

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Perform a SDM, Use of Temperature Correction

TRAINING MATERIAL NUMBER: 2AD-060

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2AD-060

REVISION NUMBER: 0

TECHNICAL REFERENCES:

2OST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 22), Rev. 28
Unit 2 Plant Curve Book (Updated for Cycle 22)

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: Andrew Jacques _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2AD-060
New Revision: 0
Description of Change(s):
Reason for Change (s):

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

K/A REFERENCE: 2.1.25 3.9/4.2 TASK ID: 0011-205-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:		Performer ID#:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 20 Minutes	Actual Time: minutes	

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR

Evaluator (Print): _____ Date: _____
 Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	The Shutdown Margin calculation is determined to be 2.9718 % (+/- 0.05) $\Delta K/K$ and determines that acceptance criteria are met.
RECOMMENDED STARTING LOCATION:	Classroom
INITIAL CONDITIONS:	<ul style="list-style-type: none"> • The plant is in Mode 1, 100% power. • All rods are at 226 steps on group demand counters. • Computer Point T0496A (Tref) indicates 573 °F. • Computer Point T0499A (Median Tavg) indicates 574 °F. • Current RCS boron concentration is 290 PPM. • Core Burn-up is 16000 MWD/MTU.
INITIATING CUE:	Your supervisor has directed you to perform a Shutdown Margin calculation for the present plant conditions using 2OST-49.1, "Shutdown Margin Calculation" (Plant Critical), beginning at step VII.A, and other provided references. Report your results in the COMMENT section of the OST cover sheet.
REFERENCES:	2OST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 22), Rev. 28 Unit 2 Plant Curve Book (Updated for Cycle 22) Unit 2 LRM
TOOLS:	Calculator Ruler/straight edge
HANDOUT:	2OST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 22), Rev. 28 place kept up to step VII.A. Unit 2 Plant Curve Book (Updated for Cycle 22) Unit 2 LRM

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Provide the Candidate with a copy of 2OST-49.1, Current Cycle Curve Book, Unit 2 LRM, calculator, and a ruler/straight edge.</p> </div>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Some judgment may be required to determine satisfactory performance on this JPM. Reasonable rounding or truncating of numbers is acceptable and may lead to a slight difference in final SDM calculation.</p> </div>	
	<p>START TIME: _____</p>	
<p>1. If the plant is in Mode 1: Calculate the Temperature defect as follows (Otherwise N/A):</p> <p>a. Determine Tavg/Tref deviation ΔT by subtracting computer point T0496A (Tref) from T0499A (Median Tavg). $\Delta T = (T0499A) - (T0496A) = \underline{\quad} \text{ }^\circ\text{F}$</p> <p>b. Verify ΔT is less than +3.0 °F.</p> <p>c. Using Unit 2 Curve Book Figure 2CB-4C Determine the MTC value for the current core bumup.</p> <p>d. Determine Temperature Defect as follows (mark unused step N/A):</p> <p>1). If $-3.0 \text{ }^\circ\text{F} < \Delta T \leq +0.5 \text{ }^\circ\text{F}$, the Temperature Defect is 0.0% Δk/k.</p> <p>2) If $\Delta T > +0.5 \text{ }^\circ\text{F}$, multiply Tavg / Tref Deviation by the absolute value of MTC and divide by 1000.</p> <p>Temperature Defect = ΔT (step A.1.a) * MTC (step A.1.c) / 1000 = _____ °F * _____ pcm/°F / 1000 pcm/ %Δk/k</p> <p>= _____ % Δk/k</p> <p>e. Record the Temperature Defect on Data Sheet 1.</p> <p>(Step VII.A.1)</p>	<p>1.1 Performs Step VII.A.1.a, Plant in Mode 1, ΔT is less than +3°F using data from the Initial Conditions.</p> <p>$\Delta T = (T0499A) - (T0496A) = \underline{\quad} \text{ }^\circ\text{F}$ $\Delta T = 574 \text{ }^\circ\text{F} - 573 \text{ }^\circ\text{F} = \underline{1} \text{ }^\circ\text{F}$</p> <p>1.2C Performs Step VII.A.1.b ΔT is less than +3.0°F</p> <p>1.3C Performs Step VII.A.1.c by determining MTC value in 2CB-4C is -30 (± .5) pcm/°F</p> <p>1.4C Determines that the Temperature Defect is 0.03 (± .0005) % Δk/k since the $\Delta T \geq +0.5 \text{ }^\circ\text{F}$ (MTC at 16000 MWD/MTU per 2CB-4C is -30 pcm/°F.)</p> <p>1.5C Records 0.03 (± .0005) % Δk/k on Data Sheet 1.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
2. If the plant is in Mode 2, Verify that Tavg is less than 8F above Program Tavg as follows: (Otherwise N/A). (Step VII.A.2)	2.1 Places N/A in Step VII.A.2, (Plant not in Mode 2). COMMENTS:	
3. Request Chemistry to determine current RCS Boron concentration in ppm. (Step VII.A.3)	3.1 Determines current boron concentration is 290 ppm from initial conditions. COMMENTS:	
4. Record the number of steps withdrawn for Control Bank D from the group demand counters, (BB-B) on Data Sheet 1. (Step VII.A.4)	4.1 Records Control Bank D as 226 steps withdrawn on Data Sheet 1 from initial conditions. COMMENTS:	
5. Record the current reactor power level in percent of full power from 2NME-NR45, Reactor Excore Recorder, (VB-B) OR PCS computer point U1150, PWR RNG NUCLEAR FLUX 1M AVG, on Data Sheet 1. (Step VII.A.5)	5.1 Records reactor power as 100% on Data Sheet 1. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6.C Record the number of immovable or untrippable control rods on Data Sheet 1.</p> <p>(Step VII.A.6)</p>	<p>6.1C Determines all rods are operable/trippable and records 0 on Data Sheet 1.</p> <p>COMMENTS:</p>	
<p>7. If the number of inoperable (untrippable) OR dropped control Rods is greater than 1, Use Attachment 1 to determine the required boron concentration with greater than one inoperable rod and Record below. (Otherwise N/A)</p> <p>(Step VII.A.7)</p>	<p>7.1 Places N/A in Step VII.A.7.</p> <p>COMMENTS:</p>	
<p>8. Determine control bank reactivity worth per the following:</p> <p>Using the ARO Total Bank Worth table on Data Sheet 1, Enter the total bank worth for the current core burnup range, in the space provided on Data Sheet 1.</p> <p>(Step VII.B.1.a)</p>	<p>8.1 Recognizes initial plant core burnup is 16000 MWD/MTU, based on initial plant conditions.</p> <p>8.2 Refers to ARO Total Bank Worth table on Data Sheet 1 AND determines ARO Total Bank Worth to be 7.622.</p> <p>8.3C Records 7.622 on Data Sheet 1 (Block B.1.a).</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9. Using Curve Book Figures CB24A, 24B OR 24C, Determine integral rod worth for the current bank position AND Enter this value on Data Sheet 1.</p> <p>Divide value from curve (in pcm) by 1000 to convert to %Δk/k AND Record on Data Sheet 1.</p> <p>(Step VII.B.1.b)</p>	<p>9.1 Using Curve Book Figure CB-24C, determines integral rod worth to be ZERO and records on Data Sheet 1 (Blocks B.1.b.1) and (B.1.b).</p> <p>COMMENTS:</p>	
<p>10. If applicable, use attachment 3 to determine the worth of any dropped rod and record on Data Sheet 1.</p> <p>(Step VII.B.1.c)</p>	<p>10.1 Determines VII.B.1.c is N/A with no dropped rods.</p> <p>COMMENTS:</p>	
<p>11.C Determine the Total Current Bank Worth by subtracting the integral rod worth and dropped rod worth from the Total Bank Worth AND Enter the result on Data Sheet 1.</p> <p>(Step VII.B.1.d)</p>	<p>11.1C Determines Total Current Bank Worth as follows;</p> <p>Total Current Bank Worth = TBW(B.1.a) - IRW (B.1.b.1) – DRW (B.1.c)</p> <p>TCBW = 7.622 – 0 – 0 = <u>7.622</u> % Δk/k and records on Data Sheet 1 (Block B.1.d).</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>12.C Multiply this result by 0.9 to apply a 10% uncertainty AND Enter the result on Data Sheet 1.</p> <p>(Step VII.B.1.e)</p>	<p>12.1C Determines 90% of TBW to be $7.622 \times 0.9 = \underline{6.8598 (\pm 0.01) \% \Delta k/k}$ and records on Data Sheet 1 (Block B.1.e).</p> <p>COMMENTS:</p>	
<p>13.C IF no rods are inoperable (untrippable), THEN Record "Worst Case Rod" worth on Data Sheet 1. Value is determined from Column "A" on Attachment 2 for the appropriate Cycle Burnup.</p> <p>(Step VII.B.2.b)</p>	<p>13.1C Determines that no rods are inoperable or untrippable and enters "Worst Case Rod" worth (0.958% $\Delta k/k$) on Data Sheet 1.</p> <p>COMMENTS:</p>	
<p>14.C Subtract Stuck Rod Worth from the 90% Total Bank Worth value AND Enter the result on Data Sheet 1.</p> <p>(Step VII.B.3)</p>	<p>14.1C Calculates $6.8598\% \Delta k/k - 0.958\% \Delta k/k = \underline{5.9018 (\pm 0.01) \% \Delta k/k}$</p> <p>COMMENTS:</p>	
<p>15.C Determine Power Defect as follows:</p> <p>Record RCS Boron Concentration results from Chemistry on Data Sheet 1.</p> <p>(Step VII.B.4.a)</p>	<p>15.1C Record RCS Boron Concentration of 290 ppm on Data Sheet 1 (Block B.4.a).</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>16.C Using Curve Book Figure 29, Determine the B-10 Correction Factor for the present Burnup (If between two Burnup values, Use the B-10 Correction Factor for the greater MWD/MTU Burnup entry) AND Record on Data Sheet 1.</p> <p>(Step VII.B.4.b)</p>	<p>16.1C Determines B-10 Correction Factor to be 0.863 and records on Data Sheet 1 (Block B.4.b).</p> <p>COMMENTS:</p>	
<p>17.C Determine Corrected Boron Concentration by multiplying the RCS Boron Concentration and the B-10 Correction Factor AND Record on Data Sheet 1.</p> <p>(Step VII.B.4.c)</p>	<p>17.1C Determines Corrected Boron Concentration to be 250 (± 2) ppm and records on Data Sheet 1 (Block B.4.c).</p> <p>COMMENTS:</p>	
<p>18.C Using Curve Book Figure 21, Determine the ABSOLUTE VALUE of the Power Defect for the current power level and the Corrected Boron Concentration AND Enter this value on Data Sheet 1.</p> <p>(Step VII.B.4.d)</p>	<p>18.1C Determines ABSOLUTE VALUE of the Power Defect to be 2900 (± 40) pcm and records on Data Sheet 1 (Block B.4.d).</p> <p>COMMENTS:</p>	
<p>19.C Divide value from curve (in pcm) by 1000 to convert to %Δk/k AND Record on Data Sheet 1.</p> <p>(Step VII.B.4.e)</p>	<p>19.1C Converts ABSOLUTE VALUE of the Power Defect of 2900 pcm to 2.9 (± 0.04) %Δk/k and records on Data Sheet 1 (Block B.4.e).</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-060 JPM REVISION: 0	JPM TITLE: Perform a SDM, Use of Temperature Correction
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>20.C Add the Temperature Defect calculated in step A.1.d to the Power Defect recorded in Step recorded in Step VII.B.4.e AND Record on Data Sheet 1.</p> <p>(Step VII.B.4.f)</p>	<p>20.1C Determines Power Defect plus Temperature Defect to be 2.93 (± 0.0405) % $\Delta k/k$ and records on Data Sheet 1 (Block B.4.f).</p> <p>COMMENTS:</p>	
<p>21.C Determine SHUTDOWN MARGIN by subtracting Power Defect (Step VII.B.4.f) from the value determined in Step VII.B.3 AND Record on Data Sheet 1.</p> <p>(Step VII.B.5)</p>	<p>21.1C Determines SDM to be 2.9718 (± 0.05) % $\Delta k/k$, and records on Data Sheet 1 (Block B.4.f) AND records on the OST cover sheet.</p> <p>21.2C Compares calculated SDM to the limits specified in the COLR and determines that it does meet acceptance criteria.</p> <p>21.3 Records data on cover sheet.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>EVALUATOR CUE: When the candidate hands in the OST cover sheet, the evaluation for this JPM is complete.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Grader discretion may be required.</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

- The plant is in Mode 1, 100% power.
- All rods are at 226 steps on group demand counters.
- Computer Point T0496A (Tref) indicates 573 °F.
- Computer Point T0499A (Median Tav_g) indicates 574 °F.
- Current RCS boron concentration is 290 PPM.
- Core Burn-up is 16000 MWD/MTU.

INITIATING CUE:

Your supervisor has directed you to perform a Shutdown Margin calculation for the present plant conditions using 2OST-49.1, "Shutdown Margin Calculation" (Plant Critical), beginning at step VII.A, and other provided references. Report your results in the COMMENT section of the OST cover sheet.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Plot and Evaluate 1/M Data

TRAINING MATERIAL NUMBER: 2AD-016

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2AD-016

REVISION NUMBER: 7

TECHNICAL REFERENCES:

2OM-50.4.D2, Reactor Startup From Mode 3 to Mode 2, Rev 7

2OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev 12

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: A. Jacques _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2AD-016
New Revision: 7
Description of Change(s): <ol style="list-style-type: none">1. Updated procedure revisions.2. Updated Task ID.3. Updated initial conditions.
Reason for Change (s): <ol style="list-style-type: none">1. Validating JPM.2. Procedure change.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-016 JPM REVISION: 6	JPM TITLE: Plot and Evaluate 1/M Data
--	---------------------------------------

K/A REFERENCE: 2.1.43 4.1 / 4.3 TASK ID: 0021-022-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING

SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform	<input type="checkbox"/> Plant Site	<input type="checkbox"/> Annual Requal Exam	<input type="checkbox"/> BVT
<input type="checkbox"/> Simulate	<input type="checkbox"/> Simulator	<input type="checkbox"/> Initial Exam	<input type="checkbox"/> NRC
	<input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Training	<input type="checkbox"/> Other:
		<input type="checkbox"/> Other:	

EVALUATION RESULTS			
Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes	Allotted	Actual	
Critical: <input checked="" type="checkbox"/> No	Time: 20 Minutes	Time: minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____			

OBSERVERS			
Name/ID:		Name/ID:	
Name/ID:		Name/ID:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Determines that 1/M data predicts >1000 pcm below ECP value for critical rod height and makes recommendation to insert all control banks to zero.
RECOMMENDED STARTING LOCATION:	Classroom
INITIAL CONDITIONS:	The unit is in Mode 2. A reactor startup is in progress, following a reactor trip from full power. Control Bank C is at 79 steps. Control Bank D is at 0 steps. RCS Boron concentration is 1088 ppm.
INITIATING CUE:	Your Supervisor directs you to complete the 1/M plot per 2OM-50.4.F, using the SR count rate data provided on Data Sheet 2. Compare the 1/M data with the predicted ECP data and make a recommendation for further rod withdrawal. Document your recommendation in the box below. (Located on candidate direction sheet)
REFERENCES:	2OM-50.4.F, "Performing An Estimated Critical Position Calculation", Rev. 12 2OM-50.4.D2, "Reactor Startup From Mode 3 to Mode 2", Rev. 7
TOOLS:	Calculator; Ruler/straight edge.
HANDOUT:	2OM-50.4.F, "Performing An Estimated Critical Position Calculation", Rev. 12 with Data sheet 1 completed and Data Sheet 3 partially completed. 2OM-50.4.D2, "Reactor Startup From Mode 3 to Mode 2", Rev. 7

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-016 JPM REVISION: 6	JPM TITLE: Plot and Evaluate 1/M Data
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
1. Refer to Data sheet 3.	1.1 Refers to data sheet 3 for count rate data. COMMENTS:	
2.C Plots Data Sheet 3 Data on Figure 1.	2.1. Evaluates count rate data from Data Sheet 2 and plots this data on Figure 1 (1/M Plot) for 230 total steps. (~70 Steps CB "D") 2.2. Evaluates count rate data from Data Sheet 2 and plots this data on Figure 1 (1/M Plot) for 300 total steps. (~ 22 Steps CB "D") 2.3.C Evaluates count rate data from Data Sheet 2 and plots this data on Figure 1 (1/M Plot) for 335 total steps. (~115 Steps CB "C") <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>EVALUATOR NOTE: See Attached Answer Key for 1/M plot values. It is not necessary to plot both SR curves since the data is identical.</p> </div> COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-016 JPM REVISION: 6	JPM TITLE: Plot and Evaluate 1/M Data
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
3.C Evaluate 1/M plot data	3.1.C Determines that the 1/M plot predicts criticality >1000 pcm below ECP. 3.2 Minimum rod height is Bank D at 0 steps versus ECP of Bank D 100 steps. COMMENTS:	
4.C Determines action for continued startup IAW 2OM-50.4.D2 Attachment 1 Precaution and Limitation #9 or Attachment 3 Action 6.	4.1. Informs SM/US that 1/M data indicates that criticality will occur >1000 pcm below the ECP. 4.2.C Recommends inserting all control banks to ZERO steps. COMMENTS:	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> EVALUATOR CUE: When the candidate makes a recommendation on continued startup, the evaluation for this JPM is complete. </div>	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Complete Surveillance of RHS Pump

TRAINING MATERIAL NUMBER: 2AD-028

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2AD-028

REVISION NUMBER: 5

TECHNICAL REFERENCES:

2OST-10.2, "Residual Heat Removal Pump [2RHS*P21B] Performance Test", Rev. 21

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: A. Jacques _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2AD-028
New Revision: 5
Description of Change(s): <ol style="list-style-type: none">1. Updated for procedure revision.2. Modified Task Number.3. Modified numbers in step 1 and 2 and procedure Data Sheet to match updated procedure.4. Modified step 3 and 5 to remove Pump Vertical vibrations.5. Made Step 5 non-critical.
Reason for Change (s): <ol style="list-style-type: none">1. 2OST-10.2 was revised.2. Task list has been updated.3. Procedure criteria has been modified.4. This reading is no longer a part of the data sheet.5. This step is documentation only and not required per the Task Standard.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-028 JPM REVISION: 4	JPM TITLE: Complete Surveillance of RHS Pump
--	--

K/A REFERENCE: 2.2.37 3.6 / 4.6 TASK ID: 0101-202-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING

SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform	<input type="checkbox"/> Plant Site	<input type="checkbox"/> Annual Requal Exam	<input type="checkbox"/> BVT
<input type="checkbox"/> Simulate	<input type="checkbox"/> Simulator	<input type="checkbox"/> Initial Exam	<input type="checkbox"/> NRC
	<input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Training	<input type="checkbox"/> Other:
		<input type="checkbox"/> Other:	

EVALUATION RESULTS			
Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes	Allotted	Actual	
Critical: <input checked="" type="checkbox"/> No	Time: 10 Minutes	Time: minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____			

OBSERVERS			
Name/ID:		Name/ID:	
Name/ID:		Name/ID:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	2RHS*P21B ΔP is calculated and a determination is made that the ΔP does NOT meet the acceptance Criteria. A determination is made that the pump and motor vibrations do NOT meet the acceptance criteria.
RECOMMENDED STARTING LOCATION:	Classroom
INITIAL CONDITIONS:	Unit 2 is in Mode 5 with RCS core exit thermocouple temperatures at 110°F. Surveillance 2OST-10.2, “Residual Heat Removal Pump [2RHS*P21B] Performance Test” is being performed. This is a GROUP A Pump Test. Independent verifications of the calculations on Data Sheet 2 are required.
INITIATING CUE:	<ul style="list-style-type: none">• Complete the required independent verifications of the calculations on Data Sheet 2 of 2OST-10.2• Determine if the Pump meets <u>ALL</u> of the Acceptance Criteria specified in step III A.• DOCUMENT the results of your Acceptance Criteria Determination in the comments section of the cover page.
REFERENCES:	2OST-10.2, “Residual Heat Removal Pump [2RHS*P21B] Performance Test”, Rev. 21
TOOLS:	None
HANDOUT:	2OST-10.2, “Residual Heat Removal Pump [2RHS*P21B] Performance Test” (Rev. 21) completed with unacceptable ΔP and vibrations.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-028 JPM REVISION: 4	JPM TITLE: Complete Surveillance of RHS Pump
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
1. Calculates Pump Flowrate.	1.1 3425 gpm + 500 gpm + 100 gpm = 4025 gpm. 1.2 Determines 4025 gpm is within Acceptable range of 4000-4100 gpm. COMMENTS:	
2. Calculates Pump ΔP.	2.1 293 psig – 200 psig = 93 psid. 2.2 Determines 93 psid is LESS THAN Acceptable range of 95.3-109.4 psid. COMMENTS:	
3.C [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of BVPS IST Program (T.S.5.5.4) as follows: Motor AND Pump Vibration (Data Sheet 1).	3.1 Compares Actual Motor and Pump Vibrations on Data Sheet 1 to Acceptable and Alert range. 3.2C Determines Motor Inboard Axial vibrations are GREATER THAN Acceptable and Alert Range. 3.3C Determines Pump Inboard Horizontal vibration is GREATER THAN Acceptable and Alert Range. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-028 JPM REVISION: 4	JPM TITLE: Complete Surveillance of RHS Pump
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of BVPS IST Program (T.S. 5.5.4) as follows: Delta-P (Data Sheet 2).</p>	<p>4.1 Compares calculated Delta P on Data Sheet 2 to Acceptable Range.</p> <p>4.2C Determines calculated Delta P is LESS THAN Acceptable Range.</p> <p>COMMENTS:</p>	
<p>5. Completes the front cover sheet.</p>	<p>5.1 Places a checkmark in the Problems encountered block of cover page.</p> <p>5.2 Lists the following problems on OST problem sheet:</p> <ul style="list-style-type: none"> • Motor Inboard (2) Axial vibration is GREATER THAN Acceptable and Alert Range • Pump Inboard (3) Horizontal vibration is GREATER THAN Acceptable and Alert Range. • Calculated Delta P is LESS THAN Acceptable Range. <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>EXAMINER CUE: That completes this JPM.</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS: Unit 2 is in Mode 5 with RCS core exit thermocouple temperatures at 110°F. Surveillance 2OST-10.2, “Residual Heat Removal Pump [2RHS*P21B] Performance Test” is being performed. This is a **GROUP A** Pump Test. Independent verifications of the calculations on Data Sheet 2 are required.

INITIATING CUE:

- Complete the required independent verifications of the calculations on Data Sheet 2 of 2OST-10.2
- Determine if the Pump meets **ALL** of the Acceptance Criteria specified in step III A.
- **DOCUMENT** the results of your Acceptance Criteria Determination in the comments section of the cover page.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Perform a Stay Time Calculation and Choose Acceptable Pathway

TRAINING MATERIAL NUMBER: 3AD-027

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 3AD-027

REVISION NUMBER: 0

TECHNICAL REFERENCES:

Survey Map ECCS RM 2022-TRG
RWP FTO-0001

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: A. Jacques _____ Date

PEER REVIEW BY: _____ Date

APPROVED FOR USE: _____ Date
Training Supervisor or Designee

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 3AD-027
New Revision: 0
Description of Change(s): <ol style="list-style-type: none">1. New JPM.
Reason for Change (s): <ol style="list-style-type: none">1. New JPM.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 3AD-027 JPM REVISION: 0	Perform a Stay Time Calculation and Choose Acceptable Pathway
--	---

K/A REFERENCE: 2.3.12 3.2/3.7 TASK ID: 0481-005-03-012
0481-005-03-043

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:	Performer ID:
-----------------	---------------

Time Critical: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Allotted Time: 20 Minutes	Actual Time: _____ minutes
---	---------------------------	----------------------------

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ ID:	Name/ID:
Name/ ID:	Name/ ID:

EVALUATOR

Evaluator (Print): _____ Date: _____

Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD: Determines the total dose received (17.25 mrem, acceptable range 17.2 to 17.3 mrem) and has selected the available path for performance of the job (path 2) without setting off the dose rate alarm.

RECOMMENDED STARTING LOCATION: Classroom

INITIAL CONDITIONS: Refer to Survey Map **ECCS RM2022-TRG** for the following activity.

- A plant event requires entry into a Locked High Radiation Area to vent the casing on pump HPI-1.
- You are to stage yourself in the Locked High Radiation Area (LHRA) where you can minimize your dose until directed to vent the pump. You are to remain in an area identified on the survey map with the lowest possible dose during the wait period.
- Your task will be to vent the HPI-1 Pump casing. The vent valve is located at the end of the pump, opposite the motor.

RWP limits:

- Dose Rate Alarm = 85 mrem/hr
- Dose Alarm = 50 mrem

Timeline:

0800 – You enter the ECCS Room.

0830 – You are directed to start venting pump HPI-1.

0845 – Venting is complete. You immediately exit the room and report back to the Control Room.

INITIATING CUE: Based upon the above timeline, the information from your RWP and the ECCS Room Survey Map:

1. Determine the total amount of dose that was received during the wait time and job performance. Use the highest potential dose rate in the immediate area of the work to determine your dose for the actual venting portion of the entry.
2. In accordance with your RWP and assuming there is no wait time, which path is the correct one to travel to the pump casing? (See labeled pathways 1, 2, 3).

REFERENCES: Survey Map ECCS RM 2022-TRG
RWP FTO-0001

TOOLS: Calculator

HANDOUT: Survey Map ECCS RM 2022-TRG
RWP FTO-0001

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER:3AD-027 JPM REVISION: 0	JPM TITLE: Perform a Stay Time Calculation and Choose Acceptable Pathway
---------------------------------------	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> EVALUATOR NOTE: Provide the candidate a copy of the procedure and the other handout materials. </div>	
	START TIME: _____	
1. Review procedure and Survey Map ECCS Rm 2022-TRG.	1.1 Reviews procedure and map. COMMENTS:	
2. Determine the dose that was received while waiting in the lowest dose area in the Radiologically Controlled Area.	2.1 Calculates the dose received for the duration of the time in the low dose area. 2.2 Based on a 30 minute wait time in the area of the lowest dose of 2 mrem/hr: Wait Area Dose: $2 \text{ mrem/hr} * 0.5 \text{ hr} = 1 \text{ mrem}$. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER:3AD-027 JPM REVISION: 0	JPM TITLE: Perform a Stay Time Calculation and Choose Acceptable Pathway
---------------------------------------	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Determine the dose that was received while venting the pump.</p>	<p>3.1 Calculates the dose received for the duration of the time venting the pump. Per the Survey Map, location DR9 has the highest dose near the pump at 65 mrem/hr.</p> <p>3.2.C Based on a 15 minute task duration at the pump with a dose rate of 65 mrem/hr:</p> <p>Venting dose: $65 \text{ mrem/hr} * (15/60) \text{ hr} = 16.25 \text{ mrem}$. (Acceptable Range is 16.2 to 16.3 mrem)</p> <p>COMMENTS:</p>	
<p>4.C Determine the total dose that was received while performing the task.</p>	<p>4.1 Calculates the total dose received while performing the task.</p> <p>4.2.C Calculates the total dose received for the task.</p> <p>Wait area dose: 1 mrem.</p> <p>Venting dose: 16.25 mrem. (Acceptable Range is 16.2 to 16.3 mrem)</p> <p>Total dose: $1 \text{ mrem} + 16.25 \text{ mrem} = 17.25 \text{ mrem}$. (Acceptable Range is 17.2 to 17.3 mrem)</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER:3AD-027 JPM REVISION: 0	JPM TITLE: Perform a Stay Time Calculation and Choose Acceptable Pathway
---------------------------------------	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
5.C Determine which pathway is acceptable to get to the job site.	5.1 Candidate reviews the map. 5.2C Candidate determines that Path 2 is the only way to get to the job site without setting off the dose rate (85 mrem/hr) alarm of their EPD. COMMENTS:	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> EVALUATOR CUE: When the applicant has completed their “This JPM is complete”. </div>	
	STOP TIME: _____	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *



Read:

INITIAL CONDITIONS: Refer to Survey Map **ECCS RM2022-TRG** for the following activity.

- A plant event requires entry into a Locked High Radiation Area to vent the casing on pump HPI-1.
- You are to stage yourself in the Locked High Radiation Area (LHRA) where you can minimize your dose until directed to vent the pump. You are to remain in an area identified on the survey map with the lowest possible dose during the wait period.
- Your task will be to vent the HPI-1 Pump casing. The vent valve is located at the end of the pump, opposite the motor.

RWP limits:

- Dose Rate Alarm = 85 mrem/hr
- Dose Alarm = 50 mrem

Timeline:

0800 – You enter the ECCS Room.

0830 – You are directed to start venting pump HPI-1.

0845 – Venting is complete. You immediately exit the room and report back to the Control Room.

INITIATING CUE: Based upon the above timeline, the information from your RWP and the ECCS Room Survey Map:

1. Determine the total amount of dose that was received during the wait time and job performance. Use the highest potential dose rate in the immediate area of the work to determine your dose for the actual venting portion of the entry.
2. In accordance with your RWP and assuming there is no wait time, which path is the correct one to travel to the pump casing? (See labeled pathways 1, 2, 3).

Results: 1. Total Dose Received: _____ mrem.

2. Chosen pathway: _____.

- At this time, ask the evaluator any questions you have on this JPM.
- When satisfied that you understand the assigned task, announce "I am now beginning the JPM".
- Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.
- After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Review a SDM, Use of Temperature Correction (SRO)

TRAINING MATERIAL NUMBER: 2AD-061

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2AD-061

REVISION NUMBER: 0

TECHNICAL REFERENCES:

2OST-49.1, Shutdown Margin Calculation (Plant Critical), Rev. 28
Unit 2 Curve Book Cycle 23

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 30 Minutes

PREPARED BY: A. Jacques _____ Date

PEER REVIEW BY: _____ Date

APPROVED FOR USE: _____ Date
Training Supervisor or Designee

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2AD-061
New Revision: 0
Description of Change(s): 1. New JPM
Reason for Change (s): 1. New JPM

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-061 JPM REVISION: 0	JPM TITLE: Review a SDM, Use of Temperature Correction (SRO)
--	--

K/A REFERENCE: 2.1.25 4.2 TASK ID: 0061-201-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:		Performer ID :	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 30 Minutes	Actual Time: _____ minutes	

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ ID:	Name/ID:
Name/ ID:	Name/ ID:

EVALUATOR

Evaluator (Print): _____ Date: _____

Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Incorrect values for Inoperable Temperature Defect, Total Bank Worth, Power Defect, and SDM are identified and corrected. (See Answer Key for specific values)
RECOMMENDED STARTING LOCATION:	Classroom
INITIAL CONDITIONS:	<p>The Unit is in Mode 1, 100% power. All rods out.</p> <ul style="list-style-type: none"> • Chemistry has just reported current RCS boron is 290 ppm. • Current burnup is 16,000 MWD/MTU. • Computer Point T0496A (Tref) indicates 573°F. • Computer Point T0499A (Median Tav_g) indicates 574°F. <p>The RO has completed 2OST-49.1, Shutdown Margin Calculation (Plant Critical), and has requested the Shift Manager to review the completed OST.</p>
INITIATING CUE:	<ul style="list-style-type: none"> • As Shift Manager, review the completed Shutdown Margin Calculation, 2OST-49.1. • During the review, apply any discrepancies that are identified. • Document the results of your review in the appropriate section of the OST.
REFERENCES:	2OST-49.1, Shutdown Margin Calculation (Plant Critical), Rev. 28 Unit 2 Curve Book Cycle 23
TOOLS:	Calculator
HANDOUT:	<p>Unit 2 Curve Book Cycle 23 2OST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 23), Rev. 28 Filled out with the following errors on Data Sheet 1:</p> <p>0.03 %Δk/k for Temperature Defect instead of 0.0 %Δk/k 7.622 %Δk/k for ARO Total Bank Worth instead of 6.890 %Δk/k 2900 PCM for power defect instead of 2360 PCM 2.972 %Δk/k for SDM instead of 2.883 %Δk/k</p>

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-061 JPM REVISION: 0	JPM TITLE: Review a SDM, Use of Temperature Correction (SRO)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Some judgment may be required to determine satisfactory performance on this JPM. Reasonable rounding or truncating of numbers is acceptable and may lead to a slight difference in final SDM calculation.</p> </div>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: If the candidate hands in the OST after ONLY finding the first error, provide the following cue: Make any necessary corrections and complete the SDM calculation.</p> </div>	
	START TIME: _____	
<p>1.C If the plant is in Mode 1, Verify that Tav_g is less than 3°F above Tref (Annunciator A4-3C, TAVG DEVIATION FROM TREF is OFF) (Otherwise N/A). (Step VII.A.1)</p>	<p>1.1 Verifies Step VII.A.1, (Plant in Mode 1, Tav_g < 3°F above Tref from Initial Conditions.</p> <p>1.2 Verifies Step VII.A.1.c by determining MTC value in 2CB-4C is -30 pcm/°F</p> <p>1.3C Determines Temperature Defect is 0.03% Δk/k due to ΔT ≥ +0.5 °F (MTC at 16000 MWD/MTU per 2CB-4C is -30 pcm/°F.)</p> <p>1.4C Corrects Data Sheet 1 Step A.1</p> <p>COMMENTS:</p>	
<p>2. If the plant is in Mode 2, Verify that Tav_g is less than 8°F above Program Tav_g as follows: (Otherwise N/A) (Step VII.A.2)</p>	<p>2.1 Verifies Step VII.A.2 is N/A, (Plant not in Mode 2).</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-061 JPM REVISION: 0	JPM TITLE: Review a SDM, Use of Temperature Correction (SRO)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
3. Request Chemistry to determine current RCS Boron concentration in ppm. (Step VII.A.3)	3.1 Verifies current boron concentration is 290 ppm from initial conditions. COMMENTS:	
4. Record the number of steps withdrawn for Control Bank D from the group demand counters, (BB-B) on Data Sheet 1. (Step VII.A.4)	4.1 Verifies Control Bank D as 226 steps withdrawn on Data Sheet 1 (Block A.4) from initial conditions. COMMENTS:	
5. Record the current reactor power level in percent of full power from [2NME-NR45], Power Range Recorder, (VB-B) OR PCS computer point U1150, 1MIN AVG PWR RNG NUCLEAR FLUX, on Data Sheet 1. (Step VII.A.5)	5.1 Verifies reactor power as 100% on Data Sheet 1. COMMENTS:	
6. Record the number of inoperable (untrippable) OR dropped control rods on Data Sheet 1. (Step VII.A.6)	6.1 Verifies number of immovable or untrippable rods as "None" on Data sheet 1. COMMENTS:	
7. If the number of inoperable (untrippable) OR dropped control Rods is greater than 1, Use Attachment 1 to determine the required boron concentration with greater than one struck rod and Record below. (Otherwise N/A) (Step VII.A.7)	7.1 Verifies Step VII.A.7 is N/A. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-061 JPM REVISION: 0	JPM TITLE: Review a SDM, Use of Temperature Correction (SRO)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9.C Determine control bank reactivity worth per the following:</p> <p>Using the ARO Total Bank Worth table on Data Sheet 1, Enter the total bank worth for the current core burnup range, in the space provided on Data Sheet 1. (Step VII.B.1.a)</p>	<p>9.1C Identifies ARO Total Bank Worth incorrectly documented as 6.890 %Δk/k and corrects to 7.622 %Δk/k on Data Sheet 1 (Block B.1.a).</p> <p>COMMENTS:</p>	
<p>10. Using Curve Book Figures CB24A, 24B OR 24C, Determine integral rod worth for the current bank position AND Enter this value on Data Sheet 1.</p> <p>Divide value from curve (in pcm) by 1000 to convert to %Δk/k AND Record on Data Sheet 1. (Step VII.B.1.b)</p>	<p>10.1 Verifies integral rod worth to be ZERO and recorded on Data Sheet 1 (Blocks B.1.b.1) and B.1.b).</p> <p>COMMENTS:</p>	
<p>11. Subtract the integral rod worth from the Total Bank Worth AND Enter the result on Data Sheet 1. (Step VII.B.1.c)</p>	<p>11.1 Verifies TBW-IRW is 7.622 %Δk/k and recorded on Data Sheet 1 (Block B.1.c).</p> <p>COMMENTS:</p>	
<p>12. Multiply this result by 0.9 to apply a 10% uncertainty AND Enter the result on Data Sheet 1. (Step VII.B.1.d)</p>	<p>12.1 Verifies 90% of TBW to be 6.8598 %Δk/k and recorded on Data Sheet 1 (Block B.1.d).</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-061 JPM REVISION: 0	JPM TITLE: Review a SDM, Use of Temperature Correction (SRO)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>13.C If ONE rod is inoperable (untrippable) OR dropped, Record "Worst Case Rod with Inoperable Rod" worth on Data Sheet 1. Value is determined from Column "B" on Attachment 2 for the appropriate Cycle Burnup. (Step VII.B.2.b)</p>	<p>13.1C Verifies that no rods are inoperable or untrippable and verifies "Worst Case Rod" worth (0.958% $\Delta k/k$) on Data Sheet 1.</p> <p>COMMENTS:</p>	
<p>14.C Subtract Stuck Rod(s) worth from 90% Total Bank Worth value AND Enter the result on Data Sheet 1</p>	<p>14.1C Subtracts 0.958 from 6.8598 and records 5.9018 on Data Sheet 1.</p> <p>COMMENTS:</p>	
<p>15. Determine Power Defect as follows:</p> <p>Record RCS Boron Concentration results from Chemistry on Data Sheet 1. (Step VII.B.4.a)</p>	<p>15.1 Verifies RCS Boron Concentration of 290 ppm on Data Sheet 1 (Block B.4.a).</p> <p>COMMENTS:</p>	
<p>16. Using Curve Book Figure 29, Determine the B-10 Correction Factor for the present Burnup (If between two Burnup values, Use the B-10 Correction Factor for the greater MWD/MTU Burnup entry) AND Record on Data Sheet 1. (Step VII.B.4.b)</p>	<p>16.1 Verifies B-10 Correction Factor to be 0.863 and recorded on Data Sheet 1 (Block B.4.b).</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-061 JPM REVISION: 0	JPM TITLE: Review a SDM, Use of Temperature Correction (SRO)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
17. Determine Corrected Boron Concentration by multiplying the RCS Boron Concentration and the B-10 Correction Factor AND Record on Data Sheet 1. (Step VII.B.4.c)	17.1 Verifies recorded Corrected Boron Concentration on Data Sheet 1 is 250 ppm. (Block B.4.c). [290 X 0.863 = <u>250</u>] COMMENTS:	
18.C Using Curve Book Figure 21, Determine the ABSOLUTE VALUE of the Power Defect for the current power level and the Corrected Boron Concentration AND Enter this value on Data Sheet 1. (Step VII.B.4.d)	18.1C Determines ABSOLUTE VALUE of the Power Defect to be 2900 pcm NOT 2360 pcm and records on Data Sheet 1 (Block B.4.d). COMMENTS:	
19.C Divide value from curve (in pcm) by 1000 to convert to %Δk/k AND Record on Data Sheet 1. (Step VII.B.4.e)	19.1C Converts ABSOLUTE VALUE of the Power Defect of 2900 pcm to 2.90 %Δk/k and records on Data Sheet 1 (Block B.4.e). COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-061 JPM REVISION: 0	JPM TITLE: Review a SDM, Use of Temperature Correction (SRO)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>20.C Add 0.150% $\Delta k/k$ for operating temperature band margin to the Power Defect recorded in Step VII.B.4.e AND record on Data Sheet 1. (Step VII.B.4.f)</p>	<p>20.1C Determines Power Defect plus operating temperature band margin to be 2.93 % $\Delta k/k$ NOT 2.36 % $\Delta k/k$ and records on Data Sheet 1 (Block B.4.f). [2.9 + 0.03 = <u>2.93</u>] COMMENTS:</p>	
<p>21.C Determine SHUTDOWN MARGIN by subtracting Power Defect (Step VII.B.4.f) from the value determined in Step B.3 AND Record on Data Sheet 1. (Step VII.B.5)</p>	<p>21.1C Determines SDM to be 2.9718 (± 0.05) %$\Delta k/k$ NOT 2.883 % $\Delta k/k$, and records on Data Sheet 1 (Block B.5) [5.9018 - 2.93 = 2.9718] (± 0.05)</p> <p>21.2C Compares corrected calculated SDM to Tech Spec and Core Operating Limits Report requirement of 1.77% $\Delta K/K$ and determines that it is acceptable.</p> <p>21.3 Records errors on OST cover sheet and Data Sheet 1.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>EVALUATOR CUE: When the candidate hands in the OST cover sheet, the evaluation for this JPM is complete.</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

The Unit is in Mode 1, 100% power. All rods out.

- Chemistry has just reported current RCS boron is 290 ppm.
- Current burnup is 16,000 MWD/MTU.
- Computer Point T0496A (Tref) indicates 573°F.
- Computer Point T0499A (Median Tavg) indicates 574°F.

The RO has completed 2OST-49.1, Shutdown Margin Calculation (Plant Critical), and has requested the Shift Manager to review the completed OST.

INITIATING CUE:

- As Shift Manager, review the completed Shutdown Margin Calculation, 2OST-49.1.
- During the review, **apply** any discrepancies that are identified.
- Document the results of your review in the appropriate section of the OST.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Evaluate 1/M Data and Determine Required Actions (SRO Only)

TRAINING MATERIAL NUMBER: 2AD-019

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2AD-019

REVISION NUMBER: 5

TECHNICAL REFERENCES:

2OM-50.4.D2, Reactor Startup From Mode 3 to Mode 2, Rev 5

2OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev 11

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 30 Minutes

PREPARED BY: A. Jacques _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2AD-019
New Revision: 5
Description of Change(s): <ol style="list-style-type: none">1. Updated procedures2. Updated initial conditions based on procedure change.
Reason for Change (s): <ol style="list-style-type: none">1. Validation feedback.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-019 JPM REVISION: 4	JPM TITLE: Plot and Evaluate 1/M Data and Determine Required Actions (SRO Only)
--	---

K/A REFERENCE: 2.1.43 4.3 TASK ID: 0021-022-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 30 Minutes	Actual Time: minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation) Comments: _____ _____ _____ _____			
OBSERVERS			
Name/ID:		Name/ID:	
Name/ID:		Name/ID:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Determine that 1/M data predicts >1000 pcm below ECP value for critical rod height. Determines the following actions must be taken: <ul style="list-style-type: none"> • Insert all control rods to 0 Steps. • Verify RCS Boron Concentration. • Verify SDM • DO NOT recommence S/U without Operations Manager approval.
RECOMMENDED STARTING LOCATION:	Classroom
INITIAL CONDITIONS:	The Unit is in Mode 2. A reactor startup is in progress, following a reactor trip from full power. Control Bank C is at 79 steps. Control Bank D is at 0 steps. RCS Boron concentration is 1088 ppm.
INITIATING CUE:	Your Supervisor directs you to complete the 1/M plot per 2OM-50.4.F, using the SR count rate data provided on Data Sheet 2. <ul style="list-style-type: none"> • Compare the 1/M data with the predicted ECP data and make a recommendation for further rod withdrawal. • Document your recommendation and any required actions, if applicable, in the box below. (Located on candidate direction sheet).
REFERENCES:	2OM-50.4.F, "Performing An Estimated Critical Position Calculation", Rev. 12 2OM-50.4.D2, "Reactor Startup From Mode 3 to Mode 2", Rev. 7
TOOLS:	Calculator; Ruler/straight edge.
HANDOUT:	2OM-50.4.F, "Performing An Estimated Critical Position Calculation", Rev. 12 with Data sheet 1 completed and Data Sheet 3 partially completed. 2OM-50.4.D2, "Reactor Startup From Mode 3 to Mode 2", Rev. 7

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-019 JPM REVISION: 4	JPM TITLE: Plot and Evaluate 1/M Data and Determine Required Actions (SRO Only)
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
1. Refer to Data sheet 3.	1.1 Refers to data sheet 2 for count rate data. COMMENTS:	
2.C Plots Data Sheet 3 Data on Figure 1.	2.1.C Evaluates count rate data from Data Sheet 2 and plots this data on Figure 1 (1/M Plot) for 230 total steps. (~70 Steps CB "D") 2.2.C Evaluates count rate data from Data Sheet 2 and plots this data on Figure 1 (1/M Plot) for 300 total steps. (~ 22 Steps CB "D") 2.3.C Evaluates count rate data from Data Sheet 2 and plots this data on Figure 1 (1/M Plot) for 335 total steps. (~115 Steps CB "C") <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>EVALUATOR NOTE: See Attached Answer Key for 1/M plot values. It is not necessary to plot both SR curves since the data is identical.</p> </div> COMMENTS:	
3.C Evaluate 1/M plot data	3.1.C Determines that the 1/M plot predicts criticality >1000 pcm below ECP. 3.2 Minimum rod height is Bank D at 0 steps versus ECP of Bank D 100 steps. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-019 JPM REVISION: 4	JPM TITLE: Plot and Evaluate 1/M Data and Determine Required Actions (SRO Only)
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C Determines action for continued startup IAW 2OM-50.4.D2 Attachment 1 Precaution and Limitation #9 or Attachment 3 Action 6.</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR CUE: If necessary ask candidate to provide specific actions required.</p> </div> <p>4.1.C Determines that 1/M data indicates that criticality will occur >1000 pcm below the ECP.</p> <p>4.2.C Immediately insert ALL control banks to ZERO steps.</p> <p>4.3.C Verify RCS boron concentration.</p> <p>4.4.C Perform 2OST-49.2, "Shutdown Margin Calculation (Plant Shutdown)".</p> <p>4.5. Notify the Operations Manager or designee.</p> <p>4.6. Notify Reactor Engineering to evaluate the initial ECP and all applicable calculation data.</p> <p>4.7 Recalculate the ECP.</p> <p>4.8 Subsequent reactor startup is NOT permitted without Operations Manager permission.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR CUE: State "This JPM is complete."</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS: The unit is in Mode 2.
A reactor startup is in progress, following a reactor trip from full power.
Control Bank C is at 79 steps.
Control Bank D is at 0 steps.
RCS Boron concentration is 1088 ppm.

INITIATING CUE: Your Supervisor directs you to complete the 1/M plot per 2OM-50.4.F, using the SR count rate data provided on Data Sheet 2.

- Compare the 1/M data with the predicted ECP data and make a recommendation for further rod withdrawal.
- Document your recommendation and any additional required actions, if applicable, in the box below.

RECOMMENDED ACTIONS:

- At this time, ask the evaluator any questions you have on this JPM.
- When satisfied that you understand the assigned task, announce "I am now beginning the JPM".
- Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.
- After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

TRAINING MATERIAL CHANGE FORM
JPM CHANGE SUMMARY

Affected JPM: 2AD-026

New Revision: 2

Description of Change(s):

1. Revised to reflect most current procedure revision.
2. Removed pump inboard vertical bearing high vibration due to removal from Data Sheet 1.

Reason for Change (s):

1. Validation feedback.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 2	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump (SRO ONLY)
--	--

K/A REFERENCE: 2.2.37 4.6 TASK ID: 1320-011-03-023

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 FAULTED JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> OJT/TPE <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 15 Minutes	Actual Time:	minutes
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation) Comments: _____ _____			

OBSERVERS	
Name/ ID:	Name/ ID:
Name/ ID:	Name/ ID:

EVALUATOR	
Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 2	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump (SRO ONLY)
--	--

EVALUATOR DIRECTION SHEET

TASK STANDARD: 2RHS*P21B is declared inoperable based on unacceptable ΔP and vibrations.

RECOMMENDED STARTING LOCATION: Classroom

DIRECTIONS: You are to Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria.

INITIAL CONDITIONS:

- Unit 2 is in Mode 5 for an extended shutdown.
- RCS core exit thermocouple temperatures are 110°F.
- Surveillance 2OST-10.2 Residual Heat Removal Pump [2RHS*P21B] Performance Test has been completed by the RO and reviewed by the STA. (Comprehensive Test NOT performed)

INITIATING CUE:

- Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria.
- Document in detail the results of your review in the comments section of the cover page.

REFERENCES: 2OST-10.2, “Residual Heat Removal Pump [2RHS*P21B] Performance Test”, Rev. 21

TOOLS: None

HANDOUT: 2OST-10.2, “Residual Heat Removal Pump [2RHS*P21B] Performance Test”, Rev. 21, completed **With unacceptable ΔP and vibrations data.**

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 2	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump (SRO ONLY)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
---------------------------------------	--	-----

	START TIME: _____	
1. Reviews 2OST-10.2, "Residual Heat Removal Pump [2RHS*P21B] Performance Test".	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> EVALUATOR CUE: Provide candidate with a marked up copy of 2OST-10.2 containing surveillance results. </div> 1.1 Consults the Acceptance Criteria for acceptable performance. COMMENTS:	
2.C [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of BVPS IST Program (T.S.5.5.4) as follows: <u>Motor</u> Vibration. (Data Sheet 1)	2.1 Compares Actual <u>Motor</u> Vibrations on Data Sheet 1 to Acceptable and Alert Range. 2.2C Determines Motor Outboard (1) Axial AND Motor Inboard (2) Axial , Horizontal, and Vertical are GREATER THAN Acceptable and Alert Range. COMMENTS:	
3.C [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of BVPS IST Program (T.S.5.5.4) as follows: <u>Pump</u> Vibration. (Data Sheet 1)	3.1 Compares Actual <u>Pump</u> Vibrations on Data Sheet 1 to Acceptable and Alert Range. 3.2C Determines Pump Inboard (1) Horizontal is GREATER THAN Acceptable and Alert Range. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 2	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump (SRO ONLY)
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of BVPS IST Program (T.S. 5.5.4) as follows: Delta-P (Data Sheet 2)</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR NOTE: Initial conditions stated Comprehensive Test will NOT be performed.</p> </div> <p>4.1 Compares calculated Delta P on Data Sheet 2 to Acceptable Range.</p> <p>4.2C Determines calculated Delta P is LESS THAN Acceptable Range.</p> <p>COMMENTS:</p>	
<p>5. [2RHS*4], Residual Heat Removal Pump 21B Disch Check Vlv, operates within the requirements of BVPS IST Program (T.S. 5.5.4) for forward flow (full-stroke) at a flowrate of 4000 gpm. (Step VII.B.9).</p>	<p>5.1 Reviews step VII.B.9 of OST to determine if 4000 gpm was achieved.</p> <p>5.2 Determines step was completed satisfactorily.</p> <p>COMMENTS:</p>	
<p>6. RHR heat exchanger outlet temperature indication conforms with the expected temperature based on current plant conditions. (Data Sheet 4)</p>	<p>6.1 Compares the Data from Data Sheet 4 to initial conditions of core exit thermocouples of 110°F.</p> <p>6.2 Determines that these are as expected.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 2		JPM TITLE: Review/Approve Completed Surveillance of RHS Pump (SRO ONLY)	
STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U	
7. RHR heat exchanger outlet temperatures and RCS cold leg temperature are within 25°F of each other. (Data Sheet 4)	7.1 Compares Data from Data Sheet 4; and, determines that RHR heat exchanger outlet temperatures and RCS cold leg temperature are within 25°F of each other. COMMENTS:		
8.C Complete the front cover sheet.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> EVALUATOR CUE: If the SRO does NOT specifically state that 2RHS*P21B is inoperable, then ask the candidate: "What is the status of 2RHS*P21B?" </div> 8.1 Places a checkmark in the Problems encountered block of cover page. 8.2C Lists the following problems on OST problem sheet: <ul style="list-style-type: none"> ▪ Motor Outboard (1) Axial AND Inboard (2) Axial, Horizontal, and Vertical vibrations are GREATER THAN Acceptable and Alert Range. ▪ Pump Inboard (1) Horizontal vibrations are GREATER THAN Acceptable and Alert Range. ▪ Calculated Delta P is LESS THAN Acceptable Range. ▪ C Declares 2RHS*P21B INOPERABLE due to any of the above criteria. COMMENTS:		
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> EXAMINER CUE: State "This completes the JPM" </div>		
	STOP TIME: _____		

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

DIRECTIONS:

You are to Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria.

INITIAL CONDITIONS:

- Unit 2 is in Mode 5 for an extended shutdown.
- RCS core exit thermocouple temperatures are 110°F.
- Surveillance 2OST-10.2 Residual Heat Removal Pump [2RHS*P21B] Performance Test has been completed by the RO and reviewed by the STA. (Comprehensive Test NOT performed)

INITIATING CUE:

- Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria.
- Document in detail the results of your review in the comments section of the cover page.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce " I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Determine Compensatory Actions for 2GWS-P21 and 2GWS-OA-100A Being OOS. (SRO ONLY)

TRAINING MATERIAL NUMBER: 2AD-042

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2AD-042

REVISION NUMBER: 4

TECHNICAL REFERENCES:

LRM 3.3.12, Rev. 52
1/2 ODCM Section 3.0.3, Rev. 18
OM Fig. 19-3 (RM-0419-003 rev 4)

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: M. Klingensmith _____ Date

PEER REVIEW BY: _____ Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2AD-042
New Revision: 4
Description of Change(s): 1. Updated to latest revision the ODCM.
Reason for Change (s): 1. 1/2 ODCM Section 3.0.3 was revised to revision 18.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-042 JPM REVISION: 4	JPM TITLE: Determine Compensatory Actions for 2GWS-P21 and 2GWS-OA-100A Being OOS. (SRO ONLY)
--	---

K/A REFERENCE: 2.3.11 4.3 TASK ID: 1300-029-03-023

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING

SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 20 Minutes	Actual Time:	minutes
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____ _____ _____ _____			

OBSERVERS	
Name/ ID:	Name/ID:
Name/ ID:	Name/ ID:

EVALUATOR	
Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	The compensatory actions required are determined to be: At least once per 24 hours take grab samples and analyze for Oxygen concentration <u>AND</u> , least once per 24 hours, verify that the GW storage tanks contain less or equal to 19,000 curies.
RECOMMENDED STARTING LOCATION:	Classroom
INITIAL CONDITIONS:	It is desired to fill the Gaseous Waste Storage Tanks in accordance with 2OM-19.4.G, "Filling Unit 2 Gaseous Waste Storage Tanks from Unit 2 Surge Tank". <ul style="list-style-type: none"> • The plant is operating at 100% power with all system in NSA. • Gaseous Waste Storage Tanks (2GWS-TK25A-G) pressures are 8 psig and STABLE. • Gaseous Waste Surge Tank (2GWS-TK21) pressure is 62 psig and slowly RISING. • The Gaseous Waste Storage Tanks Recirculation Pump [2GWS-P21] is out of service (OOS). • Oxygen Analyzer (2GWS-OA100A) is also OOS. • Oxygen Analyzer (2GWS-OA100B) is OPERABLE.
INITIATING CUE:	For these plant conditions, determine the REQUIRED LRM/ODCM compensatory actions for filling the Gaseous Waste Storage Tanks. <ul style="list-style-type: none"> • Document any compensatory actions in the block below (provided on the candidate direction sheet).
REFERENCES:	LRM 3.3.12, Rev. 52 1/2 ODCM Section 3.0.3, Rev. 18 OM Fig. 19-3 (RM-0419-003) Rev. 4 TS 5.5.8, Amend 278/170 2OM-19.4.G Rev 4
TOOLS:	None
HANDOUT:	2OM-19.5, Figure 19-1 & 3 (RM-041-001 rev 8, and 003 rev 4) Unit 2 LRM 1/2-ODCM Section 3.0.3 Rev 18 2OM-19.4.G Rev 4

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-042 JPM REVISION: 4	JPM TITLE: Determine Compensatory Actions for 2GWS-P21 and 2GWS-OA-100A Being OOS. (SRO ONLY)
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Provide the Candidate with the Candidate Direction Sheet and a current copy of OM 19 Figs., LRM, AND 1/2 ODCM Section 3.0.3.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: These steps may be performed in any order.</p> </div>	
	START TIME: _____	
1. Refer to Data sheet 3.	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: The candidate may already be familiar enough with the system to know the impact of 2GWS-P21 being OOS.</p> </div> <p>1.1 Refers to OM Fig. 19-3 and determines that Waste Gas Storage Tank Radiation Monitor (2GWS-RQ104) is out of service as a result of 2GWS-P21 being OOS.</p> <p>COMMENTS:</p>	
2.C Determines 1/2 ODCM compensatory actions for Waste Gas Storage Tank Radiation Monitor (2GWS-RQ104) being out of service.	<p>2.1. Refers to 1/2 ODCM Section 3.0.3, Att. O item 4.11.2.5.1 on page 67.</p> <p>2.2C Determines that it will be required to verify, least once per 24 hours, that the GW storage tanks contain less or equal to 19,000 curies. (when adding radioactive materials to the tank)</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-042 JPM REVISION: 4	JPM TITLE: Determine Compensatory Actions for 2GWS-P21 and 2GWS-OA-100A Being OOS. (SRO ONLY)
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Determines LRM compensatory actions for Oxygen Analyzer (2GWS-OA100A) being OOS.</p>	<p>3.1 Refers to LRM 3.3.12 Condition B.1</p> <p>3.2C Determines at least once per 24 hours take grab samples and analyze for oxygen content.</p> <p>3.3 Refers to LRM 3.3.12 Condition B.2</p> <p>3.4 Restore the inoperable channel to OPERABLE status in 30 days.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>EVALUATOR CUE: State “This complete the JPM.”</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

It is desired to fill the Gaseous Waste Storage Tanks in accordance with 2OM-19.4.G, "Filling Unit 2 Gaseous Waste Storage Tanks from Unit 2 Surge Tank".

- The plant is operating at 100% power with all system in NSA.
- Gaseous Waste Storage Tanks (2GWS-TK25A-G) pressures are 8 psig and STABLE.
- Gaseous Waste Surge Tank (2GWS-TK21) pressure is 62 psig and slowly RISING.
- The Gaseous Waste Storage Tanks Recirculation Pump [2GWS-P21] is out of service (OOS).
- Oxygen Analyzer (2GWS-OA100A) is also OOS.
- Oxygen Analyzer (2GWS-OA100B) is OPERABLE.

INITIATING CUE:

For these plant conditions, determine the **REQUIRED** LRM/ODCM compensatory actions for filling the Gaseous Waste Storage Tanks.

- Document any compensatory actions in the block below (provided on the candidate direction sheet).

NAME: _____

RECOMMENDED ACTIONS:

- At this time, ask the evaluator any questions you have on this JPM.
- When satisfied that you understand the assigned task, announce "I am now beginning the JPM".
- Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.
- After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Determine Protective Action Recommendations (Part 1) (SRO Only)

TRAINING MATERIAL NUMBER: 2AD-037

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2AD-037

REVISION NUMBER: 5

TECHNICAL REFERENCES:

1/2-EPP-IP-4.1, "Offsite Protective Actions", Rev. 35

1/2-EPP-IP-1.1.F01 FENOC NUCLEAR POWER PLANT INITIAL NOTIFICATION FORM, Rev. 12

11/2-EPP-I-5 "General Emergency", Rev 48

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: <15 Minutes

PREPARED BY: M. Klingensmith _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2AD-037
New Revision: 5
Description of Change(s): <ol style="list-style-type: none">1. Updated for procedure revisions.2. Adjusted Offsite Does values per prior NRC exam feedback
Reason for Change (s): <ol style="list-style-type: none">1. ½-EPP-IP-1.1. F01 was revised to rev 12.2. ½-EPP-IP-5 was revised to rev 48.3. ½-EPP-IP-4.1 was revised to rev 35.4. Adjusted Offsite Doses to lower values.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-037 JPM REVISION: 5	JPM TITLE: Determine Protective Action Recommendations (Part 1) (SRO Only)
--	---

K/A REFERENCE: 2.4.44 4.4 TASK ID: 1350-007-03-023

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:	Performer ID:
-----------------	---------------

Time <input checked="" type="checkbox"/> Yes Critical: <input type="checkbox"/> No	Allotted Time: 15 Minutes	Actual Time: _____ minutes
---	---------------------------	----------------------------

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR

Evaluator (Print): _____ Date: _____

Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Determine Protective Action Recommendations in accordance with 1/2-EPP-IP-4.1.
RECOMMENDED STARTING LOCATION:	Classroom
INITIAL CONDITIONS:	<p>A General Emergency has been declared at Unit 2 at 1000 hours following a small break LOCA and the loss of all 4KV emergency power on EAL SG1.1. A Core Cooling Red condition exists. The General Emergency was declared due to a Prolonged Loss of all OFFSITE and ONSITE AC power to Emergency Busses (SG1.1). Unit 1 remains operating at 100% power.</p> <p>The following plant conditions exist:</p> <ul style="list-style-type: none"> • 35' wind direction is from 95° at 4 MPH. • 150' wind direction is from 95° at 11 MPH. • 500' wind direction is from 135° at 15 MPH. • NO radioactive release has occurred or is imminent (within 1 hour). • The Containment Fission Product Barrier EAL is NOT challenged (no Loss or Potential Loss) • There is NO Hostile Action event in progress. • Offsite agencies have NOT identified any impediments to evacuation. • Health Physics has provided the following dose projections: At the EAB: .001 REM TEDE; .0001 REM CDE At 2 miles: .00013 REM TEDE; .0004 REM CDE At 5 miles: .00004 REM TEDE; .00021 REM CDE
INITIATING CUE:	<p>You are the Emergency Director and the TSC/EOF has NOT yet been activated. You are to evaluate the above conditions and determine which, if any, offsite Protective Action Recommendations (PAR) are necessary. Complete 1/2-EPP-IP-1.1.F01 Nuclear Power Plant Initial Notification Form. The evaluator will peer check the form. This JPM is TIME CRITICAL.</p>
REFERENCES:	<p>1/2-EPP-IP-4.1, "Offsite Protective Actions", Rev. 35 1/2-EPP-IP-1.1.F01 Rev. 12 1/2-EPP-I-5 Rev 48</p>
TOOLS:	None
HANDOUT:	<p>1/2-EPP-IP-4.1, "Offsite Protective Actions", Rev. 35 1/2-EPP-IP-1.1.F01 Rev. 12 1/2-EPP-I-5 Rev 48 EAL Flow Chart</p>

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-037	JPM TITLE: Determine Protective Action Recommendations (Part 1)
JPM REVISION: 5	(SRO Only)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
START TIME: _____		
1. Locate Offsite Protective Action Recommendation Flowchart.	1.1 Refers to 1/2-EPP-IP-4.1, Attachment A, Part 1 Offsite Protective Action Recommendation Flowchart. COMMENTS:	
2. Determine offsite protective action.	2.1 Navigates PAR flowchart as follows: <ul style="list-style-type: none"> • General Emergency already declared (↓) • Containment FPB is NOT a Loss or Potential Loss. (→) • No Hostile Action or No impediment to evacuation. (→) • Projected Dose at 5 Miles is less than limits. (→) • Met data provided in Initial Conditions (↓) COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-037	JPM TITLE: Determine Protective Action Recommendations (Part 1)
JPM REVISION: 5	(SRO Only)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Determine Offsite Protective Action Recommendations.</p>	<p>3.1.C Determines and documents on 1/2-EPP-IP-1.1.F01, the following PARs:</p> <ul style="list-style-type: none"> • Evacuate 2 Mile Radius, and • Evacuate 5 Miles downwind wedge • All others monitor and prepare • Advise the general public to administer KI per state plan <p>COMMENTS:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p>EVALUATOR CUE: If necessary, direct the Candidate to perform the downwind wedge determination as part of the PAR.</p> </div>	
<p>4.C Determine downwind wedge per Attachment A.</p>	<p>4.1 Determines that the 150' elevation downwind sectors are "LMNPQ".</p> <p>4.2.C Documents the sectors of "LMNPQ" on the form.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-037	JPM TITLE: Determine Protective Action Recommendations (Part 1)
JPM REVISION: 5	(SRO Only)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5.C Completes the PAR within 15 minutes.</p>	<p>5.1.C The form is completed within 15 minutes of the start time.</p> <p>5.2 Confirm the start and stop times are within 15 minutes.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: When the candidate completes the Protective Action Recommendation, the evaluation for this JPM is complete.</p> <p>..</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

A General Emergency has been declared at Unit 2 at 1000 hours following a small break LOCA and the loss of all 4KV emergency power on EAL SG1.1. A Core Cooling Red condition exists. The General Emergency was declared due to a Prolonged Loss of all OFFSITE and ONSITE AC power to Emergency Busses (SG1.1). Unit 1 remains operating at 100% power.

The following plant conditions exist:

- 35' wind direction is from 95° at 4 MPH.
- 150' wind direction is from 95° at 11 MPH.
- 500' wind direction is from 135° at 15 MPH.
- **NO** radioactive release has occurred or is imminent (within 1 hour).
- The Containment Fission Product Barrier EAL is **NOT** challenged (no Loss or Potential Loss)
- There is **NO** Hostile Action event in progress.
- Offsite agencies have **NOT** identified any impediments to evacuation.
- Health Physics has provided the following dose projections:
At the EAB: .001 REM TEDE; .0001 REM CDE
At 2 miles: .00013 REM TEDE; .0004 REM CDE
At 5 miles: .00004 REM TEDE; .00021 REM CDE

INITIATING CUE:

You are the Emergency Director and the TSC/EOF has **NOT** yet been activated. You are to evaluate the above conditions and determine which, if any, offsite **Protective Action Recommendations** (PAR) are necessary. Complete 1/2-EPP-IP-1.1.F01 Nuclear Power Plant Initial Notification Form. The evaluator will peer check the form. This JPM is **TIME CRITICAL**.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: RCS Dilution
TRAINING MATERIAL NUMBER: 2CR-589
PROGRAM TITLE: Licensed Operator Training
COMPUTER CODE: 2CR-589
REVISION NUMBER: 6

TECHNICAL REFERENCES:

2OM-7.4.AR, "Blender Operation in Mode 1", Revision 13

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: P. Eisenmann _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-589
New Revision: 6
Description of Change(s): <ol style="list-style-type: none">1. Updated for current JPM format and procedure revision.2. Updated task ID.3.4..”
Reason for Change (s): <ol style="list-style-type: none">1. 2OM-7.4.AR was revised to revision 13.2. Task ID changed.3.4.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-589 JPM REVISION: 6	JPM TITLE: RCS Dilution
--	-------------------------

K/A REFERENCE: 004 A4.07 3.9/3.7 TASK ID: 0071-202-01-012
 004 A2.25 3.8/4.3

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:		Performer ID#:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 15 Minutes	Actual Time: minutes	

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR

Evaluator (Print): _____ Date: _____
 Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Initiate RCS Dilution and stop the dilution after the blender fails to automatically stop prior to exceeding 147 gallons indicated on 2CHS-FQIS168. (122 gal. + 25 gal.)
RECOMMENDED STARTING LOCATION:	Simulator
INITIAL CONDITIONS:	<ul style="list-style-type: none">• The plant is 100% power, with all systems in NSA.• The Control Rods are fully withdrawn.• Tavg is 1°F below Tref.• Current RCS boron concentration is 1106 ppm.• IAW the current reactivity placard, 122 gallons of dilution water will be needed to raise Tavg 1°F.
INITIATING CUE:	Your supervisor directs you to dilute the RCS 122 gallons in accordance with 2OM-7.4.AR, “Blender Operation in Mode 1”, at a rate of 75 gpm to raise Tavg 1°F. All procedure required initial conditions are satisfied. It is NOT desired to take manual control of VCT Level and Pressure.
REFERENCES:	2OM-7.4.AR, “Blender Operation in Mode 1”, Revision 13 Reactivity Plan for cycle 20 BOL (122 gals/°F)
TOOLS:	None
HANDOUT:	2OM-7.4.AR, “Blender Operation in Mode 1”, Revision 13

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-589 JPM REVISION: 6	JPM TITLE: RCS Dilution
--	-------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>SIMULATOR SETUP:</p> <p>Initialize to a 100% power IC. Reduce Tavg ~°1 F below Tref.</p> <p>Fail blender auto stop on totalizer timeout by: OVERRIDE DI Point XA4I028L (2CHSFQIS168 – Total M/U from Blender Flow Batch Limit) in OFF. Adjust 2CHS*FCV114A pot setting to 568 units</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: Provide candidate with a copy of 2OM-7.4.AR, “Blender Operation in Mode 1”. After candidate reviews procedure and is ready to begin JPM, PLACE the simulator in RUN. This JPM may be pre-briefed to expedite the procedure review.</p> </div>	
	START TIME: _____	
<p>1. At the discretion of the RO and SM/US, take control of VCT Level and Pressure.</p>	<p>1.1 N/A – Initiating cue stated it is NOT desired to take manual control of VCT level and pressure.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: IF necessary, remind the candidate to refer to initiating cue.</p> </div> <p>COMMENTS:</p>	
<p>2. If letdown flow to a degasifier will exceed 75 gpm, perform either of the following.</p> <p style="text-align: center;">Reduce letdown flow OR Align degasifiers to receive maximum letdown.</p>	<p>2.1 N/A – Letdown flow to a degasifier will NOT exceed 75 gpm.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-589 JPM REVISION: 6	JPM TITLE: RCS Dilution
--	-------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
3.C Place the Boric Acid Makeup Blender Control Switch in Stop.	3.1C Places Boric Acid Blender Makeup Control Switch to STOP. 3.2 Verifies GREEN light – LIT, RED light – NOT LIT. COMMENTS:	
4.C Set 2CHS*FCV114A to desired flow rate.	4.1C Adjusts 2CHS*FCV114A pot setting to 468 units based on the following formula: $\frac{75\text{gpm}}{16\text{gpm}} = 4.68$ <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> EVALUATOR NOTE: Pot should be set at 468 units ±2 units. </div> COMMENTS:	
5.C Set 2CHS-FQIS168 Total Makeup From Blender Flow Totalizer.	<div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> EVALUATOR NOTE: Evaluator discretion may be required for setting totalizer based on operator performing multiple batches. </div> 5.1C Adjusts 2CHS-FQIS168 to 122 (Green LED). 5.2C Depresses 2CHS-FQIS168 RESET PB. 5.3 Verifies 2CHS-FQIS168 is reading ZERO (Red LED). COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-589 JPM REVISION: 6	JPM TITLE: RCS Dilution
--	-------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
6. Ensure 2CHS-FQIS113, Boric Acid Flow To Blender Flow Totalizer is set to zero.	6.1 Verifies that 2CHS-FQIS113, Boric Acid Flow To Blender is set to ZERO (Red and Green LED). COMMENTS:	
7. Verify at least one reactor coolant pump is in operation to supply ≥ 3000 gpm flow through the core AND document in the Narrative Log. (LRS 3.1.10.1).	7.1 Verifies at least one Reactor Coolant Pump is in operation and ensures a log entry is made. EVALUATOR CUE: Role play US and acknowledge Narrative Log entry for coolant pump in operation supplying ≥ 3000 gpm flow through the core. COMMENTS:	
8.C Place the Mode Selector Switch in the DILUTE or ALTERNATE DILUTE position.	8.1C Places the Mode Selector switch in DILUTE. EVALUATOR CUE: If necessary, cue the candidate to DILUTE as opposed to ALTERNATE DILUTE. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-589 JPM REVISION: 6	JPM TITLE: RCS Dilution
--	-------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9.C Place the Boric Acid Makeup Blender Control Switch to START.</p>	<p>9.1C Places Boric Acid Blender Makeup Control Switch to START.</p> <p>9.2 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>10. Verify 2CHS*FCV114B Opens.</p> <p>Verify correct flow rate on 2CHS-FR113.</p>	<p>10.1 Verifies 2CHS*FCV114B Opens.</p> <p>10.2 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>10.3 Verifies 2CHS-FR113 is reading ~ 75 gpm.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-589 JPM REVISION: 6	JPM TITLE: RCS Dilution
--	-------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>11. IF large amount of PG water is necessary or dilutions will be frequent THEN:</p> <p>Operate pressurizer heaters to equalize boron concentration.</p> <p>Verify at least one RCP in operation at least once per hour during dilution and document in narrative log.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Candidate may energize additional backup heaters, unless current operating cycle has all heaters energized.</p> </div> <p>11.1 As appropriate, places control switch for 2RCS*H2A or E to ON.</p> <p>11.2 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>11.3 Checks at least one RCP in operation and notes this must be done at least once per hour.</p> <p>11.4 Candidate indicates this check must be logged in the Narrative Log.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: If requested, another operator will make the appropriate log entry. Candidate may N/A the RCP in operation, and the log entry due to this being a single dilution.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">FAULT STATEMENT</p> <p>Blender will not Auto-Stop. Candidate is expected to manually secure dilution within 25 gallons of directed volume.</p> </div>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-589 JPM REVISION: 6	JPM TITLE: RCS Dilution
--	-------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>12.C Verify dilution automatically stops when totalizer, 2CHS-FQIS168 reaches the preset value.</p>	<p>12.1 Candidate determines dilution automatic stop has failed after integrator reaches 122 +25.</p> <p>12.2C Places Boric Acid Blender Makeup Control Switch to STOP prior to 2CHS-FQIS168 indicating > 147 (RED LED).</p> <p>12.3 Verifies GREEN light – LIT, RED light – NOT LIT.</p> <p>12.4 Verifies 2CHS-FR113 is reading ZERO gpm.</p> <p>COMMENTS:</p>	
<p>13. Candidate reports blender problem.</p>	<p>13.1 Reports that the blender auto stop has failed resulting in more dilution than originally planned.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: Role-play Unit Supervisor and acknowledge the report</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>TERMINATING CUE: That completes this JPM.</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

- The plant is 100% power, with all systems in NSA.
- The Control Rods are fully withdrawn.
- Tavg is 1°F below Tref.
- Current RCS boron concentration is 1106 ppm.
- IAW the current reactivity placard, 122 gallons of dilution water will be needed to raise Tavg 1°F.

INITIATING CUE:

Your supervisor directs you to dilute the RCS 122 gallons in accordance with 2OM-7.4.AR, "Blender Operation in Mode 1", at a rate of 75 gpm to raise Tavg 1°F. All procedure required initial conditions are satisfied. It is NOT desired to take manual control of VCT Level and Pressure.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Response to Safety Injection in ECA-0.1

TRAINING MATERIAL NUMBER: 2CR-802

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2CR-802

REVISION NUMBER: 0

TECHNICAL REFERENCES:

- 2OM-53A.1.ECA-0.1 (ISS3) Rev. 0, Loss of All AC Power Recovery Without SI Required.
- 2OM-53A.1.ECA-0.2 (ISS3) Rev. 0, Loss of All AC Power Recovery With SI Required.
- 2OM-53A.1.A-0.12 Rev. 0, SI Checklist for Verification of Alignment – ECA-0.2.

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 25 Minutes

PREPARED BY: Andrew Jacques _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-802
New Revision: 0
Description of Change(s):
Reason for Change (s):

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

K/A REFERENCE: 006 A2.02 3.9/4.3 TASK ID: 0011-204-01-012
 006 A3.06 3.9/4.2 0531-201-05-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID #:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 25 Minutes	Actual Time: minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____ _____ _____ _____			

OBSERVERS	
Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR	
Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Actuates or recognizes actuation of Safety Injection, transitions to ECA-0.2, and repositions misaligned SI components in accordance with A-0.12.
RECOMMENDED STARTING LOCATION:	Simulator
INITIAL CONDITIONS:	<ul style="list-style-type: none"> • The plant tripped due to a loss of offsite power, both EDG's failed to automatically start. • The crew entered ECA-0.0, Loss of All Emergency 4KV AC Power. • While evaluating selection of the cross-tie path, both EDG's were able to be started locally, the crew progressed thru ECA-0.0 and transitioned to ECA-0.1, Loss of All AC Power Recovery Without SI Required.
INITIATING CUE:	Continue recovery efforts to stabilize the plant in accordance with ECA-0.1, Step 1.
REFERENCES:	<p>2OM-53A.1.ECA-0.1 (ISS3) Rev. 0, Loss of All AC Power Recovery Without SI Required</p> <p>2OM-53A.1.ECA-0.2 (ISS3) Rev. 0, Loss of All AC Power Recovery With SI Required.</p> <p>2OM-53A.1.A-0.12 Rev. 0, SI Checklist for Verification of Alignment – ECA-0.2</p>
TOOLS:	
HANDOUT:	<p>2OM-53A.1.ECA-0.1 (ISS3) Rev. 0, Loss of All AC Power Recovery Without SI Required.</p> <p>Hand out after candidate identifies procedure transition required:</p> <p>2OM-53A.1.ECA-0.2 (ISS3) Rev. 0, Loss of All AC Power Recovery With SI Required.</p> <p>2OM-53A.1.A-0.12, SI Checklist for Verification of Alignment – ECA-0.2</p>

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	Initial Conditions: Initiate IC 165 – ECA-0.1 Scenario with both Diesels running and no plant loads in PTL. Place Blender in a position other than automatic – DILUTE or BORATE Delete malfunction PPL07B on event 2 Delete malfunction VLV-CHS016 on event 9 Delete malfunction VLV-MS020 on event 10 Delete malfunction VLV-MS022 on event 10 Delete malfunction VLV-MS026 on event 11 Delete malfunction VLV-MS027 on event 11 Delete malfunction VLV-CSS006 on event 13 Delete malfunction VLV-CSS007 on event 14 SBLOCA 1500 GPM on ‘A’ or ‘B’ Charging Pump Start	
	ENSURE SCHEDULE FILE IS RUN WHILE PERFORMING JPM	
	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> EVALUATOR NOTE: Provide the Candidate with a copy of 2OM-53A.1.ECA-0.1. </div>	
	START TIME: _____	
1. Reviews procedure.	1.1 Reviews ECA-0.1 COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>2. Check RCP Seal Isolation Status</p> <p>a. CCP Pumps – All Stopped</p> <p>b. [2CCP*AOV107A, B, C] RCP Thermal Barrier CCP Return Isolation Valves – CLOSED. (Not applicable)</p> <p>c. Charging Pumps – ALL STOPPED</p> <p>d. RCP Seal injection Throttle valves closed.</p>	<p>2.1 Checks ‘A’ CCP Pump Running. RED Light LIT, WHITE Light NOT LIT, Ammeter indicates normal amperage.</p> <p>2.2 Checks no Charging Pumps running Both pumps; WHITE Lights LIT, RED Lights NOT LIT.</p> <p>2.3 Directs a field operator to locally close 2CHS*178, 179 and 180.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: Report as SRO that a field operator was previously dispatched and confirmation has been received that 2CHS*178, 179 & 180 are closed.</p> </div> <p>COMMENTS:</p>	
<p>3. Reset CIA and CIB</p>	<p>3.1 Depresses Train ‘A’ and Train ‘B’ CIA RESET pushbuttons.</p> <p>3.2 Depresses Train ‘A’ and Train ‘B’ CIB RESET pushbutton.</p> <p>COMMENTS:</p>	
<p>4. Check Station Instrument Air Header Pressure – Greater than 90 PSIG</p>	<p>4.1 Determines Station Instrument Air Header Pressure >90 PSIG by checking 2IAS-PI106.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5.C Manually Load Following Equipment on AC Emergency Bus:</p> <p>a. Cross-connect station instrument air with CNMT instrument air by opening the following valves:</p> <ul style="list-style-type: none"> • [2IAC-MOV131] • [2IAC-MOV130] <p>b. Check CCP Pumps – ALL STOPPED</p> <p>c. Check Charging Pumps – ALL STOPPED</p> <p>d. Check pump suction alignment - 2CHS*LCV115C, E OPEN- VCT M/U system set for automatic control at > RCS boron concentration.</p>	<p>5.1 Checks 2IAC-MOV131 OPEN. Valves is DEENERGIZED, Verifies OPEN by checking switch in OPEN position.</p> <p>5.2 Checks 2IAC-MOV130 OPEN. Verifies RED light LIT GREEN light NOT LIT</p> <p>5.3 Checks 'A' CCP Pump running. RED light LIT WHITE light NOT LIT Ammeter indicating normal amperage.</p> <p>5.4 Checks all charging pumps STOPPED. WHITE lights LIT RED lights NOT LIT</p> <p>5.5 Checks 2CHS-LCV115C, E OPEN. RED lights LIT GREEN lights NOT LIT</p> <p>5.6 Determines Automatic makeup is unavailable due to Blender integrators being de-energized and the 1MU switch indicates GREEN light LIT.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR NOTE: The blender controls are dark due to loss of normal AC power, the candidate may attempt to place the 1MU switch to start, however it will not actuate, the candidate should perform RNO actions to ensure suction alignment by opening 2CHS*LCV115B, D and closing 2CHS*LCV115C, E.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 10px; margin: 0 auto; width: 80%;"> <p>Fault Statement</p> <p>90 seconds after starting a charging pump a 1500 gpm LOCA will occur requiring a transition to ECA-0.2.</p> </div>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>(Step 5 continued)</p> <p>5.C Manually Load Following Equipment on AC Emergency Bus: (continued)</p> <p>e. Check Charging pump discharge alignment. - 2CHS*FCV122 CLOSED - 2SIS*MOV867A,BC,D CLOSED.</p> <p>f. Check 2CHS-TI116 Volume Control Tank Temp – Less than 235F</p> <p>g. Start one Charging Pump.</p> <p>h. Start CNMT Air Recirculation Fans, as necessary.</p>	<p>5.7 OPENS 2CHS*LCV115B and D by placing control switch in OPEN position. RED light LIT GREEN light NOT LIT</p> <p>5.8 CLOSES 2CHS*LCV115C and E by placing control switch in CLOSE position. GREEN light LIT RED light NOT LIT</p> <p>5.9 Closes 2CHS*FCV122 by depressing the Manual Pushbutton RED light LIT with AUTO light NOT LIT, and taking demand to 100%.</p> <p>5.10 Checks 2SIS-MOV867A,B,CD ALL CLOSED by verifying GREEN lights LIT and RED lights NOT LIT.</p> <p>5.11 Checks VCT Temperature <235F on 2CHS*TI116.</p> <p>5.12C Starts either 2CHS*P21A OR 2CHS*P21B and verifies pump start with RED light LIT, GREEN light NOT LIT along with Ammeter reading normal amperage.</p> <p>5.13 Starts a CNMT Recirculation Fan, if necessary.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: If candidate asks if CNMT Recirculation Fan is necessary, inform them it is not desired at this time.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Depending on candidates timing, plant conditions will degrade during the next step requiring SI to be actuated and transition to ECA-0.2. IAW Caution prior to step 4 or by direction in step 6.</p> </div>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6. Establish Normal Charging Flow</p> <p>a. Close [2CHS*FCV122]</p> <p>b. Open [2CHS*MOV310]</p> <p>c. Open [2CHS*MOV289]</p> <p>d. Adjust [2CHS*FCV122] to maintain PRZR level.</p>	<p>6.1 Verifies 2CHS*FCV122 was previously closed by Manual Pushbutton RED light LIT with AUTO light NOT LIT, and demand at 100%.</p> <p>6.2 Verifies 2CHS*MOV310 OPEN Verifies RED light LIT GREEN light NOT LIT.</p> <p>6.3 Verifies 2CHS*MOV289 OPEN Verifies RED light LIT GREEN light NOT LIT.</p> <p>6.4 Adjusts 2CHS*FCV122 as necessary to maintain PRZR Level.</p> <p>COMMENTS:</p>	
<p>7.C Verify SI Flow Not Required.</p> <p>a. RCS Subcooling based on core exit TCs – Greater than 41F [59F Adverse CNMT]</p> <p>b. PRZR level – Greater than 17% [38% Adverse CNMT]</p>	<p>7.1 Evaluates RCS Subcooling.</p> <p>7.2C Determines that SI has automatically actuated or must be actuated due to lowering pressurizer pressure and/or level and transitions to ECA-0.2</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>8C. Check SI Signal Status – RESET</p>	<p>8.1 Checks SI not reset by verifying Annunciator A12-1D is LIT.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR NOTE: There is a 75 second Time Delay after SI Actuation before it can be reset.</p> </div> <p>8.2C Candidate Resets Train ‘A’ SI by depressing Train ‘A’ Safety Injection Reset pushbutton.</p> <p>8.3C Candidate Resets Train ‘B’ SI by depressing Train ‘B’ Safety Injection Reset pushbutton.</p> <p>8.4 Verifies SI reset by checking Annunciator A12-1C is LIT and Annunciator A12-1D is NOT LIT</p> <p>COMMENTS:</p>	
<p>9. Check RWST Level – Greater Than 369 Inches</p>	<p>9.1 Checks RWST Level on 2QSS*LI100A/B or PCS greater than 369”.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
---------------------------------------	--	-----

<p>10. Manually Align Components To SI Injection Alignment a. Refer to Att. A-0.12</p>	<p>10.1 Transitions to Attachment A-0.12, Step 1.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Once candidate has located procedure A-0.12, hand them a copy and inform them that another crew member will monitor plant conditions.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>BOOTH OPERATOR NOTE: Silence all alarms after the evaluator gives the cue above and candidate performs Att. A-0.12.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Candidate may have previously verified SI components when Safety Injection actuated.</p> </div> <p>COMMENTS:</p>	
--	--	--

	<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">Fault Statement</p> <p>The following components failed to actuate to Safety Injection positions on receipt of the Safety Injection signal:</p> <ul style="list-style-type: none"> • 2HCS*SOV136A • 2HCS*SOV136B • 2HCS*SOV133A • 2HCS*SOV134A • 2CHS*LCV115C • 2QSS*MOV120A • 2QSS*MOV120B </div>	
--	---	--

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U																						
<p>11. Perform appropriate checklist for the SI Configuration:</p> <p>a. If BOTH trains of SI have actuated THEN complete the checklist in Part A of this attachment.</p> <p>b. If SI Train A Only has been actuated THEN complete the checklist in Part B of this attachment.</p> <p>c. If SI Train B Only has been actuated THEN complete the checklist in Part C of this attachment.</p>	<p>11.1 Completes Part A Checklist by documenting the as found position of the following:</p> <table border="1"> <thead> <tr> <th>Vertical Board A</th> <th>Expected Documentation</th> </tr> </thead> <tbody> <tr><td>2HCS*SOV136A</td><td>OPEN (Action Required)</td></tr> <tr><td>2HCS*SOV136B</td><td>OPEN (Action Required)</td></tr> <tr><td>2HCS*SOV133A</td><td>OPEN (Action Required)</td></tr> <tr><td>2HCS*SOV134A</td><td>OPEN (Action Required)</td></tr> <tr><td>2HCS*SOV100A1</td><td>LIT</td></tr> <tr><td>2HCS*SOV100B1</td><td>LIT</td></tr> <tr><td>2HCS*SOV135A</td><td>OPEN</td></tr> <tr><td>2HCS*SOV135B</td><td>OPEN</td></tr> <tr><td>2HCS*SOV133B</td><td>OPEN</td></tr> <tr><td>2HCS*SOV134B</td><td>OPEN</td></tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: OFF – WHITE Light LIT or DEENERGIZED CLOSED – GREEN Light LIT & RED Light NOT LIT OPEN – RED Light LIT & GREEN Light NOT LIT ON – AMBER Light LIT</p> </div> <p>COMMENTS:</p>	Vertical Board A	Expected Documentation	2HCS*SOV136A	OPEN (Action Required)	2HCS*SOV136B	OPEN (Action Required)	2HCS*SOV133A	OPEN (Action Required)	2HCS*SOV134A	OPEN (Action Required)	2HCS*SOV100A1	LIT	2HCS*SOV100B1	LIT	2HCS*SOV135A	OPEN	2HCS*SOV135B	OPEN	2HCS*SOV133B	OPEN	2HCS*SOV134B	OPEN	
Vertical Board A	Expected Documentation																							
2HCS*SOV136A	OPEN (Action Required)																							
2HCS*SOV136B	OPEN (Action Required)																							
2HCS*SOV133A	OPEN (Action Required)																							
2HCS*SOV134A	OPEN (Action Required)																							
2HCS*SOV100A1	LIT																							
2HCS*SOV100B1	LIT																							
2HCS*SOV135A	OPEN																							
2HCS*SOV135B	OPEN																							
2HCS*SOV133B	OPEN																							
2HCS*SOV134B	OPEN																							

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
---------------------------------------	--	-----

11 (cont'd).	11.1 Completes Part A Checklist by documenting the as found position of the following (cont'd):																																					
	<table border="1"> <tr> <th colspan="2">Bench Board A</th> </tr> <tr> <td>2CHS*MOV289</td> <td>CLOSED</td> </tr> <tr> <td>2SWS*MOV113A</td> <td>OPEN</td> </tr> <tr> <td>2SWS*AOV118A</td> <td>CLOSED</td> </tr> <tr> <td>2SIS*MOV865A</td> <td>OPEN</td> </tr> <tr> <td>2SWS*MOV113D</td> <td>OPEN</td> </tr> <tr> <td>2SWS*AOV118B</td> <td>CLOSED</td> </tr> <tr> <td>2SIS*MOV865B</td> <td>OPEN</td> </tr> <tr> <td>2SIS*MOV865C</td> <td>OPEN</td> </tr> <tr> <td>2CHS*LCV115D</td> <td>OPEN</td> </tr> <tr> <td>2SIS*MOV867B</td> <td>OPEN</td> </tr> <tr> <td>2SIS*MOV867D</td> <td>OPEN</td> </tr> <tr> <td>2CHS*LCV115E</td> <td>CLOSED</td> </tr> <tr> <td>2SIS*MOV867A</td> <td>OPEN</td> </tr> <tr> <td>2SIS*MOV867C</td> <td>OPEN</td> </tr> <tr> <td>2CHS*LCV115B</td> <td>OPEN</td> </tr> <tr> <td>2CHS*LCV115C</td> <td>CLOSED (Action Required)</td> </tr> <tr> <td>2CHS*MOV310</td> <td>CLOSED</td> </tr> </table>	Bench Board A		2CHS*MOV289	CLOSED	2SWS*MOV113A	OPEN	2SWS*AOV118A	CLOSED	2SIS*MOV865A	OPEN	2SWS*MOV113D	OPEN	2SWS*AOV118B	CLOSED	2SIS*MOV865B	OPEN	2SIS*MOV865C	OPEN	2CHS*LCV115D	OPEN	2SIS*MOV867B	OPEN	2SIS*MOV867D	OPEN	2CHS*LCV115E	CLOSED	2SIS*MOV867A	OPEN	2SIS*MOV867C	OPEN	2CHS*LCV115B	OPEN	2CHS*LCV115C	CLOSED (Action Required)	2CHS*MOV310	CLOSED	
	Bench Board A																																					
	2CHS*MOV289	CLOSED																																				
	2SWS*MOV113A	OPEN																																				
	2SWS*AOV118A	CLOSED																																				
	2SIS*MOV865A	OPEN																																				
	2SWS*MOV113D	OPEN																																				
	2SWS*AOV118B	CLOSED																																				
	2SIS*MOV865B	OPEN																																				
	2SIS*MOV865C	OPEN																																				
	2CHS*LCV115D	OPEN																																				
	2SIS*MOV867B	OPEN																																				
	2SIS*MOV867D	OPEN																																				
	2CHS*LCV115E	CLOSED																																				
	2SIS*MOV867A	OPEN																																				
	2SIS*MOV867C	OPEN																																				
	2CHS*LCV115B	OPEN																																				
	2CHS*LCV115C	CLOSED (Action Required)																																				
	2CHS*MOV310	CLOSED																																				
	<table border="1"> <tr> <th colspan="2">Bench Board B</th> </tr> <tr> <td>2RCP*H2A</td> <td>OFF</td> </tr> <tr> <td>2RCP*H2D</td> <td>OFF</td> </tr> <tr> <td>2RCP*H2B</td> <td>OFF</td> </tr> <tr> <td>2RCP*H2E</td> <td>OFF</td> </tr> <tr> <td>2QSS*AOV120A</td> <td>CLOSED (Action Required)</td> </tr> <tr> <td>2QSS*AOV120B</td> <td>CLOSED (Action Required)</td> </tr> </table>	Bench Board B		2RCP*H2A	OFF	2RCP*H2D	OFF	2RCP*H2B	OFF	2RCP*H2E	OFF	2QSS*AOV120A	CLOSED (Action Required)	2QSS*AOV120B	CLOSED (Action Required)																							
	Bench Board B																																					
	2RCP*H2A	OFF																																				
	2RCP*H2D	OFF																																				
	2RCP*H2B	OFF																																				
2RCP*H2E	OFF																																					
2QSS*AOV120A	CLOSED (Action Required)																																					
2QSS*AOV120B	CLOSED (Action Required)																																					
<p>EVALUATOR NOTE: OFF– WHITE Light LIT CLOSED – GREEN Light LIT & RED Light NOT LIT OPEN – RED Light LIT & GREEN Light NOT LIT</p>																																						
<p>EVALUATOR NOTE: Candidate may continue checklist on BB-C but there are no components that failed to realign. If candidate has correctly positioned all components listed in Step 12, the JPM is complete.</p>																																						
COMMENTS:																																						

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-802 JPM REVISION: 0	JPM TITLE: Response to Safety Injection in ECA-0.1
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>12.C If Any Component is NOT in It's required position, THEN perform one of the following:</p> <ul style="list-style-type: none"> Place the component in the required position using the control switch. Verify the redundant (opposite train) in it's required position. Initiate action to locally position the component to the required position. 	<p>12.1C Aligns 'A' H2 Analyzer in service by taking control switch for the following valves to OPEN and verifying RED light LIT, GREEN light NOT LIT:</p> <ul style="list-style-type: none"> 2HCS*SOV136A 2HCS*SOV136B 2HCS*SOV133A 2HCS*SOV134A <p>12.3 Closes 2CHS*LCV115E by taking control switch to CLOSE and verifying RED light NOT LIT, GREEN light LIT.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Candidate should have previously repositioned valve per RNO for blender unavailable.</p> </div> <p>12.4C Closes 2QSS*MOV120A and 2QSS*MOV120B by placing control switch to CLOSE and verifying RED light NOT LIT and GREEN light LIT.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Candidate may have previously repositioned valves when verifying SI.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Once candidate has completed and corrected components through BB-B, state "This JPM is complete."</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

*** THIS SHEET TO BE GIVEN TO CANDIDATE ***

Read:

- INITIAL CONDITIONS:**
- The plant tripped due to a loss of offsite power, both EDG's failed to automatically start.
 - The crew entered ECA-0.0, Loss of All Emergency 4KV AC Power.
 - While evaluating selection of the Cross-tie path, both EDG's were able to be started locally, the crew progressed thru ECA-0.0 and transitioned to ECA-0.1, Loss of All AC Power Recovery Without SI Required.

INITIATING CUE: Continue recovery efforts to stabilize the plant in accordance with ECA-0.1, Step 1.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Perform LHSI Pump Surveillance

TRAINING MATERIAL NUMBER: 2CR-645

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2CR-645

REVISION NUMBER: 5

TECHNICAL REFERENCES:

2OST-11.2 Low Head Safety Injection Pump 2SIS*P21B Test, Rev. 34

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: P. Eisenmann _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-645
New Revision: 5
Description of Change(s): 1. Updated for procedure revision. 2. .
Reason for Change (s): 1. Procedure was revised to rev. 34 2.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

K/A REFERENCE: 006A4.01 4.3 TASK ID: 0111-202-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 20 Minutes	Actual Time:	minutes
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation) Comments: _____ _____ _____ _____			

OBSERVERS	
Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR	
Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD: 2OST-11.2 completed AND FAILS due to low pump differential calculated on Data Sheet 3.

Note: Operator may declare 2SIS*P21B Inoperable/fail OST based on 2SIS*MOV8890B 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv failing to AUTO Open.

RECOMMENDED STARTING LOCATION: Simulator

INITIAL CONDITIONS: 2OST-11.2, Low Head Safety Injection Pump, 2SIS*P21B, Test preparations have been completed through section VII.A.

INITIATING CUE: Your Supervisor directs you to complete the remaining portions of 2OST-11.2 and return the completed OST to him for review. Operators are positioned in the field to support this test.

REFERENCES: 2OST-11.2, Low Head Safety Injection Pump 2SIS*P21B Test, Rev. 34.

TOOLS: Stopwatch
Calculator

HANDOUT: 2OST-11.2 Low Head Safety Injection Pump 2SIS*P21B Test, Rev 34 completed through step VII.A AND VII.B steps 1g and 1h N/A'ed.
2OST-11.2 Completed Data Sheets 1 & 2 attached at the back of this JPM.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>SIMULATOR SETUP:</p> <ul style="list-style-type: none"> • Initialize any IC, use SCHEDULE FILE • “JPM 2CR645 schedule.sch” • Establish computer log for this OST. • NEED to fail 2SIS*MOV8890B from AUTO open but allow manual opening and insert MALF for 2SIS*6, check valve leakage. </div>	
	START TIME: _____	
<p>1. Verify Open 2SIS*MOV8809B 21B Low Head SI Pump Suct Isol.</p>	<p>1.1 Verifies 2SIS*MOV8809B, 21B Low Head SI Pump Suct Isol. Vlv OPEN;</p> <p>1.2 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>2. Verify Open 2SIS*MOV8809A 21A Low Head SI Pump Suct Isol.</p>	<p>2.1 Verifies 2SIS*MOV8809A, 21A Low Head SI Pump Suct Isol. OPEN;</p> <p>2.2 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>3. Verify or place 2SIS*MOV8890B LHSI Pp 21B Mini Flow Recirc Isol control switch in AUTO.</p>	<p>3.1. Verifies 2SIS*MOV8890B, 21B Low Head SI Pump Min Flow Recirc Isol Vlv control switch in AUTO.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4. If the Reactor Coolant System pressure is >250 psig Perform the following: (otherwise N/A).</p> <p>1) Verify Open 2SIS-MOV8887B, 21B, Low Head SI Pump Disch To Hot Legs.</p> <p>2) Verify Open 2SIS-MOV8887A, 21A, Low Head SI Pump Disch To Hot Legs.</p>	<p>4.1 Verifies 2SIS-MOV8887B, 21B, Low Head SI Pump Disch To Hot Legs OPEN;</p> <p>4.2 RED light – LIT, GREEN light – NOT LIT.</p> <p>4.3 Verifies 2SIS-MOV8887A, 21A, Low Head SI Pump Disch To Hot Legs OPEN;</p> <p>4.4 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>5. Verify Closed 2SIS*MOV8811B, Recirc Spray Pump 21D Disch Crossover to LHSI Pp 21B.</p>	<p>5.1 Verifies 2SIS*MOV8811B, Recirc Spray Pump 21D Disch Crossover to LHSI Pp 21B CLOSED</p> <p>5.2 Verifies GREEN light – LIT, RED light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>6. Verify Closed 2SIS*MOV863B, LHSI Pp 21B Disch to HHSI Pumps Isol.</p>	<p>6.1 Verifies 2SIS*MOV863B, 21B, Low Head SI Pump Disch to High Head Pumps CLOSED.</p> <p>6.2 Verifies GREEN light – LIT, RED light – NOT LIT.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>7. Establish a log for the following Computer Points with a 10 min (maximum) collection frequency:</p> <p>T2678A, LHSI PP 21B INBD BRG SIS-TE100B1 T2679A, LHSI PP 21B OUTBD BRG SIS-TE100B2 T0920A, LHSI PP 21B MTR INBD SIS-TE101B1 T0921A, LHSI PP 21B OUTBD SISTE101B2</p>	<p>7.1 N/A</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: Logs being established & monitored by additional Operating Personnel.</p> </div> <p>COMMENTS:</p>	
<p>8. Record 2SIS-PI939, LHSI Pump 21B Inlet Pressure.</p> <p>Local Inlet Pressure = _____ psig</p>	<p>8.1 Contacts local operator and requests 2SIS-PI939, LHSI Pump 21B Inlet Pressure.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: Role-play local operator and report 2SIS-PI939 LHSI Pump 21B Inlet Pressure is 33.8 psig</p> </div> <p>8.2 Records 2SIS-PI939, LHSI Pump 21B Inlet Pressure of 33.8 psig in the space provided in the OST.</p> <p>COMMENTS:</p>	
<p>9. Verify 2SIS*P21B, LHSI Pump, bearing oil level is normal. (local constant level oilers)</p>	<p>9.1 Contacts local operator, requests operator to verify 2SIS*P21B, LHSI Pump, bearing oil level is normal.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: Role-play local operator and report 2SIS*P21B, LHSI Pump, bearing oil level is NORMAL.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
10. Establish communication between the Control Room and 2SIS*P21B, LHSI Pump, Safeguards Elev. 718'.	10.1 Previously established. COMMENTS:	
11.C Start (and record Pump Start Time) 2SIS*P21B, Low Head SI Pump. BB Section A Pump Start Time = _____ sec.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR NOTE: Pump Start Time is the time the control switch is placed in the start position until stable pump discharge pressure is achieved, and is required for 2BVT 1.1.2 "Safeguards Time Response Test".</p> </div> 11.1C Places CS for 2SIS*P21B, Low Head SI Pump to START <p style="text-align: center;">AND</p> 11.2 Informs Local Operator to Start the stopwatch. 11.3 Verifies 2SIS*P21B, Low Head SI Pump starts; 11.4 Verifies RED light – LIT, WHITE light – NOT LIT. 11.5 Verifies 2SIS-II21B, 21B Low Head SI Pump Amps stabilizes. 11.6 Records stopwatch time in the OST. <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR CUE: As Local Operator, report that the Pump Start time is 3.8 seconds.</p> </div> COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>FAULT STATEMENT The next step is FAULTED. 2SIS*MOV8890B, 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv, WILL NOT AUTO OPEN and must be MANUALLY OPENED.</p> </div>	
<p>12.C Verify the following:</p> <ul style="list-style-type: none"> • 2SIS*MOV8890B, 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv, open. BB Section A • 2SIS-II21B, LHSI Pump 21B Current, steady state current <41 amps. VB-A • 2SIS*P21B, LHSI Pump, operation is normal, i.e., noise, vibration, leakage, etc. is not excessive. (If pump operation is questionable stop the pump.) <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>BOOTH INSTRUCTOR NOTE: If the candidate initially shutdown the pump due to failure of the recirc valve to auto open, consider re-running the schedule file to ensure 2SIS*MOV8890B will open upon demand from CS.</p> </div>	<p>12.1 Verifies 2SIS*MOV8890B, 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv is NOT OPEN.</p> <p>12.2 Verifies GREEN light – LIT, RED light – NOT LIT.</p> <p style="text-align: center;">AND</p> <p>12.3C Places CS for 2SIS*MOV8890B, 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv, to OPEN.</p> <p>12.4 Verifies 2SIS*MOV8890B, 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv OPEN.</p> <p>12.5 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>12.6 Verifies 2SIS-II21B, 21B Low Head SI Pump Amps are ≤41 amps.</p> <p>12.7 Contacts local operator and requests operator to verify 2SIS*P21B, LHSI Pump, operation is normal, i.e., noise, vibration, leakage, etc. is not excessive.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: Role-play local operator and report 2SIS*P21B LHSI Pump operation is NORMAL.</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: As SM, have Operator restart pump (if necessary) continue with OST while Engineering and Maintenance evaluate 2SIS-MOV8890B AUTO Open issue.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>13. Verify 2SIS*6, LHSI Pump 21A Discharge Check is closed, by verifying; 2SIS*P21A, LHSI Pump 21A shaft is NOT rotating backwards.</p>	<p>13.1 Contacts local operator and requests operator verify 2SIS*P21A, LHSI Pump 21A shaft is NOT rotating backwards.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role-play local operator and report 2SIS*P21A, LHSI Pump 21A shaft is not rotating backwards.</p> </div> <p>COMMENTS:</p>	
<p>14. Ensure the pump has operated for a minimum of 2 minutes.</p>	<p>14.1 Verifies pump runs for 2 minutes by observing clock or stopwatch.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Use of time compression is recommended to continue in the JPM.</p> </div> <p>COMMENTS:</p>	
<p>15. Record 2SIS*P21B, LHSI Pump Motor Vibration on Data Sheet 1 and Pump Vibration on Data Sheet 2.</p>	<p>15.1 Contacts local operator and requests the operator record 2SIS*P21B, LHSI Pump Motor Vibration on Data Sheet 1 and Pump Vibration on Data Sheet 2.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Acknowledge request for local operator actions, then using time compression, hand out the requested LHSI Pump Motor Vibration on Data Sheet 1 and/or Pump Vibration on Data Sheet 2 which are attached to the back of this JPM.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
16. Obtain inlet pressure, discharge pressure, and flowrate on Data Sheet 3.	16.1 Obtains inlet pressure from information provided by local operator in step 8. 16.2 Obtains discharge pressure 2SIS-PI944. 16.3 Obtains flowrate 2SIS-FIS970B. 16.4 Records the data on appropriate spaces of Data Sheet 3. <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: As Local Operator, report 2SIS-PI939 as 33.8 psig, 2SIS-PI944 as 132 psig, and 2SIS-FIS970B as 1450 gpm.</p> </div> COMMENTS:	
	<div style="border: 1px solid black; padding: 10px;"> <p>FAULT STATEMENT 2SIS*6 is leaking. This will cause the pump to fail the ΔP criteria calculation on Data Sheet 3.</p> </div>	
17.C Calculate 2SIS*P21B, LHSI Pump, Differential Pressure (ΔP), as required on Data Sheet 3.	17.1 Performs Calculations as required on Data Sheet 3. 17.2C Determines pump ΔP is outside the acceptable range. <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Pump $\Delta P = 98.2$ psid</p> </div> COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-645 JPM REVISION: 5	JPM TITLE: Perform LHSI Pump Surveillance
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: It may be necessary to ask a follow-up question to verify that the candidate is aware that the pump ΔP is outside the acceptable range. If necessary, ask the candidate if all OST acceptance criteria have been met. This should be done after the JPM has been terminated in the next step.</p> </div>	
<p>18.C After a minimum of 2 minutes satisfactory operation:</p> <p>Stop 2SIS*P21B, Low Head SI Pump.</p> <p>Verify 2SIS*MOV8890B, 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv, closes.</p>	<p>18.1C Places CS for 2SIS*P21B, Low Head SI Pump to STOP.</p> <p style="text-align: center;">AND</p> <p>18.2 Verifies 2SIS*P21B, LHSI Pump SHUTDOWN;</p> <p>18.3 Verifies WHITE light – LIT, RED light – NOT LIT.</p> <p>18.4 Verifies 2SIS*MOV8890B, 21B Low Head SI Pump Minimum Flow Recirc Isol Vlv CLOSED;</p> <p>18.5 Verifies GREEN light – LIT, RED light – NOT LIT.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role-play the Unit supervisor and inform the candidate that management has decided to tag out 2SIS*MOV8890B and investigate the AUTO open failure. No further actions are necessary for this OST. That completes this JPM.</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS: 2OST-11.2, Low Head Safety Injection Pump, 2SIS*P21B, Test preparations have been completed through section VII.A.

INITIATING CUE: Your Supervisor directs you to complete the remaining portions of 2OST-11.2 and return the completed OST to him for review. Operators are positioned in the field to support this test.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

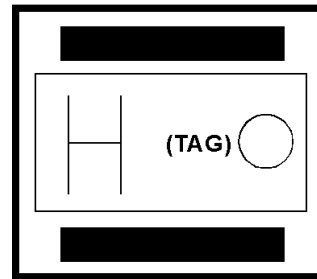
JPM SUPPORTING INFORMATION FOR TRAINING USE ONLY

DATA SHEET 1

MOTOR DATA⁽¹⁷⁾

Note: Ensure the vibration meter magnetic probe is placed over the fixed metal lettered location tag (as shown on the right) when obtaining vibration measurements per Figure 1. **IF** a metal lettered location tag is missing, damaged or not flat, notify the PdM Group (via a memo) and obtain the vibration measurement at the location on Figure 1 with the vibration meter probe placed on the nearest flat area in the same plane for repeatable data collection.

(MAGNETIC PROBE)



- Note:
- Motor bearing vibrations are for information only and are required to be taken each performance.
 - BOP limits do not constitute acceptance criteria, System and Performance Engineering shall be contacted for recommended action if BOP limits are exceeded.
 - See Figure 1 for bearing locations.
 - Motor Speed - 1780 RPM.

Motor Vibration Readings				
Date ____ / TODAY / ____		Time NOW		Initials <u> JNO </u>
Bearing Location (#)	Metal Location Tag (Letter)	Actual Vibration (in/sec)	Reference Vibration (in/sec)	BOP Limit <input type="checkbox"/> (in/sec)
Motor Outboard (1)	Axial (A) [M1A]	<i>0.03221</i>	0.0235	≤0.325
Motor Outboard (1)	Horizontal (H) [M1H]	<i>0.03137</i>	0.0306	≤0.325
Motor Outboard (1)	Vertical (V) [M1V]	<i>0.04161</i>	0.0362	≤0.325
Motor Inboard (2)	Axial (A) [M2A]	<i>0.04393</i>	0.0318	≤0.325
Motor Inboard (2)	Horizontal (H) [M2H]	<i>0.03303</i>	0.0310	≤0.325
Motor Inboard (2)	Vertical (V) [M2V]	<i>0.04261</i>	0.0357	≤0.325

Out of Spec readings do not affect ASME or EQ Acceptance Criteria.

JPM SUPPORTING INFORMATION FOR TRAINING USE ONLY

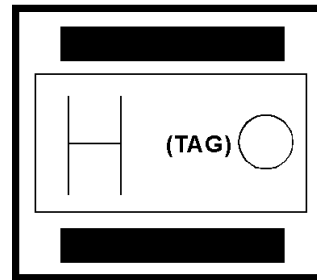
DATA SHEET 2

ASME DATA - PUMP VIBRATION READINGS⁽¹⁷⁾

- Note:
- Pump vibration is required to be taken each performance.
 - Pump Speed = 1780 RPM.

Note: Ensure the vibration meter magnetic probe is placed over the fixed metal lettered location tag (as shown on the right) when obtaining vibration measurements per Figure 1. **IF** a metal lettered location tag is missing, damaged or not flat, notify the IST Coordinator (via a memo) and obtain the vibration measurement at the location on Figure 1 with the vibration meter probe placed on the nearest flat area in the same plane for repeatable data collection.

(MAGNETIC PROBE)



Note: Since the BVPS IST Program does not require vibration measurements during a Group B pump test, the following pump vibrations are for information only. The Limit reflected below does not constitute Acceptance Criteria, but only the PdM Group **SHALL** be contacted for recommended actions if the Limit is exceeded during the quarterly Group B test. If this test is being performed as a PMT, then pump vibrations obtained during this test are also the new reference pump vibrations as required for a Group A pump test.

<u>Pump Vibration Readings</u>				
Date <u> </u> / <u>TODAY</u> / <u> </u>		Time <u> </u> <u>NOW</u> <u> </u>		Initials <u> </u> <i>JAC</i>
Bearing Location (#)	Metal Location Tag (Letter)	Actual Vibration (in/sec)	Reference Vibration (in/sec)	BOP Limit (in/sec)
Pump Inboard (1)	Axial (A) [P1A]	<i>0.2270</i>	0.3042	≤ 0.325
Pump Inboard (1)	Horizontal (H) [P1H]	<i>0.1094</i>	0.1212	≤ 0.325
Pump Inboard (1)	Vertical (V) [P1V]	<i>0.1862</i>	0.1073	≤ 0.325
Pump Outboard (2)	Axial (A) [P2A]	<i>0.2661</i>	0.2858	≤ 0.325
Pump Outboard (2)	Horizontal (H) [P2H]	<i>0.1393</i>	0.1841	≤ 0.325
Pump Outboard (2)	Vertical (V) [P2V]	<i>0.1167</i>	0.1186	≤ 0.325

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Start a Reactor Coolant Pump

TRAINING MATERIAL NUMBER: 2CR-613

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2CR-613

REVISION NUMBER: 3

TECHNICAL REFERENCES:

2OM-6.4.A, "Reactor Coolant Pump Startup", Revision 20

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: P. Eisenmann _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-613
New Revision: 3
Description of Change(s): <ol style="list-style-type: none">1. Updated Task ID.2.3.4.
Reason for Change (s): <ol style="list-style-type: none">1. Task ID changed2.3.4.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-613 JPM REVISION: 3	JPM TITLE: Start a Reactor Coolant Pump
--	---

K/A REFERENCE: 003A2.02 3.7/3.9 TASK ID: 0062-201-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID#:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 20 Minutes	Actual Time: _____	minutes
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____ _____ _____ _____			

OBSERVERS	
Name/ID: _____	Name/ID: _____
Name/ID: _____	Name/ID: _____

EVALUATOR	
Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	2RCS*P21B Reactor Coolant Pump is started and then manually tripped due to starting in less than 114 seconds (As per Caution prior to step)
RECOMMENDED STARTING LOCATION:	Simulator
INITIAL CONDITIONS:	<ul style="list-style-type: none">• The plant is in Mode 3, preparing for entry into Mode 2.• 2RCS*P21A and 2RCS*P21C, Reactor Coolant Pumps are in operation.• 2OM-6.4.A, “Reactor Coolant Pump Startup” has been commenced and all steps through step IV.B.11 have been performed for 2RCS*P21B, Reactor Coolant Pump.• All systems and components are operable and in NSA.
INITIATING CUE:	The Unit Supervisor directs you to start Reactor Coolant Pump 2RCS*P21B, in accordance with 2OM-6.4.A, Step IV.B.12.
REFERENCES:	2OM-6.4.A, “Reactor Coolant Pump Startup”, Revision 20
TOOLS:	None
HANDOUT:	2OM-6.4.A, Rev. 20 “Reactor Coolant Pump Startup” place kept up through step IV.B.10.c.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-613 JPM REVISION: 3	JPM TITLE: Start a Reactor Coolant Pump
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>SIMULATOR SETUP: Use a Mode 3 IC with the plant at NOT/NOP with "A" and "C" RCPS in service, Start with IC-11, S/D "B" RCP, isolate or reduce SG blowdown flow, wait until Tavg and SG levels stabilize then snap IC.</p> <p>Set Trigger 1 as GP05AFOA <= 476 Set action caused by trg 1 as SET GP05AFOA = 80 (this will change start timer from 120 seconds to 25 seconds AFTER the start timer actuates)</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: After candidate reviews the procedure, and is ready to begin the JPM, Place the simulator to RUN.</p> </div>	
	START TIME: _____	
1. Reviews procedure.	1.1 Reviews 2OM-6.4.A, "Reactor Coolant Pump Startup". COMMENTS:	
2. Check that RCS temperature is within the limits of Precautions and Limitations II.J of this procedure for the number of RCP(s) to be operating.	2.1 Verifies any available RCS temperature $\geq 137^{\circ}\text{F}$. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-613 JPM REVISION: 3	JPM TITLE: Start a Reactor Coolant Pump
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3. If starting the first RCP AND any unisolated Reactor Coolant System loop cold leg temperature is less than or equal to the enable temperature specified in the PTLR, Verify the following: (otherwise N/A) (T.S. 3.4.6 and T.S. 3.4.7).</p>	<p>3.1 Marks step N/A due to RCP's already running.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>FAULT STATEMENT:</p> <p>The RCP will start ~25 seconds after control switch is placed in START. Per the CAUTION proceeding step IV.11.c, "To prevent thrust bearing damage, the RCP shall be tripped if the RCP starts before the bearing lift oil pump has been running for at least 114 seconds".</p> </div>	
<p>4.C Place 2RCS*P21B, Reactor Coolant Pump control switch to START AND observe the following:</p>	<p>4.1C Places 2RCS*P21B control switch to Start and notes time.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: Candidate should use some means of timing the RCP start from the start of the lift oil pump.</p> </div> <p>COMMENTS:</p>	
<p>5. 2RCS-P21B1, 21B Reactor Coolant Pump Bearing Lift Oil Pump starts.</p>	<p>5.1 Verifies 21B Reactor Coolant Pump Bearing Lift Oil Pump starts.</p> <p>5.2 Verifies 2RCS-P21B1 RED light - LIT and GREEN light – NOT LIT.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-613 JPM REVISION: 3	JPM TITLE: Start a Reactor Coolant Pump
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
6.C After approximately 2 minutes, 2RCS*P21B, Reactor Coolant Pump starts	6.1C Determines that the RCP started in less than 114 seconds from the time the lift oil pump started and Places 2RCS*P21B control switch to STOP. (Green Target) 6.2 Verifies WHITE light – LIT, RED light – NOT LIT. 6.3 Verifies 2RCS- FI424(425)(426) flow dropping. 6.4 Verifies 2RCS-II21B amps dropping. 6.5 Notes time pump was tripped. COMMENTS:	
	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> EVALUATOR CUE: State “This JPM is complete”. </div>	
	STOP TIME: _____	

CANDIDATE DIRECTION SHEET

*** THIS SHEET TO BE GIVEN TO CANDIDATE ***

Read:

INITIAL CONDITIONS:

- The plant is in Mode 3, preparing for entry into Mode 2.
- 2RCS*P21A and 2RCS*P21C, Reactor Coolant Pumps are in operation.
- 2OM-6.4.A, "Reactor Coolant Pump Startup" has been commenced and all steps through step IV.B.11 have been performed for 2RCS*P21B, Reactor Coolant Pump.
- All systems and components are operable and in NSA.

INITIATING CUE:

The Unit Supervisor directs you to start Reactor Coolant Pump 2RCS*P21B, in accordance with 2OM-6.4.A, Step IV.B.12.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: 2FWE*P22 Quarterly and Loss of DC Bus

TRAINING MATERIAL NUMBER: 2CR-803

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2CR-803

REVISION NUMBER: 0

TECHNICAL REFERENCES:

2OST-24.4 Rev. 94, Steam Driven Auxiliary Feed Pump [2FWE*P22] Quarterly Test

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: A. Jacques _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-803
New Revision: 0
Description of Change(s): 1. New JPM
Reason for Change (s):

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

K/A REFERENCE: 061 A2.03 3.1/3.4 TASK ID: 0241-202-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:	Performer ID:
-----------------	---------------

Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 20 Minutes	Actual Time: _____ minutes
---	---------------------------	----------------------------

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR

Evaluator (Print): _____ Date: _____

Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Candidate controls Pressurizer Level using 2CHS*FCV122 and RCS Temperature by tripping 2FWE*P22 or throttling 2SVS*HCV104.
RECOMMENDED STARTING LOCATION:	Simulator
INITIAL CONDITIONS:	The plant is in Mode 3 preparing for a plant startup. 2MSS*SOV105C was recently repaired and requires a stroke test IAW 2OST-24.4, Steam Driven Auxiliary Feed Pump [2FWE*P22] Quarterly Test.
INITIATING CUE:	<ul style="list-style-type: none">• Perform a partial 2OST-24.4 beginning on step VII.B.1.b, Page 27, to perform a Cold Fast Start of 2FWE*P22.• After 2FWE*P22 is running, perform a stroke test of 2MSS*SOV105C by performing step VII.D.2.a, Page 47, through step VII.D.4.a.3, page 63.• Local operators are stationed for the performance of the test.
REFERENCES:	2OST-24.4 Rev. 94, Steam Driven Auxiliary Feed Pump [2FWE*P22] Quarterly Test 2OM-53C.4.2.39.1A Rev. 4, Loss of 125VDC Bus 2-1
TOOLS:	STOPWATCH
HANDOUT:	2OST-24.4 Rev. 94, Steam Driven Auxiliary Feed Pump [2FWE*P22] Quarterly Test, marked up. 2OM-53C.4.2.39.1A Rev. 4, Loss of 125VDC Bus 2-1

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>SIMULATOR SETUP: Initialize IC 165 (MODE 3) Low Power Trend on VB-A Monitor Create Event 1 on 2MSS*SOV105C switch taken to the OPEN position Insert malfunction LOSS OF DC BUS 2-1 on Event 1. RHR valve throttled open to maintain Tave</p> <p>BB-C Setup: 2MSS*SOV105A,B,C,D,E,F CLOSED. 2FWE*36 CLOSED.</p> </div>	
	START TIME: _____	
1. Reviews procedure.	1.1 Reviews 2OST-24.4, Steam Driven Auxiliary Feed Pump [2FWE*P22] Quarterly Test. <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: After candidate reviews the procedure, and is ready to begin the JPM, Place the simulator to RUN.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>2. Start (and obtain pump start time and valve stroke time) [2FWE*P22] by simultaneously placing control switches recorded in Step VII.B.1.a to OPEN AND starting the stopwatch..</p> <p>1) Check RED indicating light ON for BOTH steam supply valves. (BB-C)</p> <p>2) Check GREEN indicating light OFF for BOTH steam supply valves. (BB-C)</p> <p>3) Check associated computer point indicates OPEN for BOTH steam supply valves. (see data sheet 3 for computer point address)</p> <p>4) Record Pump Start Time = 35 sec. (Maximum Expected Start Time: 44.9 seconds)</p> <p>Record Valve Stroke Times on Data Sheet 3</p>	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Inform candidate that another operator will operate the stopwatch.</p> </div> <p>2.1 Starts 2FWE*P22 by simultaneously placing control switches for 2MSS*SOV105B and 2MSS*SOV105E to the OPEN position.</p> <p>RED light – LIT GREEN light – NOT LIT</p> <p>2.2 Checks computer points [Y5958D] and [Y5961D] indicate OPEN for both steam supply valves.</p> <p>2.3 Record Pump Start Time = 35 seconds.</p> <p>2.4 Records Valve Stroke Times</p> <p>2.5 Records time 2FWE*P22 was started (Current Time).</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Once candidate has opened 2MSS*SOV105E and B, report from the field that 2FWE*P22 Pump start time was 35 seconds, pump is running SAT, Valve Stroke Times are 0.9 seconds, and a Narrative Log Entry has been made.</p> </div> <p>COMMENTS:</p>	
<p>3. IF [2MSS*SOV105B and E] were used to start the TDAFW Pump, Step VII.B.1.a, THEN perform the following (otherwise N/A):</p> <p>a) If a 3 stroke time test for PMT of [2MSS*SOV105A (B)(C)(D)(E)(F)] is required, perform Attachment 5 in conjunction with the following steps. (Otherwise N/A)</p> <p>Valve requiring PMT: [2MSS*SOV105C]</p>	<p>3.1 Records 2MSS*SOV105C as the valve requiring PMT.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4. Open [2MSS*SOV105F], Aux Feed Pump Stm Supply Isol Vlv, as follows:</p> <p>1) Place control switch to OPEN</p> <p>2) Check RED indicating light on.</p> <p>3) Check and computer point [Y5962D] indicating OPEN.</p>	<p>4.1 Opens [2MSS*SOV105F] by placing control switch in OPEN. RED light LIT GREEN light NOT LIT</p> <p>4.2 Checks computer point [Y5962D] indicates OPEN.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>FAULT STATEMENT: When the candidate opens [2MSS*SOV105C] in the following step a loss of 125VDC Bus 1 will occur.</p> </div>	
<p>5.C Time Open [2MSS*SOV105C], Turb Driven AFW Pump Stm Hdr C Supply Isol, as follows:</p> <p>1) Place control switch in OPEN AND start stopwatch.</p> <p>2) Check RED indicating light on.</p> <p>3) Check computer point [Y5959D] indicating OPEN.</p> <p>4) Record valve stroke time on Data Sheet 3.</p>	<p>5.1C OPENS [2MSS*SOV105C] by placing control switch in OPEN. GREEN light – NOT LIT RED light – LIT</p> <p>5.2 Checks computer point [Y5959D] indicates OPEN on PCS.</p> <p>5.3 Candidate responds to multiple alarms and enters procedure 20M-53C.4.2.39.1A, Loss of 125VDC Bus 2-1.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6. Verify Reactor is Tripped a.Immediate actions of E-0, “Reactor Trip or Safety Injection” – COMPLETED</p> <p style="text-align: center;">OR</p> <p>b. Reactor Shutdown was verified by normal operating procedures.</p>	<p>6.1 Verifies reactor is shutdown by checking Control Rods fully inserted and other diverse indications.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: If necessary, inform the candidate that the plant is in Mode 3 per the Initial Conditions.</p> </div> <p>COMMENTS:</p>	
<p>7. Control RCS Pressure and Temperature Using the Following as Necessary:</p> <ul style="list-style-type: none"> • [2SVS*PCV101A(B)(C)], Atm Stm Dump Control • [2SVS*HCV104], Residual Heat Release Vlv. 	<p>7.1 Checks RCS Temperature and Pressure for impact and controls RCS Pressure and Temperature by adjusting 2SVS*HCV104 as necessary.</p> <p>COMMENTS:</p>	
<p>8. Reduce Charging Flow to Limit PRZR Level Rise.</p> <p>a. Manually adjust [2CHS*FCV122], Charging Pumps Disch Flow Control Valve.</p> <p>b. Manually adjust [2CHS*HCV186], Reactor Coolant Pump Seal Inj Flow Controller.</p>	<p>8.1C Places 2CHS*PK122 in MANUAL by depressing the MAN button. MAN light – LIT AUTO light – NOT LIT</p> <p>8.2C Throttles 2CHS*FCV122 by depressing the MAN pushbutton and raising demand in the CLOSED direction. MAN light – LIT AUTO light – NOT LIT</p> <p>8.3 Throttles 2CHS*HCV186 in the CLOSED direction by taking the hand control knob in the CLOSED direction.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9. Check Main Turbine Status</p> <p>a. Check the following: Speed – ABOVE 300 RPM AND Annunciator A6-5G, CONDENSER VACUUM LOW/LOW-LOW” – NOT LIT</p> <p>RNO If either of the following occurs: Speed – Below 300 RPM OR Annunciator A6-5G – LIT THEN open [2ASS-MOV100], 21B Condenser Vacuum Breaker Vlv.</p>	<p>9.1 Checks Turbine Secured (RPM <300) and Opens 2ASS-MOV100, 21B Condenser Vacuum Breaker Valve.</p> <p>RED light – LIT GREEN light – NOT LIT</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>10.C Operate Plant with 125VDC Bus 2-1 De-energized while contiuing bus recovery attempts</p> <ul style="list-style-type: none"> Refer to Attachment 1, "Operation with 125VDC Bus 2-1 De-energized". 	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: If candidate is hesitant to perform Att. 1, inform them that another operator will continue in AOP while they perform Att. 1</p> </div> <p>10.1 Refers to Attachment 1 of 2OM-53C.4.2.39.1A.</p> <p>10.2C Manually adjusts 2CHS*FCV122 to reduce charging flow to minimum by raising demand to 100% on 2CHS*PK122 controller.</p> <p>10.3 Manually adjusts 2CHS*HCV186 to reduce seal injection flow to 6-7 gpm by adjusting hand control knob in the closed direction.</p> <p>10.4 Opens 2CHS*LCV115B by taking control switch to OPEN. RED light – LIT GREEN light – NOT LIT</p> <p>10.5 Opens 2CHS*LCV115D by taking control switch to OPEN. RED light – LIT GREEN light – NOT LIT</p> <p>10.6 Closes 2CHS*LCV115C by taking control switch to CLOSE. GREEN light – LIT RED light – NOT LIT</p> <p>10.7 Closes 2CHS*LCV115E by taking control switch to CLOSE. GREEN light – LIT RED light – NOT LIT</p> <p>10.8C Secures 2FWE*P22 by depressing 2FWE*P22 Trip Button on BB-C or dispatching an operator to locally trip.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: If dispatched to locally secure 2FWE*P22, report that it is secured.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: The Critical to control RCS Temperature is accomplished by tripping 2FWE*P22 OR by throttling 2SVS*HCV104.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-803 JPM REVISION: 0	JPM TITLE: 2FWE*P22 Quarterly and Loss of DC Bus
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
---------------------------------------	--	-----

<p>11. As needed, replace each load on Bus 2AE-2-8N with it's corresponding load on Bus 2DF/2-9P as follows:</p> <ul style="list-style-type: none"> a. Close the corresponding load on Bus 2DF/2-9P. b. Manually trip the load breaker on Bus 2AE/2-8N. c. If Applicable then place the control switch for the bus 2AE/2-8N load in Pull-To-Lock. <p>Align [2SWE-P21B], Standby Service Water Pump, to supply Train A SWS header.</p> <ul style="list-style-type: none"> • Refer to 2OM-30.4.G, "Standby Service Water System Startup." 	<p>11.1 Replaces 2-8N loads with 2-9P corresponding loads by closing breaker on 2-9P, tripping breaker on 2-8N, and placing 2-8N loads in PTL as necessary.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: Another operator is performing Step 4 of Attachment 1 of 2OM-53C.4.2.39.1A.</p> </div> <p>COMMENTS:</p>	
---	---	--

<p>12.C Control RCS pressure and temperature using either of the following as necessary:</p> <ul style="list-style-type: none"> • [2SVS*PCV101A(B)(C)], Atmospheric Steam Dump Valve(s). • [2SVS*HCV104], Residual Heat Release Valve. 	<p>12.1 Checks closed 2SVS*PCV101A, (B), (C) Atmospheric Steam Dump Valves by verifying GREEN lights – LIT RED lights – NOT LIT</p> <p>12.2C Manually throttles 2SVS*HCV104 Residual Heat Release Valve by adjusting hand control knob until RCS trending to normal Tave.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR NOTE: Critical step(s) to control RCS Temperature are accomplished by tripping 2FWE*P22 OR by throttling 2SVS*HCV104.</p> </div> <p>COMMENTS:</p>	
--	---	--

	<div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: This JPM is complete.</p> </div>	
--	--	--

	<p>STOP TIME: _____</p>	
--	-------------------------	--

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS: The plant is in Mode 3 preparing for a plant startup. 2MSS*SOV105C was recently repaired and requires a stroke test IAW 2OST-24.4, Steam Driven Auxiliary Feed Pump [2FWE*P22] Quarterly Test.

INITIATING CUE:

- Perform a partial 2OST-24.4 beginning on step VII.B.1.b, Page 27, to perform a Cold Fast Start of 2FWE*P22.
- After 2FWE*P22 is running, perform a stroke test of 2MSS*SOV105C by performing step VII.D.2.a, Page 47, through step VII.D.4.a.3, page 63.
- Local operators are stationed for the performance of the test.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Startup Containment Purge and Exhaust Through the SLCRS
Unfiltered Flowpath

TRAINING MATERIAL NUMBER: 2CR-154

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2CR-154

REVISION NUMBER: 5

TECHNICAL REFERENCES:

2OM-44C.4.A, "Containment Air Purge And Exhaust System Startup", Rev. 26

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 10 Minutes

PREPARED BY: P. Eisenmann _____ Date

PEER REVIEW BY: _____ Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-154
New Revision: 5
Description of Change(s): <ol style="list-style-type: none">1. Updated for current JPM format and procedure revision.2. Updated Task ID.3. Modified Initiating Cue – to specify a required flowrate.
Reason for Change (s): <ol style="list-style-type: none">1. Match current revision.2. Task ID's changed.3. Strengthens demonstration of ability to perform task.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-154 JPM REVISION: 5	JPM TITLE: Startup Containment Purge and Exhaust Through the SLCRS Unfiltered Flowpath
--	---

K/A REFERENCE: 103A4.01 3.2/3.2 TASK ID: 0443-009-01-012
 029A4.01 2.5/2.5

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID#:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 10 Minutes	Actual Time: minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____ _____ _____ _____			

OBSERVERS	
Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR	
Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD: Containment Purge flow through the Unfiltered flowpath is initiated at a flowrate that is less than the maximum allowed by the RWDA-G.

**RECOMMENDED
STARTING LOCATION:** Simulator

INITIAL CONDITIONS:

- The plant is in MODE 5.
- The Supplementary Leak Collection and Release System is in service.
- A RWDA-G has been issued and approved to Purge Containment through the Unfiltered flowpath.
- The RWDA-G Maximum allowable flow rate is 30,000 scfm
- 2OM-44C.4.A, Containment Air Purge And Exhaust System Startup Part A raising Containment pressure to Atmospheric Pressure has just been completed.

INITIATING CUE: Startup Containment Air Purge and Exhaust System through the SLCRS Unfiltered Flowpath at a flowrate of 25,000 scfm, in accordance with 2OM-44.C.4.A, Part B.

REFERENCES: 2OM-44C.4.A, "Containment Air Purge And Exhaust System Startup", Rev. 26

TOOLS: None

HANDOUT: 2OM-44C.4.A, "Containment Air Purge And Exhaust System Startup", Rev. 26, place kept up to Part B.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-154 JPM REVISION: 5	JPM TITLE: Startup Containment Purge and Exhaust Through the SLCRS Unfiltered Flowpath
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>SIMULATOR SETUP: Start with Mode 5 IC-19, (Can setup w/ other than M5) Perform steps of 2OM-44C.4.C to S/D CNMT Purge. Ensure SLCRS is in service. Ensure CNMT Purge is Shutdown. Perform 2OM-44C.4.A, Containment Air Purge and Exhaust System Startup Part A raising Containment pressure to Atmospheric Pressure. NOTE: To CLOSE 2HVR*DMP206, select REMOTE LOA-MS004. Also note that some manipulations may be required based on the starting Mode 5 IC snap. Once setup, freeze simulator and snap IC.</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: Provide candidate a place kept copy of 2OM-44C.4.A up to Section B (Pg 5). If asked about reviewing RWDA-G, inform the candidate that it is NOT necessary to review this paperwork for purposes of this JPM and direct the candidate to proceed with the stated task at hand.</p> </div>	
	START TIME: _____	
<p>1. Reviews 2OM-44C.4.A, "Containment Air Purge And Exhaust System Startup" procedure.</p>	<p>1.1 Reviews 2OM-44C.4.A. COMMENTS:</p>	
<p>2. Check Containment pressure equalized to atmospheric.</p>	<p>2.1 Checks CNMT air pressure by looking at any of the following; 2CVS-PI101A1(B1) ~ 14.7 psia 2LMS-PI950/1/2/3 ~ ZERO Computer point UP1000 COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-154 JPM REVISION: 5	JPM TITLE: Startup Containment Purge and Exhaust Through the SLCRS Unfiltered Flowpath
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Open 2HVR*MOD23A, CNMT Purge Discharge Isol Damper. (BSC Panel)</p>	<p>3.1C Place & Hold CS for 2HVR*MOD23A, Cnmt Purge Exhaust Discharge Isol Damper to OPEN.</p> <p>3.2 Verifies RED light – LIT, GREEN light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>4.C Place PURGE FILTERED/CLOSE/PURGE UNFILTERED control switch for 2HVR*MOD21, 22, Containment Purge Exhaust Motor Operated Dampers to the PURGE UNFILTERED position and observe 2HVR*MOD21 Opens.</p>	<p>4.1C Places CS for PUR FILT-CLOSE-PUR UNFILT to PUR UNFILT position.</p> <p>4.2 Verifies 2HVR*MOD21, CNMT Purge Exhaust Dmprs to Normal Exhaust Fans OPEN; RED Light - LIT, GREEN Light - NOT LIT.</p> <p>COMMENTS:</p>	
<p>5.C Open 2HVR*MOD25A, CNMT Purge Supply Isol Damper.</p>	<p>5.1C Adjusts Places CS for 2HVR*MOD25A, CNMT Purge Supply Isol Damper to OPEN.</p> <p>5.2 Verifies WHITE demand signal light LIT while damper is moving, then verifies; RED Light - LIT, GREEN Light - NOT LIT.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-154 JPM REVISION: 5	JPM TITLE: Startup Containment Purge and Exhaust Through the SLCRS Unfiltered Flowpath
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6.C Place NORMAL/PURGE control switch for containment purge air supply to PURGE, and verify or perform the following:</p> <p>a. Stop 2HVP-ACU211B, Primary Auxiliary Building A/C Unit, if unit was in service.</p> <p>b. 2HVP-MOD23B, Outdoor Intake Damper, opens, or remains open.</p> <p>c. 2HVP-MOD28, Discharge Air Damper From 2HVP-ACU211B To Primary Auxiliary Building, closes.</p> <p>d. 2HVP-MOD29, Discharge Air Damper From 2HVP-ACU211B To Containment, Opens.</p>	<p>6.1C Places Norm/Purge CS to PURGE.</p> <p>6.2 Places CS for 2HVP-ACU211B, PAB & CNMT Purge ACU to STOP or N/A's step if not running.</p> <p>6.3 Verifies WHITE Light - LIT, RED Light - NOT LIT.</p> <p>6.4 Verifies 2HVP-MOD23B, PAB 211B ACU outside air intake Damper OPEN; RED Light - LIT, GREEN Light - NOT LIT.</p> <p>6.5 Verifies 2HVP-MOD28, PAB & Solid waste ACU exhaust Damper CLOSES; GREEN Light - LIT, RED Light - NOT LIT.</p> <p>6.6 Verifies 2HVP-MOD29, PAB ACU to CNMT Purge Supply Damper OPEN; RED Light - LIT, GREEN Light - NOT LIT.</p> <p>COMMENTS:</p>	
<p>7.C Start 2HVS-FN263B, Leak Collection Normal Exhaust Fan.</p>	<p>7.1C Places CS for 2HVS-FN263B, Leak Collection Normal Exhaust Fan to START.</p> <p>7.2 Verifies RED Light - LIT, GREEN Light - NOT LIT.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-154 JPM REVISION: 5	JPM TITLE: Startup Containment Purge and Exhaust Through the SLCRS Unfiltered Flowpath
--	--

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
---------------------------------------	--	-----

<p>8.C Using the control switch on the BSC Panel, Throttle 2HVR*MOD23B OR (MOD25B), CNMT Purge Exhaust (Supply) Isol Damper to obtain the flow rate required by the RWDA permit, as indicated on 2HVR-FI22 Containment Purge Exhaust Flow, on local panel PNL-AFCP-RC.</p>	<p>8.1 Intermittently places CS for 2HVR*MOD23B OR (MOD25B), Damper to OPEN.</p> <p>8.2 Contacts Outside operator to request 2HVR-FI22, Containment Purge Exhaust Flow indication.</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role play outside operator and report 2HVR-FI22, Containment Purge Exhaust Flow is 15,000 SCFM</p> </div> <p>8.3 Intermittently places CS for 2HVR*MOD23B OR (MOD25B), Damper to OPEN and requests reading.</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role play outside operator and report 2HVR-FI22, Containment Purge Exhaust Flow is 31,000 SCFM</p> </div> <p>8.4C Intermittently Places CS for 2HVR*MOD23B OR (MOD25B), Damper to CLOSE and requests reading.</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role play outside operator and report 2HVR-FI22, flow is 25,000 SCFM and stable.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: If asked, inform candidate that it is not desired to shift from induced purge air supply to forced air supply.</p> <p>When completed inform candidate, “This JPM is complete”.</p> </div> <p>COMMENTS:</p>	

	<p>STOP TIME: _____</p>	
--	-------------------------	--

CANDIDATE DIRECTION SHEET

*** THIS SHEET TO BE GIVEN TO CANDIDATE ***

Read:

INITIAL CONDITIONS:

- The plant is in MODE 5.
- The Supplementary Leak Collection and Release System is in service.
- A RWDA-G has been issued and approved to Purge Containment through the Unfiltered flowpath.
- The RWDA-G Maximum allowable flow rate is 30,000 scfm
- 2OM-44C.4.A, Containment Air Purge And Exhaust System Startup Part A raising Containment pressure to Atmospheric Pressure has just been completed.

INITIATING CUE:

Startup Containment Air Purge and Exhaust System through the SLCRS Unfiltered Flowpath at a flowrate of 25,000 scfm, in accordance with 2OM-44.C.4.A, Part B.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Perform a Hot Bus Transfer

TRAINING MATERIAL NUMBER: 2CR-523

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2CR-523

REVISION NUMBER: 4

TECHNICAL REFERENCES:

2OM-36.4.C, "Transferring 4KV System From US Serv Tfmr To SS Serv Tfmr", Rev 16
2OM-36.4.AAS, "SYS STA Serv Tfmr 2A/2B Thermal Overload", Issue 1, Rev. 3
2OM-36.4.B, "Transferring 4KV System From SS Serv Tfmr To US Serv Tfmr", Rev 10

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: P. Eisenmann _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-523
New Revision: 3
Description of Change(s): <ol style="list-style-type: none">1. Updated for procedure revision.2. Updated Task ID's.
Reason for Change (s): <ol style="list-style-type: none">1. 2OM-36.4.C was revised to rev. 162. Task ID's changed.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

K/A REFERENCE: 062K1.04 3.7/4.2 TASK ID: 0361-202-01-012
 062A4.01 3.3/3.1 0361-203-01-012
 062A2.01 3.4/3.9

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input type="checkbox"/> Plant Site <input checked="" type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted 15 Minutes Time:	Actual minutes Time:	

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR

Evaluator (Print): _____ Date: _____
 Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD: 4KV Bus 2B is transferred from USST 2C to SSST 2A. After receipt of SYS STA SERV TFMR 2A/2B Thermal Overload Fault, 4KV Bus 2B is transferred from SSST 2A to USST 2C.

RECOMMENDED STARTING LOCATION: Simulator

INITIAL CONDITIONS:

- The plant is in Mode 1 with all systems in NSA.
- It is desired to place 4KV Bus 2B on offsite power to allow for a relay check on ACB-142C.

INITIATING CUE:

- Your supervisor directs you to transfer the 4KV Bus 2B to SSST 2A in accordance with 2OM-36.4.C, “Transferring 4KV System From US Serv Tfmr To SS Serv Tfmr” starting at step IV.3.
- Do **NOT** set up for auto transfer back to USST 2C.
- Data sheet 1 has been completed.
- SSST voltage has been adjusted and Load Tap Changer for Bus 2B is in manual.

REFERENCES:

2OM-36.4.C, “Transferring 4KV System From US Serv Tfmr To SS Serv Tfmr”, Rev 16
 2OM-36.4.AAS, “SYS STA Serv Tfmr 2A/2B Thermal Overload”, Issue 1, Rev. 3
 2OM-36.4.B, “Transferring 4KV System From SS Serv Tfmr To US Serv Tfmr”, Rev 10

TOOLS: None

HANDOUT: 2OM-36.4.C, “Transferring 4KV System From US Serv Tfmr To SS Serv Tfmr”, Rev 16 completed up to step IV.3 and Data Sheet 1 complete.

Have spare copies available to replace the following procedures:
 2OM-36.4.AAS, “SYS STA Serv Tfmr 2A/2B Thermal Overload”, Issue 1, Rev. 3
 2OM-36.4.B, “Transferring 4KV System From SS Serv Tfmr To US Serv Tfmr”, Rev 10

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<p>SIMULATOR SETUP: Initialize to an IC Set with all systems in NSA. Set Trigger 1 to annunciate A7-8D SS SERV TFMR 2A/2B Thermal Overload when Live Bus Transfer Switch is taken to OFF after ACB 142A is closed. Use Event Trigger 1: Enter xc4o020r == 1 && xc4I014n == 0. Enter command: IMF A7-8D-T2806D on Trigger 1</p> <p>Note: xc4o020r is the red lamp for ACB142A and xc4I014n is the live bus transfer switch.</p> <p>EVALUATOR NOTE: Provide the candidate a non place kept copy of 2OM-36.4.C. When candidate is ready to begin, ENSURE the simulator in RUN. Following JPM performance, replace 2OM-36.4.AAS and 2OM-36.4.B procedures which will be used during this JPM.</p>	
	START TIME: _____	
1. Reviews the copy of 2OM-36.4.C, "Transferring 4KV System From US Serv Tfmr To SS Serv Tfmr", provided.	1.1 Reviews 2OM-36.4.C. COMMENTS:	
2.C Place the Live Bus Transfer Switch to ON.	2.1C Places the Live Bus Transfer Switch to the ON position. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
3.C Close ACB-142A, 2A SS Serv Tfmr to 4KV Bus 2B.	3.1C Places control switch for ACB-142A to the CLOSE position. 3.2 Verifies BOTH RED lights – LIT, WHITE light – NOT LIT 3.3 Acknowledges A8-1H, “4160V NORM BUS SUPPLY ACBs PARALLELED”, if received. COMMENTS:	
4. Check that amps increase on 4KV Bus 2B Tfmr 2A Amps.	4.1 Checks 4KV Bus 2B Tfmr 2A ammeter indicates greater than ZERO amps. COMMENTS:	
5.C Open ACB-142C, 2C US Serv Tfmr to 4KV Bus 2B.	5.1C Places control switch for ACB-142C to the OPEN/TRIP position. 5.2 Verifies WHITE light – LIT, BOTH RED lights – NOT LIT 5.3 Silences and resets Annunciator A8-1H, if cleared. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
6. Check load was picked up by observing 4KV Bus 2B Tfmr 2A Amps.	6.1 Checks load was picked up by observing 4KV Bus 2B Tfmr 2A amps increasing to a higher value. COMMENTS:	
	<div style="border: 1px solid black; padding: 10px; margin: 0 auto; width: 80%;"> <p>FAULT STATEMENT</p> <p>Immediately after the Live Bus Transfer Switch is placed to OFF in the next step, a trigger will be inserted to annunciate SYS STA SERV TFMR 2A/2B Thermal Overload which requires the candidate to transfer 4KV Bus 2B from SSST 2A back to USST 2C.</p> </div>	
7. Place the Live Bus Transfer Switch to OFF.	7.1 Places the Live bus Transfer Switch to the OFF position. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>8. Responds to receipt of A7-8D, SYS STA SERV TFMR 2A/2B Thermal Overload.</p>	<p>8.1 Acknowledges receipt of A7-8D, SS SERV TFMR 2A/2B Thermal Overload annunciator.</p> <p>8.2 Observe control board indications and determines plant conditions are STABLE.</p> <p>8.3 References 2OM-36.4.AAS (ARP for A7-8D)</p> <p>8.4 Dispatches an NLO to verify 2A SSST winding temperature is high.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: When dispatched, role play the NLO and report 2A SSST winding temperature is 110 °C and slowly rising and that both banks of cooling are in service. If requested, ambient temperature is 70°F.</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE: Role Play the US and if asked, direct the candidate to perform 2OM-36.4.B to transfer 4KV Bus 2B back to 2C USST as directed by the ARP.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9. Monitor the USST 2C Bus 2B voltages on the 4KV Common Voltmeter using the 2C US Serv Tfmr Voltmeter Phase Selector switch. Monitor the SSST 2B voltages on the 4KV Bus 2B voltmeter using the 4KV Bus 2B Voltmeter Phase Selector Switch.</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR CUE: If asked, DO NOT setup Bus 2B Auto Transfer, perform only up to step 8 of 2OM-36.4.B.</p> </div> <p>9.1 Locates the 4KV Common Volts meter, 4KV Bus 2B Voltmeter Phase Selector, and 2C US Serv Tfmr Voltmeter Phase Selector Switch.</p> <p>9.2 Checks all phases and verifies USST 2C voltage is within 0 to 2.0 volts of Bus 2B voltage and the unloaded bus is between 122 volts and 126.5 volts.</p> <p>COMMENTS:</p>	
<p>10. If necessary, Place the Bus 2B 4160V Lower Raise & Auto SW, in Manual (Push In) AND adjust Bus 2B voltage to match USST voltage.</p>	<p>10.1 Places Load Tap Changer X Winding Bus 2B SS Serv Tfrm 2A in MANUAL by pushing control switch IN.</p> <p>10.2 Adjusts Bus 2B voltage to match 2C USST voltage by intermittently placing control switch handle to LOWER until 4KV Bus 2B volts matches 4KV Common Voltmeter Voltage.</p> <p>COMMENTS:</p>	
<p>11.C Verify the Live Bus Transfer Switch in the ON position.</p>	<p>11.1C Places the Live Bus Transfer Switch to the ON position.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
12.C Close ACB-142C, 2C US Serv Tfmr to 4KV Bus 2B.	12.1C Places control switch for ACB-142C to the CLOSE position. 12.2 Verifies BOTH RED lights – LIT, WHITE light – NOT LIT. 12.3 Acknowledges A8-1H, “4160V NORM BUS SUPPLY ACBs PARALLELED”, if received. COMMENTS:	
13. Verify amps increase on 4KV Bus 2B Tfmr 2C Amps.	13.1 Verifies 4KV BUS 2B TFMR 2C ammeter indicates greater than ZERO amps. COMMENTS:	
14.C Open ACB-142A, 2A SS Serv Tfmr to 4KV Bus 2B.	14.1C Places control switch for ACB-142A to the OPEN/TRIP position. 14.2 Verifies WHITE light – LIT, BOTH RED lights – NOT LIT. 14.3 Silences & resets Annunciator A8-1H if cleared. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-523 JPM REVISION: 4	JPM TITLE: Perform a Hot Bus Transfer
--	---------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
15. Verify load was picked up by observing 4KV Bus 2B Tfmr 2C Amps.	15.1 Verifies load was picked up by observing 4KV Bus 2B Tfmr 2C amps increasing to a higher value. COMMENTS:	
16. Place the Live Bus Transfer Switch to OFF.	16.1 Places the Live Bus Transfer Switch to the OFF position. COMMENTS:	
	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> EVALUATOR CUE: State "This JPM is complete" </div>	
	STOP TIME: _____	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

- The plant is in Mode 1 with all systems in NSA.
- It is desired to place 4KV Bus 2B on offsite power to allow for a relay check on ACB-142C.

INITIATING CUE:

- Your supervisor directs you to transfer the 4KV Bus 2B to SSST 2A in accordance with 2OM-36.4.C, "Transferring 4KV System From US Serv Tfmr To SS Serv Tfmr" starting at step IV.3.
- Do **NOT** set up for auto transfer back to USST 2C.
- Data sheet 1 has been completed.
- SSST voltage has been adjusted and Load Tap Changer for Bus 2B is in manual.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Perform QPTR Alarm Test

TRAINING MATERIAL NUMBER: 2CR-144

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2CR-144

REVISION NUMBER: 3

TECHNICAL REFERENCES:

2OST-2.4, "QPTR Alarm Check", Rev 11

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: P. Eisenmann _____
Date

PEER REVIEW BY: _____
Date

APPROVED FOR USE: _____
Training Supervisor or Designee Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2CR-144
New Revision: 3
Description of Change(s): 1. Updated TASK ID. 2.
Reason for Change (s): 1. TASK ID's changed.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

K/A REFERENCE: 015A1.04 3.5/3.7 TASK ID: 0021-016-06-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input checked="" type="checkbox"/> Perform	<input type="checkbox"/> Plant Site	<input type="checkbox"/> Annual Requal Exam	<input type="checkbox"/> BVT
<input type="checkbox"/> Simulate	<input checked="" type="checkbox"/> Simulator	<input type="checkbox"/> Initial Exam	<input type="checkbox"/> NRC
	<input type="checkbox"/> Classroom	<input type="checkbox"/> Training	<input type="checkbox"/> Other:
		<input type="checkbox"/> Other:	

EVALUATION RESULTS

Performer Name:		Performer ID#:	
Time Critical: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Allotted Time: 15 Minutes	Actual Time:	minutes

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR

Evaluator (Print): _____ Date: _____

Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT" verified operable AND QPTR is calculated to be between 1.005 and 1.035.
RECOMMENDED STARTING LOCATION:	Simulator
INITIAL CONDITIONS:	<ul style="list-style-type: none">• The plant is at 100% equilibrium power.• All systems are in normal system alignment.• The PCS AFD Monitor is INOPERABLE.
INITIATING CUE:	Your supervisor directs you to perform a QPTR Alarm Check for N41 ONLY IAW 2OST-2.4, 'QPTR Alarm Check', step VII.B. All initial conditions and Test preparations have ALREADY been completed.
REFERENCES:	2OST-2.4, "QPTR Alarm Check", Rev. 11
TOOLS:	None
HANDOUT:	2OST-2.4, "QPTR Alarm Check", Rev. 11 filled out up to step VII.B. Include Normalization Factors on All Data Sheets.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>SIMULATOR SETUP: 100% Steady State Power. Obtain Normalization factors from reactor Engineering book and record on applicable OST data sheets.</p> </div>	
	START TIME: _____	
<p>1. Verify the following status lights are OFF: (Status Panel 308)</p> <ul style="list-style-type: none"> • A-18, "RCS LOOP A OTΔT RUNBACK" • B-18, "RCS LOOP B OTΔT RUNBACK" • C-18, "RCS LOOP C OTΔT RUNBACK" • A-20, "RCS LOOP A OTΔT RX TRIP" • B-20, "RCS LOOP B OTΔT RX TRIP" • C-20, "RCS LOOP C OTΔT RX TRIP" 	<p>1.1 Verifies the following status lights are - NOT LIT:</p> <ul style="list-style-type: none"> • A-18, "RCS LOOP A OTΔT RUNBACK" • B-18, "RCS LOOP B OTΔT RUNBACK" • C-18, "RCS LOOP C OTΔT RUNBACK" • A-20, "RCS LOOP A OTΔT RX TRIP" • B-20, "RCS LOOP B OTΔT RX TRIP" • C-20, "RCS LOOP C OTΔT RX TRIP" <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>2. Notify the SM/US to make an entry in the Narrative Log that the QPTR Alarm Check using Channel PRN41 is commencing AND Record the time of entry T.S. 3.3.1</p>	<p>2.1 Notifies the SM/US to make an entry in the Narrative Log that the QPTR Alarm Check using Channel PRN41 is commencing.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role-play the Shift manager and acknowledge the report.</p> </div> <p>COMMENTS:</p>	
<p>3. Remove the PRN-41 input from the PCS AFD Monitor Program by performing Attachment A, "Removing A Single Power Range Channel Input From The PCS AFD Monitor Program", Part A, for PRN41. (N/A if PCS AFD Monitor is inoperable)</p>	<p>3.1 N/A</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: PCS AFD Monitor Program is INOPERABLE per initial conditions.</p> </div> <p>COMMENTS:</p>	
<p>4.C Place Power Range Channel N41 in the test configuration as follows: Place the PRN41 Operation Selector Switch in DET A&B. (N-41 Power Range B Drawer)</p>	<p>4.1C Rotates PRN41 Operation Selector Switch Clockwise to the DET A&B position.</p> <p>COMMENTS:</p>	
<p>5. Verify "CHANNEL ON TEST" Drawer Status Light is ON. Verify Annunciator A4-6H, "NIS CHANNEL ON TEST" is ON.</p>	<p>5.1 Verifies "CHANNEL ON TEST" Drawer Status Light - LIT.</p> <p>5.2 Verifies Annunciator A4-6H, "NIS CHANNEL ON TEST" - LIT.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6. Verify the following</p> <p>“UPPER SECTION DEVIATION” AND “LOWER SECTION DEVIATION” Drawer Status Lights are OFF. (Misc. Control And Indication Panel)</p> <p>Annunciator A4-5H, “POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT”, is OFF.</p> <p>PCS Points Y0136D, “PR LOWER DET DEV/AUTO DEFEAT” AND Y0137D, “PR UPPER DET DEV/AUTO DEFEAT”, indicate NORMAL.</p>	<p>6.1 Verifies:</p> <ul style="list-style-type: none"> • “UPPER SECTION DEVIATION” AND “LOWER SECTION DEVIATION” Drawer Status Lights – NOT LIT. • Annunciator A4-5H, “POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT” Lights – NOT LIT. • PCS Points Y0136D, “PR LOWER DET DEV/AUTO DEFEAT” AND Y0137D, “PR UPPER DET DEV/AUTO DEFEAT”, indicates NORMAL. (Selects Group Trends/Group List/OST 2.4) <p>COMMENTS:</p>	
<p>7.C Record the upper and lower detector current meter indications for Power Range Channels PRN42, PRN43 and PRN44 on Data Sheet 1.</p>	<p>7.1C In the space provided on Data Sheet 1, records the upper and lower detector current meter indications for Power Range Channels PRN42, PRN43 and PRN44. (+/- 5 microamps of answer key values)</p> <p>COMMENTS:</p>	
<p>8.C Perform the test using the Power Range Channel N41 Upper Detector as follows:</p> <p>Turn PRN41 Detector A Test Signal Potentiometer clockwise until the “UPPER SECTION DEVIATION” Drawer Status Light is ON.</p>	<p>8.1C Slowly rotates PRN41 Detector A Test Signal Potentiometer clockwise until the “UPPER SECTION DEVIATION” Drawer Status Light is - LIT.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9. Verify the following:</p> <ul style="list-style-type: none"> • Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT", is ON. • PCS Point Y0137D, "PR UPPER DET DEV/AUTO DEFEAT", indicates ALARM. 	<p>9.1 Verifies:</p> <ul style="list-style-type: none"> • Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT" Lights – LIT. • PCS Point Y0137D, "PR UPPER DET DEV/AUTO DEFEAT", indicates ALARM. <p>COMMENTS:</p>	
<p>10.C Record the PRN41 Detector A current indication when the Status Light turns ON:</p> <p>Detector A Current N41 Power Range B Drawer _____ microamperes</p>	<p>10.1C In the space provided in step 6 of the OST, records the PRN41 Detector A current indication when the Status Light turned ON. (243 microamps +/- 5)</p> <p>COMMENTS:</p>	
<p>11.C Turn the Test Signal Potentiometer fully counterclockwise.</p>	<p>11.1C Slowly rotates PRN41 Detector A Test Signal Potentiometer fully counterclockwise.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>12. Verify the following</p> <p>“Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT", is OFF.</p> <p>“UPPER SECTION DEVIATION" Drawer Status Lights is OFF.</p> <p>PCS Point Y0137D, " indicates NORMAL</p>	<p>12.1 Verifies:</p> <ul style="list-style-type: none"> • Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT" Lights – NOT LIT. • “UPPER SECTION DEVIATION" Drawer Status Light – NOT LIT. • PCS Point Y0137D, "PR UPPER DET DEV/AUTO DEFEAT", indicates NORMAL. <p>COMMENTS:</p>	
<p>13.C Perform the test using the Power Range Channel N41 Lower Detector as follows:</p> <p>Turn PRN41 Detector B Test Signal Potentiometer clockwise until the "LOWER SECTION DEVIATION" Drawer Status Light is ON.</p>	<p>13.1C Slowly rotates PRN41 Detector B Test Signal Potentiometer clockwise until the "LOWER SECTION DEVIATION" Drawer Status Light - LIT.</p> <p>COMMENTS:</p>	
<p>14. Verify the following:</p> <ul style="list-style-type: none"> • Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT", is ON. • PCS Point Y0136D, "PR LOWER DET DEV/AUTO DEFEAT", indicates ALARM. 	<p>14.1 Verifies:</p> <ul style="list-style-type: none"> • Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT" Lights – LIT. • PCS Point Y0136D, "PR LOWER DET DEV/AUTO DEFEAT" indicates ALARM. <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>15.C Record the PRN41 Detector B current indication when the Status Light turns ON:</p> <p>Detector B Current N41 Power Range B Drawer _____ microamperes</p>	<p>15.1C In the space provided in step 7 of the OST, records the PRN41 Detector B current indication when the Status Light turned ON. (262 microamps +/- 5)</p> <p>COMMENTS:</p>	
<p>16.C Turn the Test Signal Potentiometer fully counterclockwise.</p>	<p>16.1C Slowly rotates PRN41 Detector B Test Signal Potentiometer fully counterclockwise.</p> <p>COMMENTS:</p>	
<p>17. Verify the following</p> <p>“Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT", is OFF.</p> <p>“LOWER SECTION DEVIATION" Drawer Status Lights is OFF.</p> <p>PCS Point Y0136D, " indicates NORMAL</p>	<p>17.1 Verifies:</p> <ul style="list-style-type: none"> • Annunciator A4-5H, "POWER RANGE HIGH/LOW SP FLUX DEVIATION/AUTO DEFEAT" Lights – NOT LIT. • “LOWER SECTION DEVIATION" Drawer Status Light – NOT LIT. • PCS Point Y0136D, "PR LOWER DET DEV/AUTO DEFEAT", indicates NORMAL. <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>18.C Restore Power Range Channel N41 from the test configuration as follows:</p> <p>Place the PRN41 Operation Selector Switch in NORMAL.</p>	<p>18.1C Rotates the PRN41 Operation Selector Switch counterclockwise to the NORMAL.</p> <p>18.2 Requests second verification.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role-play the Unit Supervisor and acknowledge the request. Report second verification completed SAT.</p> </div> <p>COMMENTS:</p>	
<p>19. Verify "CHANNEL ON TEST" Drawer Status Light is OFF.</p> <p>Verify Annunciator A4-6H, "NIS CHANNEL ON TEST" is OFF.</p>	<p>19.1 Verifies "CHANNEL ON TEST" Drawer Status Light – NOT LIT.</p> <p>19.2 Verifies Annunciator A4-6H, "NIS CHANNEL ON TEST" – NOT LIT.</p> <p>COMMENTS:</p>	
<p>20. Restore the PRN41 input to the PCS AFD Monitor Program by performing Attachment A, "Removing A Single Power Range Channel Input From the PCS AFD Monitor Program", Part B, for PRN41. (N/A if PCS AFD Monitor is inoperable)</p>	<p>20.1 N/A</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: PCS AFD Monitor Program is INOPERABLE per initial conditions.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-144 JPM REVISION: 3	JPM TITLE: Perform QPTR Alarm Test
--	------------------------------------

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>21.C Transfer the PRN41 recorded values AND Complete Data Sheet 1.</p>	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: If subsequent JPM's are to be performed, escort the candidate to a secure location and complete calculational portion of this JPM.</p> </div> <p>21.1 Transfers the PRN41 values recorded in steps 6 and 7 of the OST to Data Sheet 1.</p> <p>21.2C Completes Data Sheet 1.</p> <p>21.3 Requests second verification of calculations and Normalization factors.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role-play the Unit Supervisor and acknowledge the request.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Evaluator discretion is required for the grading of the QPTR calculation. Refer to attached answer key for the calculations required in Data Sheet 1.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>TERMINATING CUE: Inform the candidate, "This JPM is COMPLETE".</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

- The plant is at 100% equilibrium power.
- All systems are in normal system alignment.
- The PCS AFD Monitor is INOPERABLE.

INITIATING CUE:

Your supervisor directs you to perform a QPTR Alarm Check for **N41 ONLY** IAW 2OST-2.4, 'QPTR Alarm Check', step VII.B. All initial conditions and Test preparations have **ALREADY** been completed.

- At this time, ask the evaluator any questions you have on this JPM.
- When satisfied that you understand the assigned task, announce "I am now beginning the JPM".
- Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.
- After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Control Aux Feedwater during Cable Vault & Rod Control Relay
Room fire from Outside of the Control Room

TRAINING MATERIAL NUMBER: 2PL-178

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2PL-178

REVISION NUMBER: 0

TECHNICAL REFERENCES:

2OM-53A.1.A-1.11 Rev. 5, Manual Handpump Operation of Hydraulically Actuated Valves
2OM-24.4.Q Rev. 13, Response to Steam Binding or Depressurization in Auxiliary Feedwater System, pg. 39

INSTRUCTIONAL SETTING: In-Plant

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: Andrew Jacques _____ Date

PEER REVIEW BY: _____ Date

APPROVED FOR USE: Training Supervisor or Designee _____ Date

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2PL-178 rev. 0
New Revision: n/a
Description of Change(s): New JPM
Reason for Change (s):

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-178 JPM REVISION: 0	JPM TITLE: Control Aux Feedwater during Cable Vault & Rod Control Relay Room fire from Outside of the Control Room.
--	---

K/A REFERENCE: 061 A2.03 3.1/3.4 TASK ID: 0241-014-01-043
 061 A2.04 3.4/3.8 0241-024-01-043

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input type="checkbox"/> Perform <input checked="" type="checkbox"/> Simulate	<input checked="" type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:

Performer ID:

Time Yes
Critical: No

Allotted Time: 15 Minutes

Actual Time: _____ minutes

JPM RESULTS: SAT
 UNSAT (Comments required for UNSAT evaluation)

Comments: _____

OBSERVERS

Name/ID: _____

Name/ID: _____

Name/ID: _____

Name/ID: _____

EVALUATOR

Evaluator (Print): _____ Date: _____

Evaluator Signature: _____

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	2FWE-P22 is secured and 2FWE-HCV-100A is closed.
RECOMMENDED STARTING LOCATION:	In-Plant
INITIAL CONDITIONS:	<p>The plant is tripped following a major fire in the Cable Vault & Rod Control Relay Room.</p> <ul style="list-style-type: none"> • 2OM-56B.4.CV6, Cable Vault & Rod Control Relay Room, is in progress. • 2FWE-P23A,B, Motor Driven Auxiliary Feedwater Pumps, are stopped. • 2FWE*P22, Turbine Driven Auxiliary Feedwater Pump, could not be secured from the control room. • 2FWE*P22, Turbine Driven Auxiliary Feedwater Pump, is aligned to the 'A' Auxiliary Feedwater Header. • 2FWE-HCV100A, 'A' Steam Generator Train 'A' Auxiliary Feedwater Throttle Valve, failed to close from the Control Room. • MCC*2-E13 Cub 4D, 2FWE*HCV100A Breaker, has been opened.
INITIATING CUE:	<ol style="list-style-type: none"> 1. The US directs you to trip 2FWE*P22, Turbine Driven Auxiliary Feedwater Pump, locally due to high 'A' Steam Generator Water Level. 2. Once this is complete, you are to close 2FWE-HCV100A IAW 2OM-53A.1.A-1.11.
REFERENCES:	<p>2OM-24.4.Q Rev. 13 Response to Steam Binding or Depressurization in Auxiliary Feedwater System.</p> <p>2OM-53A.1.A-1.11 rev. 5, Manual Handpmp Operation of Hydraulically Actuate Valves.</p>
TOOLS:	None
HANDOUT:	<p>2OM-53A.1.A-1.11 Rev. 5, Manual Handpmp Operation of Hydraulically Actuate Valves.</p> <p>Hand out only if asked for procedural direction to trip 2FWE*P22</p> <p>2OM-24.4.Q Rev. 13, Response to Steam Binding or Depressurization in Auxiliary Feedwater System, Page 39</p>

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-178 JPM REVISION: 0	JPM TITLE: Control Aux Feedwater during Cable Vault & Rod Control Relay Room fire from Outside of the Control Room.
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
	EVALUATOR NOTE: Provide candidate a copy of 2OM-24.4.Q page 39 only if asked for procedural direction to trip 2FWE*P22.	
1.C Secure [2FWE*P22], Turbine Driven Auxiliary Feed Pump, by performing the following: a. Press the Emergency Trip Manual Lever.	1.1C Presses the 2FWE*TTV22 Emergency Trip Manual Lever. (DOWN) 1.2 Verifies that the pump shaft has stopped rotating. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> EVALUATOR CUE: The pump shaft has stopped rotating. </div> 1.3 Informs Control room that 2FWE*P22 is secured. COMMENTS:	
2. Close [2FWE*HCV100C], 21C SG AFW Throttle Vlv, in accordance with 2OM-53A.1.A-1.11, Manual Handpump Operation of Hydraulically Operated Valves (South Safeguards 741').	2.1 Refers to 2OM-53A.1.A-1.11 to close 2FWE*HCV100A for the 21A Steam Generator. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> Role Play: If called report from the CR that MCC*2-E13 Cub 4D is OPEN. </div> COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-178 JPM REVISION: 0	JPM TITLE: Control Aux Feedwater during Cable Vault & Rod Control Relay Room fire from Outside of the Control Room.
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Step 4.c. To throttle closed a valve with a “fail-as-is” actuator, perform the following:</p> <p>1) Place the Three Position Pump Control Valve in the CLOSE position.</p> <p>2) Insert the pump handle into the hand-pump socket.</p> <p>3) Pump the hand pump UNTIL the valve reaches the desired position, THEN stop.</p> <p>4) IF valve will be left in its current position, THEN place Three Position Pump Control Valve in NEUT.</p>	<p>3.1C Locates and switches the three-position valve on 2FWE*HCV100A to the CLOSE position.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Valve is in CLOSE.</p> </div> <p>3.2C Inserts and pumps handle verifying valve stem is moving CLOSED as handle is pumped until valve is CLOSED.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Valve stem is moving in the CLOSED direction and stops.</p> </div> <p>3.3 Switches the three-position valve to NEUTRAL.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Valve is in NEUTRAL.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: State “This JPM is complete”.</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS:

The plant is tripped following a major fire in the Cable Vault & Rod Control Relay Room.

- 2OM-56B.4.CV6, Cable Vault & Rod Control Relay Room, is in progress.
- 2FWE-P23A,B, Motor Driven Auxiliary Feedwater Pumps, are stopped.
- 2FWE*P22, Turbine Driven Auxiliary Feedwater Pump, could not be secured from the control room.
- 2FWE*P22, Turbine Driven Auxiliary Feedwater Pump, is aligned to the 'A' Auxiliary Feedwater Header.
- 2FWE-HCV100A, 'A' Steam Generator Train 'A' Auxiliary Feedwater Throttle Valve, failed to close from the Control Room.
- MCC*2-E13 Cub 4D, 2FWE*HCV100A Breaker, has been opened.

INITIATING CUE:

1. The US directs you to trip 2FWE*P22, Turbine Driven Auxiliary Feedwater Pump, locally due to high 'A' Steam Generator Water Level.
2. Once this is complete, you are to close 2FWE-HCV100A IAW 2OM-53A.1.A-1.11.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE

TRAINING MATERIAL TITLE: Locally Startup the Containment Hydrogen Analyzers

TRAINING MATERIAL NUMBER: 2PL-047

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 2PL-047

REVISION NUMBER: 8

TECHNICAL REFERENCES:

2OM-46.4.F Rev 7, Containment Hydrogen Analyzer - Startup

INSTRUCTIONAL SETTING: In Plant

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: A. Jacques _____ Date

PEER REVIEW BY: _____ Date

APPROVED FOR USE: _____ Date
Training Supervisor or Designee

OPERATIONS JOB PERFORMANCE MEASURE

JPM CHANGE SUMMARY

Affected JPM: 2PL-047
New Revision: 8
Description of Change(s): <ol style="list-style-type: none">1. Added procedure name2.
Reason for Change (s): <ol style="list-style-type: none">1. Title was missing2.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-047 JPM REVISION: 8	JPM TITLE: Locally Startup the Containment Hydrogen Analyzers
--	---

K/A REFERENCE: 028 A1.01 3.4/3.8

TASK ID: 0461-012-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input type="checkbox"/> Perform <input checked="" type="checkbox"/> Simulate	<input checked="" type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS

Performer Name:		Performer ID:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 15 Minutes	Actual Time:	minutes
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation) Comments: _____ _____ _____ _____			

OBSERVERS

Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR

Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Hydrogen Analyzer is powered up and sample pump is in operation.
RECOMMENDED STARTING LOCATION:	In plant
INITIAL CONDITIONS:	The plant is in Mode 1. A Containment Hydrogen Concentration level for containment atmosphere has been requested, in support of an upcoming containment entry.
INITIATING CUE:	Your supervisor directs you to locally startup the non-protected train Containment Hydrogen Analyzer in accordance with 2OM-46.4.F, “Containment Hydrogen Analyzer – Startup”, and report back when it is in operation.
REFERENCES:	2OM-46.4.F Rev. 7, Containment Hydrogen Analyzer - Startup
TOOLS:	None
HANDOUT:	2OM-46.4.F Rev. 7, Containment Hydrogen Analyzer – Startup

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-047 JPM REVISION: 8	JPM TITLE: Locally Startup the Containment Hydrogen Analyzers
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Provide candidate a copy of 2OM-46.4.F. Inform candidate of the protected train and that he/she is to start the <u>NON-protected train</u> analyzer.</p> </div>	
	START TIME: _____	
1. Reviews procedure 2OM-46.4.F.	1.1 Candidate reviews 2OM-46.4.F. COMMENTS:	
2.C Open containment isolation valves.	<div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: There is one common control switch for each pair of valves listed. It is permissible to cue the candidate to contact the Control Room to perform this action instead of entering the CR. Evaluate the direction provided to the Control Room Operator.</p> </div> <p>2.1. Candidate locates and OPENS each of the following pairs of valves (or contacts the Control Room to have valves opened.):</p> <p>2.2.C Train "A" Outlets [2HCS*SOV133A & 134A].</p> <p>2.3.C Train "A" Inlets [2HCS*SOV136A & 136B].</p> <p style="text-align: center;">OR</p> <p>2.4.C Train "B" Outlets [2HCS*SOV133B & 134B].</p> <p>2.5.C Train "B" Inlets [2HCS*SOV135A & 135B].</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>EVALUATOR CUE: Cue that appropriate NON-protected train valves are open and have red lights lit. Only the NON-protected train valves need to be opened, N/A the Protected train valve JPM steps.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-047 JPM REVISION: 8	JPM TITLE: Locally Startup the Containment Hydrogen Analyzers
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Start [2HCS*PNL100A] locally.</p> <p style="text-align: center;">OR</p> <p>3.C Start [2HCS*PNL100B] locally.</p>	<p>EVALUATOR NOTE: The Hydrogen Analyzer on the <u>Non-Protected Train</u> is to be started. N/A the analyzer not to be started. The candidate should notify the control room that Annunciator A1-2B “HYDROGEN LEVEL HIGH/HIGH-HIGH may alarm then clear. Simulate control room response as needed.</p> <p>3.1 Candidate locates and opens 2HCS*PNL100A (AE SWGR). EVALUATOR CUE: Panel door open.</p> <p>3.2.C Candidate locates and turns ON the OFF/ON Power switch. EVALUATOR CUE: Panel lights energize.</p> <p>3.3.C Candidate locates and places the Pump STOP/RUN/START switch to START and allows it to spring return to RUN. EVALUATOR CUE: Pump RED light is lit.</p> <p>3.4 Candidate locates and verifies red lights SV1 and SV6 LIT. EVALUATOR CUE: Both RED lights are lit.</p> <p style="text-align: center;">OR</p> <p>3.1 Candidate locates and opens [2HCS*PNL100B] (DF SWGR). EVALUATOR CUE: Panel door open.</p> <p>3.2.C On keypad Press < 6,82,ENTER,1, ESC > EVALUATOR CUE: Acknowledge correct entries. Pump Red Light Lit.</p> <p>3.3. Candidate locates and verifies red lights SV1 and SV6 LIT. EVALUATOR CUE: Both RED lights are lit.</p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-047 JPM REVISION: 8	JPM TITLE: Locally Startup the Containment Hydrogen Analyzers
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C At Control Panel, enter Pre-LOCA heat trace values.</p>	<p>4.1 Candidate locates Control Panel and indicates correct EEPROM keystrokes per procedure step IV.A.5:</p> <p>4.2.C Enter monitor mode: Press <6></p> <p>4.3.C Enter access code: Press<82,ENTER></p> <p>4.4.C Select change: Press < 3 ></p> <p>4.5.C Select calibration Array 6, Element 18: Press <1,6,18,ENTER></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE FOR THE NEXT STEP: State "EEPROM ? appears" after "Enter" is selected.</p> </div> <p>4.6.C Set Pre-LOCA ON setpoint to 89.6: Press <896,ENTER,NXT, ESC></p> <p>4.7.C Select change: Press< 3 ></p> <p>4.8.C Select calibration Array 5, Element 18: Press <1,5,18,ENTER></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>EVALUATOR CUE FOR THE NEXT STEP: State "EEPROM ? appears" after "Enter" is selected.</p> </div> <p>4.9.C Set Pre-LOCA OFF setpoint to 89.5: Press <895,ENTER,NXT,ESC,ESC></p> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-047 JPM REVISION: 8	JPM TITLE: Locally Startup the Containment Hydrogen Analyzers
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
5. Report back to supervisor.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR CUE: It is not necessary to start [2HCS*HR100] at this time.</p> </div> <p>5.1 Candidate reports to supervisor that the containment hydrogen analyzer has been placed in operation locally.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>EVALUATOR CUE: State "This JPM is complete".</p> </div>	
	<p>STOP TIME: _____</p>	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS: The plant is in Mode 1. A Containment Hydrogen Concentration level for containment atmosphere has been requested, in support of an upcoming containment entry.

INITIATING CUE: Your supervisor directs you to locally startup the non-protected train Containment Hydrogen Analyzer in accordance with 2OM-46.4.F, "Containment Hydrogen Analyzer – Startup", and report back when it is in operation.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
Then hand this sheet to the evaluator.

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service

TRAINING MATERIAL NUMBER: 2PL-031

PROGRAM TITLE: Operator Training

COMPUTER CODE: 2PL-031

REVISION NUMBER: 7

TECHNICAL REFERENCES:

2OM-34.4.P, Diesel-Driven Air Compressor [2IAS-C21] Operation, Rev. 5

INSTRUCTIONAL SETTING: In-plant

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: A. Jacques _____ Date

PEER REVIEW BY: _____ Date

APPROVED FOR USE: _____ Date
Training Supervisor or Designee

JPM CHANGE SUMMARY

Affected JPM: 2PL-047

New Revision: 7

Description of Change(s):

1. Changed handwheel to handle due to ECP.
- 2.

Reason for Change (s):

1. Valve type changed.
- 2.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-031 JPM REVISION: 7	JPM TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service
--	---

K/A REFERENCE: 065 AA1.04 3.5/3.4 TASK ID: 0341-009-01-012

JPM APPLICATION: REQUALIFICATION INITIAL EXAM TRAINING
 SRO ONLY ALTERNATE PATH JPM ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input type="checkbox"/> Perform <input checked="" type="checkbox"/> Simulate	<input checked="" type="checkbox"/> Plant Site <input type="checkbox"/> Simulator <input type="checkbox"/> Classroom	<input type="checkbox"/> Annual Requal Exam <input type="checkbox"/> Initial Exam <input type="checkbox"/> Training <input type="checkbox"/> Other:	<input type="checkbox"/> BVT <input type="checkbox"/> NRC <input type="checkbox"/> Other:

EVALUATION RESULTS			
Performer Name:		Performer ID:	
Time Critical: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Allotted Time: 15 minutes	Actual Time: minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____ _____ _____ _____			

OBSERVERS	
Name/ID:	Name/ID:
Name/ID:	Name/ID:

EVALUATOR	
Evaluator (Print): _____	Date: _____
Evaluator Signature: _____	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-031
JPM REVISION: 7

JPM TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service

EVALUATOR DIRECTION SHEET

TASK STANDARD: Diesel-Driven Air Compressor, 2IAS-C21, placed in service supplying the station air header.

RECOMMENDED STARTING LOCATION: In plant

INITIAL CONDITIONS: A loss of the station air compressors has occurred.

INITIATING CUE: The US has authorized an emergency start of the diesel-driven air compressor and directed you to:

- Place 2IAS-C21, Diesel Driven Air Compressor, in service and align its discharge to the instrument air header by performing 2OM-34.4.P, Diesel-Driven Air Compressor 2IAS-C21 Operation, Step IV.A.
- Report back when the compressor is running and aligned.

REFERENCES: 2OM-34.4.P, Diesel-Driven Air Compressor [2IAS-C21] Operation, Rev. 5

TOOLS: None

HANDOUT: 2OM-34.4. P, Diesel-Driven Air Compressor [2IAS-C21] Operation.

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-031 JPM REVISION: 7	JPM TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
	EVALUATOR CUE: Provide candidate a copy of 2OM-34.4.P	
1. Review procedure 2OM-34.4.P.	1.1 Candidate reviews procedure. COMMENTS:	
2.C Place the Load/Unload switch in the UNLOAD (down) position.	2.1C Places the Load/Unload switch in the UNLOAD (down) position. EVALUATOR CUE: Load/Unload switch in the UNLOAD (down) position. COMMENTS:	
3.C Place the Manual/Off Reset/Auto switch in MANUAL, and Check (after a 16 second delay) that the starter operates to crank the engine until 15 seconds has elapsed OR until the engine starts (whichever occurs first).	3.1C Places the Manual/Off Reset/Auto switch in MANUAL. EVALUATOR CUE: Manual/Off/Reset/Automatic switch in Manual. 3.2 After 16 second pre-lube delay, verifies that the engine starts. EVALUATOR CUE: After a 16 second delay, the engine is running. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-031 JPM REVISION: 7	JPM TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C After the engine has started, Place the [2IAS-C21] Diesel-driven Air Compressor Load/Unload switch in the LOAD (up) position.</p>	<p>4.1C Places the [2IAS-C21] Diesel-driven Air Compressor Load/Unload switch in the LOAD (up) position.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Load/Unload switch in the LOAD (up) position.</p> </div> <p>COMMENTS:</p>	
<p>5. Verify 2HVT-FN229F, Power Roof Ventilator, is operating by verifying the fan louvers are open and the fan is rotating (located above the compressor).</p>	<p>5.1 Verifies 2HVT-FN229F, Power Roof Ventilator, is operating by verifying the fan louvers are open and the fan is rotating.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR NOTE: Roof fan is located above the compressor.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Louvers are open and fan is rotating.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-031 JPM REVISION: 7	JPM TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service
--	---

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6. When engine has started and warmed up (for approximately 45 seconds), Check that the compressor loads until pressure at the compressor discharge pressure is approximately 110 psig on 2IAS-PI131, Discharge Pressure. (Compressor Instrument Panel)</p>	<p>6.1 Checks compressor discharge pressure 2IAS-PI131 slowly rises and then stabilizes at ~110 psig.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: 2IAS-PI131 slowly rises and is now stable at 108 psig</p> </div> <p>COMMENTS:</p>	
<p>7. Verify 2IAS-DRY23, Standby Instrument Air Train Dryer, is running (green Power On light is On).</p>	<p>7.1 Verifies 2IAS-DRY23, Standby Instrument Air Train Dryer, is running (GREEN Power On light is LIT).</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Green Power On light LIT.</p> </div> <p>COMMENTS:</p>	
<p>8. If the fire protection automatic shutdown function is not available, establish a Fire Watch at 2IAS-C21 while the compressor is operating.</p>	<p>8.1 Determines fire protection panel automatic shutdown is not functional.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: When candidate locates fire protection panel, Inform Candidate that fire protection panel is not functional.</p> </div> <p>8.2 Contacts the US and reports that a Fire Watch at 2IAS-C21 is required while the compressor is running.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: Role-play the US and acknowledge the report and report back that another operator will perform the required fire watch.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-031
JPM REVISION: 7

JPM TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9. If desired, Verify alignment of 2IAS-C21 to the Instrument Air Header as follows:</p> <p>a. Verify pressure is being maintained \geq 100psig on 2IAS-PI129, located on the side of 2IAS-TK22.</p> <p>b. Verify Open 2IAS-1125, 2IAS-DRY23 Inlet Isolation, located on dryer skid.</p> <p>c. Verify Open 2IAS-1126, 2IAS-DRY23 Outlet Isolation, located on dryer skid.</p> <p>d. Verify Open [2IAS-1073], Standby Instrument Air Train Receiver 2IAS-TK22 Inlet Isolation.</p> <p>e. Verify Open [2IAS-1074], Standby Instrument Air Train Receiver 2IAS-TK22Outlet Isolation.</p> <p>f. Verify Open [2IAS-1106], Standby Instrument Air Train Inlet Isolation, located in the Turbine Basement above [2IAS-DRY22].</p>	<p>9.1 Verifies pressure is being maintained \geq 100psig on 2IAS-PI129.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: [2IAS-PI129] is indicating 108 psig and stable.</p> </div> <p>9.2 Verifies handle for 2IAS-1125 2IAS-DRY23 Inlet Isolation is parallel to the flowpath.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: 2IAS-1125 handle is parallel to the flowpath.</p> </div> <p>9.3 Verifies handle for 2IAS-1126 2IAS-DRY23 Outlet Isolation is parallel to the flowpath.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: 2IAS-1126 handle is parallel to the flowpath.</p> </div> <p>9.4 Verifies handle for 2IAS-1073, Standby Instrument Air Train Receiver is parallel to the flowpath.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: 2IAS-1073 handle is parallel to the flowpath.</p> </div> <p>9.5 Verifies handle for [2IAS-1074], Standby Instrument Air Train Receiver is parallel to the flowpath.</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: 2IAS-1074 handle is parallel to the flowpath.</p> </div> <p>9.6 Verifies handle for 2IAS-1106, Standby Instrument Air Train Inlet Isolation is parallel to the flowpath (2IAS-1106 located in Turbine Basement).</p> <div style="border: 1px solid black; padding: 5px;"> <p>EVALUATOR CUE: 2IAS-1106 handle is parallel to the flowpath.</p> </div> <p>COMMENTS:</p>	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-031 JPM REVISION: 7	JPM TITLE: Place the Diesel-Driven Air Compressor [2IAS-C21] in Service
--	---

	EVALUATOR CUE: That completes this JPM.	
	STOP TIME: _____	

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

Read:

INITIAL CONDITIONS: A loss of the station air compressors has occurred.

INITIATING CUE: The US has authorized an emergency start of the diesel-driven air compressor and directed you to:

- Place 2IAS-C21, Diesel Driven Air Compressor, in service and align its discharge to the instrument air header by performing 2OM-34.4.P, Diesel-Driven Air Compressor 2IAS-C21 Operation, Step IV.A.
- Report back when the compressor is running and aligned.

At this time, ask the evaluator any questions you have on this JPM.

When satisfied that you understand the assigned task, announce "I am now beginning the JPM".

Simulate performance or perform as directed the required task.
 Point to any indicator or component you verify or check and announce your observations.

After determining the Task has been met announce "I have completed the JPM".
 Then hand this sheet to the evaluator.

Form 3.3-1 Scenario Outline

Facility: BVPS Unit 2	Source: NEW	Scenario No. 1	Op Test No.: <u>2LOT22 NRC</u>
Examiners: _____	Candidates: _____		SRO
_____	_____		ATC
_____	_____		BOP
<u>Initial Conditions:</u>	IC 146 (17): 75% power, MOL, Equ. XE Conditions, CB “D” @ 186 steps, RCS boron - 1130 ppm.		
<u>Turnover:</u>	Maintain 75% power. 2RCS*PCV456 isolated due to seat leakage, block valve closed. TS 3.4.11, Condition A 2FWE-P23B on clearance, TS 3.7.5, Condition B, 2FWE*P22 has been aligned to the “B” header.		
<u>Critical Tasks:</u>	1. CT-16 (E-1.C) Stop RCP's before E-1 exit 2. CT-50 (FR-S.1.A) Isolates the main turbine before WR level < 10% in 2/3 SGs 3. CT-52 (FR-S.1.C) Initiate negative reactivity by inserting RCCAs before completing IOAs of FR-S.1.		

Event No.	Malf. No.	Event Type	Event Description
1	XMT-RCS019A	(C,A,MC) ATC (C,A,TS) SRO	Pressurizer Level Channel, 2RCS*LT459 drifts high.
2	GEN02	(C,A,MC) BOP (C,A) SRO	Main generator voltage regulator fails in automatic, causing overexcitation.
3	XMT-MSS026A	(I,A) BOP/SRO (TS) SRO	2MSS-PT101B fails high, 2SVS-PCV101B opens, upon manual closure, valve sticks at 20% open, requires local isolation.
4	TUR01D	(C,A) BOP, SRO	Turbine high bearing vibration requires crew to manually trip the unit.
5	PPL01A PPL01B	(M) ALL	Failure of Automatic and manual Reactor trip from the control room requires entry into FR-S.1.
6	CRF01A	(C) ATC, SRO	Control Rod automatic insertion failure, ATC must manually insert control rods.
7	EHC01B EHC03B	(C) BOP, SRO	Turbine fails to completely trip – requires MSLI.
8	RCS02B	(M) ALL	1200 gpm LOCA occurs on "B" Loop
9	PPL07A	(C) ATC, SRO	Standby Charging/HHSI pump fails to auto start on SI.
10			

(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control, (A)bnormal

E-0 → FR-S.1 → E-0 → E-1 → ES-1.2

Form 3.3-1 Scenario Outline
2L22N1

After taking the shift at 75% power, MOL, 2RCS*LT459 will drift high. The ATC will recognize the failure and respond IAW AOP 2.4.1 IOA's to remove the failed channel from service. The SRO will transition to the Instrument Failure procedure, 2OM-6.4.IF and direct the ATC to complete the removal of the 459 channel from service. The SRO will review applicable Technical Specifications in effect for the failed level transmitter.

The MUG, main unit generator, voltage regulator will then fail causing an over excitation of the MUG, IAW AOP 2.4.1, Process Control Failure, the BOP will place the voltage regulator to "OFF" and correct the over excitation by manually adjusting the "base adjust".

2MSS-PT101B will fail high causing "B" SG atmospheric steam dump valve, 2SVS-PCV101B, to go full open. The crew will respond IAW the alarm response procedure and attempt to manually close 2SVS-PCV101B which will fail at 20% open causing a slight increase in Rx power. The crew will dispatch an operator to locally isolate failed open valve and the SRO will evaluate applicable TS for failed valve.

A bearing will then begin failing on the turbine causing turbine vibrations to begin increasing, IAW the alarm response procedure, the crew will address the bearing degradation and recognize that when vibrations exceed 14 mils, the turbine is required to be manually tripped. Since Rx power is >50%(P9), the SRO will direct the crew to manually trip the Rx.

The ATC will unsuccessfully attempt to trip the reactor from BB-B and BB-A and IAW FR-S.1 IOA's begin manually inserting the control rods as auto rod insertion capability failed. IAW FR-S.1 IOA's, the BOP will manually trip the turbine, however the turbine will fail to completely trip and require the BOP to manually initiate a Main Steam Line Isolation. The SRO will enter FR-S.1 with the ATC and BOP performing the IOA's.

1 minute after Emergency boration flow is established in FR-S.1, if the crew previously dispatched an operator to locally trip the reactor, the reactor will be locally tripped. The ATC will verify reactor power is <5% after which the SRO will return to E-0.

When the SRO transitions to E-0 from FR-S.1, a 1200 gpm LOCA will occur on the B loop resulting in an automatic SI actuation, the "A" charging/HHSI pump will fail to automatically start on the SI signal.

Upon performing the diagnostics in E-0, the SRO will determine that the RCS is not intact and transition to E-1. The scenario will be terminated at the lead evaluators discretion after the crew transitions to ES-1.2.

Expected procedure flow path is E-0 → FR-S.1 → E-0 → E-1 → ES-1.2.

INITIAL CONDITIONS: IC-146 (IC-17) 75 % Power, MOL, Bank D @ 186 steps, Equilibrium XE, 1130 PPM Boron,

ADDITIONAL LINEUP CHANGES	STICKERS	MONITOR SETUP
2RCS*MOV536 closed with power maintained	YCT on CS	High power splash
2FWE*P23B in PTL, 2FWE*P22 Placard to “B”	YCT on CS	
EQUIPMENT STATUS	DATE/TIME OOS	TECHNICAL SPECIFICATION(S)
2RCS*PCV456 isolated	Yesterday / 1200	3.4.11, Condition A
2FWE*P23B on clearance	8 hours ago	3.7.5, Condition B

SHIFT TURNOVER INFORMATION

1. Maintain 75% power.
2. 2RCS*PCV456 isolated due to seat leakage, block valve closed. TS 3.4.11, Condition A
3. 2FWE*P23B on clearance, TS 3.7.5, Condition B, 2FWE*P22 has been aligned to the “B” header.

SCENARIO SUPPORT MATERIAL REQUIRED

1. Reactivity plan – provide MOL Rapid Power Reduction reactivity plan.
- 2.

PROCEDURES NEEDED

- E-0, Iss 3 Rev 1
- E-1, Iss 3 Rev 2
- ES-1.2, Iss 3 Rev 0
- FR-S.1, Iss 3 Rev 0
- Attachment A-0.6, Iss 1C Rev 1
- Attachment A-0.11, Rev 10
- Attachment A-1.27, Rev 0
- AOP 2.4.1, Rev 3
- 6 IF, Attach 1, Rev 13

Insert preloads per the simulator preload section of the schedule file for this scenario:

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 1:

Pressurizer level transmitter
2RCS*LT459 drifts high.

2RCS*LI459A indicates upscale.
A4-1C, PRZR Control Level Dev High/Low.

ATC reports unexpected PRZR level deviation alarm.
ATC identifies 2RCS*LT459 is failing high.
IAW AOP 2.4.1, Part C, ATC removes 2RCS*LT459 from service by placing PRZR level control channel selector to POS II/III (461/460).
If necessary ATC places 2CHS*FCV122 in manual and restores PRZR level.

IMF XMT-RCS019A to 100 in 60

NOTE:
A control band and Rx trip criteria are not applicable if the PRZR level controls remained in AUTO.

SRO enters AOP 2.4.1, Process Control Failure, Part "C".

SRO provides a control band and Rx trip criteria of 5% low/90% high for manual PRZR level control.

BOP refers to ARP.

SRO enters the Reactor Coolant System Instrument failure procedure, 2OM-6.4.IF, attachment 1.

SRO transitions to Reactor Coolant System Instrument failure procedure, 2OM-6.4.IF, attachment 1.

SRO evaluates Technical Specifications:

3.3.1 (RTS Instrumentation) Condition A; immediately enter the Condition referenced in Table 3.3.1-1 function 9 (PRZR level high) Condition K; trip channel in 72 hrs. or reduce power to < P-7 in 78 hrs.

SRO determines following TS are for tracking only
3.3.3 (PAM instrumentation) Table 3.3.3-1 function 11 is met if LT460 and LT461 are operable.

3.3.4 (Remote Shutdown System) Table B.3.3.4-1 function 4.a requirement is met if LT460 is operable.

Continue with next event at LE discretion

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 2:

Voltage Regulator Failure
IMF GEN02 to 27 in 30

MUG Excitation increases
 Main Generator VARS increase
 Main Generator Power Factor decreases (more lagging)
 A7-4C, Generator Field Forcing
 A7-4H, Generator Field Overcurrent
 SRO enters AOP 2.4.1, Process Control Failure.

BOP reports unexpected electrical alarm.

BOP identifies voltage regulator failure.

ATC refers to ARP.

IAW AOP 2.4.1, BOP turns voltage regulator off and manually reduces MUG excitation using exciter base adjust to lower VARS to restore power factor.

SRO provides BOP a control band for power factor of 0.9 to 1.0 lagging.

ATC reviews ARP 2OM-35.4.AAN.

IAW 1/2OM-35.4A.A, Crew notifies DLC System Dispatch as soon as practical but within 30 minutes of Voltage Regulator being out of Automatic.

SRO contacts Operations management and notifies maintenance of voltage regulator failure.

Continue with next event at LE discretion

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 3:

2MSS-PT101B fails high

IMF XMT-MSS026A to 1500 in 120

IMF CNH-MSS03A to 20 on Event 4
(preloaded)

IMMEDIATE PLANT RESPONSE:

A6-7A, Steamline Pressure High.
2MSS-PI101B trending offscale high.
2SVS-PCV101B strokes full open.
RCS temperature decreases.
Reactor power increases.

ADV will initially close from BB control but will stick at ~20% open.

Reactor power slowly rising.

Crew recognizes that 2MSS-PT101B is failing high and that 2SVS-PCV101B has opened in response.

ATC monitors RCS temperature and reactor power, informs SRO that power is rising.

IAW AOP 2.4.1, SRO directs ATC to take manual control of open ADV, (2SVS-PCV101B) and close it.

ATC places controller for 21B SG ADV in manual and attempts to close ADV.

Crew recognizes Rx power is slowly rising.

IAW Alarm Response procedure, crew dispatches field operator to locally isolate 2SVS-PCV101B by locally closing 2SVS*24.

ROLE PLAY:

When dispatched to locally isolate 2SVS-PCV101B insert

IRF LOA-MSS017 to 0 in 30 Wait 5 minutes then report that 2SVS*24 is CLOSED.

NOTE: The crew may dispatch an operator to locally close 2SVS*PCV101B, the valve will fail closed when it is de-energized. (MCC-E13, 2C)

Continue with next event at LE discretion

SRO evaluates Technical Specifications:

3.7.4 (ADV) Condition A; Restore required ADV line to OPERABLE status within 7 days.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>EVENT 4: Main turbine bearing #4 high vibration. IMF TUR01D to 7 in 30 EVENT 5 smltur1d >= 7 IMF tur01d to 15 in 240 on EVENT 5 (preloaded) NOTE: ARP directs an immediate turbine trip if bearing vibration exceeds 14 mils ROLE PLAY: If necessary – report in as Turbine operator that the turbine is shaking.</p>	<p>Bearing #4 vibration trends up to 7 mils in 30 seconds A7-3H,Turbine Supervisory Instrument Power Off/Trouble Bearing #4 vibration then rises to 15 mils over the next 4 minutes. Adjacent bearings also indicate abnormally high vibration.</p>	<p>BOP acknowledges and reports bearing vibration indications. ATC reviews ARP.</p>
<p>EVENTS 5 - 7, (all preloaded)</p>		
<p>ATWS with Auto Rod insertion failure, Incomplete Turbine Trip</p>		<p>Crew determines that a reactor trip is warranted.</p>
<p>IMF PPL01A IMF PPL01B IMF CRF01A (preloaded)</p>	<p>SRO enters FR-S.1</p>	<p>ATC attempts a manual reactor trip, reports trip failure/ ATWS condition. SRO directs operators to perform IOA’s of FR-S.1, implements FR-S.1 at step 1 of E-0.</p>
<p>Critical Task CT-50 (FR-S.1.A): Crew isolates the main turbine from the SGs before WR SG level is less than 10% in 2/3 SGs.</p>		<p>BOP manually trips Turbine by depressing both Turbine Trip Pushbuttons on BB-C. BOP recognizes Throttle valve AND governor valve remain open following manual Turbine trip.</p>
<p>SAFETY SIGNIFICANCE -- Failure to trip the main turbine under the postulated plant conditions can lead to violation of the RCS emergency stress limit.</p>		<p>BOP manually initiates a MSLI by depressing all 4 MSLI Pushbuttons on BB-C pickup and verifies all Main Steam Line Isolation valves are closed on BB-C.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 5 - 7, (continued)

Auto Rod insertion failure.

Critical Task CT-52 (FR-S.1.C):
Crew inserts negative reactivity into the core by inserting RCCAs before completing the immediate action steps of FR-S.1.

ATC recognizes control rods are not automatically inserting, places rods in Manual and begins inserting rods.

SAFETY SIGNIFICANCE -- Failure to insert negative reactivity, under the postulated plant conditions, results in an unnecessary situation in which the reactor remains critical or returns to a critical condition. Performance of the critical task would make the reactor subcritical and provide sufficient shutdown margin to prevent (or at least minimize the power excursion associated with) any subsequent return to criticality.

Failure to insert negative reactivity constitutes "mis-operation or incorrect crew performance which leads to incorrect reactivity control (e.g., failure to initiate emergency boration or manually insert RCCAs)."

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 5 - 7, (continued)

BOP verifies AFW status.
 BOP verifies 2FWE*P23A motor-driven AFW pump running. (2FWE*P23B on clearance)

BOP verifies 2MSS*SOV105A-F open, turbine-driven AFW pump, 2FWE*P22.

BOP verifies all AFW throttle valves are open.

BOP verifies AFW flow.

Crew initiates Emergency Boration Flow by;

Verifying at least 1 charging pump is running
 Checking Safety Injection is NOT actuated.
 Aligning Boration path by;
 Opening 2CHS*MOV350.
 Starting “A” Boric Acid pump.
 Verifying Emergency Boration flow > 30 gpm.
 Aligning Charging flow path by adjusting
 2CHS*FCV122 to establish > 40 gpm charging flow.
 Verifying RCS pressure is < 2330 psig.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 5 - 7, (continued)

ROLE PLAY:

When requested to open the reactor trip breakers & trip the rod drive MG set output ACBs, wait until the crew has initiated emergency boration flow then

TOGGLE EVENT 10

Following commands are preloaded, activate Trigger 10 as soon as requested, 1st Rx trip breaker will open 2 minutes after actuating Trigger 10.

PPL02A after 120 on event 10

PPL02B after 130 on event 10

LOA-CRF007 after 140 on event 10

LOA-CRF008 after 150 on event 10

ROLE PLAY:

When all breakers are open, report actions to the control room.

Crew alerts plant personnel by;

- Sounding the standby alarm
- Announcing a Unit 2 Rx trip w/o SCRAM
- Dispatching an operator to locally trip the Rx.

Crew continues in FR-S.1 after dispatching an operator to locally trip the Unit 2 reactor.

BOP verifies turbine is tripped.
 BOP verifies 2MSS-MOV100A, and B automatically CLOSED.
 BOP depresses the RESET pushbutton on the reheater controller.

ATC checks if SI is actuated and reports SI is not actuated.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 5 - 7, (continued)

NOTE:

This is a continuous action step, when the Rx is locally tripped, the crew will return to this step and then transition back to E-0, Step 1.

ATC checks if reactor is subcritical:

- Power range channels < 5%.
- IR channels – negative startup rate.
- Continues boration as necessary.

Crew confirms that reactor is subcritical, SRO returns to procedure and step in effect. (E-0, step 1)

EVENTS 8 & 9;

NOTE: When the SRO transitions to E-0, INSERT Event 8, 1200 gpm LOCA on “B” Loop.

IMF RCS02B to 1200

1200 gpm LOCA with Autostart failure of 2CHS*P21A

When the Rx is locally tripped. SRO returns to E-0, step 1.

ATC verifies Reactor trip:

- A5-6D, Turbine Trip due to Reactor trip - LIT.
- Power range indication is < 5%.
- Neutron flux is dropping.

ROLE PLAY:

If dispatched to locally trip the turbine, wait 3 minutes then report back that local turbine trip was attempted, no changes identified in the field.

BOP verifies Turbine trip:

- Throttle OR Governor valves ALL are NOT closed but MSLI has been previously initiated.
- Main Generator output brks - open.
- Exciter Circuit breaker – open.

BOP verifies Power to AC Emergency Busses

- Using VB-C voltmeters, verifies either AE or DF has voltage indicated.

BOP identifies that both emergency busses are energized from off-site power.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><u>EVENTS 8 & 9</u>, (continued)</p> <p>NOTE: Event 8 is inserted when the SRO enters E-0, depending upon the crews timing through the IOA's of E-0, SI may not be actuated or required, but RCS pressure will be dropping and automatic SI will be imminent.</p> <p><u>EVENT 9;</u> Auto start failure of 2CHS*P21A IMF PPL07A (preloaded)</p>	<p>SI automatically actuated due to the SBLOCA.</p>	<p>Check SI Status.</p> <p>ATC checks if SI is required:</p> <ul style="list-style-type: none"> • ATC verifies CNMT press < 5psig. • ATC verifies PRZR press is not > 1860 psig. • ATC/BOP verifies Steamline press > 500 psig. <p>Crew determines SI is required; ATC manually actuates SI by actuating both trains' Control Switches.</p> <p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p> <p>Check if SI flow should be reduced:</p> <ul style="list-style-type: none"> • Crew verifies CNMT radiation, Pressure and Sump level are not consistent to PRE-EVENT. <p>SRO determines SI flow should not be secured.</p> <p>ATC verifies SI system status:</p> <ul style="list-style-type: none"> • Charging pumps running – 1 running. ATC starts 2CHS*P21A. • 2SIS*P21A & 2SIS*P21B running. • HHSI Flow indicated on 2SIS-FI943. <p>BOP verifies AFW status:</p> <ul style="list-style-type: none"> • “A” motor-driven pump running. • Turb driven pump, all stm supply SOV’s open. • AFW throttle valves all FULL OPEN. • Total AFW flow is >340 gpm.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>NOTE: Evaluation of BOP performing Attachment A-0.11 begins on page 20.</p>	<p><u>List of Attachment A-0.11 discrepancies:</u> Auto start failure of 2CHS*P21A.</p>	<p>BOP performs Attachment A-0.11.</p>
<p>NOTES: Crew may monitor C/D rate after AFW flow is reduced prior to isolating main steamlines. RCPs may have already been tripped at this time IAW E-0 LHP, if so, the crew will monitor Cold Leg temperatures.</p>	<p>RCS temperature <547°F and dropping due to Safety Injection flow.</p>	<p>ATC checks RCS Tavg stable at or trending to 547°F:</p> <ul style="list-style-type: none"> • ATC verifies no steam release is occurring. (Condenser steam dumps closed) • ATC verifies reheat steam is isolated. • ATC reduces total feedflow to minimize C/D.
<p>NOTE: Depending upon the crews timing and procedure progression, the RCP trip criteria may be met by now, if so the crew will verify HHSI flow and stop all RCPS at this time.</p>		<p>ATC verifies PRZR isolated</p> <ul style="list-style-type: none"> • PORVs – CLOSED • Spray Valves – CLOSED • Safety relief valves – CLOSED (use PSMS) • Power to at least one block valve – AVAILABLE (all) • Block valves – AT LEAST ONE OPEN (2) <p>ATC checks if RCPs should be stopped:</p> <ul style="list-style-type: none"> • D/P between RCS pressure and highest SG pressure – <205 PSID. • Criteria for stopping is met. • ATC shuts down all RCPs.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>NOTE: Depending upon the crews timing and procedure progression, the CNMT Radiation may not be in Hi Alarm at this point.</p>	<p>Hi Radiation alarm is in due to containment radiation levels.</p> <p>Incore room and containment radiation monitors in Hi alarm.</p> <p>CNMT Pressure is rising CNMT Sump level is rising</p> <p>SRO transitions to E-1, Loss of Reactor or Secondary Coolant.</p>	<p>ATC/BOP checks if any SGs are faulted:</p> <ul style="list-style-type: none"> • Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER <li style="text-align: center;">OR • ANY SG COMPLETELY DEPRESSURIZED <p>Crew determines no SG’s are faulted.</p> <p>Crew checks if SG tubes are intact:</p> <ul style="list-style-type: none"> • Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER. • Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES. <p>Crew determines no SG levels are rising in an uncontrolled manner and Secondary Radiation is consistent with pre-event values, therefore all SG tubes are intact.</p> <p>Crew checks if RCS is Intact by checking CNMT conditions consistent with pre-event values.</p> <ul style="list-style-type: none"> • CNMT radiation • CNMT pressure • CNMT sump level <p>Crew determines the RCS is not intact based on CNMT conditions and verifies HHSI valves, 2SIS*MOV867A,B,C,D all open & transitions to E-1.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

NOTE: If not already, the D/P criteria for stopping the RCPs will be met at this time.

Critical Task: CT-16 (E-1.C)

Crew trips all RCPs when RCS to highest SG D/P criteria is exceeded and SI flow verified prior to exiting procedure E-1.

SAFETY SIGNIFICANCE -- Failure to trip the RCPs under the postulated plant conditions leads to core uncover and to fuel cladding temperatures in excess of 2200°F, which is the limit specified in the ECCS acceptance criteria. Thus, failure to perform the task represents "mis-operation or incorrect crew performance which leads to degradation of the fuel cladding barrier to fission product release" and to "violation of the facility license condition."

ATC checks if CREVS should be actuated:

Checks EITHER of the following:

- Control Room Radiation Monitor
2RMC*RQ201,202, - NOT IN HIGH ALARM
- CIB - HAS NOT OCCURRED.

Crew determines CREVS actuation is NOT required.

ATC checks if RCPs should be stopped:

- D/P between RCS pressure and highest SG pressure – <205 PSID
- Criteria for stopping will be met.

If criteria not already met, ATC continues monitoring and stops ALL RCPs when D/P criteria is met.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>ROLE PLAY: When dispatched to perform Attach A-0.6, wait 5 minutes, insert following commands then report complete. IRF LOA-LOV093 RACKIN IRF LOA-LOV102 RACKIN IRF LOA-LOV094 RACKIN IRF LOA-LOV103 RACKIN IRF LOA-LOV095 RACKIN IRF LOA-LOV104 RACKIN IRF LOA-LOV096 RACKIN IRF LOA-LOV105 RACKIN</p>	<p>NOTE: Schedule file “Att_A_0_6_Linestarters.sch” will automatically insert commands over the next 5 minutes.</p>	<p>ATC/BOP dispatches an operator to energize valves IAW Attachment A-0.6, “Cold Leg Recirculation Component Verification.”</p> <p>ATC checks CIB – NOT ACTUATED.</p> <p>ATC/BOP checks if any SGs are faulted:</p> <ul style="list-style-type: none"> • Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER <li style="text-align: center;">OR • ANY SG COMPLETELY DEPRESSURIZED <p>Crew determines NO SG’s are faulted.</p> <p>BOP checks intact SG levels:</p> <ul style="list-style-type: none"> • NR levels – >12%. <p>Controls feed flow to maintain NR level between 12% and 50%.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

SI FLOW CANNOT BE REDUCED.

Crew checks if SG tubes are intact:

- Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER.
- Check secondary radiation – CONSISTENT WITH PRE-EVENT VALUES.

Crew determines no SG levels are rising in an uncontrolled manner and secondary radiation is consistent with pre-event values, therefore all SG tubes are intact.

ATC checks PORV's and block valves:

- Power to block valves – AVAILABLE (all).
- PORVs – CLOSED (all).
- Block valves – OPEN (two).

ATC/BOP checks if SI flow can be reduced.

- RCS subcooling based on core exit TCs >41F [59F ADVERSE CNMT]
- Crew determines RCS subcooling is \leq required from Attachment A-5.1.

SI TERMINATION CONDITIONS ARE NOT SATISFIED, SRO CONTINUES IN E-1.

Check if CNMT spray should be stopped.

ATC verifies no Quench or Recirc Spray pumps are running.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>NOTE: Due to timing, procedure progression and plant conditions, it is possible that the conditions may not support shutdown of the LHSI pumps at this time.</p>		<p>ATC resets SI – both trains. ATC resets CIA – both trains.</p> <p>ATC checks if LHSI pumps should be stopped.</p> <p>ATC verifies RCS pressure is > 225 psig [250 psig ADVERSE CNMT] and is stable or rising.</p> <p>ATC stops both LHSI pumps and places in AUTO.</p> <p>Check RCS and SG Pressures.</p> <p>BOP checks pressure in all SG, NOT stable or rising.</p> <p>ATC checks RCS pressure is dropping.</p> <p>SRO determines SG pressure dropping is NOT due to a faulted SG and continues with procedure based upon preceding note.</p> <p>BOP verifies AC Emergency busses are energized by offsite power.</p> <p>SRO directs BOP to stop unloaded EDG’s IAW Attachment A-1.27 as time permits.</p> <p>BOP performs Attachment A-0.6 to verify power available to at least 1 train of Cold Leg Recirculation equipment.</p> <p>BOP reports Attachment A-0.6 completed SAT with no discrepancies.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Crew evaluates Radiation monitors, determines Auxiliary building and Safeguards radiation is consistent with pre-event values.

SRO determines TSC is not activated.

SRO directs ATC to monitor nuclear instrumentation to ensure adequate Shutdown Margin.

Start additional Plant Equipment to assist in Recovery;

SRO directs a field operator to perform Attach. A-1.1

Check if RCS cooldown and depressurization is required.

ATC checks RCS pressure > 225 psig [250 psig ADVERSE CNMT].

SRO determines plant conditions support transition to ES-1.2.

SRO transitions to ES-1.2

At Lead Evaluators discretion, terminate scenario when the crew transitions to ES-1.2.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 ‘Verification of Automatic Actions’ performed as time & manpower permit.

BOP performs **Attachment A-0.11**, ‘Verification of Automatic Actions’ as follows:

Verifies power to both AC emergency busses.

Checks both EDGs running with SWS valve alignment and ventilation in service.

Verify both CNMT hydrogen analyzers running:
2HCS*SOV100A1, B1 – CNMT sample amber lights – LIT.

Checks 2HVS*FN204A or 2HVS*FN204B running.

Ensure Reheat Steam Isolation.

Ensure reheat steam isolation:

- Verify 2MSS-MOV100A and B – closed.
- Reset reheater controller.
- Verify 2GSS-MOV204, spillover vlv, closed.

Steamline isolation manually initiated.

Check if main steamline isolation required:

- CNMT pressure – > 7 PSIG
-OR-
- Steamline pressure – < 500 PSIG
-OR-
- Steamline pressure high rate of change – 100 PSIG DROP IN 50 SECONDS.

If steamline isolation is required, verifies SLI by checking all YELLOW SLI marks – LIT.

If steamline isolation is not required continues on.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 – (continued)

NOTE:

BOP may have already pre-emptively opened 2CCS-AOV118 to provide cooling to the Station Air compressors.

CIB has not occurred.

CIB has not occurred.

Establish domestic water system cooling to station air compressors;

- Opens 2CCS-AOV118.
- Verifies at least 1 air compressor is running.

Verifies at least 1 CCP pump is running unless a CIB has occurred.

Align neutron flux monitoring for shutdown:

- Verifies SR CHs energized when IR <1E-10.
- Transfer 2NME-NR45, nuclear recorder, to operable SR and IR displays.

Check CIB and CNMT spray status:

- CNMT pressure – has remained <11 PSIG.

If not – Actuate CIB if required by:

- Manually initiating CIB – BOTH SWITCHES FOR BOTH TRAINS.
- Manually align equipment as required.
- Verify all RCPs – STOPPED.
- BV-1 operator verifies CREVS actuation.
- Service water flow established to RSS HX(s).

Verify service water system in service:

- SWS pumps - TWO RUNNING.
- Check SWS header pressure – >55 psig.
- SWS pump seal water pressure – NOT LOW.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 – (continued)

2CHS*P21A auto start failed, manual start successful.

Verify ESF equipment status:

- Verify SI status by checking all RED SIS marks – LIT.
- Verify CIA by checking all ORANGE CIA marks – LIT.
- Verify FWI by checking all GREEN FWI marks – LIT.

Verify source range channels energized with audible indication functioning properly, adjusts multiplier switch and volume as necessary.

Attachment A-0.11 – COMPLETE

Discrepancies:

2CHS*P21A auto start failed, manual start successful.

Upon completion, report any discrepancies to SRO.

Form 3.3-1 Scenario Outline

Facility: BVPS Unit 2	Source: NEW	Scenario No. 3	Op Test No.: <u>2LOT22 NRC</u>
Examiners: _____	Candidates: _____	_____	SRO
_____	_____	_____	ATC
_____	_____	_____	BOP
<u>Initial Conditions:</u>	IC 148 (5): ~4.5% power, BOL, XE increasing, CB “D” @ 111 steps, RCS boron - 1930 ppm.		
<u>Turnover:</u>	Due to an oil leak, S/U 2CCS-P21B and S/D 2CCS-P21A IAW 2OM-28.4.H Raise power to 15% to S/U main turbine IAW 2OM-52.4.A. Continue power increase IAW reactivity plan and commence turbine roll. 2RCS-PCV456 isolated due to seat leakage, block valve closed. TS 3.4.11, Condition A		
<u>Critical Tasks:</u>	<ol style="list-style-type: none"> 1. CT-3 (E-0.E) Manually initiate CIB before an Extreme (Red Path) challenge to the CNMT occurs. 2. CT-11 (E-0.O) Close at least 1 CNMT isolation valve/penetration before HHSI flow is terminated. 3. CT-17 (E-2.A) Isolates faulted SG before transition out of E-2. 		

Event No.	Malf. No.	Event Type	Event Description
1		(N) BOP/SRO	Due to oil leak, S/U 2CCS-P21B & S/D 2CCS-P21A.
2		(R) ATC (N) SRO	Normal power increase to 15% IAW 2OM-52.4.A.
3	CNH-CFW11	(C,A,MC) BOP (C,A) SRO	2FWS*FCV479, Bypass Feedwater valve controller fails as is in AUTO, requires manual operation.
4	XMT-MS038A	(TS) SRO	2LMS*PT952 fails high.
5	NIS07B	(I, A) BOP (I, A, TS) SRO	N36 Instrument Power fuse blown.
6	RCP06A	(C,A) ATC, SRO	“A” RCP high vibration and trip – requires manual Rx trip
7	MSS01A 1E7	(M) ALL	Large Feedwater Fault inside CNMT on “A” SG.
8	PPL08B VLV-SEA015	(C, MC) ATC/BOP (C) SRO	Train B CIA failure w/ 2CHS*MOV378 auto close failure.
9	INH50	(C,MC) ATC (C) SRO	CIB auto actuation failure.
10	INH43	(C,MC) ATC (C) SRO	"B" Quench Spray pump auto start failure.
11	X19o005S OFF X19o020S OFF	(C,MC) BOP (C) SRO	Control room emergency ventilation system fails to actuate on CIB signal, requiring manual initiation.

(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control, (A)bnormal

E-0 → E-2 → ES-1.1

Form 3.3-1 Scenario Outline
2L22N3

The crew will take the shift at ~4.5% power with instructions to start up the standby secondary component cooling water pump, 2CCS-P21B, and S/D 2CCS-P21A due to an oil leak then raise power to 15% IAW the reactivity plan to S/U the main turbine. The following malfunctions will occur as power is raised.

After power is >5%, the “A” bypass feedwater regulating valve controller will fail as is. As power rises, the controller problem will become evident requiring the BOP to manually control “A” SG level IAW AOP 2.4.1, Process Control Failure.

After power is >7%, 2LMS*PT952 will fail high. The SRO will respond using Instrument Failure procedure, 2OM-1.4.IF, Attachment 1. The SRO will address TS and notify I&C that bistables will need to be tripped.

The instrument power fuse will then blow for Intermediate Range Instrumentations, channel N36. The crew will enter AOP 2.2.1B and take the channel out of service. The SRO will address TS.

The "A" RCP will then show signs of high vibration, the crew will respond using AOP 2.6.8, “Abnormal RCP Operation”. After diagnosing and monitoring, the vibration will increase in severity to the point where the RCP will trip. Since the plant is less than 30% power, the RCP trip will not cause an automatic Rx trip. The crew will identify the loss of the RCP and manually trip the reactor.

The reactor trip will cause a large feedwater leak on the “A” SG inside CNMT which will cause CNMT pressure to rise to above CIB setpoint with an automatic CIB actuation failure. The crew will recognize that CIB should have occurred and manually actuate CIB after which the ATC will shutdown the RCP’s.

Train “B” CIA will fail to automatically actuate with a Train “A” Penetration valve, 2CHS*MOV378, also failing to automatically close. The crew will manually actuate CIA and close 2CHS*MOV378.

Additionally, the “B” Quench Spray pump will fail to autostart when CIB is initiated, the crew will identify and manually start 2QSS*P21B.

While the BOP is verifying automatic actions have occurred, it will be recognized that the Control Room Emergency ventilation system also failed to actuate on CIB. The BOP will manually actuate the CREV’s system.

The crew will progress thru E-0, upon performing the diagnostics in E-0, the SRO will determine that the “C” is faulted and transition to E-2, isolate the faulted SG and then transition to ES-1.1.

The scenario will be terminated at the lead evaluators discretion after the crew completes isolating HHSI flow in ES-1.1.

Expected procedure flow path is E-0 → E-2 → ES-1.1.

INITIAL CONDITIONS: IC-148(5) 4.5 % Power, BOL, Bank D @ 111 steps, XE increasing, 1930 PPM Boron,

<u>ADDITIONAL LINEUP CHANGES</u>	<u>STICKERS</u>	<u>MONITOR SETUP</u>
2RCS*MOV536 closed with power maintained	YCT on CS	Low power splash
<u>EQUIPMENT STATUS</u>	<u>DATE/TIME OOS</u>	<u>TECHNICAL SPECIFICATION(S)</u>
2RCS*PCV456 isolated	Yesterday / 1200	3.4.11, Condition A

SHIFT TURNOVER INFORMATION

1. Continue power increase IAW reactivity plan and commence turbine roll.
2. Raise power to 15% to S/U main turbine IAW 2OM-52.4.A.
3. 2RCS*PCV456 isolated due to seat leakage, block valve closed. TS 3.4.11, Condition A
4. Due to an oil leak, upon taking the shift, S/U 2CCS-P21B and S/D 2CCS-P21A IAW 2OM-28.4.H

SCENARIO SUPPORT MATERIAL REQUIRED

1. Reactivity plan – provide BOL Rapid Power Reduction reactivity plan.
2. S/U specific reactivity plan.
3. 2OM-52.4.A
4. 2OM-28.4.H
5. 2OM-7.4.AR

PROCEDURES NEEDED

- E-0, Iss 3 Rev 1
- E-2, Iss 3 Rev 0
- ES-1.1, Iss 3 Rev 1
- Attachment A-0.11, Rev 10
- AOP 2.2.1B, Rev 5
- AOP 2.4.1, Rev 3
- AOP 2.6.8, Rev 14
- 1IF, Attachment 1, Rev 9

Insert preloads per the simulator preload section of the schedule file for this scenario:

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>EVENT 1: S/U 2CCS-P21B & S/D 2CCS-P21A</p>		<p>IAW 2OM-28.4.H, BOP verifies field operator is standing by and starts 2CCS-P21B. After confirmation of SAT operation from field operator, BOP shuts down 2CCS-P21A.</p>
<p>EVENT 2: Raise power 15%</p> <p>Normal Plant Startup, reactor power increase to 15% to support turbine startup.</p>	<p>Startup procedure, Raising Power from 5% to Full Load Operation, 2OM-52.4.A, step 7.a is in progress.</p>	<p>IAW reactivity plan, ATC dilutes and withdraws rods to raise reactor power to > 15%.</p> <p>When Rx power is >5%, crew identifies and announces entry into Mode 1.</p> <p>ATC continues control rod withdrawal and dilution IAW the reactivity plan.</p>
<p>NOTE: Reactivity plan requires 150 gallon dilution and 6 rod steps to raise power to 10%. Crew may elect to add total dilution volume in multiple steps.</p>		<p>ATC initiates dilution IAW the reactivity plan;</p> <ul style="list-style-type: none"> • Places Boric Acid Makeup Blender CS to STOP. • Verifies 2CHS*FCV114A set to desired flow rate. • Set 2CHS-FQIS168A, Total M/U from Blender Flow Totalizer, to desired dilution quantity. • Reset 2CHS-FQIS168A. • Verify 2CHS-FQIS113, Boric Acid Flow to Blender Flow Totalizer, is set to zero. • Places Mode Selector switch in DIL or ALT DIL. • Places Boric Acid Makeup Blender CS to START. • Verify 2CHS*FCV114A opens. • Verify correct flow rate on 2CHS-FR113. • When 2CHS-FQIS168A reaches preset value, verify dilution automatically stops.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>EVENT 3: Malfunction for event 3 is triggered to insert at 5% power and will become evident when power rises.</p>	<p>“A” SG level decreases due to increased steaming rate at higher power and constant valve position.</p> <p>A6-9E will alarm for SG level dev. if the crew doesn’t notice 2FWS*FCV479 malfunction.</p>	<p>BOP recognizes “A” SG level decreasing. IAW Process Control Failure procedure, AOP 2.4.1, BOP places controller for 2FWS*FCV479 in manual and restores SG level to program.</p>
<p>EVENT 4: Malfunction for event 4 is triggered to insert at 7% power 2LMS*PT952 fails high IMF XMT-MSC038A to 55 in 15</p>	<p>A1-2F, Containment Pressure High/High-High</p> <p>SRO enters 2OM-1.4.IF, Instrument Failure Procedure</p> <p>SRO refers to Tech. Specs.</p>	<p>ATC determines 2LMS*PT952 failing high</p> <p>BOP reviews the ARP</p> <p>SRO refers to Attachment 1</p> <p>ATC identifies which channel has failed and how it has failed by comparing 2LMS*PI950, 951, 952, and 953, CNMT Press Indication.</p> <p>Determines 2LMS*PT952 failing high.</p> <p>Tech Spec 3.3.2, Table 3.3.2-1 Items 1.c and 4.c, Condition D</p> <ul style="list-style-type: none"> • Place HI CNMT Press SI and Intermediate HI-HI CNMT PRESS SLI bistables to trip within 72 hours <p>Items 2.a.3, 2.b.2, 3.b.3, & 4.c; Condition E</p> <ul style="list-style-type: none"> • Place HI-HI CNMT PRESS CIB bistable to bypass within 72 hours
<p>Proceed with next event at LE discretion</p>		
<p>NOTE: At LE discretion, insert event 5 after Rx power is >10% AND the crew has inserted Rx Trip Blocks</p>		

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><u>EVENT 5:</u></p> <p>NIS07B: N36 instrument power range fuse blows IMF NIS07B 0</p> <p>NOTE: May have already blocked IR train A & B</p> <p>Proceed with next event at LE discretion</p>	<p>SRO enters AOP 2.2.1B, Intermediate Range Channel Malfunction, Step 5.</p> <p>A4-4E: NIS Compensator Comparator Trouble</p>	<p>ATC performs:</p> <ul style="list-style-type: none"> • Check reactor power –> P-10 • Momentarily Place Intermediate Range and Power Range Block Train A and Train B switches to BLOCK position. • Place caution tags on Source Range Trip Block/Reset Train A and Train B switches, “Manually unblock source range during plant shutdown”. • Verify NR-45 recorder selected to OPERABLE channels • Place Level Trip switch for N36 to BYPASS <ul style="list-style-type: none"> ○ Verify Annunciator A4-5E, “NIS Source/Int Range High Flux Trip Bypass” in alarm due to failed channel. ○ Verify status light “Level Trip Bypass” on drawer – LIT. <p>SRO evaluates T.S. and enters T.S. 3.3.3. condition A. and determines T.S. 3.3.1 condition F.(1 OR 2) is N/A</p>
<p><u>EVENT 6:</u></p> <p>A RCP High Vibration, after 3 minutes a locked rotor RCP trip will occur which requires manually tripping the RX. (No auto Rx trip at this power lvl.)</p> <p>IMF RCP06A to 16 in 3 Additional commands pre-loaded IMF RCP05A after 180 on event 4</p>	<p>A2-5C; Reactor Cool Pump Vibration High</p> <p>SRO enters AOP 2.6.8 for Abnormal RCP Operation.</p>	<p>Crew verifies indications on RCP vibration monitor.</p> <p>BOP reports “A” RCP frame vibration at 3.8 mils and shaft is at 16 mils, both are stable.</p> <p>SRO directs ATC to review RCP parameters to determine if immediate RCP shutdown is required.</p> <p>Crew determines Immediate RCP shutdown is not required and continues to monitor parameters while the SRO proceeds with AOP instructions.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
	<p>After a 3-minute time delay, the “A” RCP will trip due to a locked rotor.</p>	<p>ATC identifies that “A” RCP has tripped and the Rx has not automatically tripped.</p> <p>SRO directs the ATC to manually trip the reactor and perform the Immediate Operator actions of E-0.</p> <p>SRO directs the crew to perform the Immediate Operator actions of E-0.</p>
<p><u>EVENTS 7 – 11;</u> All preloaded</p>	<p>A large feedwater leak occurs as a result of the reactor trip. Both trains of CIB and Train B CIA fail to automatically actuate. 2QSS*P21B fails to autostart and 2CHS*MOV378 fails to autoclose. CREV’s auto actuation also failed.</p> <p>SRO enters E-0, step 1.</p>	<p>ATC verifies Reactor trip:</p> <ul style="list-style-type: none"> • A5-6D, Turbine Trip due to Reactor trip - LIT. • Power range indication is < 5%. • Neutron flux is dropping. <p>BOP verifies Turbine trip:</p> <ul style="list-style-type: none"> • Throttle OR Governor valves ALL closed. • Main Generator output brks - open. • Exciter Circuit breaker – open. <p>BOP verifies Power to AC Emergency Busses</p> <ul style="list-style-type: none"> • Using VB-C voltmeters, verifies either AE or DF has voltage indicated. <p>BOP identifies that both emergency busses are energized from off-site power.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>EVENTS 7 -11: (continued) NOTE: Expected plant conditions are variable depending upon procedure progression, however all parameters will be degrading and SI will soon be required, if conditions are not met at this time.</p> <p>NOTE: If the BOP has recognized the fault, it is acceptable to pre-emptively isolate AFW flow to the faulted SG after IOA’s are completed.</p>	<p>SI automatically actuated.</p>	<p>Check SI Status. ATC checks if SI is required:</p> <ul style="list-style-type: none"> • ATC verifies CNMT press < 5psig. • ATC verifies PRZR press is not > 1860 psig. • ATC/BOP verifies Steamline press > 500 psig. <p>Crew determines SI is required; ATC manually actuates SI by depressing both trains’ pushbuttons.</p> <p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p> <p>Check if SI flow should be reduced:</p> <ul style="list-style-type: none"> • Crew verifies CNMT radiation, Pressure and Sump level are not consistent to PRE-EVENT. <p>SRO determines SI flow should not be secured.</p> <p>ATC verifies SI system status:</p> <ul style="list-style-type: none"> • Charging pumps running – 2 running. • 2SIS*P21A & 2SIS*P21B running. • HHSI Flow indicated on 2SIS-FI943. <p>BOP verifies AFW status:</p> <ul style="list-style-type: none"> • “A” & “B” motor-driven pumps running. • Turb driven pump, all stm supply SOV’s open. • AFW throttle valves all FULL OPEN. • Total AFW flow is >340 gpm.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>EVENTS 7 -11: (continued) NOTE: Evaluation of BOP performing Attachment A-0.11 begins on page 15 .</p> <p>NOTE: Depending on crew timing, a CIB may have already occurred, CCP will not be in service, RCP's should have been tripped, therefore, ATC needs to check Tcold's VS. Tavg.</p> <p>NOTE: Depending on crew timing, a CIB may not have occurred yet. The ATC will secure RCPs due to CIB actuation/loss of CCP.</p>	<p><u>List of Attachment A-0.11 discrepancies:</u> CIB auto actuation failure Train B CIA auto actuation failure. 2CHS*MOV378 auto close on SI failure. 2QSS*P21B auto start failure. CREV's auto actuation on CIB failure.</p> <p>RCS temperature <547°F and dropping due feedwater leak and Safety Injection flow.</p>	<p>BOP performs Attachment A-0.11.</p> <p>ATC checks RCS Temp stable at or trending to 547°F:</p> <ul style="list-style-type: none"> • ATC verifies no steam release is occurring. (Condenser steam dumps closed) • ATC verifies reheat steam is isolated. • ATC reduces total feedflow to minimize C/D. • ATC verifies MSLI actuation has occurred. <p>ATC reports RCS cold leg temperature and cooldown is caused by fault and SI flow. Crew verifies cooldown is continuing and verifies SLI has previously occurred.</p> <p>ATC verifies PRZR isolated</p> <ul style="list-style-type: none"> • PORVs – CLOSED • Spray Valves – CLOSED • Safety relief valves – CLOSED (use PSMS) • Power to at least one block valve – AVAILABLE (all) • Block valves – AT LEAST ONE OPEN (2) <p>ATC checks if RCPs should be stopped:</p> <ul style="list-style-type: none"> • D/P between RCS pressure and highest SG pressure – <205 PSID [220 psid ADVERSE]. • D/P Criteria for stopping is NOT met.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 7-11: (continued)

- ATC/BOP checks if any SGs are faulted:
- Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER
OR
 - ANY SG COMPLETELY DEPRESSURIZED

Crew determines that there is a faulted SG, verifies HHSI flow is indicated and transition to E-2 is required.

SRO transitions to E-2, Faulted Steam Generator Isolation.

Verify CREVS actuated.
ATC/BOP reports CREVS not actuated.

SRO directs ATC/BOP to actuate both trains of CREVS using the CONTROL ROOM EMERG AIR SUP ACTUATION pushbuttons,

- Verifies the control room air intake and exhaust dampers are CLOSED.
- Verifies 2HVC*FN241A running after time delay.

SRO requests a BV-1 operator to verify proper CREVS actuation and place CR air intake and exhaust dampers control switches in CLOSE.

SRO directs STA to commence Control Room ventilation actions. Refer to Attachment A-2.4.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 7-11: (continued)

NOTE: Main steamline isolation should have already been manually actuated and verified via attachment A-0.11 by this time, crew not likely to verify again at this time.

ATC/BOP verifies steamline isolation has occurred by checking all YELLOW SLI identified components are in the designated position. (previously verified)

“A” SG pressure is lower than “B” & “C”.
 “B” & “C” may be slowly lowering as expected due to the cooldown. Crew should respond with “stable” for “B” & “C” SG’s.

Crew checks for any non-faulted SGs:

- BOP identifies “B” & “C” steam generator pressures are “stable or rising”.

“A” SG pressure & level lowering.

Crew identifies “A” SG as faulted.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 7 - 11: (continued)

Critical Task: CT-17 (E-2.A)

Crew isolates the faulted SG & directs operator to close isolation valves operated from outside of the control room before transition out of E-2.

SAFETY SIGNIFICANCE -- Failure to isolate a faulted SG that can be isolated causes challenges to CSFs beyond those irreparably introduced by the postulated conditions. Also, depending upon the plant conditions, it could constitute a demonstrated inability by the crew to recognize a failure of the automatic actuation of an ESF system or component.

ROLE PLAY:

When requested to isolate 2SVS-27, wait 10 minutes then insert: **IRF LOA-MSS009 to 0 in 30** report to the control room that 2SVS-27 is isolated.

NOTE:

Crew may have pre-emptively isolated AFW flow to the “A” SG after fault was recognized.

NOTE:

The items underlined in the right column are the components that are required to be verified/manipulated to confirm isolation of a faulted SG.

BOP isolates the faulted, “A” SG as follows:

- Verifies FWI. (previously verified)
- Closes AFW throttle valves on “A” SG 2FWE*HCV100E, F.
- Verifies residual heat release valve is closed.
- Directs field operator to close 2SVS-27.
- Verifies 2MSS-SOV105A and D closed.
- Verifies, “A” SG Atmospheric steam dump valve is closed, 2SVS*PCV101A.
- Verifies SG blowdown isolated, 2BDG*AOV100A1.
- Verifies SG blowdown sample valves closed, 2SSR*AOV117A, B, C.

BOP verifies 2FWE-TK210, PPDWST level is >150 inches.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

SRO transitions to ES-1.1, SI Termination

- Crew checks if SG tubes are intact:
 - Checks all SG levels – NONE RISING IN AN UNCONTROLLED MANNER.
 - Check secondary radiation is CONSISTENT WITH PRE-EVENT VALUES.

- Determines no SG levels are rising in an uncontrolled manner and secondary radiation is CONSISTENT WITH PRE-EVENT VALUES.

- Crew determines SG tubes ARE INTACT.

- Crew checks if SI flow should be reduced by:
 - ATC verifies RCS subcooling is >41F [59F ADVERSE CNMT] based on CETC's.
 - BOP confirms secondary heat sink available by >340 gpm of feed flow available OR NR level in at least 1 SG >12% [31% ADVERSE CNMT].
 - ATC confirms RCS pressure is stable or rising.
 - ATC confirms PRZR level is >17% [38% ADVERSE CNMT]

- Crew determines that current plant conditions support SI reduction.

- ATC/BOP resets SI – both trains.

- ATC/BOP resets CIA and CIB – both trains.

- ATC stops 1 charging pump.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Indicated HHSI flow decreases to zero.

ATC confirms RCS pressure is stable or rising.

SRO directs ATC to isolate HHSI flow:

- ATC closes 2SIS*MOV867A,B,C, D.

ATC verifies HHSI flow is secured.

Terminate scenario when the crew terminates HHSI flow in ES-1.1.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 ‘Verification of Automatic Actions’ performed as time & manpower permit.

BOP performs **Attachment A-0.11**, ‘Verification of Automatic Actions’ as follows:

Verifies power to both AC emergency busses.

Checks both EDGs running with SWS valve alignment and ventilation in service.

Verify both CNMT hydrogen analyzers running:
2HCS*SOV100A1, B1 – CNMT sample amber lights – LIT.

Checks 2HVS*FN204A or 2HVS*FN204B running.

Ensure Reheat Steam Isolation.

Ensure reheat steam isolation:

- Verify 2MSS-MOV100A and B – closed.
- Reset reheater controller.
- Verify 2GSS-MOV204, spillover vlv, closed.

Automatic Steamline isolation occurred due to CNMT pressure.

Check if main steamline isolation required:

- CNMT pressure – > 7 PSIG
-OR-
- Steamline pressure – < 500 PSIG
-OR-
- Steamline pressure high rate of change – 100 PSIG DROP IN 50 SECONDS.

If steamline isolation is required, verifies SLI by checking all YELLOW SLI marks – LIT.

If steamline isolation is not required continues on.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>Attachment A-0.11 – (continued) NOTE: BOP may have already pre-emptively opened 2CCS-AOV118 to provide cooling to the Station Air compressors.</p> <p>CIB has occurred, therefore no CCP are running at this time.</p> <p>Event 9 CIB required, auto failed. Critical Task: CT-3 (E-0.E) Crew manually actuates at least the minimum required complement of containment cooling equipment before an Extreme (red path) challenge develops to the Containment CSF.</p> <p>SAFETY SIGNIFICANCE -- Failure to manually actuate [the minimum required complement of containment cooling equipment]² under the postulated conditions constitutes a "demonstrated inability by the crew to recognize a failure/incorrect auto actuation of an ESF system or component."</p>	<p>Both trains of CIB failed to automatically actuate, required manual actuation. Additionally, 2QSS*P21B auto start failed and CREV’s auto actuation failed, required manual start/alignment.</p>	<p>Establish domestic water system cooling to station air compressors;</p> <ul style="list-style-type: none"> • Opens 2CCS-AOV118. • Verifies at least 1 air compressor is running. <p>Verifies at least 1 CCP pump is running unless a CIB has occurred.</p> <p>Align neutron flux monitoring for shutdown:</p> <ul style="list-style-type: none"> • Verifies SR CHs energized when IR <1E-10. • Transfer 2NME-NR45, nuclear recorder, to operable SR and IR displays. <p>Check CIB and CNMT spray status:</p> <ul style="list-style-type: none"> • CNMT pressure – has remained <11 PSIG. <p>If not – Actuate CIB if required by:</p> <ul style="list-style-type: none"> • Manually initiating CIB – BOTH SWITCHES FOR BOTH TRAINS. • Manually align equipment as required. • Verify all RCPs – STOPPED. • BV-1 operator verifies CREVS actuation. • Service water flow established to RSS HX(s).

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 – (continued)

Critical Task CT-11 (E-0.O) – Crew closes Cnmt isolation valves such that at least one valve is closed on each critical phase A penetration before the HHSI flow is terminated.

SAFETY SIGNIFICANCE -- Closing at least one containment isolation valve on each critical Phase A penetration, under these conditions and when it is possible to do so, constitutes a task that “is essential to safety,” because “its improper performance or omission by an operator will result in direct adverse consequences or significant degradation in the mitigative capability of the plant.” In particular, the crew has failed to prevent “degradation of any barrier to fission product release.” In this case, the containment barrier is needlessly left in a degraded condition.

CIA Train B failed to automatically actuate, required manual actuation.
CIA Train A valve, 2CHS*MOV378 failed to automatically close, manually CLOSED SAT.

Verify service water system in service:

- SWS pumps - TWO RUNNING.
- Check SWS header pressure – >55 psig.
- SWS pump seal water pressure – NOT LOW.

Verify ESF equipment status:

- Verify SI status by checking all RED SIS marks – LIT.
- Verify CIA by checking all ORANGE CIA marks – LIT.
- Verify FWI by checking all GREEN FWI marks – LIT.

Verify source range channels energized with audible indication functioning properly, adjusts multiplier switch and volume as necessary.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>Attachment A-0.11 – COMPLETE</p>	<p><u>Discrepancies:</u> CIA, CIB actuation failures. 2QSS*P21B auto start failure. CREV’s auto actuation failure. 2CHS*MOV378 auto close failure.</p>	<p>Upon completion, report any discrepancies to SRO.</p>

Form 3.3-1 Scenario Outline

Facility: BVPS Unit 2	Source: NEW	Scenario No. 4	Op Test No.: <u>2LOT22 NRC</u>
Examiners: _____	Candidates: _____	_____	SRO
_____	_____	_____	ATC
_____	_____	_____	BOP
<u>Initial Conditions:</u>	IC 149 (18): 100% power, MOL, Equ. XE Conditions, CB “D” @ 226 steps, RCS boron - 1040 ppm.		
<u>Turnover:</u>	Maintain 100% power. 2RCS*PCV456 isolated due to seat leakage, block valve closed. TS 3.4.11, Condition A 2FWE-P23B Out of service, TS 3.7.5, Condition B		
<u>Critical Tasks:</u>	1. CT-18 (E-3.A) Isolate Ruptured SG before ECA-3.1 entry 2. CT-19 (E-3.B) Establish/maintain RCS temperature before Red or Orange path exists. 3. CT-35 (ECA-3.3.A) Terminate Safety Injection prior to completion of SI Flow Verification step of ECA-3.3.		

Event No.	Malf. No.	Event Type	Event Description
1	XMT-MSS021A	(C,A) BOP (C,A,TS) SRO	2MSS-PT446 fails LOW
2	XMT-RCS031A	(I,A,MC) ATC (I,A,TS) SRO	2RCS*PT445 fails high, PORV’s 455D & 456 open, ATC required to manually close PORV, 2RCS*PCV455D.
3	N/A	(R) ATC (N) BOP, SRO	Management directed Emergency S/D at 2%/min, IAW AOP 2.51.1.
4	RCS04B	(M) - ALL	“B” SG - 375 gpm tube rupture, requires Manual Rx trip
5	XB1i021T	(C) ATC, SRO	BB-B Rx trip switch fails – requires use of BB-A trip sw.
6	VLV-SGB008A-16A	(C,MC) BOP (C) SRO	SG BD isolation failure, requires manual valve closure.
7	VLV-MSS013	(C) BOP, SRO	Steam dump, 2MSS-PCV106A fails open following cooldown during E-3. Crew required to isolate steam lines & control RCS temperature via atmospheric steam dumps.
8	VLV-RCS030 VLV-RCS031	(C) ATC, SRO	PRZR spray valves and remaining PORV fail to open during depressurization in E-3, will require transition to ECA-3.3.
9			
10			

(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control, (A)bnormal

E-0 → E-3 → ECA-3.3

Form 3.3-1 Scenario Outline
2L22N4

After taking the shift at 100% power, MOL, The non-selected Turbine First Stage pressure transmitter, 2MSS-PT446 will fail low. IAW the instrument failure procedure, the crew will take action to transfer the condenser steam dump control to “Steam Pressure” mode. The SRO will address Tech Specs for the failed channel.

Pressurizer pressure transmitter 2RCS*PT445 then fails high in automatic, 2 PORVs open, 2RCS*PCV455D and 2RCS*PCV456 (456 previously isolated as provided on turnover). 2RCS*PCV455D requires manual closure, IAW the IOA’s of AOP 2.4.1, Part B, the ATC will manually close 2RCS*PCV455D and verify 2RCS*PCV456 is isolated. The SRO will enter AOP 2.4.1 and then transition to 2OM-6.4.IF, Attachment 2 and determine applicable Tech Spec actions.

After the crew has stabilized the plant and the SRO has determined applicable Tech Spec actions, Operations Management will direct the crew to perform a plant shutdown at 2% / minute IAW AOP 2.51.1, Unplanned Power Reduction.

After Rx power has reduced ~10%, a 375 gpm SGTR will then occur on the “B” SG. The crew will identify degrading plant conditions, the SRO will direct the ATC to manually trip the Rx. When the ATC attempts to trip the Rx from BB-B, the Trip switch will fail, the ATC will then trip the Rx using BB-A trip switch. The crew will enter E-0 diagnose a SGTR and transition to E-3.

While the crew is isolating the “B” SG, the BOP will identify that the SG Blowdown valve will not close and procedurally close the backup CNMT isolation valve. Following the cooldown to target temperature, Condenser Steam Dump valve, 2MSS-PCV106A will fail open, the crew will identify the failure and isolate the mainsteam lines and stabilize temperature using the “A” and “C” SG atmospheric steam dump valves.

When the crew attempts to depressurize the RCS, the spray valves will not function, nor will the PRZR PORV’s, 456 was previously isolated on turnover – block valve will not open, 455D CS was placed in "CLOSE" per event 2, valve will not open. 455C will fail to open via control switch, crew will then transition to ECA-3.3.

The scenario is terminated when the crew establishes a normal charging flow path in ECA-3.3.

Expected procedure flow path is E-0 → E-3 → ECA-3.3.

INITIAL CONDITIONS: IC-149 (18) 100 % Power, MOL, Bank D @ 226 steps, Equilibrium XE, 1040 PPM Boron,

<u>ADDITIONAL LINEUP CHANGES</u>	<u>STICKERS</u>	<u>MONITOR SETUP</u>
2RCS*MOV536 closed with power maintained	YCT on CS	High power splash
2FWE*P23B in PTL	YCT on CS	
<u>EQUIPMENT STATUS</u>	<u>DATE/TIME OOS</u>	<u>TECHNICAL SPECIFICATION(S)</u>
2RCS*PCV456 isolated	Yesterday / 1200	3.4.11, Condition A
2FWE*P23B on clearance	8 hours ago	3.7.5, Condition B

SHIFT TURNOVER INFORMATION

1. Maintain 100% power.
2. 2RCS*PCV456 isolated due to seat leakage, block valve closed. TS 3.4.11, Condition A
3. 2FWE*P23B Out of service, TS 3.7.5, Condition B

SCENARIO SUPPORT MATERIAL REQUIRED

1. Reactivity plan – provide MOL Rapid Power Reduction reactivity plan.
- 2.

PROCEDURES NEEDED

- E-0, Iss 3 Rev 1
- E-3, Iss 3 Rev 3
- ECA-3.3, Iss 3 Rev 1
- Attachment A-0.11, Rev 10
- AOP 2.4.1, Rev 3
- AOP 2.6.4, Rev 31
- AOP 2.51.1, Rev 20
- 6 IF, Attach 2, Rev 13
- 24 IF, Attach 5, Rev 20

Insert preloads per the simulator preload section of the schedule file for this scenario:

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 1:

1st Stage Pressure Transmitter,
2MSS-PT446 fails low.
IMF XMT-MSS021A to 0 in 10

2MSS-PT446 failed low (Non controlling Ch)
A6-12G, AMSAC Trouble

SRO enters 2OM-24.4.IF, “Instrument Failure
Procedure” Attachment 5.

Crew identifies 2MSS-PT446 has failed low.

SRO enters 2OM-24.4.IF, Attach 5

BOP verifies Steam Dump Control Mode Selector
Switch is in TAVG mode.

BOP places Steam Dumps in Stm Pressure Mode;

- Places 2MSS-PK464, stm press controller, in MAN with 'zero' percent output signal.
- Verify or adjust the setpoint for 2MSS-PK464 to the equivalent value for 1005 psig.
- Places the Train A and Train B Steam Dump Control Bypass Interlock Selector Switches to OFF/RESET/INTLK.
- Place the Steam Dump Control Mode Selector Switch in STM PRESS.
- Place 2MSS-PK464, In AUTO.
- ATC checks 2RCS-TI408, Stm Dump Demand, is indicating 0% (BB-B)
- Places the Train A and Train B Steam Dump Control Bypass Interlock Selector SW’s to ON.
- Check all steam dump valves remain closed.

NOTE:

It is not the intent of the scenario to allow the crew to re-arm AMSAC, after the crew has placed the Condenser steam dumps in Steam Pressure Mode, next event can be entered at the Lead Evaluator discretion.

SRO references Tech Specs.

3.3.1 Condition P for P-13, Verify interlock in required state for existing conditions within 1 hour.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 2:

2RCS*PT445 fails high, 2 PORV’s open,
IMF XMT-RCS031A to 2500
 After manually closing, PORV 455D remains dual indication (valve is closed, but candidates can’t confirm)

2 PORV’s initially open, 456 previously isolated,
 PORV 455D will close manually when CS is taken to close.
 RCS pressure recovers after 455D closed.

 SRO enters AOP 2.4.1, Part B then transitions to Instrument Failure procedure, 2OM-6.4.IF, attachment 2.

ATC reports multiple unexpected pressurizer alarms. ATC identifies 2RCS*PT445 has failed high and that 2 PORV’s have opened.
 ATC reports that PORV, 2RCS*PCV455D failed to automatically close on low pressure.
 IAW AOP 2.4.1, Part B, IOA’s; ATC responds to 2RCS*PT445 failure by;

- Placing CS for 2RCS*PCV455D to close, and verifying 2RCS*MOV536 was previously closed.
- If necessary, places Master Pressure control in Manual and adjusts demand to < 40%.
- Checks pressure trending to 2235 psig.

SRO provides a control band and Rx trip criteria of 2100 psig low/2340 psig high for manual press control.

After ATC stabilizes PRZR pressure, places Master pressure controller back in AUTO.

SRO evaluates Technical Specifications:

SRO recognizes TS applicability for a 2nd inoperable PORV.

SRO transitions to 2OM-6.4.IF, Attachment 2, ATC verifies CS’s for PORV 455D / 456 in CLOSE.
 3.4.1 (RCS DNB Parameters, RCS press < 2218 psia)
 Condition A: restore RCS pressure within 2 hours.
 3.4.11 (Pressurizer Power Operated Relief Valves)
 Condition B, Close associated block valve within 1 hr.
 AND Remove power from associated block valve within 1 hr.

ROLE PLAY:

After the crew has stabilized the plant and the SRO has determined applicable Tech Specs, at Lead Evaluator request, as Shift Manager, inform the crew that due to the current combination of failures, Operations Management has directed the crew to take the plant offline at 2%/minute IAW AOP 2.51.1, Unplanned Power Reduction.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p>EVENT 3: Unplanned Power Reduction IAW AOP 2.51.1.</p>	<p>SRO enters AOP 2.51.1, Unplanned Power Reduction.</p>	<p>SRO directs ATC and BOP to reduce power to take the plant offline IAW AOP 2.51.1.</p> <p>BOP initiates turbine load reduction:</p> <ul style="list-style-type: none"> • Depress 1st STG IN pushbutton. • Set EHC SETTER to desired load. • Set LOAD RATE thumbwheel to 2%. • Depress GO. <p>ATC initiates boration IAW Attachment 1; (2% per minute power reduction).</p> <ul style="list-style-type: none"> • Places boric acid makeup blender control switch to STOP. • Places mode selector switch to BORATE. • Sets 2CHS*FCV113A to flow rate desired. • Sets 2CHS-FQIS113, BA totalizer, to total volume of BA to be added per reactivity plan. • Resets 2CHS*FQIS113 • Ensures 2CHS*FQIS168 is set to “zero”, then depresses reset. • Places boric acid makeup blender control switch to START, then verifies inservice BA pump starts, 2CHS*FCV113B opens and boric acid flow is indicated on 2CHS-FR113. • Adjusts 2CHS*FCV113A setpoint as desired to control boration flowrate. <p>BOP maintains power factor within limits.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><u>EVENT 3:</u> (continued)</p> <p>NOTE: Event 4 will automatically initiate when reactor power is reduced to <90% (approx. 10% power reduction).</p>		<p>Crew sounds the standby alarms and announces a Unit 2 rapid power reduction.</p> <p>ATC places all PRZR heaters to ON.</p> <p>ATC verifies rod control in AUTO and maintaining Tavg within ± 5F of Tref.</p> <p>BOP references and prepares to perform Attachment 4 to transfer busses to the offsite sources.</p>
<p><u>EVENT 4:</u> 375 gpm SGTR on “B” SG IMF RCS03B 375</p>	<p>PRZR level and pressure decreases. “B” SG lvl increases with reduction of feedflow. A4-1E, PRZR Control Low press deviation. followed by; A4-1D, PRZR Control press low. A4-1C, PRZR Control low level deviation.</p>	<p>ATC reports degrading primary plant conditions. BOP reports “B” SG level increasing</p> <p>SRO directs ATC to manually trip the reactor and initiate Safety Injection.</p>
<p><u>EVENTS 5, 6, 7, & 8:</u> (all preloaded to occur on/after the reactor trip)</p>	<p>BB-B Rx Trip switch failure. SG Blowdown isolation failure. Condenser Steam dump fails open after use. PRZR spray valves and PORV’s fail to open.</p>	<p>ATC attempts to trip the Rx from BB-B, recognizes switch failure and manually trips the Rx from BB-A.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><u>EVENTS 5, 6, 7, & 8:</u> (continued)</p>	<p>SRO enters E-0, Reactor Trip or Safety Injection</p>	<p>SRO directs the crew to perform IOA’s for E-0.</p>
		<p>ATC verifies Reactor trip:</p>
		<ul style="list-style-type: none"> • A5-6D, Turbine Trip due to Reactor trip - LIT.
		<ul style="list-style-type: none"> • Power range indication is < 5%.
		<ul style="list-style-type: none"> • Neutron flux is dropping.
		<p>BOP verifies Turbine trip:</p>
		<ul style="list-style-type: none"> • Throttle OR Governor valves ALL closed.
		<ul style="list-style-type: none"> • Main Generator output brks – open.
		<ul style="list-style-type: none"> • Exciter Circuit breaker – open.
	<p>AE and DF Busses are energized from offsite.</p>	<p>BOP verifies Power to AC Emergency Busses:</p>
		<ul style="list-style-type: none"> • Using VB-C voltmeters or IPC, verifies AE and DF busses have voltage indicated.
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
		<p>BOP identifies that both emergency busses are energized from offsite power.</p>
	<p>SI automatically actuated due to the SGTR.</p>	<p>Check SI Status.</p>
		<p>ATC checks if SI is required:</p>
		<ul style="list-style-type: none"> • ATC verifies CNMT press < 5psig.
		<ul style="list-style-type: none"> • ATC verifies PRZR press is not > 1860 psig.
		<ul style="list-style-type: none"> • ATC/BOP verifies Steamline press > 500 psig.
		<p>Crew determines SI is required; ATC manually actuates SI by actuating both trains’ control switches.</p>
		<p>Crew determines SI is required; ATC manually actuates SI by actuating both trains’ control switches.</p>
		<p>Crew determines SI is required; ATC manually actuates SI by actuating both trains’ control switches.</p>
		<p>Crew determines SI is required; ATC manually actuates SI by actuating both trains’ control switches.</p>
		<p>Crew determines SI is required; ATC manually actuates SI by actuating both trains’ control switches.</p>
		<p>Crew determines SI is required; ATC manually actuates SI by actuating both trains’ control switches.</p>
		<p>Crew determines SI is required; ATC manually actuates SI by actuating both trains’ control switches.</p>
		<p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p>
		<p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p>
		<p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p>
		<p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p>
		<p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p>
		<p>ATC/BOP, sounds standby alarm, announces Unit 2 reactor trip and safety injection.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 5, 6, 7, & 8: (continued)

NOTE:
Evaluation of BOP performing Attachment A-0.11 begins on page 18.

NOTES:
Crew may monitor C/D rate after AFW flow is reduced prior to isolating main steamlines.

List of Attachment A-0.11 discrepancies:
none.

RCS temperature <547°F and dropping due to Safety Injection flow.

- Check if SI flow should be reduced:
- Crew reports “B” SG level is rising in an uncontrolled manner.
- SRO determines SI flow should not be secured.
- ATC verifies SI system status:
- Charging pumps running – 2 running.
 - 2SIS*P21A & 2SIS*P21B running.
 - HHSI Flow indicated on 2SIS-FI943.
- BOP verifies AFW status:
- “A” motor-driven pump running.
 - Turb driven pump, all stm supply SOV’s open.
 - AFW throttle valves all FULL OPEN.
 - Total AFW flow is >340 gpm.
- BOP performs Attachment A-0.11.
- ATC checks RCS Tav_g stable at or trending to 547°F:
- ATC verifies no steam release is occurring. (Condenser steam dumps closed)
 - ATC verifies reheat steam is isolated.
 - ATC reduces total feedflow to minimize C/D.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 5, 6, 7, & 8: (continued)

- ATC verifies PRZR isolated
- PORVs – CLOSED
 - Spray Valves – CLOSED
 - Safety relief valves – CLOSED (use PSMS)
 - Power to at least one block valve – AVAILABLE (all)
 - Block valves – AT LEAST ONE OPEN (2)

- ATC checks if RCPs should be stopped:
- D/P between RCS pressure and highest SG pressure – <205 PSID.
 - Criteria for stopping is not met – all RCPs to remain in service.

- ATC/BOP checks if any SGs are faulted:
- Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER
OR
 - ANY SG COMPLETELY DEPRESSURIZED

Crew determines no SG’s are faulted.

- Crew checks if SG tubes are intact:
- Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER.
 - Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES.

Crew determines “B” SG level is rising in an uncontrolled manner and verifies HHSI valves, 2SIS*MOV867A,B,C,D all open & transition to E-3 is appropriate.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><u>EVENTS 5, 6, 7, & 8:</u> (continued)</p> <p>NOTE: Crew may have pre-emptively isolated AFW flow to the "B" SG when rupture was identified after NR level >12%.</p>	<p>SRO transitions to E-3, Steam Generator Tube Rupture.</p> <p>“B” SG ruptured</p>	<p>SRO directs STA to commence control room ventilation actions. Refer to Attachment A-2.5.</p> <p>ATC checks if RCPs should be stopped:</p> <ul style="list-style-type: none"> • D/P between RCS pressure and highest SG pressure – <205 PSID. <p>Crew determines criteria for stopping RCPs is not met.</p> <p>Crew notes that “B” SG was previously identified as the ruptured SG based upon unexpected NR level rise.</p> <ul style="list-style-type: none"> • BOP verifies “B” SG NR level >12%. • SRO directs BOP to isolate feed flow to ruptured SG.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><u>EVENTS 5, 6, 7, & 8:</u> (continued)</p> <p><u>Critical Task: CT-18 (E-3.A)</u> Crew isolates feed flow into and steam flow from the ruptured SG and directs operator to close isolation valve(s) operated from outside of the control room before a transition to ECA-3.1 occurs.</p> <p>SAFETY SIGNIFICANCE -- Failure to isolate the ruptured SG causes a loss of differential pressure between the ruptured SG and the intact SGs. Upon a loss of differential pressure, the crew must transition to a contingency procedure that constitutes an incorrect performance that necessitates the crew taking compensating action which complicates the event mitigation strategy.</p> <p>ROLE PLAY: 5 minutes after being dispatched to locally isolate 2SVS*28, insert IRF LOA-MSS010 to 0 then report back that 2SVS*28 has been closed.</p>	<p>NOTE: The items underlined in the right column are the components that are required to be verified/manipulated to confirm isolation of a ruptured SG.</p>	<p>ATC/BOP isolates flow from the ruptured SG.</p> <p><u>BOP verifies “B” SG atmospheric steam dump, 2SVS*PCV101B, closed and raises setpoint to 100%.</u></p> <p><u>SRO dispatches operator to locally close 2SVS*28. BOP verifies residual heat removal valve – CLOSED.</u></p> <p>Isolate ruptured SG to turbine driven AFW pump.</p> <ul style="list-style-type: none"> • BOP reports 1 motor driven AFW pp running. • <u>BOP closes 2MSS*SOV105B and 105E.</u> <p>Verify closed ruptured SG blowdown isolation valve. BOP reports 2BDG*AOV100B1 will not close. <u>BOP CLOSES 2BDG*AOV101B2.</u></p> <p>Close main steamline drain from ruptured SG.</p> <ul style="list-style-type: none"> • <u>BOP closes 2SDS*AOV111B1.</u> <p>Close 2SDS*AOV129A, RHR piping drain isolation.</p> <ul style="list-style-type: none"> • <u>BOP closes 2SDS*AOV129A.</u> <p>Close ruptured SG main steam isol & bypass vlvs.</p> <ul style="list-style-type: none"> • <u>BOP closes 2MSS*AOV101B.</u> • BOP verifies 2MSS*AOV102B closed. <p>BOP checks ruptured SG pressure – >240 PSIG.</p>

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENTS 5, 6, 7, & 8: (continued)

Condenser available

Crew initiates RCS cooldown:
SRO determines required core exit temperature as a function of ruptured SG pressure:

SRO directs ATC to block low steamline pressure SI when PRZR pressure <2000 psig.

BOP dumps steam to condenser from A & C SGs at maximum rate by:

- Checking MSIVs - AT LEAST ONE OPEN.
- Checking condenser available.
- Placing condenser steam dump controller in MANUAL.
- Place steam dumps in STM PRESS Mode
- Checks TAVG >541°F by Status light D-11, "2/3 Lo-Lo Tavg" (Panel 622) - LIT
- Defeats TAVG interlock until status light A-12, "Stm Dump Defeat Interlock" (Panel 622) – LIT
- Gradually raises steam dump rate to maximum rate (~25% demand)
- Verifies Core Exit TCs (CETC's) are reducing

When CETC's (average of hottest trisector), Less than REQUIRED Core exit temp, BOP stops RCS cooldown and maintains CETC's < REQUIRED TEMPERATURE.

NOTE:

It is not likely that cooldown will be completed at this step, crew will stop the RCS cooldown when criteria is met.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 7:

Condenser steam dump valve,
2MSS-PCV106A fails open following
cooldown.

IMF VLV-MSS13
(preloaded)

Critical Task: CT-19 (E-3.B)

**Crew establishes/maintains an RCS
temperature so that transition from
E-3 does not occur because the RCS
temperature is in either of the
following conditions:**

**Too high to maintain minimum
required subcooling for subsequent
RCS depressurization.**

OR

**Below the RCS temperature that
causes a red or orange path
challenge to Sub-criticality or
Integrity CSF.**

SAFETY SIGNIFICANCE -- Failure to
establish and maintain the correct RCS
temperature during a SGTR leads to a
transition from E-3 to a contingency
procedure, which constitutes an
incorrect performance that necessitates
the crew taking compensating action
which complicates the event mitigation
strategy.

BOP recognizes RCS cooldown has not stopped and
that a condenser steam dump valve will not close.

SRO directs BOP to isolate Main Steam lines and
stabilize RCS temp using Atmospheric stm dumps.
BOP closes 2MSS*AOV101A and 2MSS*AOV101C.

BOP manually controls 2SVS*PCV101A and
2MSS*PCV101C to stabilize RCS temperature.
May also use, 2SVS*HCV104 if they previously
dispatched an operator to isolate it from the "B" SG.

BOP stops RCS cooldown and maintains core exit
TCs – LESS THAN REQUIRED TEMPERATURE.

BOP checks intact SG levels:

- “A” & “C” NR levels – >12%.

BOP controls feed flow to maintain narrow range level
between 26% and 50%.

ATC checks PRZR PORVs and block valves:

- Power to block valves –All AVAILABLE.
- PORVs – ALL CLOSED.
- Block valves – AT LEAST ONE OPEN. (two)

ATC resets SI, CIA and CIB.

If not previously completed, crew verifies C/D
completed and maintains core exit TCs – < target temp

BOP verifies ruptured “B” SG Pressure- STABLE OR
RISING.

ATC verifies RCS subcooling based on core exit TCs -
>61F.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 8:

PRZR PORVs and spray valves fail to open preventing depressurization.

IMF VLV-RCS030

IMF VLV-RCS031

IMF CNH-RCS02A (2 120) 0

IMF CNH-RCS03A (2 120) 0

(commands pre-loaded)

ATC depressurizes RCS to minimize break flow and refill PRZR.

- Checks RCPs 21A & 21C, BOTH RUNNING.
- Attempts to open both PRZR spray valves.
- Attempts to open one PRZR PORV.

ATC reports failure with valves, no valves will open.

Checks depressurization method – IS NOT EFFECTIVELY REDUCING RCS PRESSURE.

ATC recognizes and informs SRO that the depressurization method is not effectively reducing RCS Pressure.

SRO directs ATC to close PRZR spray valves.

BOP checks “B” SG NR level less than 92%.

SRO enters ECA-3.3

Step skipped if “B” NR level was > 92%

ATC confirms 21C RCP running and normal spray did not result in pressure reduction therefore normal spray is not available.

Step skipped if “B” NR level was > 92%

ATC attempts to open remaining PORV’s/ Block valves – none will result in pressure reduction.

SRO continues with procedure.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<u>EVENT 8:</u> (continued)	Step skipped if “B” NR level was > 92%	BOP checks intact SG levels <ul style="list-style-type: none"> • “A” & “C” NR levels - > 12%
		BOP controls feed flow to maintain narrow range level between 26% and 50%.
	Step skipped if “B” NR level was > 92%	ATC verifies PRZR level > 17%.
		Crew checks if SI can be terminated.
		ATC verifies RCS Subcooling is greater than 41°F based on CETC’s
		BOP confirms secondary heat sink available by >340 gpm of feed flow available OR NR level in “A” or “C” SG > 12%.
		ATC confirms RVLIS Dynamic head range is > 85%.
		Crew determines “B” SG NR level is rising in an uncontrolled manner or is offscale high.
		SRO directs ATC to stop 1 charging pump.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

EVENT 8: (continued)

Critical Task: CT-35 (ECA-3.3.A)
Crew terminates SI when ECA-3.3 termination criteria are met and prior to completion of “SI Flow Verification” step of ECA-3.3.

Indicated SIS flow decreases to zero.

SRO directs ATC to isolate HHSI flow.

ATC closes 2SIS*MOV867A, B, C, D

SAFETY SIGNIFICANCE -- Failure to terminate SI during a SGTR (when the termination criteria are met) needlessly complicates the mitigation strategy. It also constitutes a "significant reduction of safety margin beyond that irreparably introduced by the scenario."

At Lead Evaluators discretion, terminate scenario when the crew has terminated SI flow IAW ECA-3.3.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 ‘Verification of Automatic Actions’ performed as time & manpower permit.

Ensure Reheat Steam Isolation.

BOP performs **Attachment A-0.11**, ‘Verification of Automatic Actions’ as follows:

Verifies power to both AC emergency busses.

Checks both EDGs running with SWS valve alignment and ventilation in service.

Verify both CNMT hydrogen analyzers running:
2HCS*SOV100A1, B1 – CNMT sample amber lights – LIT.

Checks 2HVS*FN204A or 2HVS*FN204B running.

Ensure reheat steam isolation:

- Verify 2MSS-MOV100A and B – closed.
- Reset reheater controller.
- Verify 2GSS-MOV204, spillover vlv, closed.

Check if main steamline isolation required:

- CNMT pressure – > 7 PSIG
-OR-
- Steamline pressure – < 500 PSIG
-OR-
- Steamline pressure high rate of change – 100 PSIG DROP IN 50 SECONDS.

If steamline isolation is required, verifies SLI by checking all YELLOW SLI marks – LIT.

If steamline isolation is not required continues on.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 – (continued)

NOTE:

BOP may have already pre-emptively opened 2CCS-AOV118 to provide cooling to the Station Air compressors.

CIB has not occurred.

CIB has not occurred.

Establish domestic water system cooling to station air compressors;

- Opens 2CCS-AOV118.
- Verifies at least 1 air compressor is running.

Verifies at least 1 CCP pump is running unless a CIB has occurred.

Align neutron flux monitoring for shutdown:

- Verifies SR CHs energized when IR <1E-10.
- Transfer 2NME-NR45, nuclear recorder, to operable SR and IR displays.

Check CIB and CNMT spray status:

- CNMT pressure – has remained <11 PSIG.

If not – Actuate CIB if required by:

- Manually initiating CIB – BOTH SWITCHES FOR BOTH TRAINS.
- Manually align equipment as required.
- Verify all RCPs – STOPPED.
- BV-1 operator verifies CREVS actuation.
- Service water flow established to RSS HX(s).

Verify service water system in service:

- SWS pumps - TWO RUNNING.
- Check SWS header pressure – >55 psig.
- SWS pump seal water pressure – NOT LOW.

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
--------------------------	------------------------------------	---------------------------

Attachment A-0.11 – (continued)

Verify ESF equipment status:

- Verify SI status by checking all RED SIS marks – LIT.
- Verify CIA by checking all ORANGE CIA marks – LIT.
- Verify FWI by checking all GREEN FWI marks – LIT.

Verify source range channels energized with audible indication functioning properly, adjusts multiplier switch and volume as necessary.

Attachment A-0.11 – COMPLETE

Discrepancies:
none

Upon completion, report any discrepancies to SRO.