190	*b. Closes/checks closed letdown flow control valves: • CS-HCV-189 • CS-HCV-190	_____ _____
	*c. Open letdown isolation valves:	*c. Opens/checks open letdown isolation valves:	
	* a) RC-LCV-459	* a) RC-LCV-459	_____ _____
	b) RC-LCV-460	b) RC-LCV-460	_____ _____
	* c) CS-V-145	* c) CS-V-145	_____ _____

NOTE: The student should take manual control of CS-PK-131 and open CS-PCV-131 to approximately 10-20%, then slowly open a flow control to establish letdown flow. When CS-PK-131 input pressure equals setpoint pressure (about 350 psig), the student should return CS-PK-131 to auto.

	*d. Manually control or monitor CS-PK-131 response and establish letdown flow using letdown flow control valve(s). • CS-HCV-189 • CS-HCV-190	*d. Manually controls or monitors CS-PK-131 response and establishes letdown flow using letdown flow control valve(s). • CS-HCV-189 • CS-HCV-190	_____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
CUE:	**"The JPM is complete."**			
9.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes	_____	_____
10.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Control Room 'A'

TEAR OFF SHEET FOR CONTROL ROOM 'A' JPM

Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Primary Operator. An event will occur. You are expected to identify the event and recommend actions and/or procedures to implement.

B. The following information is provided to you:

   1. The plant is at 100% power and all systems are normal.

C. We will begin after the Initiating Cue is read.

D. I will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Primary Operator, **"You are the Primary Operator respond to any condition that arises."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'B', FINAL

TRANSFER SERVICE WATER TO THE COOLING TOWER

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position RO

SBK 0760103401 Switch From SW To Cooling Tower Operation

2. Conditions:

A. The plant is operating at 100% power.
B. On line maintenance needs to be done on the Service Water system Train A.
C. The Shift Manager requested that Service Water Train A be transferred to the Cooling Tower until the job is complete in approximately 12 hours.
D. Local pre-starts are complete on the "A" Cooling Tower pump.

3. Standards:

Place the Cooling Tower in operation per OS1016.05, Service Water Cooling Tower Operation.

4. Student Materials:

- Copy of Tear-Off Sheet
- Copy of OS1016.05, Service Water Cooling Tower Operation, Rev. 23
- Copy of OS1016.05, Service Water Cooling Tower Operation, Pre-Job Brief
- Copy of ODI-5 Pump Prestart Guidelines – SW-P-110A Rev. 01
- Copy of OS1216.01, Degraded Ultimate Heat Sink, Rev. 22

5. Limitations On Performance:

Simulate/Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- OS1016.05, Service Water Cooling Tower Operation

Sys	KA	Description	Value RO/SRO
076	A2.01	Ability to predict the impact of and use procedures to control a loss of SW.	3.5/3.7
076	K3.01	Knowledge of the effect that a loss or malfunction of SW will have on closed cooling water system.	3.4/3.6

7. Setting:

Simulator:

Reset the simulator to IC #154 or any 100% IC which contains the following:

A. Initialize the simulator to a 100% power IC.
B. Place the simulator in RUN.
C. Insert/verify inserted Service Water (Component) malfunction csSWV20, fail as is.
D. Place the simulator in FREEZE.

8. Safety Considerations:

None.

9. Approximate Completion Time:

30 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Secondary Operator.

B. The following information is provided to you:

1. The plant is operating at 100% power.
2. On line maintenance needs to be done on the Service Water system Train A.
3. The Shift Manager requested that Service Water Train A be transferred to the Cooling Tower until the job is complete in approximately 12 hours.
4. Initial Cooling Tower level has been recorded on Form L, Cooling Tower flush NPDES tracking sheet.
5. Local pre-starts are complete on the "A" Cooling Tower pump.
6. Previous pump start was two days ago.

C. Perform the task using OS1016.05, Service Water Cooling Tower Operation.

D. The US will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Secondary Operator, **"Secondary Operator (or student's name), all Prerequisites are complete. Review OS1016.05 Precautions and the Service Water Cooling Tower Operation Pre-Job Brief. Then transfer Service Water Train A from the Ocean to the Cooling Tower per OS1016.05 section 4.3."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP		STANDARD	EVALUATION	
	* denotes a critical step		* denotes a critical step	SAT	UNSAT
CUE:	Student will perform a Pre-Job Brief for this evolution. When student responds that his review of OS1016.05 Prerequisites and Precautions and the Service Water Cooling Tower Operation, Pre-Job Brief is complete, respond **"Prerequisites are complete. Please continue with the task."**				
1.	P	Start time _____	When student is directed to continue with the task.		
CUE:	If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**				
2.	OS1016.05, section 4.3, Transferring Only Train A Service Water System From the Ocean to the Cooling Tower				
	P	1 Record initial cooling tower level on Form L, Cooling Tower Flush NPDES Tracking Sheet.			
	P	2 Perform pump pre-starts for SW-P-110A, Cooling Tower pump A, as determined by the US.	2 Performs control room pre-start checks for SW-P-110-A per ODI-5.	_____	_____
	P	3 Verify SW-V-5, SW isolation to secondary loads is open.	3 Verifies SW-V-5 is open.	_____	_____
	P	4 Verify SW-V-139, SW Cooling Tower Train A spray bypass recirculation is open	4 Verifies SW-V-139 is open.	_____	_____
	*P	5 Close SW-V-4, SW isolation to secondary loads.	5 Closes SW-V-4.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate		ELEMENT/STEP * denotes a critical step		STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
P	6	Check closed/Close SW-V-74, turbine building SW cross-connect to PAB.	6	Checks closed SW-V-74.	_____	_____

NOTE: If requested by student make a plant announcement, **"Starting Service Water pump 110A."**

*P	7	Start SW-P-110-A, Cooling Tower pump A.	7	Starts SW-P-110-A.	_____	_____
*P	8	Place the Train A standby SW pump control switch in Pull-To-Lock.	8	Places SW-P-41C in PTL.	_____	_____
*P	9	Shutdown the running Train A SW pump and place its control switch in Pull-To-Lock.	9	Stops SW-P-41A and places control switch in PTL.	_____	_____
*P	10	Open SW-V-54, Cooling Tower pump A discharge isolation.	10	Opens SW-V-54.	_____	_____
P	11	When SW-V-54 indicates full open place SW-V-54 control switch in auto.	11	When SW-V-54 is full open places control switch in auto.	_____	_____
P	12	Verify SW-V-56, Cooling Tower Train A spray header test, auto closed.	12	Verify SW-V-56 auto closed.	_____	_____

CUE: After the student reads the step to manually control PCCW heat exchanger outlet temperature using CC-TK-2171 (Train A), provide cue, **"The Primary Operator is monitoring PCCW heat exchanger outlet temperature."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
P	13 If required, manually control PCCW heat exchanger outlet temperature using CC-TK-2171 (Train A)			
*P	14 Flush the Train A SW system to discharge transition structure for at least 103 seconds, then continue with next step.	14 Flushes to the ocean for at least 103 seconds prior to proceeding to the next step.	_____	_____

CUE: After candidate starts timing of flush give the following, **"103 seconds have elapsed."**

*P	15 Open SW-V-34, SW Train A return to Cooling Tower.	15 Opens SW-V-34.	_____	_____
*P	16 Close SW-V-20, SW Train A to discharge structure.	16 Places SW-V-20 switch to close. Identifies that SW-V-20 does not close.	_____	_____

******BEGIN ALTERNATE PATH******

CUE: If the student dispatches the Primary NSO to close SW-V-20, then respond, **"This is the Primary NSO, I am at SW-V-20 and there appears to be a problem with the actuator. SW-V-20 cannot be repositioned."**

NOTE: STUDENT DECISION POINT

Student will recognize boundary valve issue. Student has the two following optional procedure paths:

1. OS1016.05, section 4.4, Transferring Train A Service Water System From the Cooling Tower to the Ocean per precaution 3.10 -OR-
2. OS1216.01, Degraded Ultimate Heat Sink per pre-job briefing sheet or OS1216.01 entry conditions

If student selects path 1, go to JPM step 3 (page 8).
If student selects path 2, go to JPM step 4 (page 10).

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

3. Path 1: OS1016.05, section 4.4, Transferring Train A Service Water System From the Cooling Tower to the Ocean

P	1	CHECK SW Train A and SW Train B is aligned to the cooling tower, DO NOT PROCEED if this is the case.	1	Student recognizes only one train of SW is aligned to the cooling tower and proceeds to next step.	_____	_____

CUE: Inform student, **"Initial Cooling Tower level has been recorded on Form L, Cooling Tower flush NPDES tracking sheet."**

P	2	Record initial cooling tower level on Form L, Cooling Tower Flush NPDES Tracking Sheet.				

CUE: Inform student, **"SW-V-44 is open and de-energized."**

P	3	If SW-V-44, SW isolation from the intake structure is closed, Perform the following: Open SW-V-44 and lock open its breaker.				

CUE: US to student, **"Pre-starts will not be done at this time. Continue with the next step."**

P	4	Perform SW ocean pump pre-starts as determined by the US.				

CUE: If the student asks about SW-V-20 position, then respond, **"SW-V-20 is stuck open. Continue with the next step."**

P	5	Open SW-V-20, SW train A to discharge structure.	5	Student recognizes that SW-V-20 is stuck open and proceeds.	_____	_____
*P	6	Close SW-V-34, SW train A return to cooling tower.	6	Closes SW-V-34.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate		ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
*P	7	Simultaneously place and hold the control switch for SW-V-54, Cooling Tower Pump A Discharge Isolation, to throttle close, and the control switch for SW-V-56, Cooling Tower Train A Spray Header Test, to open until the valves reposition.	7 Simultaneously closes SW-V-54 and opens SW-V-56.	_____	_____
*P	8	Start the desired train A ocean SW pump.	8 Starts SW-P-41A OR SW-P-41C.	_____	_____
P	9	Check the selected SW pump discharge valve opens. • SW-V-2, SW-P-41-A discharge isolation OR • SW-V-22, SW-P-41-C discharge isolation.	9 Verifies SW-V-2 OR SW-V-22 opens.	_____	_____

NOTE: If student selected path 1, then the JPM is complete.

CUE: "The JPM is complete."

	10	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤30 minutes	_____	_____
	11	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step		STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
	4. Path 2: OS1216.01, Degraded Ultimate Heat Sink				
CUE:	Provide copy of OS1216.01, Degraded Ultimate Heat Sink, to student.				
P	1	Determine Appropriate Response: IF affected SW train aligned to the cooling tower, THEN Go to Step 8.	1 Student goes to OS1216.01, Step 8.	_____	_____
	2	Check For Cooling Tower Failure:	2		
P	2a	Cooling tower pump discharge pressure >40 psig	2a Student checks Cooling tower pump discharge pressure >40 psig.	_____	_____
P	2b	Check cooling tower boundary intact: • Check cooling tower boundary valves – CLOSED: ○ SW-V4 ○ SW-V20 ○ SW-V74 -AND- • Check cooling tower basin level – STABLE OR INCREASING	2a Student identifies SW-V20 is NOT CLOSED and Cooling tower basin level is DECREASING. Student goes to RNO column.	_____	_____
P	3	Manually or locally close boundary valve(s) for affected train. IF any boundary valve can NOT be closed OR cooling tower level is decreasing, THEN:	3 Student identifies SW-V20 cannot be closed and cooling tower basin level is decreasing.	_____	_____
*P	3a	Place the affected cooling tower pump in PULL TO LOCK within 10 minutes of boundary valve failure.	3a Stops SW-P-110A and places control switch in PTL.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

CUE: US to student, **"I will refer to OS1212.01. Continue with the next step."**

P	3b	Refer to OS1212.01, PCCW System Malfunction for Degraded Cooling while continuing with this procedure.			
P	3c	IF a suction source is AVAILABLE from intact intake tunnels, THEN transfer the affected train to the ocean: ATTACHMENT B, Transfer Train A Service Water to Ocean	3b	Student goes to Attachment B.	_____ _____
	4	ATTACHMENT B, Transfer Train A Service Water to Ocean			
P	4a	Reset TA signal, as necessary.	4a	Student may reset the TA or vocalize that it is not necessary. Either is acceptable.	_____ _____

CUE: If the student asks about SW-V-20 position, then respond, **"SW-V-20 is stuck open. Continue with the next step."**

P	4b	Open SW-V20, SW Train A to discharge structure.	4b	Student recognizes that SW-V-20 is stuck open and proceeds.	_____ _____
*P	4c	Close SW-V34, SW Train A return to cooling tower	4c	Closes SW-V-34.	_____ _____
*P	4d	Close SW-V54, Cooling tower pump discharge isolation.	4d	Closes SW-V-54.	_____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step		STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
*P	4e	Open SW-V56, Cooling tower spray header test.	4e Opens SW-V-56.	_____	_____
*P	4f	Start one SW Ocean pump: SW-P-41A OR SW-P-41C.	4f Starts SW-P-41A OR SW-P-41C.	_____	_____

NOTE: If student selected path 2, then the JPM is complete.

CUE: "The JPM is complete."

	5	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤30 minutes	_____	_____
	6	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

TEAR OFF SHEET FOR CONTROL ROOM 'B' JPM

Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Secondary Operator.

B. The following information is provided to you:

1. The plant is operating at 100% power.
2. On line maintenance needs to be done on the Service Water system Train A.
3. The Shift Manager requested that Service Water Train A be transferred to the Cooling Tower until the job is complete in approximately 12 hours.
4. Initial Cooling Tower level has been recorded on Form L, Cooling Tower flush NPDES tracking sheet.
5. Local pre-starts are complete on the "A" Cooling Tower pump.
6. Previous pump start was two days ago.

C. Perform the task using OS1016.05, Service Water Cooling Tower Operation.

D. The US will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Secondary Operator, **"Secondary Operator (or student's name), all Prerequisites are complete. Review OS1016.05 Precautions and the Service Water Cooling Tower Operation Pre-Job Brief. Then transfer Service Water Train A from the Ocean to the Cooling Tower per OS1016.05 section 4.3."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'C', FINAL

POST LOCA PORV OPERATION

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position RO

SBK 0100400201 Operate The PORV/Block Valve To Control RCS Pressure

2. Conditions:

A. The reactor tripped from 100% due to a LOCA and Safety Injection has actuated.
B. All actions were completed in E-0 and E-1.
C. The crew is presently at step 11 in ES-1.2, Post LOCA Cooldown And Depressurization.
D. An RCS cooldown to cold shutdown is in progress.

3. Standards:

Refill the pressurizer to >30% [44% adverse] per ES-1.2, Post LOCA Cooldown And Depressurization.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of ES-1.2, Post LOCA Cooldown And Depressurization Rev. 38.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:
- ES-1.2, Post LOCA Cooldown And Depressurization.

Sys	KA	Description	Value RO/SRO
009	EA1.15	Ability to operate and monitor PORV and PORV block valve as they apply to a small break LOCA.	3.9/4.1
009	EA2.04	Ability to determine or interpret PZR level as they apply to a small break LOCA.	3.8/4.0

7. Setting:

Reset the simulator to IC #155 or any 100% IC which contains the following:

A. Initialize to an IC at 100% power.
B. Insert malfunction mfRC049D RCS Cold Leg 4 leak 0-175000gpm Final Value=1200.
C. Run the simulator and allow the reactor to trip and SI to actuate.
D. Complete E-0 and E-1 through step 12 for ES-1.2 transition.
E. Open EFW mini-flow valves and throttle EFW flow.
F. Reset SI.
G. Shut down and reset EDGs. Isolate SW to EDGs
H. Trip all RCPs.
I. Transition to ES-1.2 and perform steps 1-10. Ensure RHR pumps are secured.
J. Modify mfRC049D to 1000 gpm to restore subcooling to >40°F.
K. Place the simulator in FREEZE.

8. Safety Considerations:

None.

9. Approximate Completion Time:

10 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Primary Operator. You are going to depressurize the RCS to refill the pressurizer.

B. The following information is provided to you:

1. The reactor tripped from 100% due to a LOCA and Safety Injection has actuated.
2. All actions were completed in E-0 and E-1.
3. The crew is presently at step 11 in ES-1.2, Post LOCA Cooldown And Depressurization.
4. An RCS cooldown to cold shutdown is in progress.

C. Perform the task using ES-1.2, Post LOCA Cooldown And Depressurization.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

Evaluator to Primary Operator, **"Primary Operator (or student's name), depressurize the RCS to refill the pressurizer using step 11 of ES-1.2."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
1. P	Start time _____	Initiating cue read	

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: Read the note prior to step 11 of ES-1.2.

*2.	P	Depressurize the RCS to refill the PZR: a. PZR level less than 30% [44% adverse].	a. Verifies PZR level less than 30% [44% adverse].	_____	_____

NOTE: The student should recognize that the pressurizer spray valves cannot be used due to RCPs being secured and transition to the RNO. If the student opens the normal spray valve(s), then they should subsequently be closed and transition to the RNO for satisfactory completion of the JPM.

		b. Open normal PZR spray valve(s) to refill PZR.	b. Verifies normal spray is not available.	_____	_____
		******BEGIN ALTERNATE PATH******			
		*b1) RNO step 11b. Use one PZR PORV to refill PZR.	*b1) Uses one PZR PORV to refill PZR. Opens one PZR PORV (with associated block valve open).	_____	_____
		c. PZR level greater than 30% [44% adverse].	c. Verifies and reports that PZR level is not greater than 30% [44% adverse].	_____	_____

CUE: US (Instructor) provide the following cue if decision to continue with step 12, **"Monitor PZR level to see what the effects of depressurizing the RCS are on PZR level."**
PZR level should come on scale within a minute.

		*d. Stop the RCS depressurization: If PORV in use then close PZR PORV.	*d. Closes PZR PORV.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
CUE:	**"The JPM is complete."**		
3.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 10 minutes	
4.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____ _____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Primary Operator. You are going to depressurize the RCS to refill the pressurizer.

B. The following information is provided to you:

1. The reactor tripped from 100% due to a LOCA and Safety Injection has actuated.
2. All actions were completed in E-0 and E-1.
3. The crew is presently at step 11 in ES-1.2, Post LOCA Cooldown And Depressurization.
4. An RCS cooldown to cold shutdown is in progress.

C. Perform the task using ES-1.2, Post LOCA Cooldown And Depressurization.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

Evaluator to Primary Operator, **"Primary Operator (or student's name), depressurize the RCS to refill the pressurizer using step 11 of ES-1.2."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'D', FINAL

PLACE FAH IN FUEL HANDLING MODE

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position RO

SBK 1100100101 Shift Ventilation Lineups Between Normal And FAH

2. Conditions:

A. The plant is at 100% power and all systems are normal.
B. Reactor Engineering and Westinghouse will be performing an inspection of the RCCA change out tool in the Fuel Storage Building.
C. Normal Fuel Storage Building ventilation is in service.

3. Standards:

Place FAH in the fuel handling mode per OS1023.63, Fuel Storage Building Ventilation System Operation.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of OS1023.63, Fuel Storage Building Ventilation System Operation Rev.13.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested, no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- OS1023.63, Fuel Storage Building Ventilation System Operation.

Sys	KA	Description	Value RO/SRO
2.1	2.1.44	Knowledge of RO duties in the control room during fuel handling, such as responding to alarms from the fuel handling area, communication with the fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.	3.9/3.8

7. Setting:

Simulator:

A. Initialize the simulator to IC #155 OR 100% power IC OR any IC that does not interfere with FAH operations.
B. FAH is in the normal lineup (i.e. FAH-FN-124 running).

8. Safety Considerations:

None.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Primary Operator. In response to activities about to occur in the Fuel Storage Building, the US has directed you to place FAH in the fuel handling mode.

B. The following information is provided to you:

1. The plant is at 100% power and all systems are normal.
2. Reactor Engineering and Westinghouse will be performing an inspection of the RCCA change out tool in the Fuel Storage Building.
3. Normal Fuel Storage Building ventilation is in service.
4. A sign has been hung on door F202 prohibiting the use of any fossil fueled equipment in the FSB.

C. Perform the task using OS1023.63, Fuel Storage Building Ventilation System Operation.

D. We will begin after the Initiating Cue is read.

E. The US will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Primary Operator, **"Primary Operator (or student's name), place Train "A" Fuel Storage Building ventilation in the fuel handling mode in accordance with OS1023.63. All Prerequisites and Initial Conditions are complete."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
1. P	Start time _____	Initiating cue read		

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: Student should review the Note prior to step 4.4.1 of OS1023.63

NOTE: Student should review the Note and Caution prior to step 4.3.1 of OS1023.63

2.	P	Locally place PAH-DP-1003, PAB/FSB balancing damper, to the fuel handling position.	Directs NSO to place PAH-DP-1003 to the fuel handling position.	_____	_____

CUE: NSO to Primary Operator, **"I copy, place PAH-DP-1003 in the fuel handling position."**

CUE: After completion of communication to place PAH-DP-1003 to the fuel handling position, NSO to Primary Operator,"**I have placed PAH-DP-1003 in the fuel handling position."**

*3.	P	Place the control switch for FAH-DP-14, FSB normal exhaust damper, to close. Exhaust fan FAH-FN-124 is interlocked with FAH-DP-14 and will stop when the damper reaches the full closed position.	Places the control switch for FAH-DP-14 to close. (Observes FAH-FN-124 stops when FAH-DP-14 is full closed)	_____	_____
*4.	P	Place the control switches for FAH-DP-13A and FAH-DP-13B, FSB supply dampers, to close.	Places the following control switches to close: • FAH-DP-13A • FAH-DP-13B.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
*5. P	Place both Train A and Train B Fuel Storage Building ventilation mode control switches to fuel handling.	Places the following switches to fuel handling: • Train A mode switch • Train B mode switch.	_____	_____
6. P	Verify FAH-DP-13A and FAH-DP-13B, FSB supply dampers indicate closed.	Verifies closed: • FAH-DP-13A • FAH-DP-13B	_____	_____
7. P	Verify FAH-DP-14, FSB normal exhaust damper, is fully closed. If not full closed, the damper must be closed manually at the damper (FSB 64 ft elevation)	Verifies FAH-DP-14 is closed.	_____	_____

CUE: If asked, US to Primary Operator,"**Place Train A air cleaning unit in service."**

NOTE: Student should review Caution prior to step 4.4.6.1 of OS1023.63.

NOTE: Placing FAH-DP-366 to start will start FAH-FN-11A when FAH-DP-366 starts to open.

*8.	P	If fan FAH-FN-11A and its associated air cleaning unit, 41, are to be placed in service, perform the following:	Performs the following:		
		*a. Place the control switch for FAH-DP-366, FSB cleaning unit exhaust damper to start.	*a. Places the control switch for FAH-DP-366 to start.	_____	_____

NOTE: FAH-DP-13A will modulate to mid-position (20% open).

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
	*b. Place the control switch for FAH-DP-13A, FSB supply damper to open. The damper will open to a preset position to maintain FSB internal pressure at a negative value.	*b. Positions FAH-DP-13A control switch to open.	_____	_____
	*c. At MCB, place the FAH-F-41, cleaning unit heater, control switch to auto.	*c. Positions FAH-F-41, cleaning unit heater control switch to auto.	_____	_____
CUE:	**"The JPM is complete."**			
9.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes	_____	_____
10.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

TEAR OFF SHEET FOR CONTROL ROOM 'D' JPM

Directions To The Student:

A. You are the Primary Operator. In response to activities about to occur in the Fuel Storage Building, the US has directed you to place FAH in the fuel handling mode.

B. The following information is provided to you:

1. The plant is at 100% power and all systems are normal.
2. Reactor Engineering and Westinghouse will be performing an inspection of the RCCA change out tool in the Fuel Storage Building.
3. Normal Fuel Storage Building ventilation is in service.
4. A sign has been hung on door F202 prohibiting the use of any fossil fueled equipment in the FSB.

C. Perform the task using OS1023.63, Fuel Storage Building Ventilation System Operation.

D. We will begin after the Initiating Cue is read.

E. The US will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Primary Operator, **"Primary Operator (or student's name), place Train "A" Fuel Storage Building ventilation in the fuel handling mode in accordance with OS1023.63. All Prerequisites and Initial Conditions are complete."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'E', FINAL

FAILED OPEN ASDV

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position RO

SBK 0390101501 OPERATE ASDV'S FROM MCB OR RSS

2. Conditions:

A. The plant is at 100% power and all systems are normal.

3. Standards:

Identify a failed open ASDV and restore the system per VAS D5214 ASDV A NOT FULL CLOSED or hardwire alarm MM-UA-53, A-7 ATMOS STM DUMP VALVE OPEN.

4. Student Materials:

Copy of Tear Off Sheet.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- VAS D5214 ASDV A NOT FULL CLOSED
- Hardwire alarm MM-UA-53, A-7 ATMOS STM DUMP VALVE OPEN

Technical Specifications:

- 3.7.1.6 Atmospheric Relief Valves

Sys	KA	Description	Value RO/SRO
035	K6.02	Knowledge of the effect of a loss or malfunction on the following will have on the S/Gs: Secondary PORV	3.1/3.5

7. Setting:

Simulator:

Reset the simulator to IC #156 or any 100% IC:

A. Initialize the simulator to a 100% power IC.
B. Fail A ASDV controller to stay in Auto as follows:
   a. SELECT: Panel Overview section FF
   b. SELECT: Insert Override
   c. SELECT: MS-PK-3001 manual push button
   d. CANCEL first screen that pops up to get to second screen
   e. Change Final value to MANUAL
   f. SELECT: Insert
C. Place the simulator in RUN.

8. Safety Considerations:

None.

9. Approximate Completion Time:

15 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Secondary Operator. An event will occur. You are expected to identify the event and recommend actions and/or procedures to implement.

B. The following information is provided to you:

   1. The plant is at 100% power and all systems are normal.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Secondary Operator, **"You are the Secondary Operator respond to any condition that arises."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
1. P	Start time _____	Initiating cue read		

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

CUE: MS-PV-3001, 'A' SG Atmospheric Dump Valve fails open to a mid position:
SELECT: MF List
SELECT: Main Steam (Component)
SELECT: ctMSPK3001
SELECT: FAIL OUTPUT (AUTO)
SET VALUE: 15
SET RAMP: 15
SELECT: INSERT

*2.	P	Recognize and report that an ASDV has failed open.	Recognizes and reports that 'A' ASDV has failed open.	_____	_____

CUE: If student requests 'Skill of the Operator' to close the ASDV, US respond, **"I concur".**

CUE: If student using VAS D5214 or hardwire alarm resonse close the ASDV, US respond, **"I concur".**

NOTE: The remaining steps are performed using VAS D5214 ASDV A NOT FULL CLOSED or hardwire alarm response for MM-UA-53, A-7 ATMOS STM DUMP VALVE OPEN.

NOTE: Note prior to step 1.1 of VAS D5214 ASDV A NOT FULL CLOSED or hardwire alarm response for MM-UA-53, A 7 ATMOS STM DUMP VALVE OPEN should be read.

*3.	P	VERIFY SG pressures and ASDV controller setpoint. NOTE: ASDV controllers are normally set for 1125 psig in auto.	Checks SG pressures are less than 1125 psig and ASDV controller setpoint set at 1125 psig.	_____	_____
4.	P	ADJUST ASDV controllers and/or TRANSFER steam loads to condenser steam dumps as	Acknowledges step requires no actions.	_____	_____

PERFORMANCE CHECKLIST

D=Discuss P=Perform =Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
	necessary.			
5. P	If an ASDV has failed OPEN:	Verifies that an ASDV has failed OPEN:	_____	_____
	1 PLACE controller for failed ASDV in manual/minimum.	1 Places controller for failed ASDV in manual/minimum.	_____	_____
	*2 PLACE affected ASDV control switch to close.	*2 Places the affected ASDV control switch to close and verifies that the ASDV closes. Reports ASDV closed to US.	_____	_____
CUE:	If the student dispatches an NSO to the West Pipe Chase to locally isolate the 'A' ASDV respond, **"This is Primary NSO (or name) responding to the West Pipe Chase to locally isolate the 'A' ASDV."**			
	3 Locally ISOLATE ASDV as necessary.	3 Dispatches an NSO to the West Pipe Chase to locally isolate the 'A' ASDV.	_____	_____
6. P	Observes for proper ASDV response.	Informs US that the 'A' ASDV is closed.	_____	_____
CUE:	**"The JPM is complete."**			
7.	Stop time _____	Time to complete task ≤15 minutes	_____	_____
	Evaluator calculates time to complete task			
8.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

TEAR OFF SHEET FOR CONTROL ROOM 'E' JPM

Directions To The Student:

A. You are the Secondary Operator. An event will occur. You are expected to identify the event and recommend actions and/or procedures to implement.

B. The following information is provided to you:

   1. The plant is at 100% power and all systems are normal.

C. We will begin after the Initiating Cue is read.

D. I will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Secondary Operator, **"You are the Secondary Operator respond to any condition that arises."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'F', FINAL

RAISE SI ACCUMULATOR PRESSURE

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position RO

SBK 0060100201 Monitor The Safety Injection System

2. Conditions:

A. The "A" Accumulator pressure has decreased to the low pressure alarm setpoint due to normal system leakage.
B. The Roving NSO is available at the nitrogen skid.

3. Standards:

Pressurize the "A" Accumulator to above the low pressure alarm, and within the limitations of Technical Specifications. (610 psig +10 psig/- 0 psig)

4. Student Materials:

Copy of Tear Off Sheet.
Copy of OS1005.05 Safety Injection System Operation Rev. 16 Pages 9-11 & 27-29.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:
- OS1005.05 Safety Injection System Operation

Technical Specifications:
- 3.5.1.1 ECCS Accumulators – Hot Standby, Startup, and Power Operation

Drawings
- 1-SI-B20455 Safety Injection System

Sys	KA	Description	Value RO/SRO
006	A1.13	Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: Accumulator pressure.	3.5/3.7

7. Setting:

Reset the simulator to IC #156 or any 100% IC which contains the following:

A. Initialize to an IC at 100% power.
B. Vent the "A" Accumulator (using the vent valves), to approximately 590 psig, until UA-50 hardwire alarm Accum Press Hi/Lo and VAS alarm D4505 are in alarm.
C. Use "GD ACCUMS" on MPCS to view Accumulator level and pressure "A" points.
D. OPEN NG-V-30 as follows:
   SELECT: RF List
   SELECT: Nitrogen Gas
   SELECT: rfNG003 NG-V30 Nitrogen to SI accumulators manual isolation
   SELECT: Final Value=OPEN
   SELECT: INSERT
E. Freeze the simulator.

8. Safety Considerations:

None.

9. Approximate Completion Time:

15 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Primary Operator and you are going to pressurize the "A" Accumulator to within limits of Tech. Specs. (610 psig +10 psig/- 0 psig). You may use MPCS Group Display "GD ACCUMS" to view Accumulator level and pressure "A" points or SVD A0414 for "A" Accumulator pressure.

B. The following information is provided to you:

   1. The "A" Accumulator pressure has decreased due to normal system leakage.
   2. All applicable prerequisites of OS1005.05 Safety Injection System Operation are complete.
   3. Nitrogen is being supplied via a tube truck.

C. Perform the task using OS1005.05 Safety Injection System Operation.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Primary Operator, **"Primary Operator (or student's name), Pressurize the "A" Accumulator to 610 psig +10 psig / -0 psig."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
1. P	Start time _____	Initiating cue read	

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

2.	P	Verify a N_2 source is available from the N_2 truck or the N_2 bottle banks per ON1024.01 Startup and Shutdown of Nitrogen Gas System	Determines if a nitrogen source is available.	_____ _____

CUE: When the student attempts to determine if a nitrogen source is available, inform the student, **"Nitrogen is being supplied via a tube truck."**

*3.	P	Open the following valves		
		*a. NG-V-13, nitrogen to SI accumulator ORC isolation.	*a. Opens NG-V-13, nitrogen to SI accumulator ORC isolation.	_____ _____
		*b. NG-V-14, nitrogen to SI accumulator IRC isolation.	*b. Opens NG-V-14, nitrogen to SI accumulator IRC isolation.	_____ _____
*4.	P	Slowly opens NG-V-30, nitrogen inlet isolation to the accumulators.	Directs NSO to slowly open NG-V-30, nitrogen inlet isolation to the accumulators.	_____ _____

CUE: When candidate asks NSO to slowly open NG-V-30, then report, **"NG-V-30 is open."**

CUE: If the student requests US direction, respond, **"Pressurize the "A" Accumulator to 610 psig +10 psig/ - 0 psig."**

*5.	P	Open the nitrogen header isolation valve for the desired accumulator. NG-V-17 Accumulator "A" nitrogen isolation.	Opens NG-V-17 Accumulator "A" nitrogen isolation.	_____ _____
*6.	P	When pressure reaches desired value, close NG-V-30, nitrogen inlet isolation to the accumulators.	When pressure reaches desired value, directs NSO to close NG-V-30, nitrogen inlet isolation to the	_____ _____

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
		accumulators.	
CUE:	When candidate directs NSO to close NG-V-30, then report, **"NG-V-30 is closed."**		
*7. P	Check closed/close the following valves:		
	*a. NG-V-17 Accumulator "A" nitrogen isolation.	*a. Closes NG-V-17 Accumulator "A" nitrogen isolation.	_____ _____
	b. NG-V-19 Accumulator "B" nitrogen isolation.	b. Check closed NG-V-19 Accumulator "B" nitrogen isolation.	_____ _____
	c. NG-V-21 Accumulator "C" nitrogen isolation.	c. Check closed NG-V-21 Accumulator "C" nitrogen isolation.	_____ _____
	d. NG-V-23 Accumulator "D" nitrogen isolation.	d. Check closed NG-V-23 Accumulator "D" nitrogen isolation.	_____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
	"A" Accumulator final pressure _____ psig at completion of task 610 psig +10 psig/ - 0 psig."			
*8. P	Close the following valves:			
	*a. NG-V-13, nitrogen to SI accumulator ORC isolation	*a. Closes NG-V-13, nitrogen to SI accumulator ORC isolation.	_____	_____
	*b. NG-V-14, nitrogen to SI accumulator IRC isolation.	*b. Closes NG-V-14, nitrogen to SI accumulator IRC isolation.	_____	_____
CUE:	**"The JPM is complete."**			
9.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 15 minutes	_____	_____
10.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Primary Operator and you are going to pressurize the "A" Accumulator to within limits of Tech. Specs. (610 psig +10 psig/- 0 psig). You may use MPCS Group Display "GD ACCUMS" to view Accumulator level and pressure "A" points or SVD A0414 for "A" Accumulator pressure.

B. The following information is provided to you:

1. The "A" Accumulator pressure has decreased due to normal system leakage.
2. All applicable prerequisites of OS1005.05 Safety Injection System Operation are complete.
3. Nitrogen is being supplied via a tube truck.

C. Perform the task using OS1005.05 Safety Injection System Operation.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Primary Operator, **"Primary Operator (or student's name), Pressurize the "A" Accumulator to 610 psig +10 psig / -0 psig."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'G', FINAL

ESTABLISH CHARGING AND LETDOWN (HCV-189/190 FAIL)

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position RO

SBK 0040104801 Establish Charging And Seal Injection Flow
SBK 0040104901 Establish Normal Letdown Flow

2. Conditions:

A. A manual Safety Injection was initiated due to a SG tube rupture.
B. The control room executed E-0 and transitioned to E-3.
C. The crew identified SG "C" as the ruptured SG.
D. The crew has completed E-3 up to and including step 21.
E. A Loss of Offsite Power occurred on the reactor trip.
F. Offsite power has been restored.
G. Bus 5 and 6 are powered by the 'A' and 'B' Emergency Diesel Generators.

3. Standards:

Establish normal charging and letdown in accordance with E-3, SG Tube Rupture.

4. Student Materials:

Copy of Tear-Off Sheet
Copy of E-3 SG Tube Rupture, Rev. 42

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:
- E-3, SG Tube Rupture
- Westinghouse Background Document, E-3.

Sys	KA	Description	Value RO/SRO
038	EK3.06	Knowledge of bases for actions contained in EOP for RCS water inventory balance.	4.2/4.5
038	EA1.09	Ability to operate and monitor PZR level/pressure indicators, gauges, and recorders.	3.2/3.3
038	EA1.29	Ability to operate and monitor CVCS tank indicators and water charging sources.	3.5/3.3

7. Setting:

Reset the simulator to IC #157 or any 100% IC which contains the following:

A. Initialize to any 100% IC and place the simulator in RUN.
B. Insert malfunction mfSG001C SG C DBL END Tube Rupture Hot Side (0 – 1150gpm) for a 425 gpm tube rupture on "C" SG.
C. When RDMS alarms due to the tube rupture manually trip the reactor and initiate a manual SI.
D. Execute E-0. Open EFW mini-flow valves and isolate EFW to "C" SG when level is adequate (E-0 OAS page).
E. Transition to E-3 and execute steps 1-21.
F. Using Panel Graphics insert override to close HCV-189 and HCV-190. Override both the potentiometer and meter for each valve.
G. Insert malfunction mfED038 loss of offsite power and allow Bus 5 and 6 to be powered by the 'A' and 'B' Emergency Diesel Generators.
H. Delete malfunction mfED038 loss of offsite power.
I. Stop CS-P-2-B and place in Standby.
J. Set boric acid flow to 40 GPM.
K. FREEZE the simulator.

8. Safety Considerations:

None.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Primary Operator. You are going to re-establish charging and letdown per E-3, SG Tube Rupture. The evaluator will act as the Unit Supervisor. The student will read and execute the procedure.

B. The following information is provided to you:

1. A manual Safety Injection was initiated due to a SG tube rupture.
2. The control room executed E-0 and transitioned to E-3.
3. The crew identified SG "C" as the ruptured SG.
4. The crew has completed E-3 up to and including step 21.
5. A Loss of Offsite Power occurred on the reactor trip.
6. Offsite power has been restored.
7. Bus 5 and 6 are powered by the 'A' and 'B' Emergency Diesel Generators.

C. Perform the task using E-3, SG Tube Rupture.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

Evaluator to Primary Operator, **"Primary Operator (or student's name), you will be establishing letdown in accordance with E-3. You will begin performance of E-3, starting at step 22."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: When student is ready to begin place the simulator in RUN.
Student begins at step 22 of E-3.

1. P Start time _____ Initiating cue read

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

*2. P Restore normal charging path:
- Open CS-V-142
- Open CS-V-143

Opens charging line isolation valves:
- Open CS-V-142
- Open CS-V-143

_____ _____

*3. P Establish normal charging flow:

*a. Isolate CCP to RCS Cold Legs:
- Close SI-V-138
- Close SI-V-139

*a. Isolates CCP to RCS Cold Legs:
- Close SI-V-138
- Close SI-V-139

_____ _____

NOTE: It is not necessary to establish exactly 60 gpm charging flow. The evaluator judges that the intent is met if enough flow is established to supply letdown regenerative cooling, and not too much flow established such that Pressurizer level is adversely affected.

*b. Establish 60 gpm charging flow. *b. Establishes adequate charging flow by adjusting CS-FCV-121. _____ _____

CUE: If necessary, provide the following cue, US to PSO: **"6-10 gpm is the desired seal injection flow rate."**

*c. Adjust seal injection flow as necessary using CS-HCV-182. *c. Adjusts seal injection flow to 6-10 gpm using CS-HCV-182. _____ _____

NOTE: The intent of the next step is met if the student is charging into the RCS via CS-FCV-121. It is a continuous action step. Control of charging flow is specifically addressed after letdown is established (step 30 of E-3).

4. P Control charging flow to maintain Pressurizer level. Controls charging flow to maintain Pressurizer level. _____ _____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
5. P	Verify ECCS flow not required: • RCS subcooling greater than 40°F • PZR level greater than 7%.	Verifies ECCS flow not required: • RCS subcooling greater than 40°F • PZR level greater than 7%.	_____ _____
6. P	Check VCT makeup control system		
	a. Makeup set for greater than RCS boron concentration. .	a. Checks boric acid controller to maximum 40 GPM.	_____ _____
	b. Makeup set for automatic control.	b. Checks makeup in automatic and armed.	_____ _____

NOTE: The instructor (acting as the BOP) should maintain RCS temperature using steam dumps or ASDVs.

*7. P	Check if letdown can be established:		
	a. Check PZR level greater than 30%.	a. Checks PZR level greater than 30%.	_____ _____
	b. Establish letdown:		
	*b1) Open CC-V-341 letdown HX cooling water outlet.	*b1) Opens CC-V-341 letdown HX cooling water outlet.	_____ _____
	b2) Close letdown flow control valves: • CS-HCV-189 • CS-HCV-190.	b2) Closes letdown flow control valves: • CS-HCV-189 • CS-HCV-190.	_____ _____
	*b3) Open letdown line Phase A isolation valves: * • CS-V-149 * • CS-V-150.	*b3) Open letdown line Phase A isolation valves: * • CS-V-149 * • CS-V-150.	_____ _____ _____ _____

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
	*b4) Open letdown line isolation valves: a) RC-V-81 * b) RC-LCV-459 * c) RC-LCV460 * d) CS-V-145	*b4) Opens letdown line isolation valves: a) RC-V-81 * b) RC-LCV-459 * c) RC-LCV-460 * d) CS-V-145	____ ____ ____ ____ ____ ____ ____ ____

CUE: US to PSO, **"Take manual control of CS-PK-131 as necessary to establish flow in the letdown line."**

NOTE: The student may place CS-PCV-131 in manual and open the valve about 20%.

******BEGIN ALTERNATE PATH******

b5) Throttle open letdown flow control valve.	b5) • Attempts to throttle open CS-HCV-189. Determines that valve will not open. • Attempts to throttle open CS-HCV-190. Determines that valve will not open. • Transitions to step 27b RNO.	____	____
*b6) RNO: Establish Excess Letdown per ATTACHMENT E.	*b6) Determines Excess Letdown per ATTACHMENT E is required.	____	____

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
*8. P	Establish excess letdown:		
NOTE:	The student reads the **CAUTION** prior to step 1: • Excess letdown HX outlet temperature of 175°F should not be exceeded. • Excess letdown HX outlet pressure of 150 psig should not be exceeded.		
	a. Open all four B PCCW loop containment isolation valves.	a. Checks open all four B PCCW loop containment isolation valves.	_____ _____
	b. Open CC-V434, excess letdown HX cooling water outlet.	b. Opens CC-V434, excess letdown HX cooling water outlet.	_____ _____
	c. Open RCP seal return isolation valves: CS-V167 and CS-V168.	c. Opens RCP seal return isolation valves: CS-V167 and CS-V168.	_____ _____
	d. Open RCDT outlet isolation valves: WLD-V81 and WLD-V82.	d. Opens RCDT outlet isolation valves: WLD-V81 and WLD-V82.	_____ _____
	e. Close CS-HCV-123.	e. Closes CS-HCV-123.	_____ _____
	f. Open excess letdown isolation valves: CS-V175 and CS-V176.	f. Opens excess letdown isolation valves: CS-V175 and CS-V176.	_____ _____
	g. Align CS-V170 to RCDT.	g. Aligns CS-V170 to RCDT.	_____ _____
	h. Throttle open CS-HCV-123 to establish desired excess letdown pressure and temperature.	h. Throttles open CS-HCV-123 to establish desired excess letdown pressure and temperature.	_____ _____
CUE:	**"The JPM is complete."**		
8.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes	_____ _____
9.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____ _____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Primary Operator. You are going to re-establish charging and letdown per E-3, SG Tube Rupture. The evaluator will act as the Unit Supervisor. The student will read and execute the procedure.

B. The following information is provided to you:

1. A manual Safety Injection was initiated due to a SG tube rupture.
2. The control room executed E-0 and transitioned to E-3.
3. The crew identified SG "C" as the ruptured SG.
4. The crew has completed E-3 up to and including step 21.
5. A Loss of Offsite Power occurred on the reactor trip.
6. Offsite power has been restored.
7. Bus 5 and 6 are powered by the 'A' and 'B' Emergency Diesel Generators.

C. Perform the task using E-3, SG Tube Rupture.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

Evaluator to Primary Operator, **"Primary Operator (or student's name), you will be establishing letdown in accordance with E-3. You will begin performance of E-3, starting at step 22."**

NEXTera ENERGY SEABROOK

CONTROL ROOM JOB PERFORMANCE MEASURE 'H', FINAL

OFFSITE POWER RESTORATION

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position RO

SBK 0640402501 Restore Offsite Power to Bus E5/E6.

2. Conditions:

A. The A manual Safety Injection was initiated due to a SG tube rupture.
B. The control room executed E-0 and transitioned to E-3.
C. The crew identified SG "C" as the ruptured SG.
D. The crew has completed E-3 up to and including step 21.
E. A Loss of Offsite Power occurred on the reactor trip.
F. Offsite power has been restored.
G. Bus 5 and 6 are powered by the 'A' and 'B' Emergency Diesel Generators.

3. Standards:

Student will restore offsite power to bus 6 using E-3, SG Tube Rupture, attachment H.

4. Student Materials:

Copy of Tear-Off Sheet
Copy of Attachment H of E-3, Offsite Power Restoration to Bus E5 and E6, Rev. 42.

5. Limitations On Performance:

Perform all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:
- E-3, SG Tube Rupture, attachment H

Sys	KA	Description	Value RO/SRO
062	K1.04	Knowledge of offsite power sources.	3.7/4.2
062	A4.01	Ability to manually operate and/or monitor breakers.	3.3/3.1
062	A4.07	Synchronizing and paralleling of different AC supplies.	3.1/3.1

7. Setting:

Reset the simulator to IC #157 or any 100% IC which contains the following:

A. Initialize to any 100% IC and place the simulator in RUN.
B. Insert malfunction mfSG001C SG C DBL END Tube Rupture Hot Side (0 – 1150gpm) for a 425 gpm tube rupture on "C" SG.
C. When RDMS alarms due to the tube rupture manually trip the reactor and initiate a manual SI.
D. Execute E-0. Open EFW mini-flow valves and isolate EFW to "C" SG when level is adequate (E-0, OAS page).
E. Transition to E-3 and execute steps 1-21.
F. Using Panel Graphics insert override to close HCV-189 and HCV-190. Override both the potentiometer and meter for each valve.
G. Insert malfunction mfED038 loss of offsite power and allow Bus 5 and 6 to be powered by the 'A' and 'B' Emergency Diesel Generators.
H. Delete malfunction mfED038, loss of offsite power.
I. Stop CS-P-2-B and place in Standby.
J. FREEZE the simulator.

8. Safety Considerations:

None.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.

Evaluator reads the following to student:

A. You are the Secondary Operator. You will restore offsite power to Bus 6 using E-3, SG Tube Rupture, attachment H.

B. The following information is provided to you:
   1. The A manual Safety Injection was initiated due to a SG tube rupture.
   2. The control room executed E-0 and transitioned to E-3.
   3. The crew identified SG "C" as the ruptured SG.
   4. The crew has completed E-3 up to and including step 21.
   5. A Loss of Offsite Power occurred on the reactor trip.
   6. Offsite power has been restored.
   7. The system dispatcher reports grid conditions are now stable, and are expected to remain stable.
   8. Bus 5 and 6 are powered by the 'A' and 'B' Emergency Diesel Generators.

C. Perform the task using E-3, SG Tube Rupture, attachment H.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Secondary Operator, **"Secondary Operator (or student's name), restore offsite power to Bus E6 using E-3, SG Tube Rupture, attachment H.**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate		ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
1.	P	Start time _____	Initiating cue read		

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

2.		IF AC emergency bus is powered by emergency diesels 1A/1B, THEN restore offsite power as follows:				
*P	a	Raise DG frequency to 60.2 to 60.4 Hz.	a Raises DG frequency to 60.2 to 60.4 Hz.	_____	_____	
*P	b	Place DG sync. selector switch in the RAT or UAT position.	b Places DG sync. selector switch in the RAT or UAT position.	_____	_____	
*P	c	Reset RMO.	c Resets RMO.	_____	_____	
*P	d	Adjust DG voltage to match INCOMING VOLTS with RUNNING VOLTS.	d Adjusts DG voltage to match INCOMING VOLTS with RUNNING VOLTS.	_____	_____	
*P	e	Adjust DG frequency so that the sync. meter is going slowly in the fast direction.	e Adjusts DG frequency so that the sync. meter is going slowly in the fast direction.	_____	_____	
*P	f	Close the RAT or UAT breaker when synchronized.	f Closes the RAT or UAT breaker when synchronized. (sync. meter approximately 12 o'clock position)	_____	_____	
*P	g	Place the sync. selector switch in OFF.	g Places the sync. selector switch in OFF.	_____	_____	

NOTE: The evaluator should observe that the operator maintains control over the generator VARs while

D=Discuss P=Perform S=Simulate		ELEMENT/STEP * denotes a critical step		STANDARD * denotes a critical step	EVALUATION SAT	 UNSAT
		unloading. Due to simulator bus voltage settings, it is expected that leading VAR loading will initially be observed. Until this issue can be corrected, the following cue must be stated to the student:				
CUE:		**"Due to simulator bus voltage settings, it is expected that you will initially see leading VARs after paralleling. The response of KVARS to DG voltage adjustments will be reversed. Adjust DG KVARS to 1000 lagging at this time. This adjustment is not part of the evaluation."**				
CUE:		**Inform the student: "For the purposes of this JPM, the 10 minute unloading period can be compressed."**				
	h	Shutdown DG by performing the following:	h	Shuts down DG by performing the following:	_____	_____
*P	h1	Over a 10 minute period lower KVARS to less than 200 lagging and lower load to 75 to 125 KW.	h1	Over a 10 minute period, lowers KVARS to less than 200 lagging and lower load to 75 to 125 KW.	_____	_____
*P	h2	Open DG breaker.	h2	Opens DG breaker.	_____	_____
*P	h3	Adjust DG voltage to 4160 volts.	h3	Adjusts DG voltage to 4160 volts.	_____	_____
CUE:		**When the above step is completed, inform the student: "For the purpose of this JPM, ten minutes have elapsed and the DG is cooled sufficiently to shutdown the engine."**				
*P	h4	After running DG unloaded for 10 minutes to cool the engine, shutdown the diesel by depressing both emergency stop buttons simultaneously.	h4	Runs DG unloaded for 10, then shuts down the diesel by depressing both emergency stop buttons simultaneously.	_____	_____
CUE:		**When the above step is completed and DG rpm is zero, inform the student: "For the purpose of this JPM, two minutes have elapsed and the DG has stopped rolling."**				

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
*P	h5 After waiting two minutes to allow time for diesel to stop, reset the DG.	h5 Resets the DG.	_____	_____
*P	h6 Close SW-V-16 for DG A, or SW-V-18 for DG B.	h6 Closes SW-V-18 for DG B.	_____	_____

CUE: "The JPM is complete."

3.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤20 minutes	_____	_____
4.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions to the Student:

A. You are the Secondary Operator. You will restore offsite power to Bus 6 using E-3, SG Tube Rupture, attachment H.

B. The following information is provided to you:
   1. The A manual Safety Injection was initiated due to a SG tube rupture.
   2. The control room executed E-0 and transitioned to E-3.
   3. The crew identified SG "C" as the ruptured SG.
   4. The crew has completed E-3 up to and including step 21.
   5. A Loss of Offsite Power occurred on the reactor trip.
   6. Offsite power has been restored.
   7. The system dispatcher reports grid conditions are now stable, and are expected to remain stable.
   8. Bus 5 and 6 are powered by the 'A' and 'B' Emergency Diesel Generators.

C. Perform the task using E-3, SG Tube Rupture, attachment H.

D. We will begin after the Initiating Cue is read.

E. I will provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Secondary Operator, **"Secondary Operator (or student's name), restore offsite power to Bus E6 using E-3, SG Tube Rupture, attachment H.**

NEXTera ENERGY SEABROOK

IN-PLANT JOB PERFORMANCE MEASURE 'A', FINAL

DC START OF ELGAR UPS

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

1. Task Number and Description

Position NSO

SBK 0620100304 Place In/Remove From Service A Static Inverter

2. Conditions:

A. The plant is in mode 5.
B. UPS EDE-I-1E(F) was shutdown during the previous shift to support an inspection performed by Engineering Support Staff. UPS 1-EDE-I-1E(F) was shutdown using OS1047.01, Vital Inverter Operation.
C. PP-1E(F) was transferred to its maintenance supply per OS1047.02, Transferring Power Supplies To 120 VAC Vital Instrument Buses prior to inverter shutdown.
D. On the other train PP-1F(E) is energized from its inverter connected to the respective DC bus.

3. Standards:

Simulate restart of UPS-1-EDE-I-1E(F).

4. Student Materials:

Copy of Tear Off Sheet.
Copy of OS1047.01, Vital Inverter Operation Rev 14
Operator Aid 90-0019 Inverter 1E, PP-1E Power Supplies
Operator Aid 90-0020 Inverter 1F, PP-1F Power Supplies

5. Limitations On Performance:

Simulate all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- OS1047.01, Vital Inverter Operation
- OS1047.02, Transferring Power Supplies To 120 VAC Vital Instrument Buses

Technical Specifications:

- 3.8.3.1 On Site Power Distribution – Operating
- 3.8.3.2 On Site Power Distribution – Shutdown

Drawings:
- Operator Aid 90-0019 Inverter 1E, PP-1E Power Supplies
- Operator Aid 90-0020 Inverter 1F, PP-1F Power Supplies

Sys	KA	Description	Value RO/SRO
062	K4.10	Knowledge of AC distribution system design features and/or interlocks which provide for uninterruptible AC power sources.	3.1/3.5
2.1	2.1.23	Ability to perform specific system and integrated plant procedures during all modes of operation.	3.9/4.0

7. Setting:

Plant. Essential Switchgear Room.

8. Safety Considerations:

Energized electrical equipment.

9. Approximate Completion Time:

25 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student:

A. You are the Secondary NSO. You are going to simulate restart of UPS-1-EDE-I-1E(F).

B. The following information is provided to you:

1. The plant is in mode 5.
2. UPS EDE-I-1E(F) was shutdown during the previous shift to support an inspection performed by Engineering Support Staff. UPS 1-EDE-I-1E(F) was shutdown using OS1047.01, Vital Inverter Operation.
3. Vital PP-1E(F) was transferred to its maintenance supply per OS1047.02, Transferring Power Supplies To 120 VAC Vital Instrument Buses prior to inverter shutdown.
4. On the other train PP-1F(E) is energized from its inverter connected to the respective DC bus.

C. Perform the task using OS1047.01, Vital Inverter Operation.

D. We will begin after the Initiating Cue is read.

E. I will act as the Unit Supervisor and provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Secondary NSO, **"Secondary NSO (or student's name), simulate restarting UPS-1-EDE-I-1E(F) using OS1047.01, Vital Inverter Operation, section 4.11 (4.12). All of the procedure prerequisites are complete."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: When student demonstrates the ability to obtain a controlled copy of OS1047.01, Vital Inverter Operation provide the student with OS1047.01, Vital Inverter Operation.

1. P Start time _____ Initiating cue read

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

2. S Verify reverse transfer light on EDE-CP-1E(F), static transfer switch, is energized. Simulates verifying reverse transfer light on EDE-CP-1E(F), static transfer switch, is energized. _____ _____

CUE: When student simulates verifying light is energized, evaluator to student, **"The reverse transfer light is illuminated."**

*3. S Close the following breakers to UPS 1-EDE-I-1E(F):

CUE: When student locates UPS-1E(F) AC supply at MCC-512(612) node DD3(DD5), evaluator to student, **"The AC supply breaker to the inverter indicates open."**

*a. Simulates closing UPS-1E(F) AC supply at MCC-512(612) node DD3(DD5). _____ _____

CUE: When student simulates closing UPS-1E(F) AC supply at MCC-512 (612) node DD3(DD5), evaluator to student, **"The breaker closes."**

CUE: When student locates UPS-1E(F) DC supply at DC bus 11A(B) node DM7(DN0), evaluator to student, **"The DC supply breaker to the inverter indicates open."**

*b. Simulates closing UPS-1E(F) DC supply at DC bus 11A(B) node DM7(DN0). _____ _____

CUE: When student simulates closing UPS-1E(F) DC supply at DC bus 11A(B) node DM7(DN0), evaluator to student, **"The breaker closes."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: Student should review caution prior to step 4.11.3(4.12.3). If student elects not to perform step 4.11.3(4.12.3), then next step is not required. Inverter can be placed in service without pre-charge but it is the preferred method.

CUE: If student asks if pre-charge is desired, evaluator to student,**"Pre-charge inverter 1-EDE-I-1E(F)."**

4. S Pre-charge inverter 1-EDE-I-1E(F):

a. Simulates depressing Pre-charge pushbutton. _____ _____

CUE: (If performed) When student simulates depressing Pre-charge pushbutton, evaluator to student, **"The Pre-charge pushbutton has been depressed."**

b. Waits one minute to allow DC bus capacitor to charge.

CUE: After student recognizes time requirement, evaluator to student, **"One minute has elapsed."**

*5. S Close AC input breaker (100 amp) to start UPS as follows:

*a. Simulates closing AC input breaker (100 amp) to start UPS. _____ _____

CUE: When student simulates closing AC input breaker (100 amp), evaluator to student, **"The breaker closes."**

NOTE: When the AC input breaker is shut, the rectifier and inverter sections begin startup. This JPM sets up conditions described in the note prior to step 4.11.5(4.12.5). Normally when the AC input breaker is shut, output voltage and frequency will rise. In the JPM, output voltage and frequency rise momentarily and return to the low peg. The UPS will again try to restart. Voltage and frequency rise and then fall to the low peg a second time. The UPS will "lock out" when this occurs

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
		b. Checks output voltage and frequency	____ ____

Begin Alternate Path

CUE: When student checks output voltage and frequency, evaluator to student, **"Output voltage and frequency rise toward normal, and then fall off. They rise again a second time and fall off to the low peg. The following alarms are lit. at the UPS:**

- **DC INPUTOVERVOLTAGE**
- **DC INPUT BREAKER OPEN**
- **INV OUTPUT UNDERVOLTAGE**
- **FREQUENCY OUT OF LIMITS."**

NOTE: Student should review note prior to step 4.11.5(4.12.5).

6.	S	Recognize that inverter is "locked out."	Recognizes that inverter is "locked out."	____ ____

CUE: When student determines that UPS has a "lock out" condition and section 4.13(4.14) must be used to restart the UPS, acknowledge and respond as appropriate (either as evaluator or US),**"Continue with restart of the UPS."**

*7.	S	Check open/open the following breakers on 1-EDE-I-1E(F):		
			*a. Simulates checking open/opening UPS-1E(F) AC input breaker (100 amp).	____ ____

CUE: When student simulates opening UPS-1E(F) AC input breaker (100 amp), evaluator to student, **"The AC input breaker is open."**

			b. Simulates checking open UPS-1E(F) battery input breaker (400 amp).	____ ____

CUE: When student simulates checking open UPS-1E(F) battery input breaker (400 amp), evaluator to student, **"The battery input breaker is open."**

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
8. S	Ensure UPS-1E(F) DC supply breaker on bus 11A(B) node DM7(DN0) is closed.	Simulates ensuring UPS-1E(F) DC supply breaker on bus 11A(B) node DM7(DN0) is closed.	_____	_____

CUE: When student simulates ensuring UPS-1E(F) DC supply breaker on bus 11A(B) node DM7(DN0) is closed, evaluator to student, **"The breaker is closed."**

*9. S	Pre-charge inverter 1-EDE-I-1E(F):			
		*a. Simulates depressing Pre-charge pushbutton.	_____	_____

CUE: When student simulates depressing Pre-charge pushbutton, evaluator to student, **"The Pre-charge pushbutton has been depressed."**

		b. Simulates verifying pre-charge LED is energized.	_____	_____

CUE: When student simulates verifying pre-charge LED is energized, evaluator to student, **"The Pre-charge LED is illuminated."**

		*c. Waits one minute to allow DC bus capacitor to charge.	_____	_____

CUE: After student recognizes time requirement, evaluator to student, **"One minute has elapsed."**

*10. S	Close the battery input breaker (400 amp).	Simulates closing the battery input breaker (400 amp).	_____	_____

CUE: When student simulates closing UPS-1E(F) battery input breaker (400 amp), evaluator to student, **"The battery input breaker is closed."**

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
11. S	Check UPS output voltage and frequency.	Simulates checking UPS output voltage and frequency.	____ ____

CUE: When student simulates checking UPS output voltage and frequency, evaluator to student, **"Output is 120 volts and 60 Hz."**

12. S	Verify LEDS are energized for the following: • AC INPUT BKR OPEN • INV FED FROM BATT • FREQ OUT OF LIMITS	Simulates verifying LEDS are energized for the following: • AC INPUT BKR OPEN • INV FED FROM BATT • FREQ OUT OF LIMITS	____ ____

CUE: When student simulates verifying LEDS are energized, evaluator to student,**"LEDS are energized."**

*13. S	Close the UPS AC input breaker (100 amp).	Simulates closing the UPS AC input breaker (100 amp).	____ ____

CUE: When student simulates closing UPS AC input breaker (100 amp), evaluator to student, **"The breaker is closed."**

14. S	Depress the alarm reset pushbutton and verify no alarm LEDs energized.	Simulates depressing the alarm reset pushbutton and verifying that no alarm LEDs are lit.	____ ____

CUE: When student simulates depressing the alarm reset pushbutton and verifying that no alarm LEDs are lit, evaluator to student, **"All alarms are clear."**

*15. S	Close the AC output breaker (400 amp).	Simulates closing the AC output breaker (400 amp).	____ ____

CUE: When student simulates closing UPS AC output breaker (400 amp), evaluator to student, **"The breaker is closed."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
CUE:	**"The JPM is complete."**			
16.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 25 minutes	_____	_____
17.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____	_____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Secondary NSO. You are going to simulate restart of UPS-1-EDE-I-1E(F).

B. The following information is provided to you:

1. The plant is in mode 5.
2. UPS EDE-I-1E(F) was shutdown during the previous shift to support an inspection performed by Engineering Support Staff. UPS 1-EDE-I-1E(F) was shutdown using OS1047.01, Vital Inverter Operation.
3. Vital PP-1E(F) was transferred to its maintenance supply per OS1047.02, Transferring Power Supplies To 120 VAC Vital Instrument Buses prior to inverter shutdown.
4. On the other train PP-1F(E) is energized from its inverter connected to the respective DC bus.

C. Perform the task using OS1047.01, Vital Inverter Operation.

D. We will begin after the Initiating Cue is read.

E. I will act as the Unit Supervisor and provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Secondary NSO, **"Secondary NSO (or student's name), simulate restarting UPS-1-EDE-I-1E(F) using OS1047.01, Vital Inverter Operation, section 4.11 (4.12). All of the procedure prerequisites are complete."**

NEXTera ENERGY SEABROOK

IN-PLANT JOB PERFORMANCE MEASURE 'B', FINAL

LOCALLY CLOSE AN MSIV

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position NSO

SBK 0400100504 Locally close an MSIV

2. Conditions:

A. The plant has tripped from 100% power.
B. SG C pressure is decreasing in an uncontrolled manner and has been identified as faulted.
C. The US has transitioned from E-0 to E-2 step 1.
D. SG C MSIV is open.

3. Standards:

Simulate locally closing the C MSIV in accordance with OS 1090.01 Manual Operation of Remote Operated Valves.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of OS1090.01, Manual Operation of Remote Operated Valves, Rev 15
Precautions (pages 5-9) and section 4.7 (pages 22-29).

5. Limitations On Performance:

Simulate all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- OS 1090.01 Manual Operation of Remote Operated Valves
- E-2 Faulted S/G Isolation.

Sys	KA	Description	Value RO/SRO
2.4	2.4.35	Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.	3.8/4.0

7. Setting:

Plant. East Pipe Chase.

8. Safety Considerations:

Pipe chases safety requirements as posted for noise and steam exposure.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Roving NSO. You are going to simulate locally closing an MSIV.

B. The following information is provided to you:

1. The plant has tripped from 100%power.
2. SG C pressure is decreasing in an uncontrolled manner and has been identified as faulted.
3. The US has transitioned from E-0 to E-2 step 1.
4. SG C MSIV is open.

C. Simulate the task using OS 1090.01 Manual Operation of Remote Operated Valves.

D. We will begin after the Initiating Cue is read.

E. I will act as the Unit Supervisor and provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Roving NSO, **"Roving NSO (or student's name), using OS 1090.01 Manual Operation of Remote Operated Valves go to the East pipe chase and locally close MS-V-90 the C MSIV."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: When student demonstrates the ability to obtain a controlled copy of OS1090.01 Manual Operation of Remote Operated Valves provide the student with the required portions of OS1090.01 Manual Operation of Remote Operated Valves.

1. P Start time _____ Initiating cue read

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

2. S Close the air isolation valves (located on MSIV):

a. Close MS-V-90-V-4C C MSIV IA isolation	a. Close MS-V-90-V-4C C MSIV IA isolation	_____	_____

CUE: When the student simulates CW motion to close the valve, evaluator to student, **"The valve is closed."**

b. Close MS-V-90-V-4D C MSIV IA isolation	b. Close MS-V-90-V-4D C MSIV IA isolation	_____	_____

CUE: When the student simulates CW motion to close the valve, evaluator to student, **"The valve is closed."**

NOTE: Student should review the caution and note prior to step 4.7.3.2.

NOTE: The MSIV shuts when one solenoid is overridden, but the procedure and local operator aid has the operator override both solenoids. To successfully complete the task only one of the solenoids has to be overridden.

NOTE: Local operator aid does not reflect recent procedure change. Noun names on tags do not match procedure noun names.

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
*3. S	Manually open MS-FY-89A-3 main dump pilot solenoid valve:			
	a. Remove threaded metal cap covering override assembly	a. Removes threaded metal cap covering override assembly	_____	_____
CUE:	When student simulates CCW motion to remove the cap, evaluator to student, **"The metal cap has been removed."**			
	*b. Using ratchet wrench turn the manual override hex nut clockwise until the hydraulic fluid is bled off.	*b. Using ratchet wrench turns the manual override hex nut clockwise until the hydraulic fluid is bled off.	_____	_____
CUE:	When the student simulates CW motion to bleed off the hydraulic fluid, evaluator to student, **"The hydraulic fluid is bleeding off. The MSIV is closing."**			
	c. Reinstall threaded metal cap covering the override assembly	c. Reinstalls threaded metal cap covering the override assembly	_____	_____
CUE:	When the student simulates reinstalling the metal cap, evaluator to student, **"The metal cap has been reinstalled."**			
*4. S	Manually open MS-FY-89B-3 main dump pilot solenoid valve:			
	a. Remove threaded metal cap covering override assembly	a. Removes threaded metal cap covering override assembly	_____	_____
CUE:	When student simulates CCW motion to remove the cap, evaluator to student, **"The metal cap has been removed."**			

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
	*b. Using ratchet wrench turn the manual override hex nut screw clockwise until the hydraulic fluid is bled off.	*b. Using ratchet wrench turns the manual override hex nut clockwise until the hydraulic fluid is bled off.	_____ _____

CUE: When the student simulates CW motion to bleed off the hydraulic fluid, evaluator to student, **"The hydraulic fluid has bled off. The MSIV is closed."**

	c. Reinstall threaded metal cap covering the override assembly	c. Reinstalls threaded metal cap covering the override assembly	_____ _____

CUE: When the student simulates reinstalling the metal cap, evaluator to student, **"The metal cap has been reinstalled."**

5.	S	Close MSIV hydraulic supply isolation valve	Simulates closing MSIV hydraulic supply isolation valve MS-V-434	_____ _____

CUE: When student correctly simulates closing MS-V-434, evaluator to student, **"MS-V-434 is closed."**

NOTE: If the student states that the MSIV hydraulic air motor should start, the hydraulic supply isolation valve was just shut, therefore, the air motor should not start.

CUE: **"The JPM is complete."**

6.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes	_____ _____
7.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.		_____ _____

IN-PLANT 'B' JPM ATTACHMENT A

MANUAL MSIV VALVES

MSIV	HYDRAULIC ISOLATION	MAIN DUMP PILOT SOL 1	MAIN DUMP PILOT SOL 2	IA ISOLATIONS
B	MS-V-435	MS-FY-89A-2	MS-FY-89B-2	MS-V-88-V4C,V4D
C	MS-V-434	MS-FY-89A-3	MS-FY-89B-3	MS-V-90-V4C,V4D

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

Student:

A. You are the Roving NSO. You are going to simulate locally closing an MSIV.

B. The following information is provided to you:

1. The plant has tripped from 100%power.
2. SG C pressure is decreasing in an uncontrolled manner and has been identified as faulted.
3. The US has transitioned from E-0 to E-2 step 1.
4. SG C MSIV is open.

C. Simulate the task using OS 1090.01 Manual Operation of Remote Operated Valves.

D. We will begin after the Initiating Cue is read.

E. I will act as the Unit Supervisor and provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Roving NSO, **"Roving NSO (or student's name), using OS 1090.01 Manual Operation of Remote Operated Valves go to the East pipe chase and locally close MS-V-90 the C MSIV."**

NEXTera ENERGY SEABROOK

IN-PLANT JOB PERFORMANCE MEASURE 'C', FINAL

ALIGN ALTERNATE (DEMIN WATER) COOLING TO CCP LUBE OIL COOLER

Student Name: _____ LMS #: _____

Evaluator Name: _____

SAT UNSAT

OFFICIAL NRC EXAMINATION MATERIAL

ACCESS IS LIMITED TO NRC EXAMINERS AND PERSONNEL THAT FULLY UNDERSTAND AND HAVE SIGNED ON TO THE 2013 NRC INITIAL EXAM SECURITY AGREEMENT.

PREPARED BY: _____ DATE: _____

APPROVED BY: _____ DATE: _____

TRAINING SUPERVISOR

JOB PERFORMANCE WORKSHEET

1. Task Number and Description

Position NSO

SBK 0040160004 Align/Remove Alternate Cooling To Charging pump Lube Oil Coolers

2. Conditions:

A. Plant is in Mode 4.
B. CS-P-2A is not available.
C. Train B PCCW has been lost.
D. The US has entered OS1212.01, PCCW System Malfunction.

3. Standards:

Simulate manually aligning alternate cooling from DEMIN to CS-P-2B per OS1002.02, Operation Of Letdown, Charging, and Seal Injection.

4. Student Materials:

Copy of Tear Off Sheet.
Copy of OS1002.02, Operation Of Letdown, Charging, and Seal Injection. Rev 38.

5. Limitations On Performance:

Simulate all steps. Verbalize all actions to the evaluator.
Even if requested no Peer Checks will be provided during the JPM.

6. References:

Procedures:

- OS1212.01, PCCW System Malfunction.
- OS1002.02, Operation Of Letdown, Charging, and Seal Injection

Sys	KA	Description	Value RO/SRO
008	A2.01	Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of PCCW pump.	3.3/3.6

7. Setting:

Plant. PAB 25 ft and PAB 7 ft.

8. Safety Considerations:

Health Physics postings and ALARA.

9. Approximate Completion Time:

20 minutes

10. Directions To The Student:

Evaluator gives Tear Off sheet to the student.
Evaluator reads the following to student (Optional for multiple JPMs):

A. You are the Primary NSO. You are going to simulate locally aligning Demin water (DW) as alternate cooling to CS-P-2B lube oil cooler.

B. The following information is provided to you:

1. Plant is in Mode 4.
2. CS-P-2A is not available.
3. Train B PCCW has been lost.
4. The US has entered OS1212.01, PCCW System Malfunction.
5. OS1212.01 Attachment A Shift Charging Pump/Align Cooling step 1 RNO instructs crew to align alternate cooling to charging pump lube oil cooler per OS1002.02, Operation Of Letdown, Charging, and Seal Injection.
6. The Roving NSO and a Fire Fighter have been dispatched to connect the drain hose from the Charging Pump lube oil coolers outlet to a storm drain and the drain hose has been connected at the storm drain end (OS1002.02 step 4.21.2).
7. Chemistry has generated the Non-Rad release permit and it is in the control room."
8. All applicable Tech Specs have been entered.

C. Perform the task using OS1002.02, Operation Of Letdown, Charging, and Seal Injection.

D. We will begin after the Initiating Cue is read.

E. I will act as the Unit Supervisor and provide cues and communications for this JPM. Do you have any questions?

11. Initiating Cue:

US to Primary NSO, **"Primary NSO (or student's name), simulate aligning Demin water as alternate cooling to CS-P-2B lube oil cooler using OS1002.02 section 4.21. Inform the control room as soon as cooling flow has been established."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT

NOTE: When student demonstrates the ability to obtain a controlled copy OS1002.02, Operation Of Letdown, Charging, and Seal Injection provide the student with the required portions OS1002.02, Operation Of Letdown, Charging, and Seal Injection.

1.	P	Start time _____	Initiating cue read		

CUE: If the student requests a Peer Check at any time during the JPM respond, **"No one is available to Peer Check your actions. Please continue with the task."**

NOTE: Student should review CAUTION prior to step 4.21.1.

2.	S	Notify Chemistry to issue a Non-Rad release permit.	Initial conditions state Chemistry has issued a Non-Rad release permit and it is in control room.	____	____
3.	S	Connect a drain hose from Charging pump lube oil cooler outlet to the storm drain.	Initial conditions states Roving NSO and a Fire Fighter have connected a drain hose from Charging pump lube oil cooler outlet.	____	____
4.	S	Refer to listed Technical Specifications for applicability.	Simulates informing control room to refer to Technical Specifications for applicability.	____	____

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT	UNSAT
5. S	Check that CS-P-2B is in Pull To Lock.	Simulate checking that CS-P-2B is in Pull To Lock.	_____	_____

CUE: When student checks on the status of CS-P-2B, US to NSO,**"CS-P-2B is in Pull To Lock."**

NOTE: Valves CC-V-315, CC-V-318, CC-V-1292, DM-V-793, and CC-V-1294 are all located along the wall, outside the degassifier room in the main passageway of the PAB 25 ft. across from the sampling room.

CUE: If the student requests permission to unlock and close CC-V-318, PCCW return from CS-P-2B oil cooler and CC-V315, supply to CS-P-2B oil cooler, US to NSO, **"You have permission to unlock and close CC-V-318 and CC-V-315."**

NOTE: Required keys would be on the Primary NSO key ring.

*6. S Unlock and close the following valves:

*a. Simulates unlocking and closing CC-V-318, PCCW return from CS-P-2B oil cooler. _____ _____

CUE: When student simulates unlocking and closing CC-V-318, evaluator to student, **"The valve is unlocked. The valve is closed."**

*b. Simulates unlocking and closing CC-V315, PCCW supply to CS-P-2B oil cooler. _____ _____

CUE: When student simulates unlocking and closing CC-V-315, evaluator to student, **"The valve is unlocked. The valve is closed."**

D=Discuss P=Perform S=Simulate	ELEMENT/STEP	STANDARD	EVALUATION
	* denotes a critical step	* denotes a critical step	SAT UNSAT
*7.	S Demin water is to be aligned to the CS-P-2B oil cooler. Align the following valves		
		*a. Simulates releasing locking pin and opening CC-V-1292 demin alternate cooling supply to CS-P-2B oil coolers.	____ ____

CUE: When student simulates releasing the locking pin and opening CC-V-1292, evaluator to student, **"The locking pin releases. The valve is open."** If student does not simulate release of locking pin, cue, **"The valve does not move."**

		*b. Simulates opening DM-V-793 demin alternate cooling supply to Charging pump oil coolers.	____ ____

CUE: When student simulates opening DM-V-793, evaluator to student, **"The valve is open."**

NOTE: Student should not perform step 4.21.7. Demin water is being used for alternate cooling.

NOTE: Student should review NOTE prior to step 4.21.8.

*8.	S	Throttle CC-V-1294 CS-P-2B oil cooler alternate cooling outlet as necessary to maintain 10-30 gpm.	Simulates releasing locking pin and throttling open CC-V-1294 CS-P-2B oil cooler alternate cooling outlet.	____ ____

CUE: When student simulates releasing the locking pin and throttling CC-V-1294, evaluator to student, **"The locking pin releases. The valve is throttled open. You hear flow."** If student does not simulate release of locking pin, cue, **"The valve does not move."**

PERFORMANCE CHECKLIST

D=Discuss P=Perform S=Simulate	ELEMENT/STEP * denotes a critical step	STANDARD * denotes a critical step	EVALUATION SAT UNSAT
9. S	Check flow on CC-FISL-2218.	Simulates checking flow on CC-FISL-2218.	____ ____

CUE: When student simulates checking flow, evaluator to student, **"The indicator shows 25 gpm."**

10. S	Inform control room that alternate cooling using Demin water has been established to CS-P-2B oil cooler at 25 gpm.	Simulates informing control room that alternate cooling using Demin water has been established to CS-P-2B oil cooler at 25 gpm.	____ ____

CUE: US to NSO, **"I copy, alternate cooling using Demin water has been established to CS-P-2B oil cooler at 25 gpm. We will enter this on the Non-Rad release permit. We will monitor Charging pump temperatures."**

CUE: **"The JPM is complete."**

11.	Stop time _____ Evaluator calculates time to complete task	Time to complete task ≤ 20 minutes
12.	Obtain from student: Tear Off sheets and any other training materials used in performance of this JPM.	____ ____

PERFORMANCE SUMMARY

Provide comments on unsatisfactory performance of an element/step or for any deviation from performance as stated. Record interruptions in performance such as retraining, shift change, and processing of procedure changes. Recommend remedial training, if necessary.

Directions To The Student:

A. You are the Primary NSO. You are going to simulate locally aligning Demin water (DW) as alternate cooling to CS-P-2B lube oil cooler.

B. The following information is provided to you:

1. Plant is in Mode 4.
2. CS-P-2A is not available.
3. Train B PCCW has been lost.
4. The US has entered OS1212.01, PCCW System Malfunction.
5. OS1212.01 Attachment A Shift Charging Pump/Align Cooling step 1 RNO instructs crew to align alternate cooling to charging pump lube oil cooler per OS1002.02, Operation Of Letdown, Charging, and Seal Injection.
6. The Roving NSO and a Fire Fighter have been dispatched to connect the drain hose from the Charging Pump lube oil coolers outlet to a storm drain and the drain hose has been connected at the storm drain end (OS1002.02 step 4.21.2).
7. Chemistry has generated the Non-Rad release permit and it is in the control room."
8. All applicable Tech Specs have been entered.

C. Perform the task using OS1002.02, Operation Of Letdown, Charging, and Seal Injection.

D. We will begin after the Initiating Cue is read.

E. I will act as the Unit Supervisor and provide cues and communications for this JPM. Do you have any questions?

Initiating Cue:

US to Primary NSO, **"Primary NSO (or student's name), simulate aligning Demin water as alternate cooling to CS-P-2B lube oil cooler using OS1002.02 section 4.21. Inform the control room as soon as cooling flow has been established."**

NEXTera ENERGY NUCLEAR FLEET	SIMULATOR EXERCISE GUIDE	SEG

SITE: **Seabrook** **Revision #:** **FINAL**

LMS ID: **LMS Rev. Date:**

SEG TITLE: **2013 LOIT NRC SIM Exam 1**

SEG TYPE: ☐ **Training** ☒ **Evaluation**

PROGRAM: ☐ **LOCT** ☒ **LOIT** ☐ **Other:**

DURATION: **90 minutes**

Developed by: _____ _____
Instructor/Developer Date

Reviewed by: _____ _____
Instructor (Instructional Review) Date

Validated by: _____ _____
SME (Technical Review) Date

Approved by: _____ _____
Training Supervision Date

Approved by: _____ _____
Training Program Owner (Line) Date

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER REVIEWER	DATE DATE

OVERVIEW / SEQUENCE OF EVENTS

OVERVIEW

The crew will take the watch at MOL 55% power with, stable xenon, boron concentration at 1314 ppm, CB D at 205 steps and both Main feed Pumps and one Heater Drain pump in service. CBS-P-9-A is tagged out for maintenance. The crew will begin a power increase at 5%/hr to 75% power. 'A' SG Level Instrument controlling channel will fail low. The crew will then experience CC-V-341 failing closed which will force them to use excess letdown. A seismic event will cause rod H8 to drop. CBS –P-9-B loss of all oil. Two CBS pumps INOP. T.S. 3.0.3 entry. While I&C is checking fuses for dropped rod recovery, rod F8 drops, requiring a manual reactor trip. On the reactor trip the 'C' SG will fault inside containment. The auto isolation for 'C' SG EFW flow control valves will be defeated and manual action to close the valves will be required. When the SI occurs, CS-P-2-A will trip and lockout. CS-P-2-B will not auto start and must be manually started by the PSO. With no CBS pumps containment pressure will increase >18psig and Z will go ORANGE requiring FR-Z.1 entry.

SEQUENCE OF EVENTS

ALL TIMES IN THIS SCENARIO ARE APPROXIMATE

Event #	Description
1.	Crew begins a 5%/hr power increase.
2.	FW-LT-551, 'A' SG Level Instrument controlling channel fails low.
3.	CC-V-341 fails closed. Crew is forced to use excess letdown.
4.	Seismic event causes rod H8 to drop.
5.	Loss of all oil to CBS-P-9-B. T.S.3.0.3 entry.
6.	While I&C is checking fuses for dropped rod recovery, rod F8 drops, requiring a manual reactor trip. On reactor trip the 'C' SG faults inside containment.
7.	When SI occurs, CS-P-2-A trip and lockout. CS-P-2-B blocked from starting on SI. CS-P-2-B must be manually started by PSO.
8.	Defeat the auto isolation for the 'C' SG EFW flow control valves FW-FV-4234-A and FW-FV-4234-B. Manual action to close the valves will be required.

SIMULATOR SET UP INSTRUCTIONS

Perform simulator set up per the Simulator Setup Checklist.

General Instructions

a. Provide extra copies of procedures to Examiners
b. Reset to IC #150
c. Place simulator in Run
d. Verify the following have been inserted OR reset to IC #38 and insert the following:
    1. B Train is Protected, SV C0755, '2'
    2. Tagout CBS-P-9-A
        - SELECT: RF List
        - SELECT: Containment Spray (Component)
        - SELECT: cCBSP9A
        - SELECT: RACK OUT
        - SELECT: INSERT
    3. Block CS-P-2-B from starting on SI:
        - SELECT: MF List
        - SELECT: Chemical and Volume Control
        - SELECT: mfCS002
        - SELECT: INSERT
    4. Defeat the auto isolation for the 'C' SG EFW flow control valve FW-FV-4234-A:
        - SELECT: Scenario
        - OPEN: Sim Support
        - SELECT: C SG EFW Auto Isolation Defeat
        - SELECT: Run
        - SELECT: OK
e. Insert Event Trigger
        - SELECT: Event Triggers
        - OPEN: Sim Support
        - SELECT: SG FAULT
        - SELECT: Activate

f. Place tag on CBS-P-9-A control switch.
g. Depress the CBS Train A Bypass/INOP pushbutton on ECCS Train A Bypass/INOP section.
h. Ensure that FW-L-551 is the controlling channel for 'A' SG Level.
i. Advance logger and tear off any sheets with print.
j. Procedure OS1000.05, Power Increase is being performed and is completed to step 4.2.39. Provide appropriate shift turnover documentation.

SHIFT TURNOVER INFORMATION

- See Turnover Sheet

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 1 Start	Allow the students to increase plant power to the extent that a significant reactivity manipulation is demonstrated.	**PSO (R), BOP (N), US (N)** Crew Begins the Power increase IAW MPE Procedure OS1000.05, Power Increase. The crew should prepare for and initiate a power increase at 5%/hr. **Unit Supervisor:** A brief reactivity review will take place discussing the temperature limits for Tavg to be used in the power increase. The temperature band will normally be + 1.5°F with rods in Auto or + 3°F with rods in manual. Dilution will be used for temperature control during the power increase. Control rods will be used for AFD and temperature control. **Turbine Operations**: The BOP will increase turbine load using automatic DEHC operations. Using the laminated sheets, Figure 19 of OS1000.10, The basic steps are: • Check the Load Set is in Hold mode. • Insert the desired loading Rate. • Insert the desired Power Level. • When RCS temperature begins to Increase, Select "Load." • Monitor turbine loading using "Load Status" is Loading and "Load Actual" increases. The BOP should verify the change with control valve position change, temperature change and power change. • At any time during the automatic loading, the power increase can be stopped by activating the "Hold" function.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Power Increase (continued)		**Reactor Power change**: The crew will use dilution to increase temperature during the turbine load increase. A dilution value will be determined to change the boron concentration and increase power/temperature. If control rods are used in manual to control AFD / temperature, the operator will verify rod speed, place the Rod Motion Selector (In-Hold-Out) switch to the OUT direction and withdraw the rods a maximum of three steps. The PSO will monitor temperature and power as confirmation of actions. Using the laminated sheets of OS1008.01, Figure 2, Dilution Check List, the PSO will set up the controllers for the required dilution volume and rate. The high level steps are: • Verify the pumps are in AUTO • Verify the makeup valves are in AUTO • Place Blender Mode Start Switch to STOP • Place the Mode Selector Switch to DILUTE or ALT DILUTE • Set the quantity and flow rate on CIS-FIQ-111 controller **Note:** During validation the crew used a dilution value of 950 gallons in approximately 240 gallon batches every 15 minutes. • If not desired, select OFF for the "Stepback Feature" • Set the Mode Start Switch to START • Verify the pumps and valves respond • Verify Plant Response. • Restore System to Automatic control

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 2 After Power Increase or At Lead Examiner's Discretion	FW-LT-551, 'A' SG Level Instrument controlling channel fails low: • SELECT: MF List • SELECT: Feedwater (Component) • SELECT: ltFWLT551 • SELECT: FAIL LOW • SELECT: INSERT If the crew calls the WCS/WWM for the FW-LT-551, then respond **"Understand that FW-LT-551 has failed low. A troubleshooting team is being formed."**	**BOP (I), US (I, TS)** FW-LT-551, 'A' SG Level Instrument controlling channel fails low. **Initial Alarms:** D4770 SG A LVL REF DEVIATION D4876 SG A LEVEL LOW F4756 SG A LEVEL LO-LO F5871 SG LEVEL LO ATWS CHANNEL TRIP UA-53 A-3 SG A LEVEL HI/LO US will ask BOP if a controlling 'A' SG Level channel has failed. BOP will identify that FW-LT-551, 'A' SG Level Instrument controlling channel has failed low. US will direct BOP to take manual control of the 'A' SG feed control valve and return 'A' SG level to 45% to 55%. BOP will inform US when 'A' SG level is under his control. US enters OS1235.03, SG Level Instrument Failure and directs the following actions: **Step 1:** Check Steam Generator Water Level Control: • BOP will report FW-LT-551 failed low. • BOP will report 'A' SG feed control valve in manual. • BOP will control 'A' SG level to 45% to 55%. **Step 2:** Realign Steam Generator Level Instruments: • BOP will select an alternate controlling channel for 'A' SG level **Step 3:** Align Steam Generator Water Level Control: • BOP will check steam flow/feed flow signals matched, 'A' SG level at 50%, proper controller setpoint and then place the controller in Auto.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
FW-LT-551, 'A' SG Level Instrument controlling channel fails low. (continued)	If the crew calls the WCS/WWM for I&C, then respond **"I&C is on their way to the control room."** IF NEEDED at OS1235.03, step 6: • SELECT: Panel Overview • SELECT: AMSAC CP-519 • SELECT: SG A (L551)	**Step 4:** Verify redundant channels bistables not tripped: • PSO will report redundant channels bistables not tripped on UL-1 and UL-6. • BOP will report redundant channels bistables not tripped on UL-12. **Step 5:** US will verify technical specification compliance: • T.S. 3.3.1, Reactor Trip System Instrumentation; Action 6 • T.S. 3.3.2, Engineered Safety Features Actuation System Instrumentation; Action 18 • US will coordinate with I&C to place bistables to bypass for up to 6 hours or trip within 6 hours. **Step 6:** US will direct BOP to verify ATWS Mitigation Input Status: • BOP will verify that 551 is the failed channel. • BOP will check UL-28 bistables per US direction. • US will direct I&C to place failed channel in 1-MM-CP-519, ATWS mitigation system cabinet to - OPERATE BYPASS

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 3 After T.S. Call is made (Can be left for post scenario)	CC-V-341 fails closed: • SELECT: MF List • SELECT: Primary Component Cooling (Component) • SELECT: cCCV341 • SELECT: Fail Closed • SELECT: INSERT • If the crew dispatches an NSO to CC-V-341, respond **"This is Primary NSO, go to CC-V-341 and let you know what I find."** If the crew dispatches an NSO to CC-V-341, wait 2 minutes then respond **"This is the NSO, I am at CC-V-341 is closed and the airline appears to have failed."** If the crew calls the WCS/WWM for maintenance support for CC-V-341, then respond **"I will inform maintenance that CC-V-341 airline appears to have failed."** If the crew calls Chemistry, then respond **"Chemistry understands that letdown cooling has been lost (OR lost letdown)."**	**PSO (C), US (C)** CC-V-341, PCCW to Letdown Heat Exchanger, fails closed. **Initial Alarms:** D4692 LTDN HX OUTLET TEMPERATURE HIGH D4695 LTDN HX TEMP HIGH & DEMIN BYPASS "Skill of the operator" may be utilized to close CS-V-145 and reduce charging to seal only. PSO may review D4692, LTDN HX Outlet Temperature High and under the US direction will complete the following actions: **Step 1:** PSO will verify high temperature on CS-TI-130. **Step 2:** PSO will verify CS-TK-130 proper operation. **Step 3:** PSO will find CC-V-341 closed and attempt to open. NOTE: At this time the US may direct PSO to isolate letdown by closing CS-V-145 due to loss of letdown temperature control and enter OS1202.01, Loss of Letdown. **Step 4:** US, PSO or BOP will contact Chemistry. **Step 5:** US will direct transfer to Excess Letdown, **Step 6:** PSO will monitor RCP parameters.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
3 minutes after CC-V-341, PCCW to Letdown Heat Exchanger, fails closed.		CC-V-341, PCCW to Letdown Heat Exchanger, fails closed. (continued) **Alarm:** D4698 VCT TEMP HIGH PSO or BOP may review D4698, VCT Temp Hi and under the US direction will complete the following actions: **Step 1:** PSO will verify VCT high temperature on CS-TI-116. **Step 2:** PSO will verify CS-TK-130 proper operation. **Step 3:** PSO will find CC-V-341 closed and attempt to open. **Step 4:** PSO will inform US that letdown temperature cannot be controlled at setpoint and recommend isolating letdown by closing CS-V-145. • US will direct PSO to close CS-V-145. • After CS-V-145 is closed, US will direct PSO to reduce charging flow to the RCP seals only (approximately 32 gpm). **Step 5:** US will enter OS1202.01, Loss of Letdown. **Step 6:** PSO will monitor RCP parameters.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
CC-V-341, PCCW to Letdown Heat Exchanger, fails closed. (continued)		US enters OS1202.01, Loss of Letdown and directs the following actions: **Step 1:** Check for Letdown Isolation: • PSO will report pressurizer level (>17%) • US will go to Step 2 per the RNO. **Step 2:** Check Letdown System Intact: • PSO or BOP will verify radiation levels are normal. **Step 3:** Check Status Of Letdown: • PSO will report Normal Letdown is not in service. • US will direct PSO to adjust charging flow to control PZR level on program, as necessary. • US will go to Step 4 per the RNO. **Step 4:** Check Normal Letdown Flowpath Alignment: • PSO will verify valves as requested by US or tell US that normal letdown is not available. • PSO will report BTRS is in OFF. **Step 5:** Check VCT Makeup Control System: • PSO will check blended makeup boron concentration set at required RCS boron concentration. • PSO will align makeup for automatic control. **Step 6:** Check If Normal Letdown Can Be Established: • PSO will verify charging flow and pressurizer level as requested by US or tell US that normal letdown is not available. • US will go to Step 7 per the RNO.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
CC-V-341, PCCW to Letdown Heat Exchanger, fails closed. (continued)	If the crew calls the waste NSO to inform him that they are flushing excess letdown to the RCDT, respond **"This is Waste NSO, you are flushing excess letdown to the RCDT. I will monitor the in-service PDT level during the RCDT pump down."**	**US will read CAUTION prior to Step 7:** • Do NOT exceed excess letdown heat exchanger outlet temperature of 175°F. • Do NOT exceed excess letdown heat exchanger outlet pressure of 150 PSIG. **Step 7:** Establish excess letdown: • PSO will open CC-V-434, excess letdown heat exchanger cooling water outlet. • PSO will check open RCP seal return containment isolation valves: CS-V-167 and CS-V-168. • PSO will check closed CS-HCV-123. • PSO will open excess letdown containment isolation valves: CS-V-175 and CS-V-176 • PSO will flush excess letdown heat exchanger to RCDT by performing the following: o Align CS-V-170 to the RCDT position. o Slowly throttle CS-HCV-123 open and flush to RCDT for greater than five minutes. o Close CS-HCV-123. • PSO will align CS-V-170 to the SEAL RET HDR position. • PSO will establish desired excess letdown flow by throttling open CS-HCV-123 while monitoring excess letdown heat exchanger outlet temperature and pressure. • PSO will remove normal letdown flow input to plant calorimetric by deleting from scan A0620, CS-E-4 LETDN OUTL FLOW. **Step 8:** Restore Normal Pressurizer Level Control: • PSO will control charging and letdown flow to maintain pressurizer level at program level and control RCP seal injection flow between 8 and 13 gpm to each RCP.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 4 After Excess Letdown is established or at Lead Examiner's Discretion	<u>Simultaneous Events</u> Seismic Event: • SELECT: MF List • SELECT: Seismic Monitoring • SELECT: mfSM001 • SELECT: INSERT Rod H8 Drop: • SELECT: MF List • SELECT: Rod Control and Position • SELECT: mfCP018 • SELECT: INSERT	**PSO (C), BOP (C), US (C, TS)** Seismic Event coincident with rod H8 drop. **Initial Alarms:** D5452 SEISMIC EVENT IN PROGRESS D7753 CONTROL ROD DEVIATION D7730 ONE ROD ON BOTTOM B7457 ROD MOTION DETECTED F8105 DRPI/DEMAND DEVIATION – 12 STEPS IF rod control is in Auto, rods may step out. In this case the US will instruct the BOP to check generator load stable and then direct the PSO to place rods in Manual. PSO identifies to US that rod H8 has dropped from DRPI and temperature response as seen on Tavg/Tref indication. US enters OS1210.05, Dropped Rod and directs the following actions: **Step 1:** Stabilize Plant Conditions: • PSO will check ONLY one rod dropped and report H8 has dropped. • PSO will place rod bank selector switch in MANUAL. • BOP will reduce turbine load and maintain Tavg/Tref matched. • BOP will check C-7A TURB LOAD REDUCTION status light on UL-25 deenergized. • PSO will verify the reactor is critical.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Seismic Event coincident with rod H8 drop. (continued)	If the crew calls the SM or RE to evaluate recovery, then respond **"Recover the dropped rod as soon as possible."**	**Step 2:** Evaluate Conditions For Dropped Rod Recovery: • Verify Technical Specification compliance o T.S. 3.1.3.1, Movable Control Assemblies • Consult with the Shift Manager and Reactor Engineering to evaluate the recovery.
Seismic Event coincident with rod H8 drop. (continued)	If the crew calls the WCS/WWM for I&C, then respond **"I&C is on their way to 'A' essential switchgear to check for a blown fuse at the rod control cabinets."** If the crew calls I&C to verify rod control cabinet alarms are clear, then respond **"All rod control cabinet alarms are clear."**	**Step 3:** Notify I&C To Check Rod Control System Status: • US will have I&C verify power to the dropped rod is available by checking for blown fuse at the rod control cabinets. • US will have I&C verify rod control cabinet alarms are clear for: o Logic cabinet o All five power cabinets o D7746

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Seismic Event coincident with rod H8 drop. (continued)	When the crew calls the SM to refer to ER-1.1, respond **"I will review ER-1.1."** When the crew calls plant engineering, respond **"Perform ES1802.001, Earthquake Response."** When the crew calls National Earthquake Information Center, acknowledge the report. When the crew calls the NSOs to ensure safety, respond **"All NSOs are in NSO central."**	When the plant is stable PSO or BOP will review D5452, Seismic Event in Progress, and under the US direction will complete the following actions: **Step 1:** PSO will check the Event Light (yellow) or the OBE Light (red) is lit at SM-CP-58. **Step 2:** PSO and BOP will check the MCB and plant conditions for any abnormalities. **Step 3:** PSO will contact I&C to perform IX1670.905. **Step 4:** US will inform SM to refer to ER-1.1, Classification of Emergencies. **Step 5:** US will contact plant engineering to perform ES1802.001, "Earthquake Response". **Step 6:** US will refer to TR21-4.3.3.3.2, Seismic Instrumentation. **Step 7:** US will report the seismic event to the National Earthquake Information Center at 1-303-273-8500. Step 8: PSO or BOP will perform a radio check with all NSOs to ensure safety.

Event 5 Loss of CBS-P-9-B	**CUE:** Mechanic calls control room and reports: **"Control this is Scott Lavoie. We are working on CBS-P-9-A, but we got on the wrong train and drained all of the oil out CBS-P-9-B."** **CUE:** If US asks Mechanic or WCS how long to replace the oil in CBS-P-9-B, respond: **"It will take us about 2 hours after the pump is tagged out."** **CUE:** If US asks Mechanic or WCS the status of CBS-P-9-A, respond: **"No work has been performed."** **CUE:** If US asks WCS to restore CBS-P-9-A, respond: **"I will start releasing tags now."**	**US (TS)** • Crew should recognize that with both CBS pumps inoperable, • Tech Spec 3.0.3. entry required. • Good operator practice will be to place the CBS-P-9-B control switch in PTL.

Event 6 During I&C check of Rod Control System Status at Step 3 or at Lead Examiner's Discretion	Rod F8 drops: • SELECT: MF List • SELECT: Rod Control and Position • SELECT: mfCP009 • SELECT: INSERT	**PSO (M), BOP (M), US (M)** While I&C is checking fuses for dropped rod recovery, rod F8 drops. **Initial Alarms:** D7749 TWO OR MORE RODS ON BOTTOM D4421 TAVG-TREF DEVIATION PSO identifies to US that rod F8 has also dropped. US will go back to continuous action step 1 of OS1210.05, Dropped Rod and directs the following actions: **Step 1:** Stabilize Plant Conditions: • PSO will check ONLY one rod dropped and report F8 has also dropped and there are now 2 dropped rods. • US will direct manual reactor trip. • US will direct crew to enter E-0, Reactor Trip or Safety Injection and to perform their immediate actions.

When crew trips the Reactor **Event 7** **Critical Task**	Simultaneous Events will occur from Event Trigger SG FAULT OR insert the following: 'C' SG faults inside containment: • SELECT: MF List • SELECT: Main Steam • SELECT: mfMS049C • SELECT: Set Final Value to 0.03 • SELECT: INSERT CS-P-2-A trip and lockout when SI occurs: • SELECT: MF List • SELECT: Chemical and Volume Control • SELECT: mfCS016 • SELECT: INSERT	E-0, Reactor Trip or Safety Injection US will direct crew to enter E-0, Reactor Trip or Safety Injection and to perform their immediate actions. 'C' SG faults inside containment which will cause a Safety Injection on Containment pressure in approximately 15 seconds. This will result in Adverse Containment. **Step 1:** Verify Reactor Trip: • PSO will check Rod bottom lights lit, reactor trip and bypass breakers open and neutron flux decreasing. **Step 2:** Verify Turbine Trip: • BOP will check all stop valves or all control valves closed and the generator breaker open. **Step 3:** Verify Power To AC Emergency Busses: • BOP will check both AC emergency busses energized. **Step 4:** Check If SI Is Actuated: • PSO will check both SI annunciators lit. NOTE: US will direct PSO and BOP to bring up their alarms and notify him of any immediate plant concerns and share any pertinent plant information. At this time the PSO may identify that CS-P-2-A tripped and is locked out and that CS-P-2-B is not running. US may direct PSO to start CS-P-2-B by Skill of the Operator. **Step 5:** Perform ESF actuation verification per Attachment A: • PSO will perform Attachment A. **PSO (C)** • When SI occurs, CS-P-2-A will trip and lockout. CS-P-2-B is blocked from starting on SI. **CS-P-2-B must be manually started by PSO.**

E-0, Reactor Trip or Safety Injection (continued)		PSO performing Attachment A while US and BOP process E-0. 1. PSO will verify Containment Isolation Phase A Actuation by checking all status panel lights lit for both trains. 2. PSO will verify Safeguard Equipment Alignment by checking proper alignment by status panel for both trains. • If not previously done, PSO will identify CS-P-2-A trip and lockout and CS-P-2-B failure to auto start and will start CS-P-2-B. 3. PSO will verify Feedwater Isolation by checking proper alignment by status panel. 4. PSO will verify a PCCW Pump running in both loops. 5. PSO will verify ECCS Flow by checking: • CCP indicated flow to RCS cold legs. • RCS pressure <1700 psig, SI pump indicated flow to both trains. • RCS pressure >300 psig, go to Step 6. 6. PSO will verify MS-V-129 is open. 7. PSO will verify a SW Pump running in both trains. 8. PSO will verify SW flow to Train A and Train B Diesels >900 gpm. 9. PSO will check all main steamlines isolated with containment pressure >4 psig. 10. PSO will check Containment Pressure has remained <18 psig by pressure recording. 11. PSO will verify Total EFW flow >500 gpm. 12. PSO will not need to reset RMO. 13. PSO will notify US of Actuation Verification Status. Attachment A is complete.

E-0, Reactor Trip or Safety Injection (continued) **Event 8** **Critical Task**		**Step 6:** Monitor RCS Temperature stable at or trending to 557°F. • BOP will report temperature less than 557°F and decreasing. • US will direct the following actions: o Stop dumping steam to condenser and atmosphere. o Check MS to MSRs isolated. **BOP (C)** NOTE: The following 2 steps may have been performed per the E-0 OAS page. **Additionally, the BOP may stop all flow to the faulted 'C' SG by closing FW-V-4234A and/or FW-V-4234B.** o If cooldown continues, then open EFW pump mini flow valves and throttle total feed flow to maintain greater than 500 GPM. o When SG level is adequate based on 15% narrow range in at least one SG (Adverse Containment) then throttle feed flow to maintain SG narrow range level between 15% and 50% (Adverse Containment). o If cooldown continues, then close MSIVs, MSIV bypass valves and upstream drains **Step 7:** Check RCS Isolated: • BOP will check CS-V-145, both PORVs and both normal PZR spray valves closed. **Step 8:** Check If RCPs Should Be Stopped: • BOP will check at least one running ECCS pump and report RCS subcooling greater than 40°F.
Critical Task	When/If CBS-P-9-B starts(approx. 5 minutes following reactor trip) , trip pump. SELECT: Malfunction list. SELECT: Containment Spray System. SELECT: mfsCBS003 SELECT: Enter	**NOTE: At 18 psig in containment the P signal will actuate. This will isolate all PCCW to containment. Per the E-0 OAS page the PSO will secure all RCPs.** **Step 9:** Check If SG Pressure Boundary Is Faulted: • BOP will check pressures in all SGs and report 'C' SG pressure decreasing in an uncontrolled manner. • US will direct entry to E-2, Faulted Steam Generator Isolation, Step 1.

FR-Z.1, Response to High Containment Pressure		NOTE: US will direct crew to enter E-2, Faulted Steam Generator Isolation. US, PSO or BOP will announce that Critical Safety Functions (CSFs) are in effect. At 18 psig in containment the P signal will actuate. CBS pumps will not operate and containment pressure will remain >18psig. This will signal an Orange path on the CSF for containment. The US will direct entry to FR-Z.1, Response to High Containment Pressure. FR-Z.1, Response to High Containment Pressure **Step 1:** PSO will verify Containment Isolation Phase A Actuation by checking all status panel lights lit for both trains. **Step 2:** Check If Containment Spray Is Required: • PSO will report containment pressure >18 psig. • PSO will report containment isolation Phase B ('P' signal) and containment spray actuated but all Phase B status lights are not lit. o PSO will actuate BOTH CBS/P/CVI manual actuation switches for each train. o PSO will manually report no CBS pumps running or available. o PSO will check CBS pump suction alignment and report CBS-V-2 & 5 open and CBS-V-8 & 14 closed. o If not previously performed, PSO will stop all RCPs. **Step 3:** PSO will verify At Least One Containment Enclosure Cooling Fan, EAH-FN-5A or 5B running. **Step 4:** PSO will verify MSIV, MSIV Bypass Valves And MSIV Upstream Drains are closed. **Step 5:** If not previously performed, BOP will isolate the faulted 'C' SG feed line and EFW flow.

FR-Z.1, Response to High Containment Pressure (continued)	**CUE:** If US asks WCS to place hydrogen analyzer in service, respond: **"I will have the TSC place the hydrogen analyzer in service."**	**Step 6:** Check Hydrogen Concentration • BOP will report no hydrogen analyzers in service and will align at least ONE hydrogen monitor and place in Analyze Mode per OS1023.71, Operation of the Hydrogen Analyzers. Continue with Step 9. When hydrogen concentration available, Then do Step 6b. **Step 9:** Return To Procedure And Step In Effect • US will direst entry to E-2, Faulted Steam Generator Isolation, step 1.

E-2, Faulted Steam Generator Isolation		E-2, Faulted Steam Generator Isolation US will direct crew to enter E-2, Faulted Steam Generator Isolation. US, PSO or BOP will announce that Critical Safety Functions are in effect. If RCS temperature starts increasing, then the US may direct RCS temperature be stabilized by dumping steam per the E-2 OAS page **Step 1:** Check main steamline isolation and bypass valves of all SGs closed **Step 2:** Check If SG Pressure Boundary Is Intact: • PSO will check pressure in all SGs and report any stable or increasing. **Step 3:** Identify Faulted SG(s): • BOP will check pressures in all SGs and report 'C' SG pressure decreasing in an uncontrolled manner. **Step 4:** Check Faulted SG(s) Isolated: **BOP (C)** • BOP will check the faulted 'C' SG: feed line, EFW flow, ASDV, Main Steam Drain and blowdown are all isolated. **Step 5:** Check CST Level greater than 250,000 gallons • BOP will check CST level. **Step 6:** Check Secondary Radiation: • BOP will check main steamline, condenser air evacuation and steam generator blowdown radiation all normal. • BOP will check no uncontrolled SG narrow range level increase. **Step 6:** Check If ECCS Flow Should Be Reduced: • PSO will check RCS subcooling >40°F. • BOP will check secondary heat sink available. • PSO will check RCS pressure or stable or increasing. • PSO will check PZR level greater than 7% (28% for adverse containment) • US will entry to ES 1.1, SI TERMINATION, Step 1.

ES 1.1, SI Termination		ES 1.1, SI Termination. US will direct crew to enter ES 1.1, SI Termination. US, PSO or BOP will announce that Critical Safety Functions are in effect. **Step 1:** Reset SI. **Step 2:** Stop All But One CCP And Place In Standby. **Step 3:** Check RCS Pressure stable or increasing by pressure recorder. **Step 4:** Restore Normal Charging Path: • PSO will open CS-V-142 and 143. **Step 5:** Establish Normal Charging Flow: • PSO will close SI-V-138 and 139. • PSO will establish 60 GPM charging flow using CS-FCV-121. • PSO will adjust seal injection flow for 6 GPM to 10 GPM using CS-HCV-182. **Step 6:** Control Charging Flow To Maintain PZR Level • PSO will reduce charging flow to the RCP seals only (approximately 32 gpm).
	Terminate the scenario when the crew starts to establish normal charging flow in ES-1.1, or at the discretion of the lead examiner.	

*** END OF SCENARIO ***

WORLD CLASS PERFORMANCE

.....expect it!

2013 LOIT NRC SIM Exam 1

OPERATIONS DEPARTMENT TURNOVER

Plant Status

Plant is in Mode **1** At **55**% Power.

The Security Threat Level is **Yellow**

Protected Train

B

Current PRA Risk is **Green**

Aggregate risk is **2 LOW**

Reactivity

RCS Boron concentration is **1314** ppm

Performing A **30** Gal **Dilution** Every 5 hours

Rod control is in **Auto** With Control Bank "D" at **205** Steps

RCS Tave Band (Deg. F) **573- 573.3**

Dilution Amount Required To Raise Tave By 1 Deg. F (Gal): **191**

Boration Amount Required To Lower Tave By 1 Deg. F (Gal): **35**

SG Blowdown Lineup: **Hotwells** At **60** GPM/SG

Cation Run (Minutes):Mids - **6** Days - **6** Cation Flowrate: **Full Flow**

SFP: Time To 200F is **31** Hours and Risk is **Low**

Turbine Controls: Make adjustments as required to maintain 8 Hour thermal power between 3646.0 MW and 3647.9 MW. The 1 Hour thermal power average will be maintained below 3648 MW.

Control Rods will be manipulated per Reactor Engineering recommendations and will normally be left in automatic control. Utilize OS1000.10 Fig. 11, Rod Motion Checklist.

ODI 56 Values for NEPEX Contingency Downpower

Amount Of Boration Needed To reduce Output to 1200 Mwe Net (C6123) Is **100** Gal.

Amount Of Boration Needed To reduce Output to 800 Mwe Net (C6123) Is **776** Gal.

Reactivity	Activities that may affect reactivity.

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. Increase power to 75% at 5%/hour.
2. Maintain AFD on target.
3. Dilute as required to establish and maintain a power increase to 75% at 5%/hour.
4. CB D at 205 steps with rods in Auto.

General Plant Status	General Plant Info (Non Watchstation Specific)

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. CBS-P-9-A was tagged out 1 hour ago for maintenance.
2. TS 3.6.2.1 was entered 2 hours ago.
3. TS 3.6.2.1 requires CBS pump restoration within 72 hours or be in Hot Standby within the next 6 hours.

Evolutions	List non-tagging evolutions and surveillances in progress or planned

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. Procedure OS1000.05, Power Increase, is being performed and is completed to step 4.2.39.
2. Both Main feed Pumps and one Heater Drain pump in service.
3. Second heater drain pump start is being briefed by OCC and will be started prior at 75%.

Work Control	Name:	RSS

Today 0:00 *TURNOVER INFORMATION*
By:

Primary NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Secondary NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Rover NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Waste NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Field Support NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Fire Brigade Leader	Name:

Today 0:00 *TURNOVER INFORMATION*
By:

Unit Supervisor	Name

Today 0:00 *TURNOVER INFORMATION*
By:

Shift Manager	Name:

Today 0:00 *TURNOVER INFORMATION*
By:

NEXTera ENERGY NUCLEAR FLEET	SIMULATOR EXERCISE GUIDE	SEG

SITE: Seabrook **Revision #:** FINAL

LMS ID: **LMS Rev. Date:**

SEG TITLE: 2013 LOIT NRC SIM Exam 2

SEG TYPE: ☐ Training ☒ Evaluation

PROGRAM: ☐ LOCT ☒ LOIT ☐ Other:

DURATION: 90 minutes

Developed by: _____ _____
Instructor/Developer Date

Reviewed by: _____ _____
Instructor (Instructional Review) Date

Validated by: _____ _____
SME (Technical Review) Date

Approved by: _____ _____
Training Supervision Date

Approved by: _____ _____
Training Program Owner (Line) Date

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER REVIEWER	DATE DATE

OVERVIEW / SEQUENCE OF EVENTS

OVERVIEW

The crew will take the watch at MOL 75% power with stable Xenon, Boron Concentration at 1206 ppm, CB D at 207 steps and both Heater Drain pumps in service. The crew will begin a power increase at 10%/hr to 90% power. MS-PT-505 fails high causing outward rod motion. After recovery from the instrument failure, SW-P-41-A will trip and lockout The standby pump SW-P-41-C fails to auto start and cannot be manually started requiring manual TA. SW-V-20 will fail to auto actuate but can be manually aligned. 'A' RCP vibration will ramp up, requiring a reactor trip. When 'A' RCP is secured after the E-0 immediate actions a 300 gpm RCP seal leak (simulated with int leg leak) will occur simultaneously with a loss of offsite power. 'A' EDG will fail to auto start and the operator will be required to emergency start 'A' EDG using the slave relay in ECA-0.0. SW-V-16 will fail to automatically open the BOP will be required to open manually to establish cooling to operating 'A' DG. 'B' EDG will trip due to lube oil failure. CC-P-11-A will fail to auto start. RMO must be reset and either A Train CC pump may be started manually.

SEQUENCE OF EVENTS

ALL TIMES IN THIS SCENARIO ARE APPROXIMATE

Event #	Description
1.	Crew begins a 10%/hr power increase.
2.	MS-PT-505 fails high causing outward rod motion.
3.	SW-P-41-A trip and lockout, standby pump SW-P-41- C fails to auto start and cannot be manually started requiring manual TA. SW-V-20 fails to auto actuate but can be manually aligned.
4.	'A' RCP vibration ramps up, requiring a reactor trip.
5.	When 'A' RCP is secured after immediate actions, trigger starts 300 gpm RCP seal leak (simulated with int leg leak). Also triggers a loss of offsite power. 'B' EDG trips due to lube oil failure.
6.	'A' EDG fails to auto start, Operator emergency starts using the slave relay in ECA-0.0. SW-V-16 fails to automatically open and may be opened manually.
7.	CC-P-11-A fails to auto start. RMO must be reset and either 'A' Train CC pump may be started manually.

SIMULATOR SET UP INSTRUCTIONS

Perform simulator set up per the Simulator Setup Checklist.

General Instructions

a. Provide extra copies of procedures to Examiners
b. Reset to IC #151
c. Place simulator in Run
d. Verify the following have been inserted OR reset to IC #32 and insert the following:
    1. A Train is Protected, SV C0755, '1'
    2. Defeat the 'A' EDG auto start:
        - SELECT: MF List
        - SELECT: Electrical Distribution
        - SELECT: mfED031
        - SELECT: INSERT
    3. Defeat the 'A' EDG emergency start:
        - SELECT: Panel Overview
        - SELECT: Panel GF
        - SELECT: A DG Emergency Start Pushbutton
        - SELECT: Release
        - SELECT: INSERT
    4. 'B' EDG Trip:
        - SELECT: MF List
        - SELECT: Electrical Distribution
        - SELECT: mfED034
        - SELECT: INSERT
    5. Block SW-P-41-C from Auto start:
        - SELECT: MF List
        - SELECT: Service Water
        - SELECT: mfSW014
        - SELECT: INSERT
    6. Defeat SW-V-16 Auto Open:
        - SELECT: Scenario
        - SELECT: Sim_Support
        - SELECT: Defeat Auto Open SW-V-16
        - SELECT: RUN

7. Block CS-P-2-B from starting on LOP:
   - SELECT: MF List
   - SELECT: Chemical and Volume Control
   - SELECT: mfCS002
   - SELECT: INSERT
8. Block CC-P-11-A from Auto start:
   - SELECT: MF List
   - SELECT: Primary Component Cooling
   - SELECT: mfCC012
   - SELECT: INSERT
9. Defeat the auto actuation of SW-V-20:
   - SELECT: Scenario
   - OPEN: SW folder
   - SELECT: SW-V-20 auto failure
   - SELECT: Run
   - SELECT: OK
10. Block SW-P-41-C from manual start:
    - SELECT: Panel Overview
    - SELECT: GF
    - SELECT: Insert OR
    - SELECT: SW-P-41-C switch
    - SELECT: Set Final Value to PTL
    - SELECT: INSERT

e. Insert Event Trigger
   - SELECT: Event Triggers
   - OPEN: Sim Support
   - SELECT: RCP TRIP
   - SELECT: Activate

f. Advance logger and tear off any sheets with print.

g. Procedure OS1000.05, Power Increase is being performed and is completed to step 4.2.49. Provide appropriate shift turnover documentation.

SHIFT TURNOVER INFORMATION

- See Turnover Sheet

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 1 Start	Allow the students to increase plant power to the extent that a significant reactivity manipulation is demonstrated.	**PSO (R), BOP (N), US (N)** Crew Begins the Power increase IAW MPE Procedure OS1000.05, Power Increase. The crew should prepare for and initiate a power increase at 10%/hr. **Unit Supervisor:** A brief reactivity review will take place discussing the temperature limits for Tavg to be used in the power increase. The temperature band will normally be + 1.5°F with rods in Auto or + 3°F with rods in manual. Dilution will be used for temperature control during the power increase. Control rods will be used for AFD and temperature control. **Turbine Operations**: The BOP will increase turbine load using automatic DEHC operations. Using the laminated sheets, Figure 19 of OS1000.10, The basic steps are: • Check the Load Set is in Hold mode. • Insert the desired loading Rate. • Insert the desired Power Level. • When RCS temperature begins to increase, Select "Load." • Monitor turbine loading using "Load Status" is Loading and "Load Actual" increases. The BOP should verify the change with control valve position change, temperature change and power change. • At any time during the automatic loading, the power increase can be stopped by activating the "Hold" function.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Power Increase (continued)		**Reactor Power change**: The crew will use dilution to increase temperature during the turbine load increase. A dilution value will be determined to change the boron concentration and increase power/temperature. If control rods are used in manual to control AFD / temperature, the operator will verify rod speed, place the Rod Motion Selector (In-Hold-Out) switch to the OUT direction and withdraw the rods a maximum of three steps. The PSO will monitor temperature and power as confirmation of actions. Using the laminated sheets of OS1008.01, Figure 2, Dilution Check List, the PSO will set up the controllers for the required dilution volume and rate. The high level steps are: • Verify the pumps are in AUTO • Verify the makeup valves are in AUTO • Place Blender Mode Start Switch to STOP • Place the Mode Selector Switch to DILUTE or ALT DILUTE • Set the quantity and flow rate on CIS-FIQ-111 controller **Note:** During validation the crew used a dilution value of 1600 gallons in approximately 400 gallon batches every 15 minutes. • If not desired, select OFF for the "Stepback Feature" • Set the Mode Start Switch to START • Verify the pumps and valves respond • Verify Plant Response. • Restore System to Automatic control

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 2 During Power Increase with Rods in Auto or At Lead Examiner's Discretion	MS-PT-505 fails high: • SELECT: MF List • SELECT: Feedwater (Component) • SELECT: ptFWPT505 • SELECT: FAIL HIGH • SELECT: INSERT	**PSO (I), BOP (I), US (I, TS)** MS-PT-505, Turbine Impulse Pressure, fails high causing outward rod motion. **Initial Alarms:** D4421 TAVG-TREF DEVIATION B7457 ROD MOTION DETECTED US will direct BOP to check generator electrical load stable. BOP will identify that generator electrical load is stable. US will direct PSO to place rods in manual. PSO will place rod control in manual and auto rod motion will stop. PSO or BOP will identify that MS-PT-505 has failed high. US enters OS1235.05, Turbine Impulse Pressure PT 505 or PT 506 Instrument Failure and directs the following actions: **Step 1:** Check PT-505 - FAILED: • BOP will report MS-PT-505 failed high. • PSO will report rods in manual. • PSO or BOP will report Tavg at program temperature. If not at program temperature, US may direct rod insertion. **Step 2:** Check Condenser Steam Dumps: • BOP will report steam dump valves are closed. • BOP will transfer steam dumps to the steam pressure mode: o BOP will verify steam dump controller MS-PK-507 in manual/minimum. o BOP will place steam dump control mode selector to steam pressure mode. o BOP will adjust steam dump controller setpoint to 1092 psig. o BOP will place MS-PK-507 in AUTO.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
MS-PT-505 fails high (continued)	If the crew calls the WCS/WWM for the MS-PT-505, then respond **"Understand that MS-PT-505 has failed high. A troubleshooting team is being formed."** If the crew calls the WCS/WWM for I&C, then respond **"I&C is on their way to the control room."** If needed at OS1235.05, step 5: • SELECT: Panel Overview • SELECT: AMSAC CP-519 • SELECT: TB IMP (P505)	OS1235.05, Turbine Impulse Pressure PT 505 or PT 506 Instrument Failure. (continued) **Step 2:** Check Condenser Steam Dumps: (continued) • BOP will verify both steam dump interlock selector switches positioned to NA RESET NA BYPASS INTERLOCK **Step 3:** Verify Proper P-13 Status By Status Light TURBINE PWR BELOW P-13 UL-6 N-5: • BOP will report that with turbine power above 10%, the status light is deenergized. **Step 4:** Verify Technical Specification Compliance: • T.S. 3.3.1 Reactor Trip System Instrumentation; Table 3.3 1, Item 18.f Action 8. Requirements of this action are met when step 3 is completed. **Step 5:** US will direct BOP to verify ATWS Mitigation Input Status: • US will direct I&C to place failed channel in 1-MM-CP-519, ATWS mitigation system cabinet to - OPERATE BYPASS • BOP will verify proper status light indication for C-20 ATWS MITIGATION SYS ARMED at UL-28 B-1. With turbine power above 20%, the status light is energized.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 3 After MS-PT-505 failure or at Lead Examiner's Discretion	SW-P-41-A trip and lockout: • SELECT: MF List • SELECT: Service Water • SELECT: mfSW001 • SELECT: INSERT It the crew dispatches an NSO to the Service Water Pump House, respond **"This is the roving NSO. I am on my way to the Service Water Pump House to check on SW-P-41A."** After 5 minutes, respond **"This is the roving NSO. I see don't see anything wrong with SW-P-41A."** When the crew dispatches an NSO to essential switchgear, respond **"This is the secondary NSO. I am on my way to essential switchgear verify relay actuation for SW-P-41A."** After 5 minutes, respond, **"This is the secondary NSO, SW-P-41A has an 86 lockout."**	**BOP (C), US (C, TS)** SW-P-41-A trip and lockout and SW-P-41-C fails to auto start. **Initial Alarms:** D5523 SW PMP A BKR TRIP L/O F7192 SW TA TRAIN A FAIL TO ACTUATE NOTE: US may use 'Skill of the Operator' to attempt to start the back-up SW pump OR take initial actions using D5523 alarm response or OS1216.01, Degraded Ultimate Heat Sink. All are acceptable. US may place the plant power increase on hold. PSO will review D5523, SW PMP A BKR TRIP L/O and under the US direction will complete the following actions: **Step 1:** BOP will verify SW Pump A tripped by amber light indication on the MCB. **Step 2:** BOP will verify started/start SW Pump C. **Step 3:** If SW Pump C is not available, BOP will initiate Train A tower actuation from MCB. **Step 4:** BOP will verify SW Pump A discharge valve SW-V-2 closes. **Step 5:** BOP will place the control switch for SW-P-41A in pull to lock. **Step 6:** US will refer to and enter OS1216.01, Degraded Ultimate Heat Sink. **Step 7:** BOP will dispatch an operator to verify relay actuation for SW-P-41A BKR at Bus 5 <AQ3>. **Step 8:** US will refer to technical specifications for the service water system. T.S. 3.7.4a action a will be entered.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
SW-P-41-A trip and lockout and SW-P-41-C fails to auto start. (continued)	It the crew dispatches an NSO to perform a cooling tower fill, respond **"This is the roving NSO. Commence a cooling tower fill from potable water."** After 5 minutes, respond, **"This is the roving NSO, I started a cooling tower fill from potable water at 50 gpm."** IF NEEDED for Cooling Tower fill: • SELECT: RF List • SELECT: Service Water • SELECT: rfSW001PW or FP • SELECT: Set FINAL VALUE to 50 • SELECT: INSERT	US enters OS1216.01, Degraded Ultimate Heat Sink and directs the following actions: **Step 1:** Determine Appropriate Response: • If entered upon initial failure, then go to Step 2. • If entered after processing D5523 alarm response and affected SW train aligned to the cooling tower, then go to Step 8. • If entered after processing D5523 alarm response and Tower actuation is in progress, then got to Step 4. **Step 2:** Check For Ocean System Failure: • BOP will check one ocean service water pump running per train with associated discharge valve open. • With no Train A ocean SW pump running the BOP will perform the following: o Manually start SW Pump C. o SW Pump C can not be started and BOP will actuate Train A tower actuation. o Go to Step 4. **Step 4:** Verify Tower Actuation Sequence: • BOP will verify proper TA alignment by UL-16 status panel indication. o BOP will identify that SW-V-20 failed to auto close and will close the valve if not previously performed. • BOP will check cooling tower boundary intact by verifying SW-V-4, 20 and 74 are closed and cooling tower basin level is stable or increasing. **Step 5:** Determine Step Transition: • With one cooling tower pump in service, US will go to Step 7.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
SW-P-41-A trip and lockout and SW-P-41-C fails to auto start. (continued)		OS1216.01, Degraded Ultimate Heat Sink (continued) **Step 7:** Align equipment with one cooling tower pump in service: • BOP will place both Train A ocean SW pump control switches in PTL. • BOP will place running Train A CT pump control switch in NA START. • BOP will reset Train A tower actuation. • BOP will operate cooling tower spray and fans per Attachment A. **Step 8:** Check For Cooling Tower Failure: • BOP will report Cooling tower pump discharge pressure >40 psig. • BOP will check cooling tower boundary intact: o BOP will check SW-V-4, 20 and 74 are closed, identify that SW-V-20 failed to auto close and will close the valve if not previously performed. • BOP will check cooling tower basin level is stable or increasing. • BOP will verify Cooling tower basin level >43.5 feet. • BOP will operate cooling tower spray and fans per Attachment A, as necessary. **Step 9:** Determine SW System status: T.S. 3.7.4a action a will be entered.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 4 After Step 7 or 8 of OS1216.01, or at Lead Examiner's Discretion NOTE: First alarm comes in approximately 8 minutes after failure is inserted.	'A' RCP vibration ramps up: • SELECT: MF List • SELECT: Reactor Coolant • SELECT: mfRC020 • SELECT: Set Ramp Time to 600 seconds and Final Value to 21 • SELECT: INSERT	**PSO (C), US (C)** 'A' RCP vibration ramps up, which will require a manual reactor trip. **Initial Alarms:** B8300 RCP A MTR FRAME VIB VERT ROC HI B8301 RCP A MTR FRAME VIB HORIZ ROC HI B8308 RCP A SHAFT VIB VERT ROC HI B8309 RCP A SHAFT VIB HORIZ ROC HI US enters OS1201.01, RCP Malfunction and directs the following actions: **Step 1:** Determine Appropriate Procedure Step Transition: • With abnormal RCP vibration level US will go to Step 2. **Step 2:** Monitor RCP Vibration less than alert and danger limit: • Determine If RCP vibration indication is valid using applicable diverse indication as follows: o BOP will perform Attachment A to confirm RCP vibration rack module output is valid o PSO will use MPCS to obtain RCP vibration readings. o PSO will check RCP seal leak off flows. o PSO will check RCP bearing temperatures. • US and PSO determine valid RCP vibration are greater than alert and/or danger limits requiring a reactor trip. • US directs manual reactor trip and states that 'A' RCP will be tripped after immediate actions are completed. • US will direct crew to enter E-0, Reactor Trip or Safety Injection and perform their immediate actions.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Crew trips the Rx		E-0, Reactor Trip or Safety Injection **Step 1:** Verify Reactor Trip: • PSO will check Rod bottom lights lit, reactor trip and bypass breakers open and neutron flux decreasing. **Step 2:** Verify Turbine Trip: • BOP will check all stop valves or all control valves closed and the generator breaker open. **Step 3:** Verify Power To AC Emergency Busses: • BOP will check both AC emergency busses energized. **Step 4:** Check If SI Is Actuated: • PSO will check and report no SI annunciators lit. • Check if SI is required o PSO checks RCS pressure <1800 psig, o PSO checks pressurizer level <7%, o PSO checks containment pressure >4 psig, o PSO checks RCS subcooling <40°F, o BOP checks any SG pressure <585 psig and o SI is not required. • Immediate actions are complete. US will direct the PSO to stop the 'A' RCP.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 5 When 'A' RCP is secured after immediate actions	Simultaneous Events Loss of offsite power: • SELECT: MF List • SELECT: Electrical Distribution • SELECT: mfED038 • SELECT: INSERT 350 gpm RCP seal leak (simulated with intermediate leg leak): • SELECT: MF List • SELECT: Reactor Coolant • SELECT: mfRC050A • SELECT: Set Final Value to 350 • SELECT: INSERT	**PSO (M), BOP (M), US (M)** Loss of offsite power, Station Blackout and 300 gpm RCP seal leak. NOTE: Crew may reassess E-0, Reactor Trip or Safety Injection, step 3 for LOP, then go to ECA-0.0, Loss of all AC Power, OR go directly to ECA-0.0, Loss of all AC Power, step 1. Either transition path is correct. **Step 3:** Verify Power To AC Emergency Busses: • BOP will check at least one AC emergency bus energized. • BOP will attempt to emergency start both emergency EDGs. o 'A' EDG will not start. o 'B' EDG will start and trip due to lube oil failure. • US will direct crew to enter ECA-0.0, Loss of all AC Power and perform their immediate actions.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
ECA-0.0, Loss of all AC Power **Event 6** **Critical Task**	When BOP simulates actuating Slave relay K603 test switch S909 **"Relay test switch has been actuated. Indications are as seen on the MCB."** Slave relay start of 'A' EDG: • SELECT: Scenario • SELECT: Sim_Support • SELECT: Start E DG Slave Relay • SELECT: Run	ECA-0.0, Loss of all AC Power **Step 1:** Verify Reactor Trip: • PSO will check reactor trip and bypass breakers open and neutron flux decreasing. **Step 2:** Verify Turbine Trip: • BOP will check all stop valves or all control valves closed and the generator breaker open. **Step 3:** Check If RCS Is Isolated: • PSO will check PORVs, CS-V-145, Excess letdown isolation valves and RCS sample valves closed. **Step 4:** BOP will verify EFW Flow >500 gpm **Step 5:** Try To Restore Power to any AC Emergency Bus: • BOP will place Bus 5 & 6 UAT and RAT supply breaker control switches in PTL. **BOP (C)** • **BOP will manually start emergency diesel generator(s) from the main control room:** o **Emergency start (will not work)** o **Slave relay K603 test switch S909** • BOP will verify diesel generator is running with normal voltage and frequency. • BOP will verify diesel generator breaker is closed and EPS is actuated and sequencing. • Check equipment loaded:

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
ECA-0.0, Loss of all AC Power (continued) **Event 6** **Critical Task**	If the crew dispatches an NSO to DG room to investigate, respond **"This is the roving NSO. I am in the 'B' DG room and there is a large amount of oil on the floor."** If the crew directs NSO to Place 'B' DG in MAINTENANCE, respond **"Place 'B' DG in MAINTENANCE."** Placing the 'B' DG in MAINTENANCE: • SELECT: Local Panels • SELECT: DG System • SELECT: DG B • SELECT: SS-9710 Maintenance	ECA-0.0, Loss of all AC Power, Step 5 (continued) • Check equipment loaded: o PSO reports 'A' Charging Pump running. o PSO reports 'A' Thermal Barrier Pump running. **PSO (C)** o PSO will identify CC-P-11-A failure to auto start. ▪ BOP will reset RMO (after EPS sequencing is complete). ▪ PSO will start CC-P-11-A or C. o BOP reports 'A' EFW pump running. **BOP (C)** o **BOP reports 'A' Cooling Tower Pump running** ▪ **BOP may identify that SW-V-16 is closed, but should be open.** ▪ **US directs BOP using 'Skill of the Operator' to open SW-V-16.** ▪ **BOP opens SW-V-16.** • BOP reports Bus 5 is energized. • BOP reports only one AC emergency bus is energized. • BOP reports Bus 5 is energized from its Emergency Diesel. • US directs return to E-0, Reactor Trip or Safety Injection, Step 4.
E-0, Reactor Trip or Safety Injection, Step 4		**Step 4:** Check If SI Is Actuated: • PSO will check and both SI annunciators lit. US will direct PSO and BOP to bring up their alarms and notify him of any immediate plant concerns and share any pertinent plant information. **Step 5:** Perform ESF actuation verification per Attachment A: • PSO will perform Attachment A.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
E-0, Reactor Trip or Safety Injection (continued) **Event 7** **Critical Task**		PSO performing Attachment A while US and BOP process E-0. 1. PSO will verify Containment Isolation Phase A Actuation by checking all status panel lights lit for both trains. 2. PSO will verify Safeguard Equipment Alignment by checking proper alignment by status panel for both trains. 3. PSO will verify Feedwater Isolation by checking proper alignment by status panel. **PSO (C)** NOTE: US may direct PSO to start CC-P-11-A or C after Step 4 of E-0 using Skill of the Operator. **4. PSO will verify a PCCW Pump running in both loops.** • **PSO will identify CC-P-11-A failure to auto start.** • **PSO will reset RMO.** • **PSO will start CC-P-11-A or C.** 5. PSO will verify ECCS Flow by checking: • CCP indicated flow to RCS cold legs. • RCS pressure <1700 psig, SI pump flow to both trains. • RCS pressure >300 psig, go to Step 6. 6. PSO will verify MS-V-129 is open. 7. PSO will verify a SW Pump running in both trains. 8. PSO will verify SW flow to Train A and Train B Diesels >900 gpm. 9. PSO will check all main steamlines isolated with containment pressure >4 psig. 10. PSO will check Containment Pressure has remained <18 psig 11. PSO will verify total EFW flow >500 gpm. 12. PSO will reset RMO if not previously done. 13. PSO will notify US of Actuation Verification Status. Attachment A is complete.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	EXPECTED STUDENT RESPONSE
E-0, Reactor Trip or Safety Injection (continued)	When the BOP dispatches an NSO to open FW-V-347, B EFW pump miniflow, respond **"This is the roving NSO. Open FW-V-347, B EFW pump miniflow."** After 2 minutes open FW-V-347: • SELECT: SIM diagrams • SELECT: FW3 • SELECT: FW-V-347 • SELECT: Manual Adjust • SET: Final Value = 1 • SET: Ramp = 30 • SELECT: Insert After FW-V-347 is open, respond, **"This is the roving NSO, FW-V-347 is open."**	**Step 6:** Monitor RCS Temperature stable at or trending to 557°F. • BOP will report temperature less than 557°F and decreasing. • US will direct the following actions: o Stop dumping steam to condenser and atmosphere. o Check MS to MSRs isolated. NOTE: The following 2 steps may have been performed per the E-0 OAS page. o If cooldown continues, then open EFW pump mini flow valves and throttle total feed flow to maintain greater than 500 GPM. o When SG level is adequate based on 15% NR in at least one SG (Adverse Containment), then throttle feed flow to maintain SG narrow range level between 15% and 50% (Adverse Containment). o If cooldown continues, then close MSIVs, MSIV bypass valves and upstream drains. **Step 7:** Check RCS Isolated: • BOP will check CS-V-145, both PORVs and both normal PZR spray valves closed. **Step 8:** Check If RCPs Should Be Stopped: • BOP will check at least one running ECCS pump and report RCS subcooling greater than 40°F. **Step 9:** Check If SG Pressure Boundary Is Faulted: • BOP will check pressures in all SGs and report pressures as expected. **Step 10:** Check If SG U Tubes Are Intact: • BOP will check pressures and levels in all SGs and report pressures and levels as expected. **Step 11:** Check If RCS Is Intact: • BOP will report abnormal containment radiation and pressure. • US will direct entry to E-1, Loss of Reactor or Secondary Coolant.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
E-1, Loss of Reactor or Secondary Coolant		E-1, Loss of Reactor or Secondary Coolant US will direct crew to enter E-1, Loss of Reactor or Secondary Coolant and direct the following actions. US, PSO or BOP will announce that Critical Safety Functions are in effect. **Step 1:** Check If RCPs Should Be Stopped: • PSO will check one charging pump running. • PSO will check RCS subcooling >40°F. **Step 2:** Check If SG Pressure Boundary Is Faulted: • BOP will check pressures in all SGs and report pressures as expected. **Step 3:** Check Intact SG Levels: • BOP will verify 15% NR in at least one SG (Adverse Containment). • BOP will open EFW pump mini flow valves AND control feed flow to maintain NR level between 15% and 50% (adverse containment). **Step 4:** Check Secondary Radiation: • BOP will check main steamline, condenser air evacuation and steam generator blowdown radiation all normal. • BOP will check no uncontrolled SG narrow range level increase. **Step 5:** Check PZR PORV And Block Valves: • BOP will verify block valves have power and are open and both PORVs are closed.
E-1, Loss of Reactor or Secondary Coolant (continued)		**Step 6:** Check If ECCS Flow Should Be Reduced: • PSO will check RCS subcooling greater than 40°F. • BOP will check secondary heat sink available. • PSO will check RCS pressure or stable or increasing. • PSO will check PZR level greater than 28% (adverse containment) • US will entry to ES 1.1, SI TERMINATION, Step 1.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
	Terminate the scenario after the crew check If ECCS flow should be reduced at step 6 of E-1, or at the discretion of the lead examiner.	

*** END OF SCENARIO ***

WORLD CLASS PERFORMANCE

.....expect it!

2013 LOIT NRC SIM Exam 2

OPERATIONS DEPARTMENT TURNOVER

Plant Status

Plant is in Mode **1** At **75**% Power.

The Security Threat Level is **Yellow**

Protected Train

A

Current PRA Risk is **Green**

Aggregate risk is **0 LOW**

Reactivity

RCS Boron concentration is **1206** ppm

Performing A **30** Gal **Dilution** Every 5 hours

Rod control is in **Auto** With Control Bank "D" at **207** Steps

RCS Tave Band (Deg. F) **581- 581.3**

Dilution Amount Required To Raise Tave By 1 Deg. F (Gal): **191**

Boration Amount Required To Lower Tave By 1 Deg. F (Gal): **35**

SG Blowdown Lineup: **Hotwells** At **60** GPM/SG

Cation Run (Minutes):Mids - **6** Days - **6** Cation Flowrate: **Full Flow**

SFP: Time To 200F is **31** Hours and Risk is **Low**

Turbine Controls: Make adjustments as required to maintain 8 Hour thermal power between 3646.0 MW and 3647.9 MW. The 1 Hour thermal power average will be maintained below 3648 MW.

Control Rods will be manipulated per Reactor Engineering recommendations and will normally be left in automatic control. Utilize OS1000.10 Fig. 11, Rod Motion Checklist.

ODI 56 Values for NEPEX Contingency Downpower

Amount Of Boration Needed To reduce Output to 1200 Mwe Net (C6123) Is **100** Gal.

Amount Of Boration Needed To reduce Output to 800 Mwe Net (C6123) Is **776** Gal.

Reactivity	Activities that may affect reactivity.

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. Increase power to 90% at 10%/hour.
2. Maintain AFD on target.
3. Dilute as required to establish and maintain a power increase to 90% at 10%/hour.
4. CB D at 207 steps with rods in Auto.

General Plant Status	General Plant Info (Non Watchstation Specific)

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. Power increase in progress.

Evolutions	List non-tagging evolutions and surveillances in progress or planned

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. Procedure OS1000.05, Power Increase, is being performed and is completed to step 4.2.49.
2. Both Heater Drain pumps are in service.

Work Control	Name:	RSS

Today 0:00 *TURNOVER INFORMATION*
By:

Primary NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Secondary NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Rover NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Waste NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Field Support NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Fire Brigade Leader	Name:

Today 0:00 *TURNOVER INFORMATION*
By:

Unit Supervisor	Name

Today 0:00 *TURNOVER INFORMATION*
By:

Shift Manager	Name:

Today 0:00 *TURNOVER INFORMATION*
By:

NEXTera ENERGY NUCLEAR FLEET	SIMULATOR EXERCISE GUIDE	SEG

SITE: **Seabrook** **Revision #:** **FINAL**

LMS ID: **LMS Rev. Date:**

SEG TITLE: **2013 LOIT NRC SIM Exam 4**

SEG TYPE: ☐ **Training** ☒ **Evaluation**

PROGRAM: ☐ **LOCT** ☒ **LOIT** ☐ **Other:**

DURATION: **90 minutes**

Developed by: _____ _____
Instructor/Developer Date

Reviewed by: _____ _____
Instructor (Instructional Review) Date

Validated by: _____ _____
SME (Technical Review) Date

Approved by: _____ _____
Training Supervision Date

Approved by: _____ _____
Training Program Owner (Line) Date

UPDATE LOG: Indicate in the following table any minor changes or major revisions (as defined in TR-AA-230-1003) made to the material after initial approval. Or use separate Update Log form TR-AA-230-1003-F16.

#	DESCRIPTION OF CHANGE	REASON FOR CHANGE	AR/TWR#	PREPARER REVIEWER	DATE DATE

OVERVIEW / SEQUENCE OF EVENTS

OVERVIEW

The crew will take the watch at MOL 100% power with, Rods in Auto, boron concentration at 1100 ppm, CB D at 230 steps. The crew will begin a power decrease at 10%/hr to 50% power due to FW-P-32-A vibration issues. CC-P-322-A trips and standby pump fails to auto start, but can be started manually. The crew will then experience a loss of EDE-PP-1A due to EDE-I-1A failure. Instrument Bus 1A can be recovered on its maintenance supply. This event will require manual control of FRV's and charging. AR-P-50-B will then trip with auto start of third AR pump blocked, but it can be manually started. FW-P-32-A trips and power level is too high for Setback to be successful. Auto and Manual Rx trips are blocked, resulting in ATWS. Auto rod insertion is blocked and manual rod insertion will be required. On the manual turbine trip, turbine Stop Valve 2 and Control Valve 2 will stick open, requiring manual MSI.

SEQUENCE OF EVENTS

ALL TIMES IN THIS SCENARIO ARE APPROXIMATE

Event #	Description
1.	Crew begins a 10%/hr power decrease due to FW-P-32-A vibration issues.
2.	CC-P-322-A trips and standby pump fails to auto start, can be started manually.
3.	Loss of EDE-PP-1A due to EDE-I-1A failure. Instrument Bus 1A recovered on maintenance supply. Requires manual control of FRV's and charging.
4.	On loss of EDE-PP-1A, PC-PT-455 will fail low. This will be discovered when Instrument Bus 1A is recovered on its maintenance supply.
5.	AR-P-50-B trips, auto start of third blocked but can be manually started. Vacuum will continue to decrease requiring downpower to maintain 25 inches of Hg.
6.	FW-P-32-A trips. Power level too high for Setback to be successful. Auto and Manual Rx trips blocked resulting in ATWS.
7.	Auto rod insertion blocked, manual rod insertion required.
8.	On manual turbine trip, turbine Stop Valve 2 and Control Valve 2 stick open, requiring manual MSI.
9.	When crew enters ES-0.1 the A PORV will fail open. This will require the PSO to close the A PORV. It will not close and the PSO will close the A PORV Block Valve.

SIMULATOR SET UP INSTRUCTIONS

Perform simulator set up per the Simulator Setup Checklist.

General Instructions

a. Provide extra copies of procedures to Examiners
b. Reset to IC #153
c. Place simulator in Run
d. Verify the following have been inserted OR reset to IC #30 and insert the following:
    1. A Train is Protected, SV C0755, '1'
    2. Block MS-SV-2 Main Stop Valve closure:
        - SELECT: MF List
        - SELECT: Main Steam (Component)
        - SELECT: avMSVSV2
        - SELECT: FAIL OPEN
        - SELECT: INSERT
    3. Block MS-CV-2 Main Turbine Control Valve closure:
        - SELECT: MF List
        - SELECT: Main Steam (Component)
        - SELECT: avMSVCV2
        - SELECT: FAIL OPEN
        - SELECT: INSERT
    4. Block standby Air Removal pump start:
        - SELECT: MF List
        - SELECT: Condenser Air Evacuation
        - SELECT: mfAR006C
        - SELECT: INSERT
e. Advance logger and tear off any sheets with print.
f. Procedure OS1000.056, Power Decrease is being performed and is completed to step 4.3. Provide appropriate shift turnover documentation.

SHIFT TURNOVER INFORMATION

- See Turnover Sheet

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 1 Start ⇨	Allow the students to decrease plant power to the extent that a significant reactivity manipulation is demonstrated.	**PSO (R), BOP (N), US (N)** Crew begins the power decrease IAW MPE Procedure OS1000.06, Power Decrease. The crew should prepare for and initiate a power decrease at 10%/hr. **Unit Supervisor:** A brief reactivity review will take place discussing the temperature limits for Tavg to be used in the power increase. The temperature band will normally be + 1.5°F. Boration will be used for temperature control during the power decrease. Control rods will be used for AFD and temperature control. **Turbine Operations**: The BOP will decrease turbine load using automatic DEHC operations. Using the laminated sheets, Figure 19 of OS1000.10, The basic steps are: • Check the Load Set is in Hold mode. • Insert the desired Ramp Rate. • Insert the desired Power Level. • When RCS temperature begins to decrease, Select "Load." • Monitor turbine unloading using "Load Status" is Unloading and "Load Actual" decreases. The BOP should verify the change with control valve position change, temperature change and power change. • At any time during the automatic unloading, the power decrease can be stopped by activating the "Hold" function.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
		Reactor Power change: The crew will use boration to decrease temperature during the turbine load decrease. A boration value will be determined to change the boron concentration and decrease power/temperature. If control rods are used in manual to control AFD / temperature, the operator will verify rod speed, place the Rod Motion Selector (In-Hold-Out) switch to the IN direction and insert the rods. The PSO will monitor temperature and power as confirmation of actions. Using the laminated sheets of OS1008.01, Figure 3, Boration Checklist, the PSO will set up the controllers for the required boration volume and rate. The high level steps are: • Verify the pumps are in AUTO • Verify the makeup valves are in AUTO • Place Blender Mode Start Switch to STOP • Place the Mode Selector Switch to BORATE • Set the quantity and flow rate on CIS-FIQ-111 controller **Note:** During validation the crew used a boration value of 300 gallons in approximately 75 gallon batches every 15 minutes. • If not desired, select OFF for the "Stepback Feature" • Set the Mode Start Switch to START • Verify the pumps and valves respond • Verify Plant Response • Restore System to Automatic control

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 2 At Lead Examiner's Discretion	CC-P-322-A trips: • SELECT: Scenario • OPEN: CC folder • SELECT: TB loss with failure of 322B to start • SELECT: Run • SELECT: OK	**PSO(C), US (C)** CC-P-322-A, 'A' Thermal Barrier Pump trips and CC-P-322-B, 'B' Thermal Barrier Pump fails to auto start. **Initial Alarms:** B5208 THERM BARR PMP A/B OUTLET FLOW LOW B5219 THERM BARR PMP A/B OUTLET FLOW LOW F8017 RCP A THERM BARRIER COOLING FLOW LOW F8018 RCP B THERM BARRIER COOLING FLOW LOW F8019 RCP C THERM BARRIER COOLING FLOW LOW F8020 RCP D THERM BARRIER COOLING FLOW LOW PSO identifies that CC-P-322-A, 'A' Thermal Barrier Pump trips and CC-P-322-B, 'B' Thermal Barrier Pump failed to auto start. NOTE: US may decide to take initial actions using "Skill of the Operator" or any of the above listed alarm responses or go directly to OS1212.01, PCCW Malfunction or OS1201.01, RCP Malfunction. Any method is acceptable. US may place the plant down power on hold. If the US chooses to use "Skill of the Operator": • US will direct the PSO to start CC-P-322-B using "Skill of the Operator". • PSO will start CC-P-322-B. • PSO will verify alarms clear and report the conditions to the US.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
CC-P-322-A, 'A' Thermal Barrier Pump trip (continued)		PSO may review B5208 or B5219, THERM BARR PMP A/B OUTLET FLOW LOW. If the US chooses to use B5208 or B5219 alarm response, then he will direct the PSO to complete the following actions: **PSO will read NOTE prior to Step 1:** This alarm is generated from the transmitter supplying point A0283. The standby pump auto start is supplied independently from the transmitter bistable at 120 gpm. **Step 1:** Verify Thermal Barrier Pump A/B outlet flow low conditions using the following: • A0283, CC-P-322A & B OUTLET FLOW • A0284, CC-P-322A & B OUTLET FLOW **Step 2:** Check one thermal barrier coolant pump running. • US may direct PSO to start CC-P-322-B using "Skill of the Operator". **Step 3:** If continued low flow conditions exist, go to OS1212.01, PCCW System Malfunction.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
CC-P-322-A, 'A' Thermal Barrier Pump trip (continued)		PSO may review F8017 (F8018, F8019 or F8020), RCP A (B, C or D) THERM BARRIER COOLING FLOW LOW. If the US chooses to use F8017 (F8018, F8019 or F8020) alarm response, then he will direct the PSO to complete the following actions: **PSO will read NOTE prior to Step 1:** CC-P-322A, Thermal Barrier Coolant Pump A is the preferred pump and will normally be in service. CC-P-322B, Thermal Barrier Coolant Pump B will normally be kept in auto as the standby pump. **Step 1:** Verify CC-P-322A or B, thermal barrier coolant pump in service per OS1012.08, Thermal Barrier Cooling Water System Operation. • PSO verifies no thermal barrier pumps running. • US may direct PSO to start CC-P-322-B using "Skill of the Operator". **PSO will read NOTE prior to Step 2:** RCP thermal barrier outlet isolation valves are normally open and deenergized to avoid redundant high flow closure on a single loop failure. **Step 2:** Verify Thermal Barrier Pump Outlet Flow Normal (180 to 220 gpm) using the following: • A0283, CC-P-322A & B OUTLET FLOW • A0284, CC-P-322A & B OUTLET FLOW **Step 3:** Refer to the following procedures as applicable: • OS1201.01, RCP Malfunction • OS1212.01, PCCW System Malfunction

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
CC-P-322-A, 'A' Thermal Barrier Pump trip (continued)		If the US chooses to go directly to OS1212.01, PCCW Malfunction, he will direct the following actions: **US will read CAUTION prior to Step 1:** The reactor and affected RCPs must be tripped within 10 minutes of losing all PCCW flow to affected RCPs. **Step 1:** Determine Appropriate Procedure Response: • IF PCCW system FLOW is degraded, THEN go to step 2. **Step 2:** Check PCCW Flow • PSO will check PCCW pumps, one pump running per loop. • PSO will check PCCW system flow >6000 gpm. • PSO will check RCP motor flow alarms reset. • PSO will check RCP motor temperatures are normal: o Motor bearing temperatures <195°F. o Motor stator winding temperature <302°F. • PSO will check at least one thermal barrier cooling pump running: o PSO will manually start pump. o PSO will verify alarms clear and report the conditions to the US. NOTE: The remaining steps check on PCCW system status. The US will process the AOP to Step 8 where he will return to procedure and step in effect.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS

TIME/NOTES	INSTRUCTOR ACTIVITY	EXPECTED STUDENT RESPONSE
CC-P-322-A, 'A' Thermal Barrier Pump trip (continued)		If the US chooses to go directly to OS1201.01, RCP Malfunction, he will direct the following actions: **Step 1:** Determine Appropriate Procedure Step Transition: • IF RCP seal package cooling is degraded, THEN go to Step 14. **Step 14:** Monitor RCP Seal And Bearing Cooling Inlet Temperature: • PSO will check RCP seal and bearing inlet temperature indication is available to each RCP. • PSO will monitor RCP seal water inlet temperature <230°F • PSO will monitor RCP seal water inlet temperature <184°F **Step 15:** Monitor for minimum RCP seal cooling system requirements: • PSO will check RCP No.1 Seal injection flow >6 gpm to each RCP. **US will read CAUTION prior to Step 16 to PSO:** A loss of seal injection event may cause RCP seal and bearing temperatures to reach 230°F within 2 hours. Thermal barrier cooling may not provide adequate cooling to RCP seals with leakoff rates less than 2.5 gpm. **Step 16:** Check Seal Water Cooling System Status: • PSO will check RCP No.1 Seal injection flow >6 gpm to each RCP. • PSO will check RCP seal water injection temperature <135°F • PSO will check at least one thermal barrier cooling pump running: o PSO will manually start pump. o PSO will verify alarms clear and report the conditions to the US. • PSO will check RCP thermal barrier supply temperature <105°F • PSO will check thermal barrier head tank level between 30 and 45 inches. **Step 17:** Go to Step 19. **Step 19:** Verify Tech Spec compliance. **Step 20:** Verifies normal RCP parameters. **END AOP**

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 3 After start of CC-P-322-B or at Lead Examiner's Discretion **Event 4** Prior to re-energizing EDE-PP-1A on its maintenance supply	Loss of UPS-I-1A: • SELECT: MF List • SELECT: Electrical Distribution • SELECT: mfED025 • SELECT: INSERT RC-PT-455 Failed Low: • SELECT: MF List • SELECT: Reactor Coolant (component) • SELECT: ptRCPT455 • SELECT: FAIL LOW • SELECT: INSERT	**PSO (C), BOP (C), US (C, TS)** Loss of vital instrument panel PP-1A due to UPS-I-1A failure. **Initial Alarms:** Many alarms associated with the loss of ED-PP-1-A. Due to FW-PT-505 failing low from the loss of power, rods in auto will start inserting. The US will direct BOP to check generator electrical load stable. BOP will identify that generator electrical load is stable. US will direct PSO to place rods in manual. PSO will place rod control in manual and auto rod motion will stop. Due to SG Water Level controlling channel failing from the loss of power, SG NR levels will increase from program level. The US will direct the BOP to manually control feed regulating valves to restore SG level to program. (45% to 55%) and to manually control main feed pump master speed controller to restore programmed DP, as necessary.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Loss of PP-1A (continued)	When the crew dispatches an NSO to 'A' essential switchgear to check the status of PP-1A and UPS-I-1A, respond **"This is the secondary NSO, I am on my way to 'A' essential switchgear to check the status of PP-1A and UPS-I-1A."** After 5 minutes, respond **"Control, this is the secondary NSO, UPS-I-1A appears dead."** When the crew directs the NSO to repower PP-1A from its maintenance supply using Attachment D, respond **"This is the secondary NSO, repower PP-1A from its maintenance supply using Attachment D."** **Ensure MF for RC-PT-455 inserted.** To place ED-PP-1A on its Maintenance supply: • SELECT: RF List • SELECT: Electrical Distribution • SELECT: rfED021 • SELECT: INSERT After repowering PP-1A, respond **"Control, this is the secondary NSO, PP-1A is on its Maintenance supply."**	With the plant stabilized the US enters OS1247.01, Loss of a 120 VAC Vital Instrument Panel (PP1A, 1B, 1C OR 1D) and directs the following actions: **US will read NOTE prior to Step 1 to BOP:** 120 VAC Instrument bus can be energized at any time per Attachment D. US will give BOP Attachment D and direct him to repower PP-1A. NOTE: PP-1A may be repowered from its maintenance supply at any time during this procedure. Repowering will cause a spurious containment evacuation alarm. **Step 1:** Check Rod Control System: • BOP will check generator electrical load stable. • PSO will place the Rod Bank Selector Switch in Manual. **Step 2:** Check Steam Generator Water Level Control: • BOP will check controlling channel is failed. • BOP will manually control feed regulating valves to restore SG level to program. • BOP will manually control main feed pump speed controller to restore programmed DP, as necessary. • BOP will restore steam generator water level control to automatic per ATTACHMENT A, as time permits. NOTE: When PP-1A is repowered from its maintenance supply the crew will discover RC-PT-455 failed low. The US may decide to enter OS1201.06, PZR Pressure Instrument / Component Failure at this time or complete the current AOP. The steps for RC-PT-455 failure follow the PP-1A failure in the Expected Student Response section.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Loss of PP-1A (continued)		BOP performing Attachment A to align SG level control to automatic as follows, while US and PSO continue in OS1247.01, Loss of a 120 VAC Vital Instrument Panel (PP1A, 1B, 1C OR 1D). 1. BOP will manually restore SG level to program level using: • Feed regulating valve control OR • Main feed water speed control, if necessary 2. BOP will select alternate control channel as necessary: • SG level • Steam flow • Feed flow 3. WHEN SG level returns to program, THEN perform the following: • Return feed regulating valve control to automatic. • Return main feed pump speed control to automatic, as necessary. Attachment A is complete.
Loss of PP-1A (continued)		**Step 3:** Check Rod Control System: • BOP will check Steam Dump Control: o Condenser steam dump valves closed. o Reset C-7A steam dump arming signal, as necessary. **Step 4:** Check Pressurizer Pressure Control: • PSO will check controlling channel is failed. • PSO will manually control the Master pressurizer pressure controller OR Heaters and spray valves to restore pressurizer pressure to program. • PSO will check pressurizer pressure is stable or trending to program. • PSO will restore pressurizer pressure control to automatic per ATTACHMENT B, as time permits.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Loss of PP-1A (continued)		PSO performing Attachment B to align pressurizer pressure control to automatic as follows, while US and BOP continue in OS1247.01, Loss of a 120 VAC Vital Instrument Panel (PP1A, 1B, 1C OR 1D). 1. PSO will manually restore pressurizer pressure to program using: • Master pressurizer pressure controller OR • Heaters and spray valves 2. PSO will select alternate pressure channel for control/backup as necessary. 3. PSO will select an alternate pressure channel for recorder as necessary. 4. PSO will select an alternate ΔT, OT, OP channel for recorder as necessary. 5. WHEN pressurizer pressure returns to program, THEN perform the following: • Place PZR master pressure controller in automatic • Place PZR spray controllers in automatic • If required, reset pressurizer control group heaters. Attachment B is complete.
Loss of PP-1A (continued)		**Step 5:** Check Pressurizer Level Control: • PSO will check controlling/backup/programmed level channel is failed. • PSO will manually control the Master level controller OR CS-FK-121 controller to restore pressurizer level to program. • PSO will select an alternate level channel for control and backup. • PSO will restore pressurizer level control to automatic per ATTACHMENT C, as time permits.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Loss of PP-1A (continued)		PSO performing Attachment C to align pressurizer level control to automatic as follows, while US and BOP continue in OS1247.01, Loss of a 120 VAC Vital Instrument Panel (PP1A, 1B, 1C OR 1D). 1. PSO will manually restore pressurizer level to program using: • Master level controller OR • CS-FK-121 controller 2. PSO will select alternate level channel for control and backup. 3. PSO will select an alternate level channel for recorder as necessary. 4. PSO will verify control rods are in manual 5. PSO will depress affected loop Tavg channel defeat pushbutton 6. WHEN pressurizer level returns to program, THEN perform the following: • Adjust RC-LK-459 as needed to match the input and setpoint signals on CS-FK-121 • Place CS-FK-121 in AUTO • Adjust RC-LK-459 input to match program level setpoint • Place RC-LK-459 in AUTO 7. If required, reset pressurizer control group heaters. Attachment C is complete.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Loss of PP-1A (continued)		**Step 6:** Check If E Plan Classification is required: • PSO will report PP-1C is energized and the US will go to Step 7. **Step 7:** Check If Letdown Was Isolated: • PSO will report that RC-LCV-459 is closed. **Step 8:** Check If Normal Letdown Can Be Established: • Verify charging flow >50 gpm: o PSO will report charging to the RCP seals only. o PSO will increase charging flow to >50 gpm. • PSO will report pressurizer level >17% and increasing. • PSO will establish normal letdown as follows: • PSO will open/check open CC-V-341 and check CS-TK-130 in AUTO to align PCCW to the letdown heat exchanger. • PSO will close letdown flow control valves CS-HCV-189 and 190. • PSO will open/check open letdown line isolation valves RC-LCV-459 and 460 and CS-V-145. • PSO will manually control CS-PK-131 AND establish letdown flow using letdown flow control valve CS-HCV-189 or 190. • US will go to Step 10. **Step 10:** Defeat Affected Loop ΔT and Tavg inputs: • PSO will depress affected loop ΔT channel defeat pushbutton. • PSO will verify control rods are in manual. • PSO will depress affected loop Tavg channel defeat pushbutton. • PSO will select a non affected channel for ΔT, OT, OP recorder.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Loss of PP-1A (continued)		**Step 11:** Restore 120 VAC Instrument Power: NOTE: Power may already be restored. • BOP will report that he is working with an NSO in the field to place PP-1A on its maintenance supply per Attachment D OR • BOP will report that PP-1A is energized on its maintenance supply per Attachment D. **Step 12:** Restore Normal System Alignment: • PSO will reset affected power range NI rate trip. • PSO will restore any defeated loop Tavg, ΔT channels. • PSO will restore pressurizer pressure control channels for preferred alignment, as necessary. • PSO will verify Tavg WITHIN 1°F OF Tref. • Under specific US direction, PSO will restore control rods to desired position, as necessary. • PSO will place rod control to AUTO. • PSO will reset SSPS power supply per ATTACHMENT E as follows: o At MM-CP-12, Train A Logic Cabinet, on PS 501, PSO will Press the Reset Push Button o At MM-CP-12, Train A Logic Cabinet, PSO will verify PS 501 "OK" LED is illuminated • US will restore other systems to automatic control using applicable attachments as necessary. **Step 13:** Verify Technical Specification Compliance: • T.S 3.8.3.1, Onsite Power Distribution Operating

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
RC-PT-455 Failure Low		**PSO (I), US (I, TS)** RC-PT-455, controlling pressurizer pressure instrument fails low. **Initial Alarms:** (alarms stay energized after powering PP-1A on its maintenance supply) F5298 OTDT CHAN TRIP F7434 PZR PRESSURE LOW CHANNEL LOW (RX) F7435 PZR PRESSURE LOW CHANNEL TRIP (SI) UL1-F10 PZR PRESS LO SI UL6-A3 RCS LOOP OTΔT UL6-A5 PRESSURIZER PRESS LO
	The crew calls the WCS/WWM for the RC-PT-455, respond **"Understand that RC-PT-455 has failed low. A troubleshooting team is being formed."**	US enters OS1201.06, PZR Pressure Instrument / Component Failure and directs the following actions: **US will read NOTE prior to Step 1 to PSO:** A reactor trip may occur on OTΔT setpoint if RCS pressure significantly decreases below normal operating pressure. **Step 1:** Check PORVs closed: • PSO will report both PORVs closed. **Step 2:** Check Normal PZR Spray Valves closed: • PSO will report both Normal PZR Spray valves are closed or redponding correctly.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
RC-PT-455 Failure Low (continued)		**US will read NOTE prior to Step 3 to PSO:** Channel P-455/P-456 is normally selected for pressure control because a failed LOW – RC-PT-458 (selected for backup) or RC-PT-457 (selected for control), will prevent automatic operation of both pressurizer PORVs. **Step 3:** Check PZR Pressure Channels: Controlling/Backup/Recorder channel failed: • PSO reports no Controlling/Backup/Recorder channel failed, but that RC-PT-455 has failed low. **US will read CAUTION prior to Step 4 to PSO:** Channel Selection of alternate pressurizer pressure control channel OR recorder channel uses a "make before break" circuit that can result in control system transient if a significant deviation exists between the channels. **Step 4:** Realign Pressurizer Pressure Instruments: • PSO reports that 457/456 or 458/456 for is selected for control/backup. • PSO reports that 456, 457 or 458 is selected for the pressure channel recorder. • PSO reports that an alternate ΔT, OT, OP channel is selected for the recorder. **Step 5:** Align Pressurizer Pressure control: • PSO reports that RCS pressure is trending to 2235 psig and the master pressure controller, RC-PK-455A is in auto. **Step 6:** Verify redundant channels bistables not tripped: • PSO will report redundant channels bistables not tripped on UL-1 and UL-6 bistables.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
RC-PT-455 Failure Low (continued)*		**Step 7:** Verify Technical Specification Compliance: • T.S. 3.3.1, Reactor Trip System Instrumentation; Table 3.3 1, Items 7,9 and 10. Enter action 6. • T.S. 3.3.2, Engineered Safety Features Actuation System Instrumentation; Table 3.3-3, Items 1.d. Enter action 18. US will coordinate with I&C to place bistables to bypass for up to 6 hours or trip within 6 hours.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 5 At Lead Examiner's Discretion	Simultaneous Events AR-P-50-B trips: • SELECT: MF List • SELECT: Condenser Air Evacuation • SELECT: mfAR005B • SELECT: INSERT Vacuum Leak: • SELECT: SIM Diagrams • SELECT: CO1 • SELECT: mfCO026 • SELECT: Set Final Value to 0.035 (adjust as necessary) • SELECT: INSERT When the crew dispatches an NSO to AR-P-50-B, respond **"This is the secondary NSO, I am on my way to AR-P-50-B."** After 2 minutes, respond **"Control, this is the secondary NSO, AR-P-50-B is not running and the suction valve is open."** When the crew directs the NSO to shut AR-P-50-B suction valve, respond **"Close AR-P-50-B suction valve."**	**BOP (C), US (C)** AR-P-50-B trips and loss of condenser vacuum. **Initial Alarms:** F5118 MECH VAC PMP B TRIP BOP identifies that AR-P-50-B tripped. BOP will review F5118 VAS. F5118 VAS directs the crew to start the standby mechanical vacuum pump A OR C. US will direct the BOP to start the standby mechanical vacuum pump A OR C. Vacuum will continue to decrease. US enters ON1233.01, Loss of Condenser Vacuum and directs the following actions: **Step 1:** Check Mechanical Vacuum Pump Status: • BOP will report all available vacuum pumps are running. • BOP will report vacuum seal water pump running lights are on. **Step 2:** Check Condenser Vacuum - DECREASING • BOP will report condenser vacuum is decreasing. **Step 3:** Decrease Plant Power To Restore Vacuum: • BOP will report generator output is >360 MWe. • BOP will reduce generator load until EITHER of the following conditions is met: o Load decrease to 360 MWe OR o Condenser vacuum can be maintained >25 inches of Hg vacuum. • BOP will check steam generator tubes are intact. • BOP will shift mechanical vacuum pump discharge to atmosphere,

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
After vacuum restored insert these malfunctions as set up for the major event in the next step.	Block Auto Rod insertion(with rods in auto): • SELECT: Scenario • OPEN: CP folder • SELECT: Auto Rod Failure • SELECT: Run • SELECT: OK Block Auto Rod insertion(with rods in manual): • SELECT: Panel overview • SELECT: Section DF • SELECT: Insert override • SELECT: Rod Bank Selector Switch • SELECT: Final Value Manual • SELECT: INSERT Block Reactor Trip: • SELECT: Scenario • OPEN: CP folder • SELECT: Trip Breakers fail to open • SELECT: Run • SELECT: OK	

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
Event 6 Once the crew starts to decrease plant power to restore vacuum or at Lead Examiner's Discretion **Critical Task** **Critical Task**	FW-P-32-A trips: • SELECT: MF List • SELECT: Feed Water • SELECT: mfFW038 • SELECT: INSERT	**PSO (M), BOP(M), US (M)** FR-S.1, Response to Nuclear Power Generation/ATWS FW-P-32-A trips **Initial Alarms:** D4716 MFP A TURBINE BEARING OIL PRESSURE D4718 MFP A PUMP BEARING OIL PRESS LOW D4720 MFP A TURBINE TRIP D4854 MFP A ELECTRICAL TRIP D6045 TURB SETBACK LOSS OF ONE FW PUMP • BOP will report FW-P-32-A trip and a setback is in progress. • BOP will report all SG levels are rapidly decreasing and approaching the reactor trip setpoint. • US will direct the PSO to manually trip the reactor. • The reactor will not trip MANUALLY or AUTOMATICALLY when the auto trip signal from SG Level Lo-Lo actuates. • The US will declare that he is entering FR-S.1, Response to Nuclear Power Generation/ATWS, and direct the crew to perform their immediate actions. o **Auto rod insertion is failed and the PSO will manually insert control rods.** o BOP will manually trip the turbine. o Turbine Stop Valve 2 and Control Valve 2 will stick open. o **BOP will manually actuate MSI.**

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
FR-S.1, Response to Nuclear Power Generation/ ATWS (continued) **Event 7** **Event 8**	Locally trip the Reactor: • SELECT: Scenario • OPEN: CP folder • SELECT: 120 second delay then clear fault and trip reactor • SELECT: Run • SELECT: OK When the reactor is tripped, respond **"Control, this is the secondary NSO, I locally tripped the reactor."**	**PSO (C)** **Step 1:** Verify Reactor Trip: • PSO will report Rod bottom lights not lit. • **PSO will continue to manually insert control rods.** **BOP (C)** **Step 2:** Verify Turbine Trip: • BOP will report that Turbine Stop Valve 2 and Control Valve 2 are stuck open. • **BOP will report that he manually actuated MSI.** • BOP will report that the generator breaker is open. **NOTE: After the Immediate Actions are complete, the US or BOP will direct any available NSO to locally trip the reactor.** **Step 3:** Check EFW Pumps Running: • BOP will report that the Motor driven pump is running. • BOP will report that the Turbine-driven pump is running. **Step 4:** Initiate Emergency Boration Of RCS: • BOP will report that one charging pump is running.

SIMULATOR EXERCISE GUIDE SCENARIO INSTRUCTIONS		
TIME/NOTES	**INSTRUCTOR ACTIVITY**	**EXPECTED STUDENT RESPONSE**
FR-S.1, Response to Nuclear Power Generation/ ATWS (continued)		• Align boration path: o BOP will start a boric acid pump and open CS-V-426. • Align charging flow path: o BOP will place CS-FK-121 in manual and charge at maximum rate. o BOP will open CS-LCV-112D and E to align CCP suction to RWST. o BOP will close CS-LCV-112B and C to isolate the VCT. o BOP will report PZR pressure <2385 psig. **Step 5:** Verify Containment Ventilation Isolation: • PSO will report COP-V-1, 2, 3 & 4 and CAP-V-1, 2, 3 & 4, Containment purge isolation valves, are closed. **US will read CAUTION prior to Step 6:** If an SI signal exists or occurs, ATTACHMENT A of E-0, REACTOR TRIP OR SAFETY INJECTION should be performed while continuing with this procedure. **Step 6:** Check If The Following Trips Have Occurred: • PSO will report the reactor is tripped. • BOP will report the turbine is tripped. **Step 7:** Check If Reactor Is Subcritical: • PSO will report power range channels <5%. • PSO will report intermediate range flux rate is zero or negative. • PSO will report gammametrics intermediate range flux level <5%. • PSO will report gammametrics intermediate range flux rate is zero or negative. • US will direct PSO to continue boration to obtain adequate shutdown margin during subsequent actions. NOTE: US will exit FR-S.1 and direct the crew to go back to E-0 and perform their immediate actions.

Event 9 **Critical Task**	When crew enters ES-0.1 fail open the A PORV as Follows: • SELECT: MF List • SELECT: Reactor Coolant (Component) • SELECT: avRCPCV456A • SELECT: Fail open • SELECT: INSERT	**PSO (C), US (C)** The PSO will report A PORV open with RCS pressure low. The US will direct PSO to close the A PORV per "Skill of the Operator". The PSO will attempt to close the A PORV. When the A PORV fails to close the PSO will report, "The A PORV failed to close." The US will direct the PSO to close the A PORV Block valve per, "Skill of the Operator." **The PSO will close the A PORV Block Valve.** The PSO will report the A PORV Block valve is closed.
	Terminate the scenario when the crew finishes FR-S.1 and returns to E-0, or at the discretion of the lead examiner.	

*** END OF SCENARIO ***

WORLD CLASS PERFORMANCE

.....expect it!

2013 LOIT NRC SIM Exam 4

OPERATIONS DEPARTMENT TURNOVER

Plant Status

Plant is in Mode **1** At **100**% Power.

The Security Threat Level is **Yellow**

Protected Train

A

Current PRA Risk is **Green**

Aggregate risk is **6 LOW**

Reactivity

RCS Boron concentration is **1100** ppm

Performing A **30** Gal **Dilution** Every 5 hours

Rod control is in **Auto** With Control Bank "D" at **230** Steps

RCS Tave Band (Deg. F) **589- 589.3**

Dilution Amount Required To Raise Tave By 1 Deg. F (Gal): **191**

Boration Amount Required To Lower Tave By 1 Deg. F (Gal): **35**

SG Blowdown Lineup: **Hotwells** At **60** GPM/SG

Cation Run (Minutes):Mids - **6** Days - **6** Cation Flowrate: **Full Flow**

SFP: Time To 200F is **31** Hours and Risk is **Low**

Turbine Controls: Make adjustments as required to maintain 8 Hour thermal power between 3646.0 MW and 3647.9 MW. The 1 Hour thermal power average will be maintained below 3648 MW.

Control Rods will be manipulated per Reactor Engineering recommendations and will normally be left in automatic control. Utilize OS1000.10 Fig. 11, Rod Motion Checklist.

ODI 56 Values for NEPEX Contingency Downpower

Amount Of Boration Needed To reduce Output to 1200 Mwe Net (C6123) Is **100** Gal.

Amount Of Boration Needed To reduce Output to 800 Mwe Net (C6123) Is **776** Gal.

Reactivity	Activities that may affect reactivity.

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. Power decrease to 50% power at 10%/hr.
2. Maintain AFD on target.
3. Borate as required to establish and maintain a power decrease to 50% power at 10%/hr.

General Plant Status	General Plant Info (Non Watchstation Specific)

Today 0:00 *TURNOVER INFORMATION*
By: eel0h11

1. FW-P-32-A is experiencing vibration issues requiring down power for repair.
2. Power decrease to 50% power at 10%/hr.
3. Procedure OS1000.06, Power Decrease is being performed and is completed to step 4.3.

Evolutions	List non-tagging evolutions and surveillances in progress or planned

Today 0:00 *TURNOVER INFORMATION*
By:

Work Control	Name:	RSS

Today 0:00 *TURNOVER INFORMATION*
By:

Primary NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Secondary NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Rover NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Waste NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Field Support NSO	Name:	FB RSS MED

Today 0:00 *TURNOVER INFORMATION*
By:

Fire Brigade Leader	Name:

Today 0:00 *TURNOVER INFORMATION*
By:

Unit Supervisor	Name

Today 0:00 *TURNOVER INFORMATION*
By:

Shift Manager	Name:

Today 0:00 *TURNOVER INFORMATION*
By: