

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE:      Emergency Borate the Reactor Coolant System

TRAINING MATERIAL NUMBER: 1CR-511

PROGRAM TITLE:                      Licensed Operator Training

COMPUTER CODE:                      1CR-511

REVISION NUMBER:                      4

TECHNICAL REFERENCES:

1OM-7.4.S, "Emergency Boration", Revision 7

INSTRUCTIONAL SETTING:              Simulator

APPROXIMATE DURATION:              15 Minutes

PREPARED BY:                      I. Forbes \_\_\_\_\_

Date

PEER REVIEW BY: \_\_\_\_\_

Date

APPROVED FOR USE: \_\_\_\_\_

Training Supervisor or Designee

Date

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1CR-511								
Type of Change:								
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 4						
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 3 New Change #						
List/Description of Change(s):  Updated left hand column of JPM to properly reflect verbatim procedure per current standards. Added a note so that JPM can be used in conjunction with another simulator JPM. Changed Initiating Cue from SM directs to US directs to reflect plant operations.								
Reason for Change (s):  Updated JPM prior to implementation.								
APPROVALS: <table border="0"> <tr> <td>I. Forbes</td> <td></td> </tr> <tr> <td>Prepared by</td> <td>Date</td> </tr> <tr> <td>Training Superintendent/Supervisor/Peer (<i>"Changes Not Requiring Revision" only</i>)</td> <td>Date</td> </tr> </table>			I. Forbes		Prepared by	Date	Training Superintendent/Supervisor/Peer ( <i>"Changes Not Requiring Revision" only</i> )	Date
I. Forbes								
Prepared by	Date							
Training Superintendent/Supervisor/Peer ( <i>"Changes Not Requiring Revision" only</i> )	Date							
<div style="border: 1px solid black; padding: 5px;"> <b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.         </div>								

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-511  
JPM REVISION: 4

JPM TITLE: Emergency Borate the Reactor Coolant System

K/A REFERENCE: 004 A2.14 3.8/3.9

TASK ID: 0071-038-01-013

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-511  
JPM REVISION: 4

JPM TITLE: Emergency Borate the Reactor Coolant System

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** Emergency borate to the RCS from the RWST at  $\geq 105$  gpm.

**RECOMMENDED** Simulator

**STARTING LOCATION:**

**DIRECTIONS:** You are to emergency borate to the Reactor Coolant System.

**INITIAL CONDITIONS:**

- The plant is 100% power, with all systems in NSA following a recent escalation of power.
- An event has occurred that caused A4-124, ROD CONTROL BANK D LOW-LOW", to alarm.
- This is a valid alarm.

**INITIATING CUE:** The US directs you to respond to the annunciator by borating the RCS until the control rods are above the RIL, using 1OM-7.4.S, "Emergency Boration".

**REFERENCES:** 1OM-7.4.S, "Emergency Boration", Revision 7.

**TOOLS:** None

**HANDOUT:** 1OM-7.4.S, "Emergency Boration", Revision 7.



## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

You are to emergency borate to the Reactor Coolant System.

INITIAL CONDITIONS:

- The plant is 100% power, with all systems in NSA following a recent escalation of power.
- An event has occurred that caused A4-124, ROD CONTROL BANK D LOW-LOW", to alarm.
- This is a valid alarm.

INITIATING CUE:

The US directs you to respond to the annunciator by borating the RCS until the control rods are above the RIL, using IOM-7.4.S, "Emergency Boration".

☐

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 NUMBER: 1CR-511 JPM REVISION: 4	JPM TITLE: Emergency Borate the Reactor Coolant System
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<p><b>SIMULATOR SETUP:</b></p> <ul style="list-style-type: none"> <li>• Select 100% power IC.</li> <li>• Insert Control Rods in manual until Rod Control Bank D LOW-LOW annunciator alarms.</li> <li>• Adjust RCS boron concentration until Tavg-Tref is within 1 F using Malfunction RCS 21 (approximately 40 ppm depending on core life).</li> <li>• Select VLV-CHS17, set severity to 0 and insert (Prevents MOV-1CH-350 from opening).</li> <li>• <b>Ensure charging flow is &lt; 105 gpm prior to snapping IC.</b></li> </ul> <p><b>EVALUATOR CUE/NOTE:</b> [MOV-1CH-350] will not open. (Fault) Prior to beginning JPM, set Band D Group Counters to match IRPI. Do NOT place simulator in RUN until candidate is ready to begin. Provide the candidate with a copy of OM-7.4.S prior to beginning the JPM.</p>	
	START TIME: _____	
1. Review 1OM-7.4.S, "Emergency Boration".	1.1 Candidate reviews 1OM-7.4.S provided.  COMMENTS:	
2. Ensure at least one [1CH-P-1A(1B)(1C)] Charging Pump Hi Head Safety Injection, is running. (BB-A)	2.1 Verifies at least one Charging Pump is running by observing Red Light above pump control switch – LIT; White Light – NOT LIT. Also verifies associated pump amperage is reading normal (approximately 60 amps).  COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-511  
JPM REVISION: 4

JPM TITLE: Emergency Borate the Reactor Coolant System

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3. Place Emergency Boration Isol Vlv [MOV-1CH-350] control switch to OPEN. (BB-A)</p>	<p>3.1 Places [MOV-1CH-350] control switch to OPEN.</p> <p>3.2 Identifies Green Light – REMAINS LIT and Red Light – NOT LIT.</p> <p>3.3 Determines [MOV-1CH-350] has not opened.</p> <p>COMMENTS:</p>	
<p>4. Place the online Boric Acid 2A(2B) Transfer Pump [1CH-P-2A(2B)] control switch to FAST. (BB-A)</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>EVALUATOR NOTE:</b> This step will be omitted if candidate correctly determines no flow will be available with [MOV-1CH-350] not open and should proceed to procedure step 5 for alternate flowpath.</p> </div> <p>4.1 Places [1CH-P-2A (2B)] control switch to FAST.</p> <p>4.2 Verifies Red FAST Light – LIT; Red SLOW Light – NOT LIT.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-511  
JPM REVISION: 4

JPM TITLE: Emergency Borate the Reactor Coolant System

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5. Verify [FI-1CH-110], Emergency Boration Flow greater than or equal to 30 gpm. (VB-A)</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> This step will be omitted if candidate correctly determines no flow will be available with [MOV-1CH-350] not open and should proceed to procedure step 5 for alternate flowpath.</p> </div> <p>5.1 Candidate checks [FI-1CH-110] greater than or equal to 30 gpm.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> <b>FAULT STATEMENT</b> Alternate path begins here: [MOV-1CH 350] will not open. Candidate must align alternate flowpath from the RWST. (Procedure step 5.a).</p> </div>	
<p>6.C Align the RWST to the charging pump suction:</p> <p>1). Open [MOV-1CH-115B] or [MOV-1CH-115D], RWST Disch to Chg Pumps Suct Vlv. (BB-A)</p> <p>2). Close [MOV-1CH-115C] or [MOV-1CH-115E], VCT Outlet to Chg Pumps Suct Vlv. (BB-A)</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE/CUE:</b> If the candidate tries to have [MOV-1CH-350] locally opened or align the blender to the charging pump suction, cue that the SM desires to use the RWST flowpath.</p> </div> <p>6.1C Places [MOV-1CH-115B] OR [MOV-1CH-115D] control switch to OPEN.</p> <p>6.2 Verifies Red Light – LIT; Green Light – NOT LIT.</p> <p>6.3C Places [MOV-1CH-115C] OR [MOV-1CH-115E] control switch to CLOSE.</p> <p>6.4 Verifies Green Light – LIT; Red Light – NOT LIT.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-511  
JPM REVISION: 4

JPM TITLE: Emergency Borate the Reactor Coolant System

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>7.C Place [FCV-1CH-122], Chg Flow to Regen Hx Inlet Control Vlv controller to MAN (BB-A)</p> <ul style="list-style-type: none"> <li>If RWST is the source of boric acid, establish <math>\geq 105</math> gpm charging flow as indicated on [FI-1CH-122A] Charging Pump Flow. (BB-A)</li> </ul>	<p>7.1 Places [FCV-1CH-122] control station to MANUAL by depressing MAN pushbutton.</p> <p>7.2 Verifies Red MAN Light – LIT; White AUTO Light – NOT LIT.</p> <p>7.3C Depresses ▼ pushbutton and establishes <math>\geq 105</math> gpm as indicated on [FI-1CH-122A].</p> <p>COMMENTS:</p>	
<p>8. Verify [PI-1RC-455, 456, 457], PRZR Press indicates &lt; 2335 psig.</p>	<p>8.1 Verifies PRZR pressure on [PI-1RC-455, 456, 457] are indicating &lt; 2335 psig.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 10px;"> <p><b>EVALUATOR CUE:</b> That completes this JPM. If performing this JPM in parallel with another simulator JPM that takes longer, reposition MOV-1CH-115B or 115D and MOV-1CH-115C or 115E to minimize impact on RCS and subsequent distraction to the other candidate who is still performing their JPM.</p> </div>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Synchronize and Load No. 1 Diesel Generator

TRAINING MATERIAL NUMBER: 1CR-524

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1CR-524

REVISION NUMBER: 0

TECHNICAL REFERENCES:

1OST-36.1, "Diesel Generator No.1 Monthly Test", Rev 55

1OM-36.4.ADY, "Diesel Generator No. 1 Differential, Issue 3, Rev. 0

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: I. Forbes

Date

PEER REVIEW BY:

Date

APPROVED FOR USE:

Training Supervisor or Designee

Date

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1CR-524		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. #0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. #  New Change #
List/Description of Change(s):  Created new JPM modeled after Unit 2 version.		
Reason for Change (s):  To build BVPS Unit 1 JPM Infrastructure.		
APPROVALS:		
I. Forbes Prepared by	Date	<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only)	Date	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-524 JPM REVISION: 0	JPM TITLE: Synchronize and Load No. 1 Diesel Generator
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K/A REFERENCE: 064A4.06 3.9/3.9

TASK ID: 0362-005-06-013

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-524  
JPM REVISION: 0

JPM TITLE: Synchronize and Load No. 1 Diesel Generator

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** No. 1 Diesel Generator is synchronized and loaded in accordance with 1OST-36.1, "Diesel Generator No. 1 Monthly Test" AND then opens ACB 1E9 in response to Annunciator A9-3.

**RECOMMENDED  
STARTING LOCATION:** Simulator

**DIRECTIONS:** You are to synchronize and load No. 1 Diesel Generator.

**INITIAL CONDITIONS:** The plant is in Mode 1 with 1OST-36.1 being performed. The test has been completed up to Section V, Step 27. All steps up to this point have been completed satisfactorily.

**INITIATING CUE:** Your supervisor directs you to perform Section V, Steps 27 through 34 of 1OST-36.1. You are responsible to respond to all alarms on Annunciator panel A8 & A9.

**REFERENCES:** 1OST-36.1, "Diesel Generator No.1 Monthly Test", Rev 55  
1OM-36.4.ADY, "Diesel Generator No. 1 Differential, Issue 3, Rev. 0

**TOOLS:** None

**HANDOUT:** 1OST-36.1, "Diesel Generator No.1 Monthly Test", Rev 55, place kept up to step 27.  
1OM-36.4.ADY, "Diesel Generator No. 1 Differential, Issue 3, Rev. 0  
(**AFTER ALARM OCCURS**)

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

You are to synchronize and load No. 1 Diesel Generator.

INITIAL CONDITIONS:

The plant is in Mode 1 with 1OST-36.1 being performed. The test has been completed up to Section V, Step 27. All steps up to this point have been completed satisfactorily.

INITIATING CUE:

Your supervisor directs you to perform Section V, Steps 27 through 34 of 1OST-36.1. You are responsible to respond to all alarms on Annunciator panel A8 & A9.

☐

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 NUMBER: 1CR-524  
JPM REVISION: 0

JPM TITLE: Synchronize and Load No. 1 Diesel Generator

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 10px;"> <p><b>Simulator Setup:</b> Initialize to any Mode 1 IC Set</p> <p>Ensure simulator is setup for OST-36.1 conditions up to step 27 as follows:</p> <ul style="list-style-type: none"> <li>• DG in EXERCISE &amp; running @ 900 RPM</li> <li>• EDG voltage at ~122 volts</li> <li>• Turn on Annunciator A11-81, DIESEL GEN BLDG A FIRE PROT SYSTEM TROUBLE</li> <li>• Select EPS288, Diesel Generator 1 Droop Setting and select Parallel Ops</li> </ul> <p>Set Trigger 1 to actuate when DG Load reaches 500 KW and actuates Annunciator A9-3, to support Alternate Path JPM as follows:</p> <ul style="list-style-type: none"> <li>• Select Event Triggers</li> <li>• Enter X17D049M &gt;= 500 into event tab</li> <li>• Enter imf XN09003 1 into command tab</li> </ul> <p>Freeze and snap IC Set.</p> <p><b><u>ENSURE "B" PROTECTED TRAIN POSTED</u></b></p> </div>	
	START TIME: _____	
<p>1. Reviews place kept copy of 1OST-36.1, "Diesel Generator No. 1 Monthly Test".</p>	<div style="border: 1px solid black; padding: 10px;"> <p><b>EVALUATOR CUE:</b> Provide the candidate a place kept copy of 1OST-36.1 and when ready to begin, place Simulator in RUN.</p> </div> <p>1.1 Reviews place kept copy of 1OST-36.1 AND begins at Step 27a.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-524  
JPM REVISION: 0

JPM TITLE: Synchronize and Load No. 1 Diesel Generator

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>2. Perform the following voltage and frequency verifications: SR 3.8.1.2</p> <p>a. If using benchboard instrumentation, obtain the following readings:</p> <ul style="list-style-type: none"> <li>• EDG Output Voltage (A-B) ____ volts.</li> <li>• EDG Output Frequency ____ Hz.</li> </ul>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>EVALUATOR CUE:</b> If necessary, remind the candidate that Digital voltmeter readings are NOT required.         </div> <p>2.1 Records EMERG GEN 1 VOLTS benchboard indication in Step 27a.</p> <p>2.2 Records EMERG GEN 1 FREQUENCY benchboard indication in Step 27a.</p> <p>COMMENTS:</p>	
<p>3.C Close the Motor Operated Ground Switch by positioning the No.1 Diesel Generator Motor Operated Ground Switch Control to CLOSE. (Generator Section of the Benchboard)</p> <p>a. Check ANN. A9-2, "DIESEL GENERATOR NO. 1 M.O. GROUND SWITCH NOT FULLY OPEN" is ON.</p>	<p>3.1C Places EMERG GEN 1 MOTOR OPERATED GND SW DS1 control switch to CLOSE position.</p> <p>3.2 Releases switch when White light – NOT LIT and Red light – LIT.</p> <p>3.3 Acknowledges Annunciator A9-2, "DIESEL GEN 1 MO GROUND SW NOT FULLY OPEN".</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-524  
JPM REVISION: 0

JPM TITLE: Synchronize and Load No. 1 Diesel Generator

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C Position the No. 1 Diesel Generator Synchroscope Selector Switch to the 1E9 position to compare the diesel generator frequency to the frequency on bus 1AE (Generator Section of the Benchboard).</p> <p>a. Check A9-8, "ACB 1E7 or 1E9 IN SYNCHRONIZING MODE" alarms when the Synchroscope Selector Switch is moved from OFF position.</p>	<p>4.1C Places the EMERG GEN 1 SYNCHRONIZING SEL SW to the ACB 1E9 position.</p> <p>4.2 Compares EMERG GEN 1 FREQUENCY to MAIN GEN FREQUENCY on generator section benchboard.</p> <p>4.3 Acknowledges A9-8, ACB 1E7 or 1E9 IN SYNCHRONIZING MODE" alarm.</p> <p>COMMENTS:</p>	
<p>5.C Using the No. 1 Diesel Generator Governor Control Switch, adjust generator speed until the synchroscope needle is rotating very slowly in the FAST direction (Generator Section of the Benchboard).</p>	<p>5.1C Raise or lowers EMERG GEN 1 GOVERNOR control switch to adjust No. 1 EDG speed until the synchroscope is rotating very slowly in the fast direction.</p> <p>COMMENTS:</p>	
<p>6. Using the No.1 Diesel generator Voltage Control Switch, match generator voltage (Incoming) with the voltage on Bus 1AE (Running).</p>	<p>6.1. Raises or lowers voltage using EMERG GEN 1 VOLT ADJUST control switch to match generator voltage (SYNC VOLTS INCOMING NORM) with the voltage on Bus 1AE (SYNC VOLTS RUNNING NORM) on the kickup section of the benchboard above the synchroscope.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-524  
JPM REVISION: 0

JPM TITLE: Synchronize and Load No. 1 Diesel Generator

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>7.C When <u>both</u> synchronizing lights are completely dark <b>AND</b> synchroscope needle is at the 12 o'clock position, place the No. 1 Diesel Generator Breaker Control to CLOSE. (Red light) (Generator Section of the Benchboard).</p>	<p>7.1C Places EMERG GEN 1 CIRCUIT BREAKER 1E9 control switch to START position when synchronizing needle is at 12 o'clock and lamps are dark.</p> <p>7.2 Verifies ACB 1E9 Red Light - LIT and White Light – NOT LIT and releases switch.</p> <p>COMMENTS:</p>	
<p>8.C Pick up a small amount of load by moving the No. 1 Diesel Generator Governor Control Switch, intermittently, to the RAISE position.</p>	<p>8.1C Increases load on No. 1 EDG by turning EMERG GEN 1 GOVERNOR Control switch intermittently to RAISE, limiting load to approximately 300 KW.</p> <p>8.2 Observes increasing No.1 EDG watts and amps. - EMERG No. 1 GEN WATTS - EMER GEN 1 Bus 1AE AMPS</p> <p>COMMENTS:</p>	
<p>9. Turn synchroscope selector switch to OFF.</p>	<p>9.1 Places EMERG GEN 1 SYNCHRONIZING SEL SW in the OFF position.</p> <p>9.2 Acknowledges A9-8, ACB 1E7 or 1E9 IN SYNCHRONIZING MODE" clears.</p> <p>9.3 N/As Step 32.c.1-4 and continues with Step 33.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-524  
JPM REVISION: 0

JPM TITLE: Synchronize and Load No. 1 Diesel Generator

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>10.C Load the diesel to approximately 2450 KW by performing the following:</p> <p>a. While raising load, Adjust generator power factor from 0.90 lagging to 1.00, by using the generator voltage adjust switch (Generator section of the benchboard).</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> If asked Role Play US and direct candidate to load NO. 1 EDG to 2450 KW over ten minutes.</p> </div> <p>10.1C Adjusts EMERG GEN 1 POWER FACTOR using the EMERG GEN VOLTAGE ADJUST switch to between 0.90 – 1.00 LAGGING while raising EDG load.</p> <p>10.2 Verifies power factor on Power Factor meter.</p> <p>COMMENTS:</p>	
<p>11.C With the No. 1 Diesel Generator ACB closed, increase load to Approximate Load listed in Table A by placing the Govenor Control Switch, intermittently, to the RAISE position.</p>	<p>11.1C Using EMERG GEN 1 GOVERNOR Switch intermittently in the RAISE position, picks up load on NO. 1 EDG.</p> <p>11.2 Begins raising EDG load to 2450 KW over a ten minute period of time.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-524  
JPM REVISION: 0

JPM TITLE: Synchronize and Load No. 1 Diesel Generator

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>12.C Responds to Annunciator A9-3, "GENERATOR NO.1 DIFFERENTIAL".</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>FAULT STATEMENT:</b> At this point the JPM alternate path begins. Annunciator A9-3, "GENERATOR NO.1 DIFFERENTIAL" will annunciate when NO.1 EDG loading reaches 500 KW. Candidate should respond to ARP and trip 1E9.</p> </div> <p>12.1 Acknowledges the alarm and responds by reviewing the ARP for A9-3.</p> <p>12.2C Places ACB 1E9 output breaker to STOP position.</p> <p>12.3 Verifies EMERG GEN 1 MOTOR OPERATED GND SW DS1 White Light – LIT, Red Light – NOT LIT.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Terminate the JPM after the candidate opens the output breaker and verifies the motor operated ground switch is open using evaluator discretion.</p> </div> <p>COMMENTS:</p>	
	<p>STOP TIME: _____</p>	



OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Isolate SI Accumulators During a LOCA

TRAINING MATERIAL NUMBER: 1CR-642

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1CR-642

REVISION NUMBER: 3

TECHNICAL REFERENCES:

1OM-53.A.1.ES-1.2, Post LOCA Cooldown and Depressurization, Issue 1C, Rev. 15

1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)], Rev. 6

1OM-53A.1.6-A, 0 F Plus Subcooling Based on Core Exit TCs, Issue 1C, Rev. 0

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 12 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_  
Date

PEER REVIEW BY: \_\_\_\_\_  
Date

APPROVED FOR USE: \_\_\_\_\_  
Training Supervisor or Designee Date

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1CR-642		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 3
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 2  New Change #
List/Description of Change(s):  <ol style="list-style-type: none"> <li>1. Updated to reflect most current procedure revisions.</li> <li>2. Added Evaluator Note to set up VB-A &amp; VB-B computer screens.</li> <li>3. Added acknowledge annunciators when MOV-1 SI-865A/B are taken to close (step 6).</li> </ol>		
Reason for Change (s):  To ensure JPM is up to date prior to administration.		
APPROVALS:		
I. Forbes _____ Prepared by	_____ Date	<div style="border: 1px solid black; padding: 5px;"> <b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.         </div>
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only)	_____ Date	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642 JPM REVISION: 3	JPM TITLE: Isolate SI Accumulators During a LOCA.
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K/A REFERENCE: 009 EA1.13 4.4/4.4 TASK ID: 0111-011-01-013

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 12 Minutes	Actual Time: _____ minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation)			
Comments: _____ _____			
OBSERVERS			
Name/SSN: _____		Name/SSN: _____	
Name/SSN: _____		Name/SSN: _____	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642  
JPM REVISION: 3

JPM TITLE: Isolate SI Accumulators During a LOCA.

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** SI Accumulators 'A' and 'B' are isolated. SI Accumulator 'C' venting in progress.

**RECOMMENDED  
STARTING LOCATION:** Simulator

**DIRECTIONS:** You are to Isolate the SI Accumulators During a LOCA.

**INITIAL CONDITIONS:** A LOCA has occurred. The crew is performing ES-1.2, Post LOCA Cooldown and Depressurization.

**INITIATING CUE:** The Unit Supervisor directs you to isolate the SI accumulators in accordance with ES-1.2, Post LOCA Cooldown and Depressurization, Step 27.

**REFERENCES:** 1OM-53.A.1.ES-1.2, Post LOCA Cooldown and Depressurization, Issue 1C, Rev. 15  
1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)], Rev. 6  
1OM-53A.1.6-A, 0 F Plus Subcooling Based on Core Exit TCs, Issue 1C, Rev. 0

**TOOLS:** Shorting Bars

**HANDOUT:** 1OM-53.A.1.ES-1.2, Post LOCA Cooldown and Depressurization, Issue 1C, Rev. 15, STEP 27 ONLY.  
1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)], Rev. 6  
1OM-53A.1.6-A, 0 F Plus Subcooling Based on Core Exit TCs, Issue 1C, Rev. 0

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

**DIRECTIONS:** You are to Isolate the SI Accumulators During a LOCA.

**INITIAL CONDITIONS:** A LOCA has occurred. The crew is performing ES-1.2, Post LOCA Cooldown and Depressurization.

**INITIATING CUE:** The Unit Supervisor directs you to isolate the SI accumulators in accordance with ES-1.2, Post LOCA Cooldown and Depressurization, Step 27.

☐ 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 NUMBER: 1CR-642  
JPM REVISION: 3

JPM TITLE: Isolate SI Accumulators During a LOCA.

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div> <p><b>SIMULATOR SETUP:</b> Start with 100% power IC. Override MOV1SI-865C to OPEN by inserting VLV-SIS28 to 100%. Insert a SBLOCA by inserting RCS02C @ 700 gpm. Progress through E-0 - E-1 - ES-1.2 up to step 27 and freeze simulator. (Ensure subcooling and PZR Level requirements of step 27 are met). ENSURE CIA signal is reset per procedure. Also ensure PZR is properly trending so that it is maintained greater than 17%.</p> </div> <div> <p><b>EVALUATOR NOTE:</b> Ensure shorting bars for MOV-1SI-865A, B, C are available. When candidate is ready to begin, go to RUN on the simulator.</p> </div> <div> <p><b>EVALUATOR NOTE:</b> Provide candidate a copy of ES-1.2, STEP 27 ONLY. DO NOT PROVIDE candidate with a copy of 1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)], UNTIL he/she recognizes the need for the procedure in step 10 of the JPM.</p> </div> <div> <p><b>EVALUATOR NOTE:</b> Set up VB-A Display (Select VB-Display 2 and then Rx Trip Group Display) Set up VB-B Display (Select VB-Display 1 and then PZR Lvl &amp; RCS Wide Range Pressure)</p> </div>	
	START TIME: _____	
1. Reviews procedure.	<p>1.1 Candidate reviews procedure provided.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642  
JPM REVISION: 3

JPM TITLE: Isolate SI Accumulators During a LOCA.

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>2. RCS subcooling based on core exit TCs – greater than subcooling listed on Attachment 6-A.</p>	<p>2.1 Determines ICCM RCS subcooling is greater than subcooling listed on Att. 6-A.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Provide candidate with a copy of Attachment 6-A.</p> </div> <p>COMMENTS:</p>	
<p>3. PRZR level – greater than 17%.</p>	<p>3.1 Verifies PRZR level indication LI-1RC- 459A, 460, and 461 are greater than 17%.</p> <p>COMMENTS:</p>	
<p>4. Power to [MOV-1SI-865A, B, C] available.</p>	<p>4.1 Verifies MOV-1SI-865A, B and C Red Lights – LIT and Green Lights - NOT LIT.</p> <p>COMMENTS:</p>	
<p>5.C Insert shorting bars into jack for [MOV-1SI-865A, B, C].</p>	<p>5.1C Inserts shorting bars into jacks for MOV-1SI-865A, B, and C.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Provide candidate with shorting bars, when requested.</p> </div> <p>5.2 Verifies Red in service or Ground Light - LIT.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642 JPM REVISION: 3	JPM TITLE: Isolate SI Accumulators During a LOCA.
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p><b>EVALUATOR CUE:</b></p> <p><b>FAULT STATEMENT</b></p> <p>MOV-1SI-865C will <b>NOT</b> close in the next step.</p> </div>	
6.C Close [MOV-1SI-865A, B, C].	<p>6.1C Places MOV-1SI-865A &amp; B control switches to CLOSE.</p> <p>6.2 Acknowledges A1-101/102, "SAFETY INJECTOR ACCUMULATOR # 1/#2 DISCH VALVE NOT FULLY OPEN" annunciator after each corresponding valve is taken to CLOSE.</p> <p>6.3 Verifies MOV-1SI-865A &amp; B Green Light - LIT and Red Light - NOT LIT.</p> <p>6.4 Places MOV-1SI-865C control switch to CLOSE.</p> <p>6.5 Determines Red Light - REMAINS LIT and Green Light - REMAINS NOT LIT.</p> <p>COMMENTS:</p>	
7. Verify at least one station air compressor or the diesel air compressor is running.	<p>7.1 Verifies ISA-C-1A or 1B White Light - NOT LIT and Red Light - LIT.</p> <p>COMMENTS:</p>	



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642  
JPM REVISION: 3

JPM TITLE: Isolate SI Accumulators During a LOCA.

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
8. Verify [TV-11A-400] - Open.	8.1 Verifies TV-11A-400 Train A & B Green Lights NOT LIT and Red Lights LIT.  COMMENTS:	
9. Check CNMT instrument air header pressure – greater than 85 psig.	9.1 Verifies PI-11A-106A containment instrument air header pressure GREATER THAN 85 psig.  COMMENTS:	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> DO NOT PROVIDE candidate with a copy of 1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)], UNTIL he/she recognizes the need for the procedure in step 10 of the JPM.</p> </div>	
10. Locates and reviews procedure 1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)].	10.1 Locates and reviews procedure 1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)].  <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Once candidate has located the procedure, provide a copy of 1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)].</p> </div> COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642 JPM REVISION: 3	JPM TITLE: Isolate SI Accumulators During a LOCA.
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<b>EVALUATOR CUE:</b> If necessary, Role-play the Unit Supervisor and inform the Candidate that Radiation Protection does not require a nitrogen gas sample.	
11. Check [HIC-1SI-936] SI ACC N <sub>2</sub> Vent to Atm control, output is adjusted to "Zero" percent.	11.1 Verifies HIC-1SI-936 indicates ZERO percent.  COMMENTS:	
12. Close [1SI-69], Nitrogen Supply to S.I. Accumulators.	12.1 Dispatches local operator to close 1SI-69.  <b>EVALUATOR CUE:</b> Role-play the Local operator report and acknowledge the request AND report that 1SI-69 is <b>CLOSED</b> .  COMMENTS:	
13. If desired by the SM/US, Close [1SI-437], Nitrogen Supply to Overpressure Protection System.	13.1 No action required.  <b>EVALUATOR CUE:</b> Role-play the Unit Supervisor. Inform Candidate it is NOT desired to close 1SI-437.  COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642  
JPM REVISION: 3

JPM TITLE: Isolate SI Accumulators During a LOCA.

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
14.C Open [MOV-1SI-853C], (1C) SI Acc N <sub>2</sub> Sup Isol Vlv.	14.1C Places MOV-1SI-853C control switch to OPEN.  14.2 Verifies Red Light - LIT and Green Light - NOT LIT.  COMMENTS:	
15.C Open [TV-1SI-101-1], SI Acc N <sub>2</sub> Sup Isol Vlv.	15.1C Places TV-1SI-101-1 control switch to OPEN.  15.2 Verifies Red Light - LIT and Green Light - NOT LIT.  COMMENTS:	
16.C Open [TV-1SI-101-2], SI Acc N <sub>2</sub> Sup Isol Vlv.	16.1C Places TV-1SI-101-2 control switch to OPEN.  16.2 Verifies Red Light - LIT and Green Light - -NOT LIT.  COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-642 JPM REVISION: 3	JPM TITLE: Isolate SI Accumulators During a LOCA.
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
17.C Operate [HIC-1SI-936] to lower accumulator to the desired pressure AS INDICATED ON [PI-1SI-929 & 931].	17.1C Rotates HIC-1SI-936 controller CLOCKWISE.  17.2. Verifies PI-1SI-929 & 931 indicate accumulator pressure is LOWERING.  COMMENTS:	
	<div style="border: 1px solid black; padding: 5px;"> <b>EVALUATOR CUE:</b>            Once Accumulator pressure is verified lowering, inform candidate "That Completes this JPM".         </div>	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE:      Align SI Pumps for Hot/Cold Leg Recirculation

TRAINING MATERIAL NUMBER: 1CR-570

PROGRAM TITLE:                Licensed Operator Training

COMPUTER CODE:               1CR-570

REVISION NUMBER:              3

TECHNICAL REFERENCES:

1OM-53A.1.ES-1.4 (ISS1C), Rev. 6

INSTRUCTIONAL SETTING:        Control Room

APPROXIMATE DURATION:        10 Minutes

PREPARED BY:                   I. Forbes

Date

PEER REVIEW BY:              

Date

APPROVED FOR USE:          

Training Supervisor or Designee

Date

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1CR-570		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 3
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 2  New Change #
List/Description of Change(s):  Removed continuing training to allow flexibility for both Initial & Continuing Training Programs. Changed starting location to simulator vs. control room. Clarified use of shorting bar. Streamlined simulator setup. Added in accordance with ES-1.4 to initiating cue.		
Reason for Change (s):  Updated for use on upcoming exam.		
APPROVALS:		
I. Forbes Prepared by	_____ Date	<div style="border: 1px solid black; padding: 5px;"> <b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.         </div>
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only)	_____ Date	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-570 JPM REVISION: 3	JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation
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K/A REFERENCE: 006A4.07 4.4/4.4 TASK ID: 0111-019-01-013

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-570  
JPM REVISION: 3

JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation

**EVALUATOR DIRECTION SHEET****TASK STANDARD:**

LHSI Pumps are aligned for simultaneous cold leg and hot leg recirculation.

**RECOMMENDED  
STARTING LOCATION:**

Simulator

**DIRECTIONS:**

You are to align the LHSI Pumps for simultaneous cold leg and hot leg recirculation.

**INITIAL CONDITIONS:**

- It has been approximately 6.5 hours since the plant suffered a Loss of Coolant Accident.
- All required procedures have been performed to this point with the plant currently on cold leg recirculation.
- The TSC has recommended aligning to simultaneous cold leg and hot leg recirculation.

**INITIATING CUE:**

Your supervisor directs you to align simultaneous cold leg and hot leg recirculation in accordance with ES-1.4 at this time.

**REFERENCES:**

1OM-53A.1.ES-1.4 Issue 1C Revision 6

**TOOLS:**

Shorting Bar(s) (keep in pocket until requested by candidate)  
(will need only 1 shorting bar)

**HANDOUT:**

1OM-53A.1.ES-1.4 Issue 1C Revision 6



## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

DIRECTIONS: You are to align the LHSI Pumps for simultaneous cold leg and hot leg recirculation.

INITIAL CONDITIONS:

- It has been approximately 6.5 hours since the plant suffered a Loss of Coolant Accident.
- All required procedures have been performed to this point with the plant currently on cold leg recirculation.
- The TSC has recommended aligning to simultaneous cold leg and hot leg recirculation.

INITIATING CUE: Your supervisor directs you to align simultaneous cold leg and hot leg recirculation in accordance with ES-1.4 at this time.

☐ 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 NUMBER: 1CR-570  
JPM REVISION: 3

JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<p><b>SIMULATOR SETUP:</b>  Initialize to any at power IC Set.  Insert VLV-SIS24 to prevent MOV-1SI864A from closing. (JPM FAULT)  Insert MALF RCS02D and SIS1 to 1000.  Perform E-0 to E-1 to ES-1.3 back to E-1 then to ES-1.4 at E-1 step 29.  This will include tripping RCPs, Resetting Reheat Controller, Aligning NR-NI-45 to operable SR &amp; IR displays, Resetting SI &amp; CIA &amp; CIB, Stopping Quench Spray Chemical Addition Pumps and placing in AUTO, Closing MOV-1QS-104A &amp; B, Stopping Quench Spray Pumps and placing in AUTO, Closing MOV-1QS-101A &amp; B, Reducing AFW flow when NR S/G level are between 31% – 65%, Closing MOV-1SI-865A, B, C, and Opening MOV-1SI-863 at the appropriate times as directed by the EOPs. Freeze &amp; Snap.</p> <p><b>EVALUATOR CUE:</b>  Place Simulator in RUN when candidate is ready to begin the JPM.  Ensure shorting bar is available. Keep them in your pocket until requested by the candidate.</p>	
	START TIME: _____	
<p>1. Review ES-1.4, "Transfer To Simultaneous Cold Leg And Hot Leg Recirculation".</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Provide candidate a copy of ES-1.4.</p> </div> <p>1.1 Reviews ES-1.4 and begins at step 1.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-570 JPM REVISION: 3	JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" <b>FOR SAT</b> or "U" <b>FOR UNSAT</b> )⇒	S/U
2. LHSI Pumps - NO SIGNS OF CAVITATION.	<p>2.1 Checks flow indicators and pump ammeters for both LHSI pumps.</p> <p>2.2 Determines flow and amps are stable and that there are NO indications of LHSI Pump cavitation.</p> <p>COMMENTS:</p>	
<p>3.C Align 1A LHSI pump for Hot Leg Recirculation.</p> <p>a. Check 1A LHSI Pump – RUNNING.</p> <p>b. Close [MOV-1SI-864A], 1A LHSI To RCL Cold Leg.</p> <p>Step 2.b. RNO actions; Perform the following:</p> <p>1) Insert shorting bar into jacks for [MOV-1SI-890C], LHSI to RCS Hot Legs</p> <p>2) Close [MOV-1SI-890C]</p> <p>3) Remove shorting bar.</p>	<p>3.1 Checks flow indicator, pump ammeter and breaker position for 1A LHSI pump.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>FAULT STATEMENT:</b> Alternate path starts here, MOV-1SI-864A will <b><u>NOT</u></b> close.</p> </div> <p>3.2 Places [MOV-1SI-864A] to CLOSE.</p> <p>3.3 Observes RED Light – remains LIT and GREEN Light – NOT LIT.</p> <p>3.4 Determines [MOV-1SI-864A] failed to CLOSE and RNO step actions are applicable.</p> <p>3.5C Obtains shorting bar and inserts it into the VB-A jack for [MOV-1SI-890C].</p> <p>3.6 Verifies Red inservice or Ground Light LIT.</p> <p>3.7C Places [MOV-1SI-890C] to CLOSE.</p> <p>3.8 Verifies GREEN Light – LIT and RED Light – NOT LIT.</p> <p>3.9. Removes shorting bar from the VB-A jack for [MOV-1SI-890C].</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>EVALUATOR NOTE:</b> There are NO failures on MOV-1SI-864B, Valve has long stroke time.</p> </div>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-570  
JPM REVISION: 3

JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4) Close [MOV-1SI-864B], 1B LHSI To RCL Cold Leg.</p>	<p>3.10C Places [MOV-1SI-864B] to CLOSE.</p> <p>3.11 Verifies GREEN Light – LIT and RED Light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>4.C Align 1A LHSI pump for Hot Leg Recirculation. (continued)</p> <p>c. Insert shorting bar into jacks for [MOV-1SI-890A], 1A LHSI to RCS Hot Legs</p> <p>d. Open [MOV-1SI-890A]</p> <p>e. Remove shorting bar.</p> <p>f. Check proper operation of the following pumps:</p> <ul style="list-style-type: none"> <li>▪ 1A LHSI Pump</li> <li>▪ Operating HHSI Pumps</li> </ul>	<p>4.1C Obtains shorting bar and inserts it into the VB-A jack for [MOV-1SI-890A].</p> <p>4.2 Verifies Red inservice or Ground Light LIT.</p> <p>4.3C Places [MOV-1SI-890A] to OPEN.</p> <p>4.4 Verifies RED Light – LIT and GREEN Light – NOT LIT.</p> <p>4.5 Removes shorting bar from the VB-A jack for [MOV-1SI-890A].</p> <p>4.6 Checks flow indicator and pump ammeter for 1A LHSI pump.</p> <p>4.7 Determines flow and amps are stable and that 1A LHSI pump is operating properly.</p> <p>4.8 Checks flow indicators and pump ammeters for 1A and 1B HHSI pumps.</p> <p>4.9 Determines flow and amps are stable and that both HHSI pumps are operating properly.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-570  
JPM REVISION: 3

JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5. Align 1B LHSI pump for Hot Leg Recirculation</p> <p>a. Check 1B LHSI Pump – RUNNING.</p> <p>b. Close [MOV-1SI-864B], 1B LHSI To RCL Cold Leg.</p>	<p>5.1 Checks flow indicator, pump ammeter and breaker position for 1B LHSI pump.</p> <p>5.2 Determines flow and amps are stable for the 1B LHSI pump.</p> <p>5.3 Verifies RED Light – LIT and WHITE Light – NOT LIT.</p> <p>5.4 Verifies that 1B LHSI pump is running.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> Valve was closed in previous step as part of Alternate Path actions.</p> </div> <p>5.5 Verifies GREEN Light – LIT and RED Light – NOT LIT for [MOV-1SI-864B]</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-570  
JPM REVISION: 3

JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6.C Align 1B LHSI pump for Hot Leg Recirculation. (continued)</p> <p>c. Insert shorting bar into jacks for [MOV-1SI-890B], 1B LHSI to RCS Hot Legs</p> <p>d. Open [MOV-1SI-890B]</p> <p>e. Remove shorting bar.</p> <p>f. Check proper operation of the following pumps:</p> <ul style="list-style-type: none"> <li>▪ 1B LHSI Pump</li> <li>▪ Operating HHSI Pumps</li> </ul>	<p>6.1C Obtains shorting bar and inserts it into the VB-A jack for [MOV-1SI-890B].</p> <p>6.2 Verifies Red inservice or Ground Light LIT.</p> <p>6.3C Places [MOV-1SI-890B] to OPEN.</p> <p>6.4 Verifies RED Light – LIT and GREEN Light – NOT LIT.</p> <p>6.5 Removes shorting bar from the VB-A jack for [MOV-1SI-890B].</p> <p>6.6 Checks flow indicator and pump ammeter for 1B LHSI pump.</p> <p>6.7 Determines flow and amps are stable and that 1B LHSI pump is operating properly.</p> <p>6.8 Checks flow indicators and pump ammeters for 1A and 1B HHSI pumps.</p> <p>6.9 Determines flow and amps are stable and that both HHSI pumps are operating properly.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-570 JPM REVISION: 3	JPM TITLE: Align SI Pumps for Hot/Cold Leg Recirculation
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
7. RETURN to Procedure And Step In Effect.	<p>7.1 Candidate indicates that a transition back to the previous procedure would now occur.</p> <div><b>EVALUATOR CUE:</b> State “That completes this JPM”</div> <p>COMMENTS:</p>	
	STOP TIME: _____	

### OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Establish a Containment Purge to the Ventilation Duct

TRAINING MATERIAL NUMBER: 1CR-026

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1CR-026

REVISION NUMBER: 0

TECHNICAL REFERENCES:

10M-44C.4.A, "Containment Air Purge And Exhaust System Startup", Rev. 21

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 12 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_ Date \_\_\_\_\_

PEER REVIEW BY: \_\_\_\_\_ Date \_\_\_\_\_

APPROVED FOR USE: \_\_\_\_\_  
Training Supervisor or Designee \_\_\_\_\_ Date \_\_\_\_\_



## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1CR-026		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # N/A New Change #
List/Description of Change(s):  Original Issue		
Reason for Change (s):  To expand BVPS Unit 1 Simulator JPM infrastructure.		
APPROVALS:		
I. Forbes Prepared by _____ Date _____		<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Training Superintendent/Supervisor/Peer ( <i>"Changes Not Requiring Revision" only</i> ) _____ Date _____		

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-026 JPM REVISION: 0	JPM TITLE: Establish a Containment Purge to the Ventilation Duct
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K/A REFERENCE: 029 K1.04 3.0/3.1 TASK ID: 0443-009-01-013

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
Time <input type="checkbox"/> Yes Critical: <input checked="" type="checkbox"/> No	Allotted Time: 12 Minutes	Actual Time: minutes	
JPM RESULTS: <input type="checkbox"/> SAT <input type="checkbox"/> UNSAT (Comments required for UNSAT evaluation) Comments: _____ _____			
OBSERVERS			
Name/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-026  
JPM REVISION: 0

JPM TITLE: Establish a Containment Purge to the Ventilation Duct

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** Containment Purge flowpath is established to the Ventilation Duct with Exhaust [1VS-F-5] fan running.

**RECOMMENDED  
STARTING LOCATION:** Simulator

**DIRECTIONS:** You are to Establish a Containment Purge to the Ventilation Duct

**INITIAL CONDITIONS:**

- The plant is in MODE 5.
- Containment Vacuum has been broken.
- A RWDA-G with Monitor Alarm adjustments has been issued and approved to Purge Containment to the Ventilation Duct.
- 1OM-44C.4.A, Containment Air Purge And Exhaust System Startup, Section A "Breaking Containment Vacuum" has just been completed.
- Outside Temperature is 55 °F.
- The testing crew (Engineering) has been informed that dampers will be repositioned.

**INITIATING CUE:** Establish a Containment Purge to the Ventilation Duct in accordance with 1OM-44.C.4.A, beginning at Section B.3.

**REFERENCES:** 1OM-44C.4.A, "Containment Air Purge And Exhaust System Startup", Rev. 21

**TOOLS:** NONE

**HANDOUT:** 1OM-44C.4.A, "Containment Air Purge And Exhaust System Startup", Rev. 21, place kept up to Section B.3.

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

**DIRECTIONS:**

You are to Establish a Containment Purge to the Ventilation Duct

**INITIAL CONDITIONS:**

- The plant is in MODE 5.
- Containment Vacuum has been broken.
- A RWDA-G with Monitor Alarm adjustments has been issued and approved to Purge Containment to the Ventilation Duct.
- 1OM-44C.4.A, Containment Air Purge And Exhaust System Startup, Section A "Breaking Containment Vacuum" has just been completed.
- Outside Temperature is 55 °F.
- The testing crew (Engineering) has been informed that dampers will be repositioned.

**INITIATING CUE:**

Establish a Containment Purge to the Ventilation Duct in accordance with 1OM-44.C.4.A, beginning at Section B.3.

- ☐ 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 NUMBER: 1CR-026  
JPM REVISION: 0

JPM TITLE: Establish a Containment Purge to the Ventilation Duct

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div> <p><b>SIMULATOR SETUP:</b> Start with a Mode 5 IC (unless desired to pair with another JPM) Ensure CNMT Purge is Shutdown Perform 1OM-44C.4.A, Containment Air Purge and Exhaust System Startup Section A. To energize 1VS-D-3A, 1VS-D-5A, 1VS-D-5-3B, &amp; 1VS-D-5-5B, select EPS026, 027, 028, 029 and select T. Ensure NORMAL/REFUELING control switch on BSP is in the REFUELING position Once setup, freeze simulator and snap IC.</p> </div> <div> <p><b>EVALUATOR CUE:</b> This JPM may be setup to work as a pair with another JPM and may not reflect Mode 5 plant conditions. If the candidate questions plant status, inform the candidate that you understand the concern and to continue the JPM since it will have no impact on the JPM task or words to that nature so that JPM progress is not hampered.</p> </div> <div> <p><b>EVALUATOR CUE:</b> Provide candidate a place kept copy of 1OM-44C.4.A place kept up to Section B.3. 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 1OM-44C.4.A, "Containment Air Purge And Exhaust System Startup" procedure.</p>	<p>1.1 Reviews 1OM-44C.4.A.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-026 JPM REVISION: 0	JPM TITLE: Establish a Containment Purge to the Ventilation Duct
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
2.C Open [1VS-D-5-9], CNMT Purge Inlet Dmpr. (BSP)	2.1C Places [1VS-D-5-9] control switch to OPEN position.  2.2 Verifies Red Light – LIT and Green Light – NOT LIT.  COMMENTS:	
3.C Open [1VS-D-5-5A], CNMT Isol Purge Supply Damper. (BSP)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>EVALUATOR CUE:</b> If asked, inform the candidate that the testing crew has already been informed per initial conditions and it is not necessary to inform them again. </div> 3.1C Places [1VS-D-5-5A] control switch to OPEN position.  3.2 Verifies Red Light – LIT and Green Light – NOT LIT.  COMMENTS:	
4. Verify Open or Open [1VS-D-5-5B], CNMT Isol Purge Sup Dmpr. (BSP)	4.1 Verifies [1VS-D-5-5B] is OPEN by verifying Red Light – LIT and Green Light – NOT LIT.  COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-026  
JPM REVISION: 0

JPM TITLE: Establish a Containment Purge to the Ventilation Duct

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5.C Open [1VS-D-5-3B], CNMT Isol Purge Exhaust Dmpr. (BSP)</p>	<p>5.1C Places [1VS-D-5-3B] control switch to OPEN position.</p> <p>5.2 Verifies Red Light – LIT and Green Light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>6.C Open [1VS-D-5-3A], CNMT Isol Purge Exhaust Dmpr. (BSP)</p>	<p>6.1C Places [1VS-D-5-3A] control switch to OPEN position.</p> <p>6.2 Verifies Red Light – LIT and Green Light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>7.C Open [1VS-D-5-1], CNMT Purge Exhaust to Exhaust Fan. (BSP)</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>EVALUATOR NOTE:</b> This valve has a long stroke time.</p> </div> <p>7.1C Places [1VS-D-5-1] control switch to OPEN position.</p> <p>7.2 Verifies Red Light – LIT and Green Light – NOT LIT.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-026  
JPM REVISION: 0

JPM TITLE: Establish a Containment Purge to the Ventilation Duct

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>8. Verify Closed or Close [1VS-D-4-19A], CNMT Purge Exhaust to SFGDS Leak Coil Isol. Damper. (Aux Bldg 768', Purge Duct Rm).</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> When asked, Role Play an NLO and report [1VS-D-4-19A] is CLOSED.</p> </div> <p>8.1 Dispatches an NLO to verify [1VS-D-4-19A] is CLOSED.</p> <p>COMMENTS:</p>	
<p>9. Verify Open or Open [1VS-D-5-3C], CNMT Purge &amp; Exhaust Balance Damper. (SFGDS 768', SG BD Room).</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> When asked, Role Play an NLO and report [1VS-D-5-3C] is OPEN.</p> </div> <p>9.1 Dispatches an NLO to verify [1VS-D-5-3C] is OPEN.</p> <p>COMMENTS:</p>	
<p>10. Verify Open or Open [1VS-D-5-5C], CNMT Purge &amp; Supply Balance Damper. (SFGDS 768', SG BD Room).</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> When asked, Role Play an NLO and report [1VS-D-5-5C] is OPEN.</p> </div> <p>10.1 Dispatches an NLO to verify [1VS-D-5-5C] is OPEN.</p> <p>COMMENTS:</p>	



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-026  
JPM REVISION: 0

JPM TITLE: Establish a Containment Purge to the Ventilation Duct

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
11.C Start [1VS-F-5], CNMT Purge Exhaust Fan. (BSP)	<p>11.1C Places [1VS-F-5] control switch to START.</p> <p>11.2 Verifies Red Light – LIT and White Light –NOT LIT.</p> <div><b>EVALUATOR CUE:</b> It is NOT desired to start [1VS-HV-5], CNMT Purge Vent Supply Fan. This JPM is COMPLETE.</div> <p>COMMENTS:</p>	
	STOP TIME: _____	

### OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Respond to a RCP #1 Seal Failure

TRAINING MATERIAL NUMBER: 1CR-040

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1CR-040

REVISION NUMBER: 10

### TECHNICAL REFERENCES:

1OM-53C.4.1.6.8, "Abnormal RCP Operation", Rev. 12

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: I. Forbes

Date \_\_\_\_\_

PEER REVIEW BY: \_\_\_\_\_

Date \_\_\_\_\_

APPROVED FOR USE:

Training Supervisor or Designee

Date \_\_\_\_\_

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1CR-040		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 10
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 9  New Change #
List/Description of Change(s):  <ul style="list-style-type: none"> <li>Updated to current procedure revision.</li> <li>Changed from 100% power to Mode 3 to focus on task as opposed to reactor trip actions. This resulted in changes to Task Standard and critical steps.</li> <li>Removed reference to continuing training.</li> <li>Changed simulator as starting location.</li> <li>Removed all simulate cues.</li> <li>Enhanced simulator setup.</li> <li>JPM enhancements to meet current JPM standards.</li> <li>Modified to reflect [FR-1CH-154] no longer pegging high at 6 gpm.</li> <li>Modified JPM to remove reference to ARP and begin with the alarm already received.</li> </ul>		
Reason for Change (s):  Updated JPM to improve BVPS infrastructure in accordance with most recent standards. Updated to incorporate validator comments.		
APPROVALS:		
I. Forbes Prepared by _____	Date _____	<div style="border: 1px solid black; padding: 5px;"> <b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.         </div>
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only)	Date _____	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-040 JPM REVISION: 10	JPM TITLE: Respond to a RCP #1 Seal Failure
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K/A REFERENCE: 015AA1.22 4.0/4.2

TASK ID: 0062-029-04-011

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
Time <input checked="" type="checkbox"/> Yes Critical: <input 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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-040  
JPM REVISION: 10

JPM TITLE: Respond to a RCP #1 Seal Failure

**EVALUATOR DIRECTION SHEET****TASK STANDARD:**

- Trips 1RC-P-1A.
- Closes PCV-1RC-455A.
- Closes MOV-1CH-303A greater than 3 minutes but less than 5 minutes following the time 1RC-P-1A was tripped.

**RECOMMENDED**

Simulator

**STARTING LOCATION:****DIRECTIONS:**

You are to respond to reactor coolant pump seal trouble annunciator.

**INITIAL CONDITIONS:**

- The plant is in Mode 3 at normal operating temperature and pressure.
- Reactor trip breakers are open and all loops are in operation.

**INITIATING CUE:**

Annunciator [A3-87], "REACTOR COOLANT PUMP SEAL LEAKOFF FLOW HIGH" alarm has just been received. You are to analyze the problem and respond in accordance with AOP 1.6.8, "Abnormal RCP Operation".

**This JPM contains time critical elements.**

**REFERENCES:**

1OM-53C.4.1.6.8, "Abnormal RCP Operation", Rev. 12

**TOOLS:**

None

**HANDOUT:**

1OM-53C.4.1.6.8, "Abnormal RCP Operation", Rev. 12

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to respond to reactor coolant pump seal trouble annunciator.

INITIAL CONDITIONS:

- The plant is in Mode 3 at normal operating temperature and pressure.
- Reactor trip breakers are open and all loops are in operation.

INITIATING CUE: Annunciator [A3-87], "REACTOR COOLANT PUMP SEAL LEAKOFF FLOW HIGH" alarm has just been received. You are to analyze the problem and respond in accordance with AOP 1.6.8, "Abnormal RCP Operation".

**This JPM contains time critical elements.**

- ☐ 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 NUMBER: 1CR-040  
JPM REVISION: 10

JPM TITLE: Respond to a RCP #1 Seal Failure

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<p>START TIME: _____</p> <div> <p><b>SIMULATOR SETUP:</b> Initialize IC-3, 11, or 25. Mode 3, all RCPs running, NOP/NOT. Open RTB and allow the plant to stabilize. Select MALF RCS05A severity = 8, ramp time = 30 sec, delay time = 30 sec. (This will insert a 6 -8 gpm seal leakoff for the "A" RCP after a time delay) Once alarm has actuated RC-P-1A #1 seal failure, malfunction, freeze and take a snap.</p> </div> <div> <p><b>EVALUATOR CUE:</b> Provide the candidate with a non place kept copy of AOP 1.6.8. When the candidate is ready to begin, ensure the simulator is in RUN.</p> </div> <div> <p><b>EVALUATOR CUE:</b> If candidate references the ARP, inform the candidate that the direction was to respond with AOP 1.6.8.</p> </div>	
<p>1. Observe [FR-1CH-154A] No. 1 Seal Leakoff Flow (VB-A).</p>	<div> <p><b>EVALUATOR NOTE:</b> [FR-1CH-154A] upper range is 10 gpm.</p> </div> <p>1.1 Observes [FR-1CH-154A] is reading &gt; 6 gpm.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-040 JPM REVISION: 10	JPM TITLE: Respond to a RCP #1 Seal Failure
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
2. Go to 1OM-53C.4.1.6.8, "Abnormal RCP Operation".	2.1 References AOP 1.6.8.  COMMENTS:	
3. Check Criteria For Immediate RCP Shutdown in Table 1 (Left Hand Page)  a. Any criteria - EXCEEDED	3.1 Refers to Left Hand Page and determines high seal leakoff flow on [FR-1CH-154A] is > 6 GPM and immediate RCP shutdown criteria is met.  COMMENTS:	
4. Trip the reactor.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>EVALAUTOR NOTE:</b> The candidate may trip the reactor to comply with AOP; however, it is NOT necessary since initial conditions specified Mode 3. </div> 4.1 Places reactor trip switch on BB-B to TRIP position or recognizes the reactor is already tripped and continues on to the next procedure step.  COMMENTS:	



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-040 JPM REVISION: 10	JPM TITLE: Respond to a RCP #1 Seal Failure
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
5. Go to E-0, "Reactor Trip Or Safety Injection".	<p><b>EVALUATOR CUE:</b> If the candidate attempts to GO to E-0 and perform immediate actions, role play the Unit Supervisor and inform the candidate that another operator has performed E-0 IMAs and you are to complete the <u>AOP</u> actions.</p> <p>5.1 Continues on in the AOP with the understanding that E-0 IMAs are complete.</p> <p>COMMENTS:</p>	
<p>6.C When immediate actions of E-0 are complete, perform the following:</p> <ul style="list-style-type: none"> <li>Note the time</li> <li>Stop affected RCP(s)</li> <li>Close PRZR spray valves for affected RCP(s)</li> <li>Continue with this procedure in parallel with EOPs</li> </ul>	<p><b>EVALUATOR NOTE:</b> This is a "Time Critical" JPM, the time critical portion begins when 1RC-P-1A is shutdown and ends when MOV-1CH-303A is closed. MOV-1CH-303A is required to be closed no sooner than 3 minutes and no later than 5 minutes following the shutdown of 1RC-P-1A.</p> <p>6.1 Notes the current time.</p> <p>6.2C Places 1RC-P-1A control switch to STOP or Pull to Lock position.</p> <p>6.3 Verifies White Light - LIT and Red Light – NOT LIT.</p> <p>6.4C Places PCV-1RC-455A in MANUAL by depressing the MAN pushbutton and depresses the ▼ pushbutton until 0% demand is indicated.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-040  
JPM REVISION: 10

JPM TITLE: Respond to a RCP #1 Seal Failure

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p><b>7.C</b> Reactor trip and reactor coolant pump shutdown – DUE TO HIGH SEAL LEAKOFF FLOW</p> <p>1) WHEN 3 minutes elapsed from pump shutdown, Close affected RCP(s) seal leakoff isolation valve within the following 2 minutes:</p> <ul style="list-style-type: none"> <li>• [MOV-1CH-303A], RCP 1A No. 1 Seal Leakoff Isol Vlv</li> <li>• [MOV-1CH-303B], RCP 1B No. 1 Seal Leakoff Isol Vlv</li> <li>• [MOV-1CH-303C], RCP 1C No. 1 Seal Leakoff Isol Vlv</li> </ul>	<p><b>7.1C</b> Places MOV-1CH-303A in CLOSE no sooner than 3 minutes and no longer than 5 minutes after stopping 1RC-P-1A.</p> <p><b>7.2</b> Verifies Green Light - LIT and Red Light – NOT LIT.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>EVALUATOR NOTE:</b> When MOV-1CH-303A is closed, "This JPM is COMPLETE".</p> </div> <p>COMMENTS:</p>	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Control Room Evacuation

TRAINING MATERIAL NUMBER: 1CR-609

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1CR-609

REVISION NUMBER: 4

TECHNICAL REFERENCES:

1OM-56C.4.C, "Alternate Safe Shutdown From Outside Control Room Operating Procedures - NCO Procedure", Rev. 35

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 10 Minutes

PREPARED BY: I. M. Forbes \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: ICR-609

Type of Change:

<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 4
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 3 New Change #

List/Description of Change(s):

Added Inhibit to MSIV closure.

Revised Task Standard.

Added a note about impact on JPM if SI were to occur due to natural circulation and steam dumps in Tavg mode.

Added a note to reflect "A" MFP status based on ACB 141A being opened and modified critical steps associated with this step.

Added provision to provide the candidate first three pages of procedure to save paper.

Revised Task Number to reflect a valid task within Vision (TAI # 26618)

Reason for Change (s):

JPM Accuracy and enhancement.

To address TAI #26618.

APPROVALS:

I. M. Forbes

Prepared by

Date

Training Superintendent/Supervisor/Peer  
(*"Changes Not Requiring Revision" only*)

Date

**NOTE:** Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-609 JPM REVISION: 4	JPM TITLE: Control Room Evacuation
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K/A REFERENCE: APE 068AA1.04 3.3/3.6      TASK ID: 0535-002-04-013  
APE 068AA1.06 4.1/4.4  
APE 068AA1.22 4.0/4.3  
APE 068AA1.23 4.3/4.4

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-609  
JPM REVISION: 4

JPM TITLE: Control Room Evacuation

**EVALUATOR DIRECTION SHEET****TASK STANDARD:**

The following components are STOPPED/TRIPPED:

- Reactor
- RCPs
- MFPs
- Charging Pumps

The following components/systems are ISOLATED:

- Letdown
- MSIVs

Charging pump suction aligned to RWST and isolated from VCT

RECOMMENDED  
STARTING LOCATION:

Simulator

**DIRECTIONS:**

You are to perform Control Room Initial Actions prior to evacuation of the Control Room in accordance with 1OM-56C.4.C.

**INITIAL CONDITIONS:**

- A fire is confirmed in the Cable Spreading Room (CS-1).
- The Control Room must now be evacuated.
- The Shift Manager (SM) has directed CONTROL ROOM initial actions of 1OM-56C.4.C be completed prior to evacuation.

**INITIATING CUE:**

The SM directs you to perform CONTROL ROOM Initial Actions of 1OM-56C.4.C, "Alternate Safe Shutdown From Outside Control Room Operating Procedures –NCO Procedure".

Perform actions up to and including the step which notifies SM that you are leaving the control room.

**REFERENCES:**

1OM-56C.4.C, "Alternate Safe Shutdown From Outside Control Room Operating Procedures - NCO Procedure", Rev. 35.

**TOOLS:**

None

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to perform Control Room Initial Actions prior to evacuation of the Control Room in accordance with 1OM-56C.4.C.

INITIAL CONDITIONS:

- A fire is confirmed in the Cable Spreading Room (CS-1).
- The Control Room must now be evacuated.
- The Shift Manager (SM) has directed CONTROL ROOM initial actions of 1OM-56C.4.C be completed prior to evacuation.

INITIATING CUE: The SM directs you to perform CONTROL ROOM Initial Actions of 1OM-56C.4.C, "Alternate Safe Shutdown From Outside Control Room Operating Procedures –NCO Procedure".  
Perform actions up to and including the step which notifies SM that you are leaving the control room.

- ☐ 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 NUMBER: 1CR-609  
JPM REVISION: 4

JPM TITLE: Control Room Evacuation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
	<div style="border: 1px solid black; padding: 10px;"> <p><b>SIMULATOR SETUP:</b>            INIT to any 100% power IC.            Ensure 1CH-P-1C in PTL.            Fail Control Switch for 1RC-P-1B stop signal OFF by inserting            X06i036L == 1.            Insert MALF INH51 to inhibit MSIV auto closure.            Freeze and Snap IC.</p> <p><b>EVALUATOR CUE:</b>            When candidate is ready to begin JPM, place Simulator in RUN.</p> </div>	
<p>1. Locate and review 1OM-56C.4.C, "NCO Procedure".</p>	<p>1.1 Locates and reviews 1OM-56C.4.C, "NCO Procedure".</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Provide candidate First 3 pages of 1OM-56C.4.C after it is located.</p> </div> <p>COMMENTS:</p>	
<p>2.C Manually Trip the reactor.</p>	<p>2.1C Trips reactor from BB-B by turning the RED Reactor Trip Control Switch to TRIP <b>OR</b> from BB-A by depressing the Reactor Trip pushbutton.</p> <p>2.2 Verifies Reactor &amp; Bypass Breakers OPEN.</p> <p>2.3 Verifies that all control rods insert and or NI power dropping rapidly to 0%.</p> <p>COMMENTS:</p>	



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-609  
JPM REVISION: 4

JPM TITLE: Control Room Evacuation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Place [1RC-P-1A, 1B, AND 1C] in PULL-TO-LOCK on BB-A.</p>	<p>3.1C Places [1RC-P-1A, 1B, AND 1C] in PULL-TO-LOCK.</p> <p>3.2 Verifies 1A &amp; 1C Reactor Coolant Pump Status by observing pump amps dropping to ZERO and loop flow dropping to ZERO.</p> <p>3.3 Verifies 1A &amp; 1C RCP Red Light – NOT LIT and White Light – NOT LIT.</p> <p>COMMENTS:</p>	
<p>4.C If any Reactor Coolant Pump remains running (running amps, normal loop flow indicated, etc.), Perform the following for the RUNNING pump:</p> <ul style="list-style-type: none"> <li>Place [1RC-P-1A, 1B, AND 1C] in PULL-TO-LOCK – Trip ACB 141A on BB-C.</li> <li>If pump remains running, Trip OCB-92.</li> </ul>	<div style="border: 1px solid black; padding: 5px;"> <p><b>FAULT STATEMENT:</b> 1RC-P-1B remains running when control switch is placed in PULL TO LOCK.</p> </div> <p>4.1 Determines 1RC-P-1B remains running by observing pump amps and flow – NORMAL or verifying Red Light – LIT and White Light – NOT LIT.</p> <p>4.2C Places ACB-141A Control Switch to the TRIP position.</p> <p>4.3 Verifies Red Light – NOT LIT and White Light – LIT.</p> <p>4.4 Determines 1RC-P-1B is no longer running by observing pump amps dropping to ZERO and loop flow dropping to ZERO.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-609  
JPM REVISION: 4

JPM TITLE: Control Room Evacuation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5.C Place [1FW-P-1A AND 1B] in PULL-TO-LOCK on BB-C.</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> "A" MFP is already tripped due to opening ACB-141A.</p> </div> <p>5.1C Places MAIN FW Pump 1B [1FW-P-1B] Control Switch to PULL-TO-LOCK position on BB-C.</p> <p>5.2 Verifies Red Lights – NOT LIT and White Lights – NOT LIT.</p> <p>5.3 Places MAIN FW Pump 1A [1FW-P-1A] Control Switch to PULL-TO-LOCK position on BB-C.</p> <p>5.4 Verifies Red Lights – NOT LIT and White Lights – NOT LIT.</p> <p>COMMENTS:</p>	
<p>6.C Place [1CH-P-1A, 1B, 1C(AE) AND 1C(DF)] in PULL-TO-LOCK on BB-A.</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> 1C CHG Pump already in PTL.</p> </div> <p>6.1C Places 1A CHG Pump <b>AND</b> 1B CHG Pump Control Switches [1CH-P-1A and 1B] to PULL-TO-LOCK position on BB-A.</p> <p>6.2 Verifies Red Lights – NOT LIT and White Lights – NOT LIT.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-609  
JPM REVISION: 4

JPM TITLE: Control Room Evacuation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p><b>7.C</b> Isolate letdown as follows:</p> <ul style="list-style-type: none"> <li>• Close [TV-1CH-200A, B, AND C] on BB-A.</li> <li>• Close [LCV-1CH-460A AND B] on BB-B.</li> </ul>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> It is possible that due to natural circulation and Steam Dumps in Tavg Mode, that SI may occur. In this case the valves in Step 7 &amp; 8 will AUTO reposition and these steps are NOT critical as the candidate will take no action other than to verify repositioning.</p> </div> <p><b>7.1C</b> Places 45 GPM LTDN ORIFICE ISOL VLV [TV-1CH-200A] <b>AND</b> 60 GPM LTDN ORIFICE ISOL VLV [TV-1CH-200B] control switch to CLOSE.</p> <p><b>7.2</b> Verifies Red Lights – NOT LIT and Green Lights – LIT.</p> <p><b>7.3C</b> Places LTDN TO REGEN HX INLET ISOL VLV's [LCV-1CH-460A <b>AND</b> B] control switch to CLOSE.</p> <p><b>7.4</b> Verifies Red Lights – NOT LIT and Green Lights – LIT.</p> <p>COMMENTS:</p>	
<p><b>8.C</b> Align suction to charging pumps as follows:</p> <ul style="list-style-type: none"> <li>• Open [MOV-1CH-115B <b>AND</b> 115D], "RWST Supply Valves to Charging Pumps".</li> <li>• Close [MOV-1CH-115C <b>AND</b> 115E], "Charging Pump Suction from VCT".</li> </ul>	<p><b>8.1C</b> Places [MOV-1CH-115B and 115D] control switches to OPEN on BB-A.</p> <p><b>8.2</b> Verifies Red Lights – LIT and Green Lights – NOT LIT.</p> <p><b>8.3C</b> Places [MOV-1CH-115C and 115E] control switches to CLOSE on BB-A.</p> <p><b>8.4</b> Verifies Red Lights –NOT LIT and Green Lights – LIT.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-609  
JPM REVISION: 4

JPM TITLE: Control Room Evacuation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>9.C Close [TV-1MS-101A, 101B, AND 101C] on BB-C.</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> Either the Train A or Train B control switches for each MSIV is taken to close momentarily (spring return to normal) to close each MSIV.</p> </div> <p>9.1C Places 1A, 1B, 1C SG MAIN STEAM A or B TRN TRIP VLV's [TV-1MS-101A, 101B, AND 101C] control switches to CLOSE on BB-C.</p> <p>9.2 Verifies Red Lights –NOT LIT and Green Lights – LIT.</p> <p>COMMENTS:</p>	
<p>10. Notify Shift Manager that you are leaving the Control Room.</p>	<p>10.1 Notifies Shift Manager that you are leaving the Control Room.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Acknowledge announcement and inform the candidate that the JPM is COMPLETE.</p> </div> <p>COMMENTS:</p>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Respond to an Intermediate Range Malfunction

TRAINING MATERIAL NUMBER: 1CR-106

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1CR-106

REVISION NUMBER: 3

TECHNICAL REFERENCES:

1OM-53C.4.1.2.1B, "Intermediate Range Channel Malfunction", Revision 4.

INSTRUCTIONAL SETTING: Simulator

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1CR-106		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 3
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 2  New Change #
List/Description of Change(s):  1. Added some editorial enhancements including grader discretion if administering to an RO with regard to Technical Specification application. 2. Added Cond A to step 5.2		
Reason for Change (s):  Updated JPM prior to implementation.		
APPROVALS:		
I. Forbes _____ Prepared by	_____ Date	<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only)	_____ Date	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: ICR-106 JPM REVISION: 3	JPM TITLE: Respond to an Intermediate Range Malfunction
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K/A REFERENCE: 033AA2.09 3.4/3.7 TASK ID: 0535-010-04-013

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 checked="" type="checkbox"/> Simulator <input 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 SSN:	
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/SSN:	Name/SSN:
Name/SSN:	Name/SSN:
EVALUATOR	
Evaluator (Print): _____ Date: _____	
Evaluator Signature: _____	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-106  
JPM REVISION: 3

JPM TITLE: Respond to an Intermediate Range Malfunction

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** Select NI Recorder to N-36.  
Remove Intermediate Range Channel N-35 from service.  
Determine Technical Specification Condition(s), Required Action(s),  
and Completion Time(s). (SRO candidate ONLY)

**RECOMMENDED  
STARTING LOCATION:** Simulator

**DIRECTIONS:** You are to respond to an Intermediate Range Channel Malfunction.

**INITIAL CONDITIONS:**

- A startup is in progress.
- The reactor is stable at approximately  $1 \times 10^{-8}$  amps.
- Critical Data is being recorded.
- All other conditions are normal for present plant status.

**INITIATING CUE:** N-35 has just failed low and your supervisor directs you to respond to the malfunction.

**REFERENCES:** 1OM-53C.4.1.2.1B, "Intermediate Range Channel Malfunction",  
Revision 4.

**TOOLS:** None

**HANDOUT:** 1OM-53C.4.1.2.1B, "Intermediate Range Channel Malfunction",  
Revision 4.



## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to respond to an Intermediate Range Channel Malfunction.

INITIAL CONDITIONS:

- A startup is in progress.
- The reactor is stable at approximately  $1 \times 10^{-8}$  amps.
- Critical Data is being recorded.
- All other conditions are normal for present plant status.

INITIATING CUE: N-35 has just failed low and your supervisor directs you to respond to the malfunction.

☐ 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 NUMBER: 1CR-106  
JPM REVISION: 3

JPM TITLE: Respond to an Intermediate Range Malfunction

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div> <p><b>Simulator Setup:</b> Initialize to an IC set with Rx Power critical at <math>1 \times 10^{-8}</math> amps. (Mode 2 with power &gt;P-6 but less than 5%) Fail N-35 low by inserting MALF NIS04A at -0.0001 amps severity value. Ensure <u>N-35</u> and <u>N-41</u> are selected for VB recorders. Freeze and snap IC.</p> </div> <div> <p><b>EVALUATOR CUE:</b> Ensure Control Bank Rods are at 100 steps.</p> </div> <div> <p><b>EVALUATOR NOTE:</b> Place simulator in RUN when candidate is ready to begin.</p> </div>	
	START TIME: _____	
<p>1. Obtain and review 1OM-53C.4.1.2.1B, "Intermediate Range Channel Malfunction".</p>	<p>1.1 Candidate obtains and reviews 1OM-53C.4.1.2.1B.</p> <div> <p><b>EVALUATOR CUE:</b> Provide candidate a copy of 1OM-53C.4.1.2.1B, Intermediate Range Channel Malfunction once located.</p> </div> <p>COMMENTS:</p>	
<p>2.C Ensure that Vertical Board Recorders are Selected to Monitor Only Operable Detectors.</p>	<p>2.1C Places NI SYS RECORDER SEL SW (1N 45) to N-36 position.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-106  
JPM REVISION: 3

JPM TITLE: Respond to an Intermediate Range Malfunction

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C If in Mode 1 or 2, refer to T.S. 3.3.3 for Post Accident Monitoring Instrumentation Requirements.</p>	<p>3.1C References T.S. 3.3.3 and determines Condition A is applicable and Required Action A.1 "Restore required channel (N-35) to OPERABLE status within 30 days" is required.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> If asked, Role Play the US and state that the T.S. determination will be made at a later time.</p> </div> <p>COMMENTS:</p>	
<p>4. Determine MODE in which malfunction of Intermediate Range (N-35) Instrument has occurred.</p>	<p>4.1 Determines the plant is in Mode 2 &gt; P-6 but &lt; P-10, and proceeds to Step 5.</p> <p>COMMENTS:</p>	
<p>5.C If a single channel is inoperable, then refer to T.S. 3.3.1, Table 3.3.1-1, Function 4.</p>	<p>5.1 Verifies N-35 has failed LOW and N-36 is at <math>\sim 1 \times 10^{-8}</math> amps.</p> <p>5.2C References T.S. 3.3.1, Table 3.3.1-1, Function 4 and determines T.S. 3.3.1 Condition A and F, with required action F.1 Reduce THERMAL POWER to &lt; P-6 within 24 hours OR Increase THERMAL POWER to &gt; P-10 within 24 hours is required.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> If asked, Role Play the US and state that the T.S. determination will be made at a later time.</p> </div> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1CR-106  
JPM REVISION: 3

JPM TITLE: Respond to an Intermediate Range Malfunction

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6.C Bypass reactor trip function by placing LEVEL TRIP switch of inoperable channel in BYPASS position.</p>	<p>6.1C Repositions LEVEL TRIP switch to BYPASS on N-35 drawer.</p> <p>6.2 Observes LEVEL TRIP BYPASS neon light – LIT</p> <p>6.3 Acknowledges “NIS SOURCE INTER RANGE NEUTRON FLUX HI TRIP BYPASS” annunciator A4-81 - alarms</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>EVALUATOR NOTE/CUE:</b> Prompt the SRO candidate to make TS determinations at this time if this has not been previously performed since it is critical to candidate success.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>EVALUATOR CUE:</b> That completes this JPM.</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>EVALUATOR NOTE:</b> Grader discretion is required for Technical Specification application (required for SRO candidate ONLY) (Refer to 3.1 &amp; 5.2 for grading).</p> </div>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Vent the Charging Pump Suction Header

TRAINING MATERIAL NUMBER: 1PL-057

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1PL-057

REVISION NUMBER: 5

TECHNICAL REFERENCES:

1OM-7.4.AV, "Charging Pump Suction Header Venting", Rev. 3

INSTRUCTIONAL SETTING: In-Plant

APPROXIMATE DURATION: 12 Minutes

PREPARED BY: I. M. Forbes \_\_\_\_\_  
Date

PEER REVIEW BY: \_\_\_\_\_  
Date

APPROVED FOR USE: \_\_\_\_\_  
Training Supervisor or Designee Date

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1PL-057		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 5
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 4 New Change #
List/Description of Change(s):  Removed unnecessary cueing (i.e.: valve open & shut). Added place-keeping information to avoid human performance error traps.		
Reason for Change (s):  JPM enhancement.		
APPROVALS:		
I. M. Forbes Prepared by _____ Date _____		<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Training Superintendent/Supervisor/Peer ( <i>"Changes Not Requiring Revision" only</i> ) _____ Date _____		

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-057  
JPM REVISION: 5

JPM TITLE: Vent the Charging Pump Suction Header

K/A REFERENCE: 2.1.30 4.4/4.0

TASK ID: 0071-021-01-043

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING  
☐ FAULTED 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"/> 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 SSN:

Time ☐ Yes  
Critical: ☒ NoAllotted 12 minutes  
Time:Actual  
Time: minutes

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

Comments: \_\_\_\_\_  
\_\_\_\_\_

## OBSERVERS

Name/SSN:

Name/SSN:

Name/SSN:

Name/SSN:

## EVALUATOR

Evaluator (Print): \_\_\_\_\_ Date: \_\_\_\_\_

Evaluator Signature: \_\_\_\_\_

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-057 JPM REVISION: 5	JPM TITLE: Vent the Charging Pump Suction Header
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**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** A solid stream of water is observed through the vent flow indicator and the vent system is isolated.

**RECOMMENDED  
STARTING LOCATION:** In-Plant (PAB, Elev. 735)

**DIRECTIONS:** You are to simulate venting the Charging Pump Suction Header.

**INITIAL CONDITIONS:** The unit is at 100% power. The 'A' charging pump is in operation with the 'B' charging pump in standby, and will be started within one hour. NDE has determined that a gas void greater than limits exists in the 6 inch Charging Pump suction header.

**INITIATING CUE:** Your supervisor directs you to vent the Charging Pump 6 inch suction header per 1OM-7.4.AV. Steps IV.A.1 and 2 are complete.

**REFERENCES:** 1OM-7.4.AV, "Charging Pump Suction Header Venting", Rev. 3

**TOOLS:** None

**HANDOUT:** 1OM-7.4.AV, "Charging Pump Suction Header Venting", Rev. 3, place kept up to but not including step IV.A.3. Should also N/A the 8" header portion to alleviate human performance issues.



## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to simulate venting the Charging Pump Suction Header.

INITIAL CONDITIONS: The unit is at 100% power. The 'A' charging pump is in operation with the 'B' charging pump in standby, and will be started within one hour. NDE has determined that a gas void greater than limits exists in the 6 inch Charging Pump suction header.

INITIATING CUE: Your supervisor directs you to vent the Charging Pump 6 inch suction header per 1OM-7.4.AV. Steps IV.A.1 and 2 are complete.

☐ 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 NUMBER: 1PL-057  
JPM REVISION: 5

JPM TITLE: Vent the Charging Pump Suction Header

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
1. Reviews the procedure.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>EVALUATOR NOTE:</b> Provide the candidate a place kept copy of 1OM-7.4.AV.         </div> 1.1 Reviews the provided copy of 1OM-7.4.AV.  COMMENTS:	
2.C Open [1CH-487], "Charging Pump Vent Common Isolation, located in Aux Bldg 735".	2.1C OPENS [1CH-487] by rotating valve T-Handle in the counterclockwise position.  COMMENTS:	
3.C Open [1CH-486], Outlet Isolation for [FI-1CH-170], located in Aux Bldg. 735'.	3.1C OPENS [1CH-486] by rotating valve T-Handle in the counterclockwise position.  COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-057  
JPM REVISION: 5

JPM TITLE: Vent the Charging Pump Suction Header

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C Open [1CH-484], Inlet Isolation for [FI-1CH-170], located in Aux Bldg. 735'.</p>	<p>4.1C OPENS [1CH-484] by rotating valve T-Handle in the counterclockwise position.</p> <p>COMMENTS:</p>	
<p>5.C Vent the 6 inch charging pump suction header from the safety injection system by performing the following:</p> <p>a. Open [1CH-483], Charging Pump Vent Isolation Valve, located in Aux Bldg. 735'.</p> <p>b. When a solid stream of flow is observed through [FI-1CH-170], Charging Pump Suction Line Vent Sight Flow Indicator, located in Aux Bldg. 735', Close and independently verify closed on daily journal, [1CH-483], Charging Pump Vent Isolation Valve.</p>	<p>5.1C OPENS [1CH-483] by rotating valve T-Handle in the counterclockwise position.</p> <p>5.2C Observes the vent flow indicator, [1CH-FI-170].</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> A solid stream of water is flowing through the indicator.</p> </div> <p>5.3C CLOSES [1CH-483] by rotating valve T-Handle in the clockwise position.</p> <p>5.4 Requests independent verification that [1CH-483] is SHUT.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Inform the candidate that an operator has performed independent verification of [1CH-483] when asked.</p> </div> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-057  
JPM REVISION: 5

JPM TITLE: Vent the Charging Pump Suction Header

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>6. Notify NDE to perform an Ultrasound Test (UT) to confirm no gas voids exist in the 6 inch Charging Pump suction header, in accordance with 3BVT01-11.04, "Void Monitoring".</p>	<p>6.1 Notifies NDE to perform a UT on the 6 inch Charging Pump suction header.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> NDE has determined <b><u>NO</u></b> gas voids exist in the 6 inch Charging Pump suction header and the void limit was <b><u>NOT</u></b> exceeded.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> The candidate will not perform the next step (Venting the 8 inch header) since it was N/A. However, to be successful they must continue on in the procedure to secure the 6" line-up.</p> </div> <p>COMMENTS:</p>	
<p>7.C Close [1CH-484], Inlet Isolation for [FI-1CH-170].</p>	<p>7.1C CLOSES [1CH-484] by rotating valve T-Handle in the clockwise position.</p> <p>COMMENTS:</p>	
<p>8.C Close [1CH-486], Outlet Isolation for [FI-1CH-170].</p>	<p>8.1C CLOSES [1CH-486] by rotating valve T-Handle in the clockwise position.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-057 JPM REVISION: 5	JPM TITLE: Vent the Charging Pump Suction Header
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
9.C Close [1CH-487], "Charging Pump Vent Common Isolation.	9.1C CLOSES [1CH-487] by rotating valve T-Handle in the clockwise position.  COMMENTS:	
10. Independently verify closed on Daily Journal, the following valves:  a. [1CH-484], Inlet Isolation for [FI-1CH-170]. b. [1CH-486], Outlet Isolation for [FI-1CH-170]. c. [1CH-487], "Charging Pump Vent Common Isolation.	10.1 Indicates that IV is required.  <div style="border: 1px solid black; padding: 5px;"><b>EVALUATOR CUE:</b> An independent Verifier will be sent by the Control Room. This completes this JPM.</div>  COMMENTS:	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE:      AMSAC System Trouble - PT Failure

TRAINING MATERIAL NUMBER:   1PL-147

PROGRAM TITLE:                Licensed Operator Training

COMPUTER CODE:                1PL-147

REVISION NUMBER:              3

TECHNICAL REFERENCES:

1OM-45B.4.AAE, AMSAC Bypassed C-20 PERM, Rev. 5

INSTRUCTIONAL SETTING:        In-Plant

APPROXIMATE DURATION:        10 Minutes

PREPARED BY:                    I. Forbes \_\_\_\_\_

\_\_\_\_\_  
Date

PEER REVIEW BY:                \_\_\_\_\_

\_\_\_\_\_  
Date

APPROVED FOR USE:            \_\_\_\_\_

\_\_\_\_\_  
Training Supervisor or Designee

\_\_\_\_\_  
Date

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1PL-147		
Type of Change:		
<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 3
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # 2 New Change #
List/Description of Change(s):  1. Removed the need to use Key # 31 since the cabinet is left unlocked. 2. Updated cabinet door name to reflect actual plant nomenclature.		
Reason for Change (s):  Updated JPM prior to implementation.		
APPROVALS:		
I. Forbes Prepared by _____ Date _____		<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only) _____ Date _____		

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-147 JPM REVISION: 3	JPM TITLE: AMSAC System Trouble – PT Failure
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K/A REFERENCE: 016A2.01 3.0/3.1 TASK ID: 0452-008-04-011

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING  
☐ FAULTED 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"/> 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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-147  
JPM REVISION: 3

JPM TITLE: AMSAC System Trouble – PT Failure

**EVALUATOR DIRECTION SHEET**

<b>TASK STANDARD:</b>	Failed Pressure Transmitter (PT) channel identified and bypassed.
<b>RECOMMENDED STARTING LOCATION:</b>	In-Plant
<b>DIRECTIONS:</b>	You are to simulate the task, Respond to AMSAC System Trouble.
<b>INITIAL CONDITIONS:</b>	The plant is at 100% power when annunciator A3-20, AMSAC TROUBLE actuated, followed by AMSAC BYPASSED C-20 PERM status panel light three minutes later. 1OM-45.4.AAC, “AMSAC Trouble” is being implemented. Other actions pertaining to the instrument failure have been performed.
<b>INITIATING CUE:</b>	Your supervisor directs you to perform actions of Probable Cause No. 2 of 1OM-45B.4.AAE, AMSAC Bypassed C-20 PERM, beginning at step #1.
<b>REFERENCES:</b>	1OM-45B.4.AAE, AMSAC Bypassed C-20 PERM, Rev. 5
<b>TOOLS:</b>	None
<b>HANDOUT:</b>	1OM-45B.4.AAE, AMSAC Bypassed C-20 PERM, Rev. 5

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to simulate the task, Respond to AMSAC System Trouble.

INITIAL CONDITIONS: The plant is at 100% power when annunciator A3-20, AMSAC TROUBLE actuated followed by AMSAC BYPASSED C-20 PERM status panel light three minutes later. 1OM-45.4.AAC, "AMSAC Trouble" is being implemented. Other actions pertaining to the instrument failure have been performed.

INITIATING CUE: Your supervisor directs you to perform actions of Probable Cause No. 2 of 1OM-45B.4.AAE, AMSAC Bypassed C-20 PERM, beginning at 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

JPM NUMBER: 1PL-147 JPM REVISION: 3	JPM TITLE: AMSAC System Trouble – PT Failure
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <b>EVALUATOR NOTE:</b> Provide Candidate a copy of 1OM-45B.4.AAE, AMSAC Bypassed C-20 PERM.         </div>	
	START TIME: _____	
1. Reviews procedure.	1.1. Candidate reviews procedure provided.  COMMENTS:	
2. Verify ANN. A3-20, AMSAC TROUBLE, is ON.	2.1 No action required. Information provided in Initial Conditions.  COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-147  
JPM REVISION: 3

JPM TITLE: AMSAC System Trouble – PT Failure

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>3.C Determine which Turbine 1st Stage Pressure channel has failed by observing which Test light has turned OFF at the test panel of [PNL-AMSAC] (Key No. 31), located in Process Equipment Room, 713'.</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> Cabinet normally left unlocked.</p> </div> <p>3.1 Opens "PNL-AMSAC" door.</p> <p>3.2 Verifies TL/MS446/447 test light status.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Test light TL/MS446 LIT. Test light TL/MS447 <b>NOT</b> LIT.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> This step is critical to ensuring failed transmitter is bypassed.</p> </div> <p>3.3C Determines TL/MS 447 is failed based on test light is NOT LIT.</p> <p>COMMENTS:</p>	
<p>4.C Place TPS/MS 446 (447) Trip switch for the affected channel in the TEST (UP) position.</p>	<p>4.1C Places TPS/MS 447 Trip switch in the TEST (UP) position.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> TPS/MS 447 Trip switch in the TEST (UP) position.</p> </div> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-147  
JPM REVISION: 3

JPM TITLE: AMSAC System Trouble – PT Failure

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5. Verify that the following Test lights are ON:</p> <ul style="list-style-type: none"> <li>• TL/MS 446</li> <li>• TL/MS 447</li> <li>• TL/MS 440A (2/2 1st Stage Pressure <math>\geq</math> 40%)</li> <li>• TL/MS 440B (C-20 Permissive)</li> </ul>	<p>5.1 Verifies the following Test Lights are ON:</p> <ul style="list-style-type: none"> <li>• TL/MS 446</li> <li>• TL/MS 447</li> <li>• TL/MS 440A</li> <li>• TL/MS 440B</li> </ul> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Provide cues that each test light is LIT.</p> </div> <p>COMMENTS:</p>	
<p>6. Verify that Status Light Panel 623, Window A-20, AMSAC BYPASSED C-20 PERM has turned OFF.</p>	<p>6.1 Contacts Control Room to verify Status Light Panel 623, Window A-20, AMSAC BYPASSED C-20 PERM is OFF.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Report as Control Room operator that Status Light Panel 623, Window A-20 is NOT LIT. This completes this JPM.</p> </div> <p>COMMENTS:</p>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE:      Transfer 120 VAC Vital Power

TRAINING MATERIAL NUMBER: 1PL-524

PROGRAM TITLE:                      Licensed Operator Program

COMPUTER CODE:                      1PL-524

REVISION NUMBER:                      0

TECHNICAL REFERENCES:

1OM-53C.4.1.38.1C, AOP 1.38.1C, "Loss of Vital Bus III", Revision 3

1OM-53C.4.1.38.1D, AOP 1.38.1D, "Loss of Vital Bus IV", Revision 3

INSTRUCTIONAL SETTING:              In-Plant

APPROXIMATE DURATION:              10 Minutes

PREPARED BY:                      I. Forbes

Date

PEER REVIEW BY:                      \_\_\_\_\_

Date

APPROVED FOR USE:                      \_\_\_\_\_

Training Supervisor or Designee

Date

## OPERATIONS JOB PERFORMANCE MEASURE (JPM)

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1PL-524

Type of Change:

<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # N/A New Change #

List/Description of Change(s):

- Created new JPM for AC Vital Bus III & IV. (AC Vital Bus I & II components are to be replaced during 1R21)

Reason for Change (s):

- To improve BVPS JPM infrastructure.

## APPROVALS:

I. Forbes  
Prepared by \_\_\_\_\_ Date \_\_\_\_\_

Training Superintendent/Supervisor/Peer  
(*"Changes Not Requiring Revision" only*) \_\_\_\_\_ Date \_\_\_\_\_

**NOTE:** Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.

## OPERATIONS JOB PERFORMANCE MEASURE (JPM)

JPM NUMBER: 1PL-524  
JPM REVISION: 0

JPM TITLE: Transfer 120 VAC Vital Power

K/A REFERENCE: 062K4.10 3.1 / 3.5 TASK ID: 0381-001-01-043

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☒ TRAINING  
☒ FAULTED 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"/> 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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			



## OPERATIONS JOB PERFORMANCE MEASURE (JPM)

JPM NUMBER: 1PL-524  
JPM REVISION: 0

JPM TITLE: Transfer 120 VAC Vital Power

**EVALUATOR DIRECTION SHEET**

<b>TASK STANDARD:</b>	Restore vital bus power supplied by MCC1-E13 (E-14).
<b>RECOMMENDED STARTING LOCATION:</b>	In-Plant
<b>EVALUATOR NOTE:</b>	This JPM is designed for either train. Perform for Vital Bus III if Protected Train "B", and Vital Bus IV if Protected Train "A". Train "B" equipment in parentheses.
<b>DIRECTIONS:</b>	You are to simulate transferring 120 VAC Vital Bus Power.
<b>INITIAL CONDITIONS:</b>	<ul style="list-style-type: none"><li>• A loss of uninterruptible power supply III (IV), UPS-3 (4) has occurred, and the 120 VAC Vital Bus III (IV) failed to automatically re-energize.</li><li>• Annunciator A1-12(13), Vital Bus III (IV) Trouble, is LIT.</li><li>• NI rack Channel III (IV) is deenergized.</li><li>• CNMT HI or HI-HI pressure bistables are NOT LIT.</li><li>• Abnormal Operating Procedure AOP 1.38.1C (1.38.1D) has been completed through steps 7a (6a).</li></ul>
<b>INITIATING CUE:</b>	Your supervisor directs you to restore 120 VAC Vital Bus III (IV) power using AOP 1.38.1C (AOP 1.38.1D), starting at step 7b (6b).
<b>REFERENCES:</b>	1OM-53C.4.1.38.1C, AOP 1.38.1C, "Loss of Vital Bus III", Rev. 3 1OM-53C.4.1.38.1D, AOP 1.38.1D, "Loss of Vital Bus IV", Rev. 3
<b>TOOLS:</b>	NONE
<b>HANDOUT:</b>	AOP 1.38.1C, "Loss of Vital Bus III", Rev. 3, place kept up to but not including Step 7b. (TRAIN B Only) AOP 1.38.1D, "Loss of Vital Bus IV", Rev. 3, place kept up to but not including Step 6b. (TRAIN A Only)

## OPERATIONS JOB PERFORMANCE MEASURE (JPM)

**CANDIDATE DIRECTION SHEET****Use This Sheet if Protected Train "A"**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

You are to simulate transferring 120 VAC Vital Bus Power.

INITIAL CONDITIONS:

- A loss of uninterruptible power supply IV, UPS-4 has occurred, and the 120 VAC Vital Bus IV failed to automatically re-energize.
- Annunciator A1-13, Vital Bus IV Trouble, is LIT.
- NI rack Channel IV is deenergized.
- CNMT HI or HI-HI pressure bistables are NOT LIT.
- Abnormal Operating Procedure AOP 1.38.1D has been completed through steps 6a.

INITIATING CUE:

Your supervisor directs you to restore 120 VAC Vital Bus IV power using AOP 1.38.1D, starting at step 6b.

☐

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)

**CANDIDATE DIRECTION SHEET****Use This Sheet if Protected Train "B"**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

You are to simulate the task transferring 120 VAC Vital Bus Power.

INITIAL CONDITIONS:

- A loss of uninterruptible power supply III, UPS-3 has occurred, and the 120 VAC Vital Bus III failed to automatically re-energize.
- Annunciator A1-12, Vital Bus III Trouble, is LIT.
- NI rack Channel III is deenergized.
- CNMT HI or HI-HI pressure bistables are NOT LIT.
- Abnormal Operating Procedure AOP 1.38.1C has been completed through steps 7a.

INITIATING CUE:

Your supervisor directs you to restore 120 VAC Vital Bus III power using AOP 1.38.1C, starting at step 7b.

☐

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 NUMBER: 1PL-524  
JPM REVISION: 0

JPM TITLE: Transfer 120 VAC Vital Power

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Provide candidate with copy of 1OM-53C.4.1.38.1C(1D).</p> <p><b>EVALUATOR CUE:</b> Inform Candidate, "I will interface with you as the Control Room Operator and any necessary control room actions should be</p> </div>	
1. Review procedure.	<p>1.1 Candidate reviews procedure provided.</p> <p>COMMENTS:</p>	
2. Verify that [B4], Alternate Source AC Input to Static Switch circuit breaker, is ON. (Service Bldg. 713').	<p>2.1 Locates INV-VITBUS1-3 Vital Bus #3 Inverter/Static SW (INV-VITBUS1-4 Vital Bus #4 Inverter/Static SW) and verifies INV-VITBUS1-3-B4 (INV-VITBUS1-4-B4) is ON.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> INV-VITBUS1-3-B4 (INV-VITBUS1-4-B4) is in the ON position.</p> </div> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-524 JPM REVISION: 0	JPM TITLE: Transfer 120 VAC Vital Power
--	---

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
3. Place Steam Dump Control Bypass Interlock Selector A and B Trn switches to OFF RESET INTLK.	<p>3.1 Requests the Control Room repositions steam dump control bypass interlock selector A and B train switches selected to OFF/RESET/INTERLOCK position.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>EVALUATOR CUE:</b> When requested, role play the BOP and inform the candidate that the Steam Dump Control Bypass Interlock Selector A and B Train Switches are selected to OFF/RESET/INTERLOCK position.</p> </div> <p>COMMENTS:</p>	
4.C Press ALTERNATE SOURCE TO LOAD pushbutton and then check ALTERNATE SOURCE SUPPLYING LOAD Red Light – ON.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b>EVALUATOR NOTE:</b> Step 4 &amp; 5 are critical for making the determination that the bus has <b>NOT</b> yet been energized.</p> </div> <p>4.1C Presses ALTERNATE SOURCE TO LOAD (S202) pushbutton.</p> <p>4.2 Checks ALTERNATE SOURCE SUPPLYING LOAD Red Light (P202) – ON</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>EVALUATOR CUE:</b> ALTERNATE SOURCE SUPPLYING LOAD Red Light – OFF.</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>EVALUATOR NOTE:</b> If asked, Static Switch output current is 0 amps and output voltage is 0 volts.</p> </div> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-524  
JPM REVISION: 0

JPM TITLE: Transfer 120 VAC Vital Power

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>5.C Check AC Volts and AC amperes meters for output voltage and current indications.</p>	<p>5.1C Checks AC output volt and ampere meters and verifies voltage and current are <b><u>NOT</u></b> normal.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> If asked, Inverter Output Voltage is 0 volts and Inverter Output Current is 0 amps.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> If necessary, Role-Play control room and report NI Rack Channel III (IV) Instrumentation is <b><u>NOT</u></b> Energized.</p> </div> <p>5.2 Determines vital bus power is still de-energized.</p> <p>COMMENTS:</p>	
<p>6.C Place the Manual Bypass Switch in ALTERNATE SOURCE TO LOAD position.</p>	<p>6.1C Rotates the Manual Bypass Switch to the ALTERNATE SOURCE TO LOAD position.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Manual Bypass Switch is in the ALTERNATE SOURCE TO LOAD position.</p> <p>If asked, Inverter Output Voltage is 126 volts and Inverter Output Current is 30 amps.</p> <p>If necessary, Role-Play control room and report NI Rack Channel III(IV) Instrumentation is Energized.</p> </div> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1PL-524  
JPM REVISION: 0

JPM TITLE: Transfer 120 VAC Vital Power

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>7. Place Steam Dump Control Bypass Interlock Selector A and B Trn switches to ON.</p>	<p>7.1 Requests the Control Room repositions steam dump control bypass interlock selector A and B train switches selected to ON position.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> When requested, role play the BOP and inform the candidate that the Steam Dump Control Bypass Interlock Selector A and B Train Switches are selected to ON position. Inform the candidate "This JPM is complete".</p> </div> <p>COMMENTS:</p>	
	<p>STOP TIME: _____</p>	

## Appendix D

## Scenario Outline

Facility:	<b>BVPS Unit 1</b>	Scenario No.:2	Op Test No.: <u>1LOT8 NRC</u>
Examiners:	_____	Candidates:	SRO
	_____		ATC
	_____		BOP

Initial Conditions: **IC 235:** 5% power, EOL, *Xe increasing*, CB "D" @ 115 steps, RCS boron - 664 ppm.

Turnover: Continue power increase IAW reactivity plan and commence turbine roll.  
PCV-1RC-456 isolated due to seat leakage, block valve closed. TS 3.4.11, *Condition A*

Critical Tasks:

- E-3.A Isolate Ruptured S/G**
- E-3.B Establish/maintain RCS temperature**
- ECA-3.3.A Terminate Safety Injection**

Event No.	Malf. No.	Event Type	Event Description
1	N/A	(R) ATC (N) SRO	Raise power
2	IMF PRS08E (0 0) 2500 15 IMF PRS04B	(I) ATC, SRO (TS) SRO	PT-1RC-445 fails high, <i>PORV's 455D &amp; 456 open, ATC required to manually close PORV, PCV-1RC-455D</i>
3	IMF BST-CCW006 IMF CCW3A	(C) BOP, SRO (TS) SRO	"A" CCR pump trips, Auto start failure of "B" CCR pump
4	IMF MSS11 (0 0) 1400 1200	(C) BOP, SRO	Steam Dump pressure setpoint drifts low, steam dumps open in response, BOP required to manually control steam dumps
5	IMF RCS10B (0 0) 10.6 TRG 6 'IMF RCS10B (0 120) 16.4 600 10.6'	(C) ATC, SRO	"B" RCP high vibration – will require RCP/Rx trip
6	IMF RCS03A (1 120) 450	(M) - ALL	"A" SG - 450 gpm tube rupture
7	IMF MSS08A (5 0) 50	(C) BOP, SRO	Steam dump, PCV-1MS-106A fails at 50% following cooldown during E-3. Crew required to isolate steam lines and control RCS temperature via atmospheric steam dumps
8	IMF PRS09A (1 0) 0 IMF PRS09B (1 0) 0 IOR X07I097O	(C) ATC, SRO	Pzr spray valves and remaining PORV fail to open during depressurization in E-3, will require transition to ECA-3.3

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



The crew will assume the shift at 5% power with instructions to raise power in accordance with the reactivity plan and 1OM-52.4.A.

After the power increase is commenced, PT-1RC-445 will fail high causing PORV 455D and 456 to open, (per turnover, 456 previously isolated with block valve closed.) the ATC will be required to manually close PORV, PCV-1RC-455D. The US will respond and give direction IAW 1OM-6.4.IF, Attachment 2 and determine applicable Tech Spec actions.

The “A” CCR pump will then trip due to a faulty breaker with a failure of the “B” to auto start. The BOP will manually start the “B”; the US will dispatch an operator to place the “C” pump in service on the “AE” 4kv bus. The US will then address Technical Specifications.

When Tech Specs have been addressed, the steam dump pressure setpoint will drift low, causing the steam dumps to open and an RCS cooldown. The crew will take action to control steam dumps manually.

When steam dumps are in manual control, an RCP will show signs of high vibration, the crew will respond using AOP 1.6.8, “Abnormal RCP Operation”. The vibration will increase in severity to the point where the Rx and RCP must be tripped.

As a result of the reactor trip a 450 gpm SGTR occurs on the “A” S/G. The crew will progress through E-0 and diagnose the “A” S/G as ruptured and transition to E-3. The crew will isolate the “A” S/G and cooldown to a target temperature. Following the Cooldown to target temperature, Condenser Steam Dump valve, PCV-1MS-106A will fail at 50% open, the crew will identify the failure and isolate the mainsteam lines and stabilize temperature using the “B” and “C” S/G atmospheric steam dump valves.

When the crew attempts to depressurize the RCS, the spray valves will not function, nor will the PZR PORV’s, 456 was previously isolated on turnover – block valve will open but PORV will not, 455D was isolated per event 2, block 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.

## BEAVER VALLEY - DOWER STATION

**INITIAL CONDITIONS:** 5 % Power, CB-D = 115, EOL, 664 PPM Boron, IC-235

<b><u>ADDITIONAL LINEUP CHANGES</u></b>	<b><u>STICKERS</u></b>	<b><u>VOND MARKINGS</u></b>
MOV-1RC-536 closed with power maintained	YCT on CS	
<b><u>EQUIPMENT STATUS</u></b>	<b><u>DATE/TIME OOS</u></b>	<b><u>TECHNICAL SPECIFICATION(S)</u></b>
PCV-1RC-456 isolated	Yesterday / 1200	3.4.11, Condition A

### **SHIFT TURNOVER INFORMATION**

1. EOL plant startup, Mode 1 just entered, continue plant startup IAW 1OM-52.4.A, step IV.A.6.b in progress.

### **SCENARIO SUPPORT MATERIAL REQUIRED**

1. Place kept 1OM-52.4.A
2. Reactivity plan

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
Initialize IC 235, and establish initial plant conditions.	Reactor plant at 5% power, EOL, RCS boron 670 PPM, CB-D = 115 steps.	
Insert the following per the Simulator Setup section of the HTML File for this scenario:	Insert all pre-loads required to support the scenario.	
<b>TRGSET 1 'JPPLP4(1)'</b> <b>TRGSET 2 'JPPLSI(1)'</b> <b>IMF PRS09A (2 120) 0</b> <b>IMF PRS09B (2 120) 0</b> <b>TRGSET 4</b> <b>'RMS106C.GE.0.5.AND.JPPLSI(1)'</b> <b>IMF MSS08A (4 0) 50</b> <b>IMF RCS03A (1 0) 450</b> <b>IMF BST-CCW006 (0 0) 1</b>  <b>TRGSET 6 'VRCPF(2) &gt;= 3'</b> <b>TRG 6 'IMF RCS10B (0 180) 16.4 600 10.6'</b> <b>IOR X07I097O</b> <b>IOR X07I080C</b> <b>IOR X07I095O</b> <b>IOR 'X07I095C == 1'</b> <b>IMF INH51</b>	Set Trigger 1 on Reactor Trip Set Trigger 2 on Safety Injection actuation Spray Valve PCV-RC-455A fails closed Spray Valve PCV-RC-455B fails closed Set Trigger 4 on PCV-1MS-106B1 >50% open with Safety Injection actuated PCV-1MS-106A failed to 50% open 'A' S/G develops a 450 gpm tube rupture PS-1CC-102 1CC-P-1A OR 1CC-P-1B Low Press Auto Start inhibit. Set Trigger 6 on "B" RCP Frame Vib >= 3.0  B RCP high vib, ramps to 16.4 mills in 10 mins  Inhibit PORV 455C open CS. Inhibit MOV-1RC-537 open CS Inhibit PORV 456 open CS. Inhibit PORV 456 open CS. Inhibit Automatic Steam Line Isolation	<b>FIX for Current command</b>

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
Assign shift positions  SRO: _____  ATC: _____  BOP: _____		
Conduct a shift turnover with oncoming operators.	Simulator Frozen until after shift turnover unless it needs to be run momentarily for an alignment change.	
When the shift turnover is completed, place the simulator to RUN and commence the drill.	Simulator running.	Crew assumes control of the Unit.

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 1:**

Normal Plant Startup, Reactor Power increase to 15% to support Turbine Startup.

	ATC commences raising reactor power to between 10 and 14%.
Status lights on Panel 176 actuate at 10%.	ATC verifies P-10 bistables lit on Panel 176.
Status Light PNL 176, D10, - 'INT RNG RX TRIP BLOCKED' – LIT.	ATC blocks the IR High Flux Trip AND IR High Flux Rod Stop by placing the IR BLOCK TRAIN and TRAIN B control switches to the BLOCK position and verifies status pnl 176, D10 is LIT.
Status Light PNL 176, B12, - 'PW RA LO SET R TRIP BLKD' – LIT.	ATC blocks the Power Range Low Overpower Trip by placing the PR BLOCK TRAIN A and TRAIN B control switches to the BLOCK position and verifies status pnl 176, B12 is LIT.
	ATC selects highest power ranges on N-45.

Proceed with next event at LE discretion

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 2:**

Pressurizer Pressure Transmitter Fails High

PT-1RC-445 fails high

## **IMF PRS08E (0 0) 2500 15**

Pressurizer Pressure Alarms;  
A4-9; Pressurizer Control Press High  
A4-5; Pressurizer Power Oper Relief Valve Open  
A4-6; Pressurizer Safety Valve or PORV Open

ATC notes alarm, informs US.

BOP refers to ARP's.

Crew identifies PT-1RC-445 failed high.

**NOTE:**  
PCV-1RC-456 was previously isolated due to seat leakage – given on turnover.

SRO enters 1OM-6.4.IF, Attachment 2

ATC places control switches for PCV-1RC-455D and PCV-1RC-456 to close.

If DNB Tech Spec entry not identified by the crew at this time, ask as a follow-up question.

ATC and SRO recognize entry conditions met for DNB Technical Specification;  
TS 3.4.1, Condition A, restore parameters within limit within 2 hours.

Continue with next event at LE discretion

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 3:**

Reactor Plant Component Cooling  
Water Pump Trip/ Auto start failure of  
standby pump

CC-P-1A trips due to a faulty breaker with an  
auto start failure of CC-P-1B

## **IMF CCW3A (0 0)**

Numerous Component Cooling water alarms;  
A6-33, Primary Comp Cool Pump Auto Start-  
Stop  
A6-35, Pri Comp Cool Pump Disch Press Low  
A6-38, Pri Comp Cool Wtr Heat Exchanger 8”  
Disch Line Flow Low  
A6-46, Pri Comp Cool Wtr Heat Exchanger 14”  
Disch Line Flow Low

Numerous Reactor Coolant pump alarms;  
A3-75, React Cool Pp Lower Brg Lube Oil Cool  
Water Flow Low  
A3-77, React Cool Pp Stator Winding Cool  
Water Flow Low  
A3-83, React Cool Pp Upper Brg Lube Oil Cool  
Water Flow Low  
A3-91, Non Regen Heat Exchanger Disch Temp  
High

ATC recognizes and announces multiple component  
cooling water and reactor coolant pump annunciators.  
ATC reviews ARP’s

## BEAVER VALLEY - LOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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### **EVENT 3:** (continued)

#### **NOTE:**

A6-33 ARP will direct manual starting of standby pump. Crew may manually start CC-P-1B without specific procedural guidance if they recognize that a design Automatic action did not occur.

BOP starts CC-P-1B

#### **NOTE:**

The crew may enter AOP 1.15.1 for Loss of CCR, the 2<sup>nd</sup> pump is not required for the remainder of the scenario. Once the standby pump has been started, the next event can be entered at the LE discretion. A follow-up question on TS 3.7.7 may be required.

SRO determines CC-P-1A is inoperable and TS 3.7.7 Condition A is applicable; Restore "A" train to operable status within 72 hours.

When requested - wait 5 minutes then insert:

**IRF EPS007 (0 0) F** to Rack out A pp  
**IRF EPS009 (0 0) BusAE** to rack in C

SRO dispatches operator to place CC-P-1C inservice on the "A" train.

#### **ROLE PLAY:**

Report back to CR that CC-P-1C is now available on AE bus.

Continue with next event at LE discretion



# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## EVENT 4:

Steam Dump Pressure Setpoint Drifts  
Low

**IMF MSS11 (0 0) 1400 1200**

It is expected that A4-46, Tavg-Tref deviation, will be in alarm at this time due to the plant S/U that is in progress.

Tavg decreases

Reactor power increases

Steam dumps start opening further

Depending on timing of recognition and response, A4-46 may clear due to this malfunction.

ATC determines Tavg is decreasing and reactor power is rising.

BOP determines condenser steam dumps are opening.

BOP places steam dump controller to Manual and closes steam dumps to stabilize the plant.

BOP manually controls RCS temperature at previous value.

SRO contacts I&C to investigate.

Continue with next event at LE discretion

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b>EVENT 5:</b></p> <p>B RCP High Vibration, after TD vibrations increase at a rate that requires tripping the RX and RCP.</p> <p><b>IMF RCS10B (0 0) 10.6</b> Additional commands pre-loaded <b>TRGSET 6 'VRCPP(2) &gt;= 3'</b> <b>TRG 6 'IMF RCS10B (0 180) 16.4 600 10.6'</b></p>	<p>A3-126; Reactor Cool Pump Vibration High</p> <p>SRO enters AOP 1.6.8 for Abnormal RCP Operation.</p> <p>After a 3 minute time delay, "B" RCP vibrations begin increasing.</p> <p>The frame vibration rate of rise is &gt; 0.2 mils/hour.</p>	<p>ATC reviews ARP while BOP goes behind Vertical Board and checks indications on RCP vibration monitor.</p> <p>BOP reports "B" RCP frame vibration at 3.2 mils and shaft is at 10.6 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> <p>BOP identifies that "B" RCP vibrations are rising.</p> <p>Crew determines immediate RCP shutdown is required.</p> <p>Crew pre-briefs BOP actions for manual control of the condenser steam dump after the reactor trip. (due to previous malfunction with condenser steam dumps)</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>SRO additionally directs the ATC that following completion of the IOA's, to note the time and stop 1RC-P-1B.</p>

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 6:**

“A” S/G develops 450 gpm SGTR on reactor trip.

Command pre-loaded.

**IMF RCS03A (1 0) 450**

Reactor trip and bypass breakers open  
Rod bottom lights lit  
RPI's at zero  
Neutron flux dropping

SRO enters E-0

ATC Manually trips the reactor

ATC and BOP commence IOA's  
SRO references E-0.

ATC verifies Reactor trip

- Rx trip and bypass breakers open
- Power range indication is < 5%
- Neutron flux is dropping

BOP verifies Turbine trip

- Throttle OR Governor valves ALL closed
- 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.

## BEAVER VALLEY - LOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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### **EVENT 6:** (continued)

#### **NOTE:**

Dependant upon timing and crew actions, a transition to ES-0.1 may be made due to SI not actuated; in this case a return to E-0 upon SI initiation will occur, therefore ES-0.1 actions are not scripted.

#### **ROLE PLAY:**

After the crew has opened the control room operated valves and dispatched a field operator;

Wait 7 minutes then insert:

**IMF XN02097 (0 0) ON**

**IMF XN02105 (0 0) ON**

Then report back to the CR that the WR Hydrogen analyzers have been placed in service.

#### Check SI Status

- ATC checks if SI is actuated
- ATC verifies Cnmt press < 5psig
- ATC verifies PRZR press > 1850 psig
- ATC or BOP verifies Steamline pressure > 500 psig

ATC manually actuates SI – both trains.

ATC/BOP alerts plant personnel.

BOP verifies 1VS-F-4A running.

Crew dispatches an operator to perform 1OM-46.4.G to place hydrogen analyzers in service.

#### ATC verifies SI System Status

- 2 charging pumps running
- Both LHSI pumps running
- BIT Flow indicated

# BEAVER VALLEY LOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 6:** (continued)

### **NOTE:**

If the crew has previously identified the “A” S/G level rising, the BOP may have already pre-emptively isolated AFW flow to the “A” S/G by this time.

BOP verifies AFW status

- Both motor-driven pumps running
- Turbine-driven pump running
- AFW throttle valves all FULL OPEN
- Total AFW flow is > 370 gpm

### **NOTE:**

Evaluation of BOP performing Attachment 1-K begins on page 27

### List of Attachment 1-K Discrepancies:

All Automatic actions of 1-K are SAT

SRO directs BOP to perform Attachment 1-K

RCS temperature < 547°F and dropping due to Safety Injection flow.

ATC checks RCS Tav<sub>g</sub> stable at or trending to 547°F

- ATC verifies no steam release is occurring.
- ATC verifies Reheat steam is isolated.
- ATC reduces total feedflow to minimize C/D.

ATC Check Recirc Spray Pumps – NONE RUNNING

ATC verifies PRZR isolated

- PORVs – CLOSED
- Spray Valves – CLOSED
- Safety relief valves – CLOSED
- PRT conditions – CONSISTENT WITH EXPECTED VALUES
- Power to at least one block valve – AVAILABLE
- Block valves – AT LEAST ONE OPEN

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b><u>EVENT 6:</u></b> (continued)	<p>SRO transitions to E-3</p>	<p>ATC checks if RCPs should be stopped</p> <ul style="list-style-type: none"> <li>• D/P between RCS pressure and highest S/G pressure – LESS THAN 200 PSID</li> <li>• Criteria for stopping is not met - Leaves RCPs running</li> </ul> <p>ATC/BOP checks if any S/Gs are faulted</p> <ul style="list-style-type: none"> <li>• Pressures in all S/Gs – ANY DROPPING IN AN UNCONTROLLED MANNER OR</li> <li>• ANY S/G COMPLETELY DEPRESSURIZED</li> </ul> <p>Crew determines NO S/G's are faulted</p> <p>Crew checks if S/G tubes are intact</p> <ul style="list-style-type: none"> <li>• Check all S/G levels – NONE RISING IN AN UNCONTROLLED MANNER</li> <li>• Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES</li> </ul> <p>Crew determines "A" S/G level rising in an uncontrolled manner and Secondary Radiation – is NOT CONSISTENT WITH PRE-EVENT VALUES.</p> <p>ATC Checks If CREVS Should Be Actuated: Check EITHER of the following:</p> <ul style="list-style-type: none"> <li>• Control Room Radiation Monitor [RM-1RM-218A,B] - NOT IN HIGH ALARM</li> <li>• CIB - HAS NOT OCCURRED</li> </ul> <p>Crew determines CREVS actuation NOT required</p>

# BEAVER VALLEY , JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 6:** (continued)

SRO directs STA to Commence Control Room ventilation actions. Refer to Attachment 4-F.

ATC checks if RCPs should be stopped

- D/P between RCS pressure and highest S/G pressure – LESS THAN 200 PSID
- Criteria for stopping is not met - Leaves RCPs running

Crew Identifies Ruptured S/Gs

- Unexpected rise in any S/G narrow range level  
-OR-
- High radiation from any S/G sample  
-OR-
- High radiation from any S/G steamline  
N16 monitor  
Radiation Protection survey  
-OR-
- High radiation from any S/G blowdown line  
[RIS-1SS-100] S/G BD Sample  
Radiation Protection survey

Crew determines “A” S/G is ruptured.

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 6:** (continued)

### **Critical Task: E-3.A**

Crew isolates feed flow into and steam flow from the ruptured S/G and directs operator to close isolation valve(s) operated from outside of the control room before a transition to ECA-3.1 occurs.

#### **Basis for Selection:**

SAFETY SIGNIFICANCE -- Failure to isolate the ruptured S/G causes a loss of differential pressure between the ruptured S/G and the intact S/Gs. 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...."

#### **NOTE:**

In addition to these actions, the next 2 pages contain actions required to meet this Critical Task, these steps are designated as "CT E-3.A"

ATC/BOP Isolates Flow from the Ruptured S/G.

BOP places ruptured S/G atm stm dump valve, PCV-1MS-101A, in MAN and verifies valve is CLOSED.

BOP verifies residual heat release valve – CLOSED.



# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b>EVENT 6:</b> (continued)</p> <p><b>CT E-3.A</b></p> <p><b>ROLE PLAY:</b>            5 minutes after being dispatched to locally isolate 1MS-15 and open 1MS-17, insert  <b>IRF FWM34 (0 0) 0</b>  <b>IRF FWM36 (0 0) 100</b>            then report            1MS-15 is CLOSED            1MS-16 is OPEN            &amp; 1MS-17 was OPENED.</p>		<p>Steam supply valve from ruptured S/G - OPEN</p> <ul style="list-style-type: none"> <li>• BOP verifies 1MS-15 open</li> </ul> <p>BOP verifies at least one Motor-driven AFW pump is running            BOP closes MOV-1MS-105, AFW Turbine Steam Isol Vlv.</p> <p>Crew dispatches an operator to locally isolate steam supply valve from “A” S/G, 1MS-15 and to:</p> <ul style="list-style-type: none"> <li>• Verify open steam supply valve from “B” S/G, 1MS-16</li> <li>• Unlock and open steam supply valve from “C” S/G, 1MS-17</li> </ul> <p>If necessary, crew restarts FW-P-2 by opening MOV-1MS-105</p>
<p><b>CT E-3.A</b></p>		<p>BOP closes ruptured S/G Pre nrtrn Drain Isol Vlvs.</p> <ul style="list-style-type: none"> <li>• [TV-1MS-111A]</li> </ul>
<p><b>CT E-3.A</b></p>		<p>BOP closes ruptured S/G main steam trip, bypass, and non-return valves.</p> <ul style="list-style-type: none"> <li>• [TV-1MS-101A] trip</li> <li>• [MOV-1MS-101A] bypass</li> <li>• [NRV-1MS-101A] non return</li> </ul>

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 6:** (continued)

### **CT E-3.A**

#### **NOTE:**

If the crew had previously identified the “A” S/G level rising, the BOP may have pre-emptively isolated AFW flow to the “A” S/G.

BOP checks ruptured S/G level

- Narrow range level - GREATER THAN 31%

BOP closes AFW throttle valves on ruptured S/G

- [MOV-1FW-151E, F]

Checks FWI - PREVIOUSLY VERIFIED

BOP checks ruptured S/G pressure- GREATER THAN 380 PSIG.

BOP verifies station instrument air header pressure - GREATER THAN 100 PSIG.

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 7:**

Steam dump, PCV-1MS-106A fails at 50% open following the cooldown.

**IMF MSS08A (4 0) 50**

Condenser available

Crew initiates RCS cooldown

SRO determines required core exit temperature as a function of ruptured S/G pressure:

SRO directs ATC to block low steamline pressure SI when PRZR pressure less than 1950 PSIG.

BOP dumps steam to condenser from B & C S/Gs at maximum rate by;

- Checking MSIVs - AT LEAST ONE OPEN
- Checking condenser available
- Confirming condenser steam dump controller in MANUAL
- Verifying demand is at ZERO
- Confirms steam dumps are in STM PRESS Mode
- Checks TAVG > 541°F by Status light D-11, "2/3 Lo-Lo Tavg" (Panel 6 22) - NOT LIT
- Gradually raises steam dump rate to maximum rate (~25% demand)
- As TAVG approaches 541°F, defeats TAVG interlock until status light A-12, "Stm Dump Defeat Interlock" (Panel 622) – LIT
- When Core exit TCs (average of five hottest) - LESS THAN REQUIRED TEMPERATURE
- Stops RCS cooldown and Maintains core exit TCs - LESS THAN REQUIRED TEMPERATURE.

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b>EVENT 7:</b> (continued)</p> <p><b>Critical Task: E-3.B</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:</p> <p>Too high to maintain minimum required subcooling for subsequent RCS depressurization</p> <p>OR</p> <p>Below the RCS temperature that causes a red or orange path challenge to Sub-criticality or Integrity CSF</p> <p><b>Basis for Selection:</b> 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...."</p>	<p>RCS temperature continues to decrease</p> <p>Steam dump valve, PCV-1MS-106A indicates 50% open.</p>	<p>BOP recognizes PCV-1MS-106A has failed open and cannot stabilize RCS temperature.</p> <p>SRO directs BOP operator to close the "B" &amp; "C" steam line isolation valves and to stabilize RCS temperature using the "B" &amp; "C" atmospheric steam dump valves.</p> <p>BOP closes TV-1MS-101B and TV-1MS-101C.</p> <p>BOP operates PCV-1MS-101B &amp; 101C as necessary to stabilize and maintain target RCS temperature.</p>

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b><u>EVENT 7:</u></b> (continued)		<p>BOP checks intact S/G levels</p> <ul style="list-style-type: none"> <li>• “B” &amp; “C” narrow range levels - GREATER THAN 31%</li> </ul> <p>BOP controls feed flow to maintain narrow range level between 25% and 65%.</p> <p>ATC Checks PRZR PORVs and Block valves</p> <ul style="list-style-type: none"> <li>• Power to block valves – AVAILABLE</li> <li>• PORVs – CLOSED</li> <li>• Block valves – AT LEAST ONE OPEN</li> </ul> <p>ATC Resets SI, CIA and CIB</p> <p>BOP Verifies Containment Instrument Air – AVAILABLE by;</p> <ul style="list-style-type: none"> <li>• Checking Station Instrument Air Header Pressure GREATER THAN 100 PSIG</li> <li>• Verifying [TV-11A-400] - OPEN</li> <li>• Checking CNMT instrument air header pressure - GREATER THAN 85 PSIG</li> </ul> <p>ATC Checks If LHSI Pumps Should Be Stopped</p> <ul style="list-style-type: none"> <li>• ATC checks LHSI pumps - ANY RUNNING WITH SUCTION ALIGNED TO RWST</li> <li>• ATC checks RCS pressure - GREATER THAN 275 PSIG [400 PSIG ADVERSE CNMT]</li> <li>• ATC stops LHSI Pumps AND places in AUTO</li> </ul>

# BEAVER VALLEY . JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 7:** (continued)

### **NOTE:**

See previous steps for required actions when the RCS cooldown won't stop due to Condenser Steam dump failing open.

BOP checks if RCS cooldown should be stopped

- When Core exit TCs (average of five hottest) - LESS THAN REQUIRED TEMPERATURE

BOP stops RCS cooldown and maintains core exit TCs – LESS THAN REQUIRED TEMPERATURE.

BOP checks ruptured “A” S/G Pressure- STABLE OR RISING

ATC checks RCS subcooling based on core exit TCs - GREATER THAN 66°F

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENT 8:</u></b></p> <p>Both Pzr spray valves and remaining PORV fail to open.</p> <p>(commands pre-loaded)</p> <p><b>IMF PRS09A (1 0) 0</b></p> <p><b>IMF PRS09A (1 0) 0</b></p> <p><b>IOR X07I097O</b></p>	<p>Both Spray valves fail to open with 100% demand signal.</p> <p>Remaining operable PORV PCV-1RC-455C also fails to open.</p> <p>Pressure is not reducing.</p> <p>SRO enters ECA-3.3</p> <p>Step skipped if “A” NR level was &gt; 89%</p> <p>Step skipped if “A” NR level was &gt; 89%</p>	<p>ATC Depressurizes RCS To Minimize Break Flow And Refill PRZR</p> <ul style="list-style-type: none"> <li>• Checks RCPs 1A and 1C - BOTH RUNNING</li> <li>• Fully opens available PRZR spray valves</li> <li>• Opens one PRZR PORV</li> </ul> <p>Checks depressurization method – IS NOT EFFECTIVELY REDUCING RCS PRESSURE</p> <p>ATC recognizes and informs SRO that the depressurization method is not effectively reducing RCS Pressure.</p> <p>SRO directs ATC to close Pzr spray valves.</p> <p>BOP checks “A” S/G Narrow range level less than 89%.</p> <p>ATC confirms 1C RCP running and normal spray did not result in pressure reduction therefore normal spray is not available.</p> <p>ATC attempts to open remaining PORV’s/ Block valves – none will result in pressure reduction.</p> <p>SRO continues with procedure.</p>

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b>EVENT 8:</b> (continued)	Step skipped if “A” NR level was > 89%	<p>BOP checks intact S/G levels</p> <ul style="list-style-type: none"> <li>• “B” &amp; “C” narrow range levels - GREATER THAN 31%</li> </ul> <p>BOP controls feed flow to maintain narrow range level between 25% and 65%.</p>
	Step skipped if “A” NR level was > 89%	BOP checks station instrument air header pressure - GREATER THAN 100 PSIG.
	Step skipped if “A” NR level was > 89%	<p>ATC verifies PZR level &gt; 17%.</p> <p>Crew checks if SI can be terminated.</p> <p>ATC verifies RCS Subcooling is greater than 46°F based on CETC’s</p> <p>BOP confirms secondary heat sink available by &gt;370 gpm of feed flow available OR NR level in “B” or “C” S/G &gt; 31%.</p> <p>ATC confirms RVLIS Dynamic head range is &gt; 43%.</p> <p>Crew determines “A” S/G NR level is rising in an uncontrolled manner or is offscale high.</p> <p>SRO directs ATC to stop 1 charging pump.</p>



# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## EVENT 8: (continued)

### **Critical Task: 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.

### **Basis for Selection:**

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."

Indicated SI/BIT flow decreases to zero.

SRO directs ATC to Isolate the BIT

ATC closes MOV-1SI-867A, B

ATC closes MOV-1SI-867C, D

SRO directs ATC to establish normal charging flow path.

ATC closes FCV-1CH-122

ATC opens MOV-1CH-310

ATC opens MOV-1CH-289

ATC adjusts FCV-1CH-122 to maintain Pzr level.

Verify SI flow not required.

ATC verifies RCS Subcooling is greater than 46°F based on CETC's.

ATC confirms RVLIS Dynamic head range is > 43%.

Crew determines SI flow is not required.

Terminate scenario when the crew establishes normal charging flowpath in ECA-3.3.

### **Classify Event:**

**ALERT** due to Tab 1.2.4, LOSS of RCS Barrier, Primary to Secondary Leak.

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b>Attachment 1-K ‘Verification of Automatic Actions’</b>		<p>BOP performs the verifications/actions of Attachment 1-K ‘Verification of Automatic Actions’ as follows:</p> <p>Diesel generators – BOTH RUNNING</p> <p>Station Instrument Air Header Pressure - GREATER THAN 100 PSIG</p> <p>Ensure Reheat Steam Isolation</p> <ul style="list-style-type: none"> <li>• Verify [MOV-1MS-100A,B] - CLOSED</li> <li>• Reset reheater controller.</li> </ul> <p>Verify CCR Pumps - TWO RUNNING</p> <p>Align Neutron Flux Monitoring For Shutdown</p> <ul style="list-style-type: none"> <li>• Transfer [NR-1NI-45] Nuclear Recorder to operable source and intermediate range displays.</li> </ul> <p>Verify River Water System In Service</p> <ul style="list-style-type: none"> <li>• RPRW Pumps - TWO RUNNING</li> <li>• Check CCR Heat EX RW pressure - GREATER THAN 20 PSIG</li> </ul> <p>Check If Main Steamline Isolation Required</p> <ul style="list-style-type: none"> <li>• CNMT pressure - GREATER THAN 7 PSIG -OR-</li> <li>• Steamline pressure - LESS THAN 500 PSIG -OR-</li> <li>• Steamline pressure high rate of change - ANY ANNUNCIATOR LIT Annunciator A7-41, A7-49 or A7-57</li> </ul> <p>Determines steamline isolation is NOT required.</p>
<b>Attachment 1-K ‘Verification of Automatic Actions’ (continued)</b>		

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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Check CIB And CNMT Spray Status

- Containment pressure - HAS REMAINED LESS THAN 11 PSIG

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 Power To Both AC Emergency Busses

Upon Completion, Report Any Discrepancies to SM/US

Discrepancies:

NONE

**Appendix D**
**Scenario Outline**

Facility: <b>BVPS Unit 1</b>	Scenario No.: 3	Op Test No.: <u>1LOT8 NRC</u>
Examiners: _____	Candidates: _____	SRO
_____	_____	ATC
_____	_____	BOP

Initial Conditions: **IC 238 (18):** 100% power, MOL, Equ. XE Conditions, CB "D" @ 225 steps, RCS boron - 1019 ppm.

Turnover: Maintain 100% power.  
PCV-1RC-456 isolated due to seat leakage, block valve closed. TS 3.4.11, *Condition A FW-P-2 Out of service, TS 3.7.5, Condition B Control Rods in Manual due to scheduled MSP on N-44*

Critical Tasks:

- 1. E-0.C Energize 1 AC Emergency Bus**
- 2. E-0.D Manually actuate 1 train of Safety Injection**
- 3. FR-H.1.A Establish feed flow to SG before Feed and Bleed is required**
- 4. E-2.A Isolate faulted SG**

Event No.	Malf. No.	Event Type	Event Description
1	IMF PRS08D (0 0) 2500 15	(I) ATC, SRO (TS) SRO	PT-1RC-444 fails high, requires ATC to close PORV and manually control RCS pressure.
2	IOR X12I027L (12 0) ON	(TS) SRO	OCB-92 trips open, de-energizes SSST-1A
3	IMF AUX02A	(C) BOP, SRO	"A" Station air compressor trips, "B" fails to <i>auto</i> start – <b>BOP manually starts "B" air compressor</b> , Diesel Air compressor fails to auto start but will start locally.
4	IMF MSS18C (0 0) 2.5E5 300 0	(R) ATC (N) SRO, BOP	"C" SG Fault in MSVR, causes Rx overpower, requires emergency power reduction.
5	IMF CRF04BV (2 2) 1 IMF CRF04BT (2 4) 1	(C) ATC, SRO	2 Rods drop during power reduction – requires manual Rx trip. Loss of 4kv busses, "A", "B" and AE occurs on Rx trip
6	TRG 3 'IMF MSS18C (0 0) 6E5'	(M) ALL	"C" SG Steam Break occurs on Rx trip – causes Safety Inj.
7	IMF SIS10A <b>IMF SIS10B</b>	(C) ATC, SRO	<b>Automatic</b> SI fails to actuate – requires manual actuation.
8	IMF EPS11B (1 30) IMF INH53 (0 0) IMF EPS04F (1 10)	(C) BOP, SRO	"B" train 4kv emergency bus de-energizes, #2 EDG trips while loading, #1 EDG auto start inhibited, will start manually.
9	IMF FWM11C (4 30) IMF FWM11A (0 0)	(M) ALL	Loss of all Aux Feedwater flow, requires entry into FR-H.1

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

After taking the shift at 100% power, PT-1RC-444 will fail high causing the pzs spray valves and PORV PCV-1RC-455C to open. The ATC will close the PORV and spray valves to stabilize RCS pressure. The ATC will manually control pzs pressure for the remainder of the scenario. The SRO will utilize 1OM-6.4IF, Attachment 2 to address the Pressure transmitter failure. The SRO will address Technical Specifications for DNB and Shutdown panel instrumentation.

OCB-92 will then trip open, de-energizing SSST-1A, the SRO will address Technical Specifications and direct the BOP to perform OST-1.36.7, "Offsite to Onsite Power Distribution System Breaker Alignment Verification".

The "A" station air compressor will trip with auto start failures of the "B" station air compressor and the Diesel driven air compressor. The SRO will direct activities in accordance with AOP 1.34.1, "Loss of Station Instrument Air", the BOP will manually start the "B" station air compressor.

A fault will occur on the "C" S/G outside of containment upstream of the MSIV, the fault will ramp in over a 5 minute time period, RCS temperature will decrease and reactor power will increase. High temperature alarms will actuate in the main steam valve room and aux feed pump room.

The crew will recognize the over power and begin an immediate power reduction in accordance with AOP 1.51.2, "Reactor Overpower".

The ATC will insert the control rods in response to the turbine load reduction, 2 rods will drop during the rod insertion, the immediate actions of AOP 1.1.8, "Rod Inoperability", will be taken and the reactor will be manually tripped due to more than 1 rod being dropped. When the reactor is tripped, the "A", "B" and "AE" 4kV buses will become de-energized on the transfer to offsite power.

Upon the Rx trip, the steam leak becomes a break resulting in an SI signal being initiated due to the faulted S/G. Safety Injection will not automatically actuate, requiring manual actuation to initiate SI flow.

EDG – 1 will fail to auto start and is required to be started manually.

The "DF" bus will be de-energized after the transfer to offsite power following the reactor trip. EDG-2 will auto start but trip while loading, and will not be recoverable

Aux Feedwater malfunctions will occur such that FW-P-3A fails completely, FW-P-3B will not have power and the turbine driven pump, FW-P-2 was OOS on turnover, and cannot be recovered due to high temperatures in the Aux feed pump room.

The crew will enter E-0 on the reactor trip, and then enter FR-H-1 due to no auxiliary feed water being available. When the crew dispatches an operator to start up FW-P-4, the dedicated Feedwater pump will start and supply Feedwater. After Feedwater has been established, the crew will return to E-0 and progress to diagnose the "C" S/G as being faulted and enter E-2 to isolate the "C" S/G.

The scenario will be terminated when the crew determines transition to ES-1.1 is appropriate. Expected procedure flow path is E-0 → FR-H.1 → E-0 → E-2.

## BEAVER VALLEY . JWER STATION

**INITIAL CONDITIONS:** 100 % Power, CB-D = 225, Equ XE, MOL, 1019 PPM Boron, IC-238 (18)

<b><u>ADDITIONAL LINEUP CHANGES</u></b>	<b><u>STICKERS</u></b>	<b><u>VOND MARKINGS</u></b>
MOV-1RC-536 closed with power maintained	YCT on CS	
<b><u>EQUIPMENT STATUS</u></b>	<b><u>DATE/TIME OOS</u></b>	<b><u>TECHNICAL SPECIFICATION(S)</u></b>
PCV-1RC-456 isolated	Yesterday / 1200	3.4.11, Condition A
FW-P-2 OOS	4 hours ago	3.7.5, Condition B

### **SHIFT TURNOVER INFORMATION**

1. 100% power, MOL equilibrium conditions, shift goal is to maintain 100% power.
2. Control Rods are in Manual due to scheduled MSP on N-44.

### **SCENARIO SUPPORT MATERIAL REQUIRED**

1. None required

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
Initialize IC 238, and establish initial plant conditions.	Reactor plant at 100% power, MOL, equilibrium conditions. RCS boron=1019 PPM, CBD = 225 steps with control rods in Manual.	
Insert the following per the Simulator Setup section of the HTML File for this scenario:	Inserts all pre-loads required to support the scenario.	
<b>IMF CRF04BV (2 2) 1</b> <b>IMF CRF04BT (2 4) 1</b> <b>IMF FWM11C</b> <b>IMF FWM11A (0 0) TRUE</b> <b>TRGSET 1 'JBK341B &amp; JPPLP4(1)'</b> <b>TRGSET 2 'MCRFNS(43) &lt;= 220'</b> <b>TRGSET 3 'JPPLP4(1)'</b> <b>TRG 3 'IMF MSS18C (0 0) 6E5'</b> <b>TRGSET 5 'IN11B04 == 5'</b> <b>IMF XN11048 (5 30) 1</b> <b>IMF EPS11B (1 30) TRUE</b> <b>IMF INH53 (0 0) TRUE</b> <b>IMF EPS04F (1 10) TRUE</b> <b>IMF SIS10A</b> <b>IMF SIS10B</b> <b>IMF XN08041 (12 0) 1</b> <b>IOR X12I027L (12 0) ON</b> <b>IMF XN06106 (0 0) 0</b> <b>IRF AUX023 (0 0) STOP</b> <b>IMF AUX02B (0 0) TRUE</b> <b>TRGSET 4 'X11I037R == 1'</b> <b>TRG 4 'DMF AUX02B'</b> <b>IRF FWM70 (14 180) ON</b> <b>IRF FWM67 (14 195) 100</b> <b>IMF CRF02A</b>	K6 Control Rod drops when rods insert F10 Control Rod drops when rods insert FW-P-2 tripped FW-P-3A start failure Trigger 1 = ACB-341B closure AND reactor trip Trigger 2 on rods less than 220 steps Trigger 3 = reactor trip Increase fault size on reactor trip Trigger 5 = A11-26 in alarm A11-48, AFW/Quench Spray pp temp High #2 EDG trips while loading #1 EDG auto start failure 1DF bus deenerg 10 secs. after transfer to offsite Train A SI auto actuation failure Train B SI auto actuation failure OCB-92 low pressure alarm A8-41 actuates OCB-92 trips open Disable SA-C-1B trouble alarm A6-106 SA-C-4 auto start disabled SA-C-1B trip (start failure) Trigger 4 = SA-C-1B start attempt DMF, allows SA-C-1B to manually start Local Start 1FW-P-4 Local open 1FW-MOV-160 Inhibit Auto Rods	

# BEAVER VALLEY , JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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Assign shift positions

SRO:\_\_\_\_\_

ATC:\_\_\_\_\_

BOP:\_\_\_\_\_

Conduct a shift turnover with oncoming operators.

Simulator Frozen until after shift turnover unless it needs to be run momentarily for an alignment change.

When the shift turnover is completed, place the simulator to RUN and commence the scenario.

Simulator running.

Crew assumes control of the Unit.



# BEAVER VALLEY ,OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 1:**

PR-1RC-444 fails high

PT-1RC-444 fails high

## **IMF PRS08D (0 0) 2500 15**

A4-10, Pressurizer Control High Pressure Dev, followed by numerous Pressurizer pressure related alarms.

PCV-1RC-445A & 445B Pzr spray valves modulate open.

PORV, PCV-1RC-455C opens

All Pzr heaters turn off.

RCS pressure decreases

ATC recognizes pressurizer pressure related alarms and announces to the crew.

Crew identifies PT-1RC-444 failure.

## **NOTE:**

ATC is required to manually control RCS pressure for remainder of scenario.

SRO enters 1OM-6.4.IF, attachment 2

SRO directs ATC to respond to PT-1RC-444 failure.

ATC responds to PT-1RC-444 failure by;

- Closing PCV-1RC-455C
- Placing Master Pressure control in Manual and manually operating the pressurizer spray valves and heaters to control pressure.

## **NOTE:**

If DNB Tech Spec entry not identified by the crew at this time, ask as a follow-up question.

SRO evaluates Technical Specifications:

3.4.1 (RCS DNB Parameters) Condition A: restore RCS pressure within 2 hours.  
3.3.4 (Remote Shutdown System) Table B 3.3.4-1  
Function 2.a: LCO met if PT-1RC-455 is operable.

Proceed with next event at LE discretion

# BEAVER VALLEY - LOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b><u>EVENT 2:</u></b>		
OCB-92 trips open, <b>TRG! 12</b> (following commands pre-loaded) <b>IMF XN08041 (12 0) 0</b> <b>IOR X12I027L (12 0) ON</b>	Loss of offsite power supply to SSST 1A and busses 1A, 1B, and 1AE.	
<b>ROLE PLAY:</b> If dispatched as an operator or maintenance, after 5 minutes, report that a low pressure alarm condition is indicated on OCB-92.	A8-27, SSST 1A Undervoltage, A8-41, OCB-92 Low Pressure, A9-53, ERF DG and ACB panel trouble.	BOP notes alarms and notifies crew.  Crew reviews alarms and ARPs.
<b>ROLE PLAY:</b> If contacted as System operator, report that the failure is not grid related. A traveling operator will be dispatched to investigate.		SRO evaluates Technical Specifications:  3.8.1. Condition A – with one offsite circuit inoperable, demonstrate others operable within 1 hour and every 8 thereafter; restore within 72 hrs. 3.0.5 is met – No train B ESF components are OOS.
<b>ROLE PLAY:</b> If dispatched to the ERF, report that local alarms A14-17 (480V bus 1S supply ACB 12S1 auto trip) and A14- 21 (480V busses 1S & 1T tie ACB 12S10 auto close) are actuated.		SRO notifies System Operations of OCB-92 status.  SRO notifies electrical maintenance and relay crew to investigate.
Proceed with next event at LE discretion		SRO directs BOP to commence OST 1.36.7 to perform breaker alignment verification.

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 3:**

SA-C-1A trips

Station air compressor 1SA-C-1A trips, 1SA-C-1B and 1SA-C-4 auto starts disabled.

**IMF XN06106 (0 0) 0**

**IRF AUX023 (0 0) STOP**

**IMF AUX02B (0 0) TRUE**

**IMF AUX02A (0 0) TRUE**

A6-98; Station air compressor 1A local panel trouble.

BOP notes degrading conditions and informs crew.

ATC reviews Alarm response procedures.

SRO may enter AOP 1.34.1 for “Loss of Station Air”.

Crew dispatches operator to air compressors.

BOP manually starts 1SA-C-1B.

Crew informs Maintenance and management of air compressor status.

## **ROLE PLAY:**

If dispatched as plant operator, wait 2 minutes then report that SA-C-1A has tripped on motor thermal overload. You are ready to attempt a local start of the Diesel-driven air compressor.

Insert:

**IRF AUX023 (0 0) START**

Continue with next event at LE discretion

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 4**

Faulted "C" S/G

**IMF MSS18C (0 0) 2.5E5 300**

"C" S/G faulted outside of cnmt, upstream of MSIV.

"C" S/G steam flow increases  
RCS temperature decreases  
Reactor power increases

A11-26; Main Steam Valve Area Temp High  
A11-48; Aux Fd Wtr & Quench Spray PP  
Compartment Temp High-Low (occurs 30 seconds later)

SRO enters AOP 1.51.2, Reactor Overpower

BOP acknowledges alarms, reports indications of a steam leak in the main steam valve room and aux feed pump room.

ATC monitors RCS temperature and reactor power, informs SRO that power is rising above 100%.

SRO directs BOP to perform immediate operator actions of AOP 1.51.2, Reactor Overpower.

BOP reduces power by;

- Depressing 1<sup>st</sup> in PB
- Setting EHC setter ~5% below current pwr lvl.
- Setting the load rate thumbwheel to 5%/min.
- Depressing GO

ATC manually inserts control rods to match Tavg-Tref and monitors reactor power and RCS pressure.

### **NOTE:**

Next event is pre-loaded, 2 rods will drop when Control Bank D rods are at 220 steps.

Turbine load decreases.  
Reactor power decreases  
RCS temperature increases.  
Rods step in as operated by ATC

### **NOTE:**

If the Crew borates for the power reduction, initiate dropped rod malfunctions by actuating Trigger 2

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 5**

2 dropped rods/ requires manual reactor trip.  
Rods K6 and F10 drop into the core.

ATC recognizes Rods dropped and reports to SRO.

**IMF CRF04BV (2 2) 1**

**IMF CRF04BT (2 4) 1**

SRO enters AOP 1.1.8, Rod Inoperability

ATC performs Immediate Operator Actions for Rod Drop and per the RNO action, with 2 or more rods dropped, manually trips the reactor.

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 6, 7, 8, &amp; 9</u></b></p> <p>Multiple malfunctions occur on reactor trip.</p> <p>All commands preloaded</p> <p><b>TRGSET 1 'JBK341B &amp; JPPLP4(1)'</b></p> <p><b>TRGSET 3 'JPPLP4(1)'</b></p> <p><b>TRG 3 'IMF MSS18C (0 0) 6E5'</b></p> <p><b>IMF FWM11A (0 0) TRUE</b></p> <p><b>IMF EPS11B (1 30) TRUE</b></p> <p><b>IMF INH53 (0 0) TRUE</b></p> <p><b>IMF EPS04F (1 10) TRUE</b></p> <p><b>IMF SIS10A</b></p> <p><b>IMF SIS10B</b></p>	<p>The "A", "B", and "AE" 4Kv busses will become de-energized on the transfer to offsite power.</p> <p>The "DF" 4Kv bus will become de-energized 10 seconds after the transfer to offsite power.</p> <p>The #1 EDG will fail to auto start but will start manually from the control room.</p> <p>The #2 EDG will auto start and then trip while loading, and be unavailable for the remainder of the scenario.</p> <p>The Steam leak becomes a break upon trip causing an SI actuation, however, Automatic SI will fail to actuate.</p> <p>The "A" motor-driven Aux feedwater pump will fail completely, The "B" motor-driven Aux Feedwater pump will not have power and the turbine-driven aux Feedwater pump was OOS on turnover, and cannot be recovered due to high temperatures in the Aux feedpump room.</p> <p>SRO enters E-0.</p>	<p>ATC and BOP commence IOA's of E-0.</p> <p>ATC verifies Reactor trip</p> <ul style="list-style-type: none"> <li>• Rx trip and bypass breakers open.</li> <li>• Power range indication is &lt; 5%.</li> <li>• Neutron flux is dropping.</li> </ul> <p>BOP verifies Turbine trip</p> <ul style="list-style-type: none"> <li>• Throttle OR Governor valves ALL closed.</li> <li>• Main Generator output brks – open.</li> <li>• Exciter Circuit breaker – open.</li> </ul>

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## EVENTS 6, 7, 8, & 9 (continued)

### **Critical Task: E-0.C**

Crew energizes at least one AC emergency bus before transition out of E-0, unless the transition is to ECA-0.0, in which case the critical task must be performed before placing safeguards equipment hand switches in pull-to-lock position.

### **Basis for Selection:**

SAFETY SIGNIFICANCE -- Failure to energize an ac emergency bus constitutes "misoperation or incorrect crew performance which leads to degraded...emergency power capacity." Failure to perform the critical task also results in needless degradation of a barrier to fission product release, specifically of the RCS barrier at the point of the RCP seals. Additionally, failure to perform the critical task results in the unnecessary continuation of a situation in which RCS inventory is being lost uncontrollably and cannot be replaced. This situation is equivalent to "misoperation or incorrect crew performance which leads to degraded ECCS...capacity" at a time when a small-break LOCA is in progress.

BOP verifies Power to AC Emergency Busses

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

BOP identifies that AE bus is de-energized and that the EDG did not auto start.

BOP performs CR actions to start the #1 EDG.

BOP observes DF bus de-energize, #2 EDG auto starts and then trips while loading.

## BEAVER VALLEY - POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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### **EVENTS 6, 7, 8, & 9** (continued)

#### **ROLE PLAY:**

If directed to investigate EDG status, wait 4 minutes then report:

#1 EDG – diesel is running sat with normal cooling flow.

#2 EDG – diesel is not running, oil and parts on the floor, as field operator request maintenance support.

#### **ROLE PLAY:**

If directed to investigate the DF bus, wait 3 minutes then report that there is a ground overcurrent relay flagged on the 1F7 breaker.

#### **Critical Task: E-0.D**

Crew manually actuates at least one train of SIS-actuated safeguards before transition to any ORP.

#### **Basis for Selection:**

SAFETY SIGNIFICANCE -- Failure to manually actuate SI under the postulated conditions constitutes "misoperation or incorrect crew performance that leads to degraded ECCS capacity."

SI automatically actuated due to low RCS pressure.

#### Check SI Status

ATC checks if SI is required

- ATC verifies Cnmt press < 5psig
- ATC verifies PRZR press > 1850 psig
- ATC or BOP verifies Steamline pressure > 500 psig

Crew determines SI is Required; ATC manually actuates SI by depressing both trains' pushbuttons.

ATC/BOP, Sounds Standby Alarm, announces reactor trip and safety injection.



## BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 6, 7, 8, &amp; 9</u></b> (continued)</p> <p><b>ROLE PLAY:</b>            After the crew has opened the control room operated valves and dispatched a field operator;            Wait 7 minutes then insert:  <b>IMF XN02097 (0 0) ON</b>  <b>IMF XN02105 (0 0) ON</b>            Then report back to the CR that the WR Hydrogen analyzers have been placed in service.</p>	<p>DF Bus has no power.</p> <p>DF Bus has no power.</p>	<p>BOP checks 1VS-F-4A(B), Leak Collection Exhaust Fan – at least ONE RUNNING</p> <p>Crew dispatches an operator to perform 1OM-46.4.G to place hydrogen analyzers in service.</p>
		<p>ATC verifies SI System Status</p> <ul style="list-style-type: none"> <li>• A charging pump running</li> <li>• A LHSI pump running</li> <li>• BIT Flow indicated,</li> </ul> <p>BOP verifies AFW status</p> <ul style="list-style-type: none"> <li>• “A” motor-driven pp not running &amp; won’t start</li> <li>• Turbine-driven pump (OOS on turnover)                A7-7 is LIT, turbine driven pump tripped</li> <li>• AFW Throttle valves open</li> <li>• AFW flow is zero.</li> </ul>
		<p>BOP reports no Aux Feedwater pumps running and no aux feed water flow.</p> <p>BOP reports that “A” train AFW throttle valves are all open and have power. “B” train valves were last open before power was lost.</p>

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 6, 7, 8, &amp; 9</u></b> (continued)</p> <p><b>NOTE:</b> PORV's may lift several times during this transient due to natural circulation being established while Safety Injection flow is occurring.</p> <p>With WR levels &gt;14%, PORV's opening are not due to Loss of Heat Sink; Bleed and Feed is not required.</p>	<p>SRO recognizes that AFW flow cannot be established and enters FR-H.1</p>	<p>ATC checks if secondary heat sink is required by:</p> <ul style="list-style-type: none"> <li>• Verifying RCS press is &gt; any non-faulted S/G.</li> <li>• RCS Hot leg temperatures &gt; 350°F.</li> </ul> <p>Crew checks if RCS Bleed and Feed should be initiated.</p> <ul style="list-style-type: none"> <li>• BOP verifies Wide Range level in at least 2 S/G's is greater than 14%.</li> <li>• ATC verifies Pzr pressure is less than 2325 psig.</li> </ul> <p>SRO notifies crew that this is a continuous action step.</p> <p>BOP checks Primary Plant Demineralized Water storage tank level is &gt; 27.5 feet.</p>

## BEAVER VALLEY , LOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 6, 7, 8, &amp; 9</u></b> (continued)</p> <p><b>ROLE PLAY:</b> When directed to investigate AFW pump status, wait 3 minutes then report:</p> <p>Aux feed pump room is inaccessible due to heat and steam.</p> <p>If dispatched to Emergency Switchgear, report 1FW-P-3A –ACB 1E16 ground OC relay 50-VE116G is flagged.</p> <p><b>ROLE PLAY:</b> When dispatched with attachment 2-K, actuate <b>TRG! 14</b>. 1FW-P-4 will start in 3 minutes with the discharge valve opening 15 seconds later.</p> <p>Report in to the control room that 1FW-P-4 is running and Attachment 2-K has been completed up through step 8.</p>		<p>Crew tries to establish AFW flow to at least 1 S/G.</p> <p>ATC/BOP verifies S/G Blowdown and blowdown sample lines are isolated.</p> <p>Crew confirms</p> <ul style="list-style-type: none"> <li>• “A” motor-driven pump won’t start</li> <li>• “B” motor-driven pump has no power</li> <li>• Turbine-driven pump previously OOS</li> </ul> <p>BOP reports that “A” train AFW throttle valves are all open and have power. “B” train valves were last open before power was lost.</p> <p>Crew recognizes that local suction pressure is not available due to room being inaccessible.</p> <p>SRO continues to try to restore AFW flow while continuing in procedure.</p> <p>BOP confirms AFW flow is not &gt; 370 gpm.</p> <p>SRO dispatches operator with attachment 2-K to establish alternate AFW flow using the Dedicated AFW pump.</p> <p>SRO directs crew to reset SI and FWI signals. ATC/BOP resets;</p> <ul style="list-style-type: none"> <li>• SI signal – both trains</li> <li>• FWI signal – both trains.</li> </ul>

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b><u>EVENTS 6, 7, 8, &amp; 9</u></b> (continued)		ATC/BOP opens “A” & “B” Feedwater cnmt isol valves, HYV-1FW-100A & B.
<b><u>Critical Task: FR-H.1.A</u></b> Crew establishes feedwater flow into at least one SG before RCS feed and bleed is required.	Feedwater flow established S/G levels begin rising.	BOP throttles the Bypass feed regulating valves to establish flow to the “A” and “B” S/G’s
<b>Basis for Selection:</b> SAFETY SIGNIFICANCE -- Failure to establish feedwater flow to any SG results in the crew's having to rely upon the lower-priority action of establishing RCS bleed and feed to minimize core uncover. This constitutes incorrect performance that "leads to degradation of any barrier to fission product release."		
<b>NOTE:</b> At this point the faulted S/G (“C”) is readily apparent, if the crew initiates Feedwater flow to the “C” S/G at this time, they must isolate it in E-2 to meet Critical Task E-2.A		
	SRO returns to procedure and step in effect, FR-H.1 step 4.e RNO.  SRO returns to E-0, Step 9 IAW FR-H-1, step 4.f.	SRO completes CR steps of Attachment 2-K.  Feedwater flow >370 gpm now verified.

# BEAVER VALLEY . LOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## EVENTS 6, 7, 8, & 9 (continued)

<p><b>NOTE:</b> Evaluation of BOP performing Attachment 1-K begins on page 23.</p>	<p><u>List of Attachment 1-K Discrepancies:</u></p> <p>Safety Injection failed to automatically actuate, Manual SI initiated satisfactorily. #1 EDG failed to auto start, did start manually #2 EDG failed No AFW pumps running</p>	<p>SRO directs BOP to perform Attachment 1-K</p>
<p><b>NOTE:</b> Main steam line isolation signal was not inhibited for this scenario; therefore, dependant upon faulted S/G pressure, automatic MSLI may have already occurred by this time.</p>	<p>RCS temperature decreasing due to faulted S/G.</p>	<p>ATC checks RCS temp. stable at or trending to 547°F</p> <p>SRO directs ATC to close or verify closed, all main steam trip and bypass valves.</p> <p>ATC Check Recirc Spray Pumps – NONE RUNNING</p> <p>ATC verifies PRZR isolated</p> <ul style="list-style-type: none"> <li>• PORVs – CLOSED</li> <li>• Spray Valves – CLOSED</li> <li>• Safety relief valves – CLOSED</li> <li>• PRT conditions – CONSISTENT WITH EXPECTED VALUES</li> <li>• Power to at least one block valve – AVAILABLE</li> <li>• Block valves – AT LEAST ONE OPEN</li> </ul>

## BEAVER VALLEY, JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 6, 7, 8, &amp; 9</u></b> (continued)</p>	<p>SRO transitions to E-2.</p> <p>DF Bus has no power. (only “A” train of power is available)</p>	<p>ATC checks if RCPs should be stopped</p> <ul style="list-style-type: none"> <li>• D/P between RCS pressure and highest S/G pressure – LESS THAN 200 PSID [350 PSID ADVERSE CNMT]</li> <li>• Criteria for stopping is not met - Leaves RCPs running</li> </ul> <p>ATC/BOP checks if any S/Gs are faulted</p> <ul style="list-style-type: none"> <li>• Pressures in all S/Gs – ANY DROPPING IN AN UNCONTROLLED MANNER OR</li> <li>• ANY S/G COMPLETELY DEPRESSURIZED</li> </ul> <p>Crew determines “C” S/G is faulted.</p> <p>ATC/BOP actuates CREVS</p> <ul style="list-style-type: none"> <li>• Verifies the control room air intake and exhaust Dampers are CLOSED.</li> </ul> <p>SRO requests a BV-2 operator to verify Unit 2 CREVS actuation.</p> <p>SRO directs STA to Commence Control Room ventilation actions. Refer to Attachment 4-F.</p>
<p><b>NOTE:</b> Main steamline isolation should have already occurred and verified via attachment 1-K by this time, crew not likely to verify again at this time.</p>		<p>ATC/BOP verifies steamline isolation has occurred by checking all YELLOW SLI identified components are in the designated position. (previously verified)</p>

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 6, 7, 8, &amp; 9</u></b> (continued)</p> <p><b><u>Critical Task: E-2.A</u></b> Crew isolates the faulted S/G and directs operator to close isolation valves operated from outside of the control room before transition out of E-2.</p> <p><b>Basis for Selection:</b> SAFETY SIGNIFICANCE -- Failure to isolate a faulted S/G 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</p>	<p>“C” S/G pressure is lower than “A” &amp; “B.” “A” &amp; “B” may be slowly lowering as expected due to the cooldown. Crew should respond with “Stable” for “A” &amp; “B” S/G’s.</p> <p>“C” S/G pressure &amp; level lowering.</p>	<p>BOP identifies “A” &amp; “B” steam generator pressures are “Stable or rising”.</p> <p>Crew identifies “C” S/G as faulted.</p> <p>BOP isolates the faulted, “C” S/G as follows;</p> <ul style="list-style-type: none"> <li>• Verifies FWI (previously verified via Attachment 1-K)</li> <li>• Closes AFW throttle valves on “C” S/G MOV-1FW-151A, B</li> <li>• Directs field operator to verify closed 1MS-17 and Verify open 1MS-15 and 1MS-16. (Crew recognizes that MSVR is inaccessible and that the valves were in correct positions on turnover)</li> <li>• Verifies closed, “C” S/G Atmospheric steam dump valve.</li> <li>• Verifies Residual Heat Release Valve is closed.</li> <li>• Verifies main feedwater alignment to “C” S/G is isolated. (either CNMT isol valve or Main &amp; Bypass Feed regulating valves – CLOSED)</li> </ul> <p>BOP verifies PPDWST level is &gt; 27.5 feet.</p>

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 6, 7, 8, &amp; 9</u></b> (continued)</p>	<p>SRO determines transition to ES-1.1, SI Termination is appropriate.</p>	<p>Crew checks if S/G tubes are intact</p> <ul style="list-style-type: none"> <li>• Check all S/G levels – NONE RISING IN AN UNCONTROLLED MANNER</li> <li>• Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES</li> </ul> <p>Determines no S/G levels are rising in an uncontrolled manner and Secondary Radiation – is CONSISTENT WITH PRE-EVENT VALUES;</p> <p>Crew determines S/G Tubes ARE INTACT.</p> <p>Crew checks if SI Flow should be Reduced</p> <p>ATC verifies RCS Subcooling is greater than 46°F [54°F ADVERSE CNMT] based on CETC's</p> <p>BOP confirms secondary heat sink available by &gt;370 gpm of feed flow available OR NR level in at least 1 S/G &gt; 31% [50% ADVERSE CNMT].</p> <p>ATC confirms RCS pressure is stable or rising.</p> <p>ATC confirms Pzr level is &gt; 17% [38% ADVERSE CNMT]</p> <p>Crew determines that current plant conditions support SI reduction.</p>



# BEAVER VALLEY . JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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Terminate scenario when the crew determines transition to ES-1.1 is appropriate.

Classify Event:

**SAE, Site Area Emergency** is appropriate classification per the Fission Product Matrix;  
 Tabs 1.1.1 and 1.2.1 – Potential Loss – Heat Sink Red Path.

# BEAVER VALLEY . JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b>Attachment 1-K ‘Verification of Automatic Actions’</b>		BOP performs the verifications/actions of Attachment 1-K ‘Verification of Automatic Actions’ as follows:
	#1 EDG failed to auto start, manual successful #2 EDG is not running	Diesel generators – BOTH RUNNING
		Station Instrument Air Header Pressure - GREATER THAN 100 PSIG
	Ensure Reheat Steam Isolation	Ensure Reheat Steam Isolation <ul style="list-style-type: none"> <li>• Verify [MOV-1MS-100A,B] - CLOSED</li> <li>• Reset reheater controller.</li> </ul>
	DF bus has no power	Verify CCR Pumps - TWO RUNNING
		Align Neutron Flux Monitoring For Shutdown <ul style="list-style-type: none"> <li>• Transfer [NR-1NI-45] Nuclear Recorder to operable source and intermediate range displays.</li> </ul>
	DF bus has no power	Verify River Water System In Service <ul style="list-style-type: none"> <li>• RPRW Pumps - TWO RUNNING</li> <li>• Check CCR Heat EX RW pressure - GREATER THAN 20 PSIG</li> </ul>

# BEAVER VALLEY . JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b>Attachment 1-K ‘Verification of Automatic Actions’</b> (continued)		<p>Check If Main Steamline Isolation Required</p> <ul style="list-style-type: none"> <li>• CNMT pressure - GREATER THAN 7 PSIG -OR-</li> <li>• Steamline pressure - LESS THAN 500 PSIG -OR-</li> <li>• Steamline pressure high rate of change - ANY ANNUNCIATOR LIT Annunciator A7-41, A7-49 or A7-57</li> </ul>
		<p>Determines steamline isolation is required and verifies SLI occurred by checking all YELLOW SLI marks - LIT.</p>
		<p>Check CIB And CNMT Spray Status</p> <ul style="list-style-type: none"> <li>• Containment pressure - HAS REMAINED LESS THAN 11 PSIG</li> </ul>
	<p>Actuation failure of automatic SI, manual actuation successful. No AFW pumps running</p>	<p>Verify ESF Equipment Status</p> <ul style="list-style-type: none"> <li>• Verify SI status by checking all RED SIS marks – LIT</li> <li>• Verify CIA by checking all ORANGE CIA marks - LIT</li> <li>• Verify FWI by checking all GREEN FWI marks – LIT</li> </ul>
	<p><b>Discrepancies:</b> No train B power, Only AE 4kv bus is energized #1 EDG failed to automatically start SI failed to automatically actuate. No AFW pumps running</p>	<p>Verify Power To Both AC Emergency Busses.</p> <p>Upon Completion, Report Any Discrepancies to SM/US.</p>

**Appendix D****Scenario Outline**

Facility:	<b>BVPS Unit 1</b>	Scenario No.:4	Op Test No.: <u>1LOT8 NRC</u>
Examiners:	_____	Candidates:	_____ SRO
	_____		_____ ATC
	_____		_____ BOP

Initial Conditions: **IC 255(10):** 100% power, BOL, Equ. XE Conditions, CB "D" @ 225 steps, RCS boron - 1434 ppm.

Turnover: Maintain 100% power.  
PCV-1RC-456 isolated due to seat leakage, block valve closed. TS 3.4.11, *Condition A*

Critical Tasks:

- 1. FR-S.1.C Initiate negative reactivity**
- 2. FR-S.1.B Start Auxiliary Feedwater pumps**
- 3. E-0.O Close cnmt isolation valves**

Event No.	Malf. No.	Event Type	Event Description
1	IMF PRS06A (0 0) 0 5	(I) ATC, SRO (TS) SRO	LT-1RC-459 fails low, letdown isolates, crew removes channel from service.
2	N/A	(N) ATC, SRO	Restores letdown
3	<i>IMF TUR15 (0 0) 78 10 IMF CRF11BR 0</i>	<i>(C) ATC, SRO (TS) SRO</i>	<i>Turbine valve position limiter fails low, causes ~ 100 mw load reduction, 1 Rod stuck at ARO position.</i>
4	IMF FWM09C (1 0) 25 0	(C) BOP, SRO	"C" SG Feedwater valve, FCV-1FW-498, begins oscillating, requiring BOP to manually control level.
5	IMF TUR03E (0 0) 15 8	(C) BOP, SRO	Turbine high bearing vibration requires crew to manually trip the unit.
6	IMF CRF02A (5 0) IMF CRF12A IMF CRF12B	(M) ALL	Reactor fails to trip from the control room, requires entry into FR-S.1, ATC manually inserts control rods.
7	IMF INH20 IMF INH21 IMF INH35 IMF INH36	(C) BOP, SRO	All Aux Feedwater pumps fail to automatically start, requires BOP to start AFW pumps.
8	IMF MSS02C (4 0) 3.5E6 20 0	(M) ALL	Main steam line break downstream of MSIV's, causes safety injection actuation.
9	IMF INH49 IMF VLV-SEA10 (0 0) 100 0 100	(C) ATC, SRO	Train "A" CIA fails to actuate along with train "B" valve MOV-1CH-381 failing to automatically close, ATC must manually actuate CIA or close MOV-1CH-381.

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

After taking the shift at 100% power, LT-1RC-459 will fail low, letdown will automatically isolate. The SRO will direct the ATC to remove the 459 channel from service in accordance with IOM-6.4.IF.

The ATC will restore letdown using IOM-7.4.AF, "Restoring Charging and Letdown," while the SRO reviews applicable Technical Specifications for the level transmitter failure.

A malfunction will then occur with the turbine valve position limiter causing a load rejection, rods will auto insert in response. Rod P-8 will be stuck at 225 steps and not insert with the rest of control bank D. At the same time, a malfunction will occur with the "C" main feed regulating valve, (FCV-1FW-498) causing oscillations in the "C" S/G level requiring the BOP to manually stabilize and control level. The SRO will enter AOP 1.35.2, "Load Rejection," initially and then after the plant has stabilized enter AOP 1.1.8, "Rod Inoperability," and address the rod misalignment with applicable technical specifications.

A main turbine bearing #5 will exhibit high vibrations, at 15 mils the ARP for A7-104, probable cause 5 will require a unit trip.

The ATC will unsuccessfully attempt to trip the reactor from BB-B and BB-A.

The SRO will enter FR-S.1 with the ATC and BOP performing the IOA's.

The reactor will be locally tripped 2 minutes after the crew dispatches an operator to locally trip the reactor.

The ATC will verify reactor power is <5% after which the SRO will return to E-0.

Additional malfunctions that occur during the ATWS condition are that all the Aux feed water pumps fail to automatically start, all can be manually started.

A main steam line break will also occur downstream of the MSIV's, this will be isolated via automatic MSLI.

The safety injection that occurred as a result of the MSLB will fail to actuate the train "A" CIA signal, and MOV-1CH-381 (a train "B" CIA valve) will fail to automatically close. The crew will be required to isolate the containment penetration via either manually actuating Train "A" CIA or manually closing MOV-1CH-381.

After returning to E-0, the SRO will determine that SI is not required. The scenario will be terminated after the crew determines that transition to ES-1.1 is appropriate.

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

## BEAVER VALLEY POWER STATION

**INITIAL CONDITIONS:** 100 % Power, CBD = 225, EQU XE BOL, 1434 PPM Boron, IC-255

<b><u>ADDITIONAL LINEUP CHANGES</u></b>	<b><u>STICKERS</u></b>	<b><u>VOND MARKINGS</u></b>
MOV-1RC-536 closed with power maintained	YCT on CS	
<b><u>EQUIPMENT STATUS</u></b>	<b><u>DATE/TIME OOS</u></b>	<b><u>TECHNICAL SPECIFICATION(S)</u></b>
PCV-1RC-456 isolated	Yesterday / 1200	3.4.11, Condition A

### **SHIFT TURNOVER INFORMATION**

1. 100% power, BOL equilibrium conditions, shift goal is to maintain 100% power.

### **SCENARIO SUPPORT MATERIAL REQUIRED**

1. None Required

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
Initialize IC 255, and establish initial plant conditions.	Reactor plant at 100% power, BOL, equilibrium conditions. RCS boron =1434 PPM, CBD = 225 steps.	
Insert the following per the Simulator Setup section of the HTML File for this drill:	Inserts all pre-loads required to support the drill	
<b>IMF CRF12A</b>	Auto Rx trip failure (FR-S.1)	
<b>IMF CRF12B</b>	Manual Rx trip failure (FR-S.1)	
<b>IMF CRF14A (2 120)</b>	RTB "A" manually opened	
<b>IMF CRF14B (2 125)</b>	RTB "B" manually opened	
<b>IRF CRF03 (2 140) 1</b>	"A" Rod Drive MG set output breaker opened	
<b>IRF CRF04 (2 145) 1</b>	"B" Rod Drive MG set output breaker opened	
<b>TRGSET 4 'MCRFNS(41).LE.165'</b>	Set trigger 4 on CBD rods < 165 steps	
<b>IMF MSS02C (4 0) 3.5E6 20 0</b>	Steam line break during ATWS transient	
<b>IMF INH20 (0 0) TRUE</b>	TV-1MS-105A auto open fail	
<b>IMF INH21 (0 0) TRUE</b>	TV-1MS-105B auto open fail	
<b>IMF INH35 (0 0) TRUE</b>	FW-P-3A auto start failure	
<b>IMF INH36 (0 0) TRUE</b>	FW-P-3B auto start failure	
<b>IMF INH49 (0 0) TRUE</b>	Train A CIA auto actuation failure	
<b>IMF VLV-SEA10 (0 0) 100 0 100</b>	MOV-1CH-381 auto CIA closure failure	
<b>TRGSET 3 'X06I057O'</b>	Set trigger 3 on MOV-1CH-381 closure attempt	
<b>TRG 3 'DMF VLV-SEA10'</b>	MOV-1CH-381 closure attempt successful	
<b>IMF CRFBR (0 0) 1</b>	Rod P-8 mechanically stuck at 225	
<b>TRGSET 6 'X10O034G == 1'</b>	Set trigger 6 on TV-1MS-101C2 Closed	
<b>IMF SIS08 (6 0)</b>	Actuate Safety Injection if MSIV's are pre-emptively closed prior to SI actuation.	
<b>TRGSET 1 'JMLTUR15 == 1'</b>	Set trigger 1 on VPL failure	
<b>IRF PLP-MAL07 (1 0) 180 0</b>	Set oscillation period = 3 minutes	
<b>IMF FWM09C (1 0) 25</b>	FCV-1FW-498 oscillates in auto	
<b>TRGSET 5 'JMLTUR3(5) == 1'</b>	Set trigger 5 on turbine bearing failure	
<b>IMF CRF02A (5 0)</b>	Auto Rod Insertion failure	

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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Assign shift positions

SRO:\_\_\_\_\_

ATC:\_\_\_\_\_

BOP:\_\_\_\_\_

Conduct a shift turnover with oncoming operators.

Simulator Frozen until after shift turnover unless it needs to be run momentarily for an alignment change.

When the shift turnover is completed, place the simulator to RUN and commence the scenario.

Simulator running.

Crew assumes control of the Unit.



# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 1:**

Pressurizer level transmitter  
LT-1RC-459 fails low.

Channel 1 pwr level indication drops. Charging  
flow and actual PRZR level rise.

Crew notes alarms and determines level transmitter  
failure.

## **IMF PRS06A (0 0) 0 5**

A4-4, PRZR Control Low Level Deviation,  
A4-3, PRZR Control Level Low,  
(A4-3 & 4 are both due to transmitter failure).  
A4-35, PRZR Heater Group Auto Trip, (upon  
letdown isolation).  
A3-58, Charging Pump Disch Flow High-Low  
A3-78, React Cool Pp Seal Injection Flow Low

ATC takes manual control of FCV-1CH-122 to reduce  
charging flow.

BOP reviews ARP's.

## **NOTE:**

If level transmitter failure not  
immediately recognized, crew may  
initially enter AOP 1.7.1, Loss of  
Charging or Letdown.

SRO implements Instrument Failure procedure,  
1OM-6.4.IF, attachment 1.

ATC selects Pos 3, to replace 459 channel with 461  
channel

ATC selects alternate channel, 460 or 461, for input to  
the level recorder.

ATC ensure adequate makeup to the VCT and ensures  
Pwr heaters are operating as necessary or manually  
operates heaters.

SRO directs ATC to restore letdown IAW  
1OM-7.4.AF, Restoring Charging and Letdown.

With letdown isolated, ATC may reduce seal injection  
flow to minimize pwr level rise.

# BEAVER VALLEY , JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 1:** (continued)

Pressurizer level transmitter  
LT-1RC-459 fails low.

SRO references 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 LT 460 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.

# BEAVER VALLEY , JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 2:**

Restoration of Letdown

ATC restores Letdown IAW 1OM-7.4.AF as follows:

If directed; raises VCT level to 43% and manually cycles PCV-1CH-145.

Verifies TV-1CH-204 , Regen Hx/Ltdn outlet cnmt isol valve is OPEN.

Verifies all Ltdn orifice isolation valves CLOSED  
TV-1CH-200A, 200B, & 200C

Places Ltdn back press reg valve, PCV-1CH-145, in MANUAL with controller set at 25% (75% open)

Places Charging flow to regen hx inlet control valve, FCV-1CH-122 in MANUAL and CLOSED.

Verifies Charging Cnmt Isolation valves open;  
MOV-1CH-310 & MOV-1CH-289

Opens Letdown to Regen Hx Inlet Isolation valves;  
LCV-1CH-460A & LCV-1CH-460B

MANUALLY adjusts FCV-1CH-122 to establish indicated flow on FI-1CH-122A.

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b><u>EVENT 2:</u></b> (continued)	Restoration of Letdown	<p>Monitors Letdown Pressure (PI-1CH-145) and Flow (FI-1CH-150) while placing letdown orifices in service.</p> <p>Opens TV-1CH-200A and adjusts FCV-1CH-122 as necessary to prevent flashing.</p> <p>If directed to place a second orifice in service;</p> <p>ATC adjusts PCV-1CH-145 as necessary to maintain 120 – 140 psig on PI-1CH-145.</p> <p>Opens TV-1CH-200B or C and adjusts FCV-1CH-122 as necessary to prevent flashing.</p> <p>Adjusts PCV-1CH-145 to obtain 300 psig on PI-1CH-145 and places controller in AUTO.</p> <p>Adjusts FCV-1CH-122 as necessary to restore Pzr level to program level then places FCV-1CH-122 controller in AUTO.</p> <p>Verifies all RCP seal injection flows between 6-9 gpm and adjusts HCV-1CH-186 as necessary.</p>
Proceed with next event at LE discretion		

# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## EVENTS 3, 4 & 5:

Turbine Runback due to Valve Position limiter failure, Rod P-8 mechanically stuck out and FCV-1FW-498 begins oscillating due to load change.

Rods begin stepping in,  
Megawatts decrease  
RCS temperature and pressure rise accordingly

IAW Immediate Operator Action of AOP 1.1.3, ATC announces unexpected rod motion, verifies megawatts decreasing and announces load rejection.

### **IMF TUR15 (0 0) 78 10**

Following commands pre-loaded

### **IMF CBR11BR (0 0) 1**

### **IRF PLP-MAL07 (1 0) 180**

### **IMF FWM09C (1 0) 25**

SRO enters AOP 1.35.2, Load Rejection

ATC checks Rods are inserting in AUTO and Tav<sub>g</sub> is dropping to Tref.

ATC identifies rod P-8 as being misaligned from bank and fully withdrawn, informs SRO.

SRO enters AOP 1.1.8 for misaligned Rod

ATC places Rod control in MANUAL

ATC verifies the Rx is critical with Tav<sub>g</sub> > 541°F.

ATC checks Tav<sub>g</sub> within 4°F of Tref.

If Tav<sub>g</sub>/Tref mismatch is > 4°F, BOP adjusts Turbine Load as necessary to maintain Tav<sub>g</sub> within 4°F of Tref.

# BEAVER VALLEY , JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 3, 4 &amp; 5:</u></b> (continued)</p> <p><b>NOTE:</b> May need to ask follow-up questions regarding TS 3.1.4 applicability; LCO 3.1.4 NOTE states that verification of operability is not required for the first hour following rod motion. Additionally, Part B of AOP 1.1.8 does not provide positive indication (A4-105 is NOT LIT) that the rod is operable. Following the Rx trip, the crew will identify that the rod remains at 225 steps and will therefore be positively confirmed as being “inoperable”, therefore Conditions A and B would have been applicable at the time.</p> <p>When the BOP notices Main Feed Regulating Valve oscillations.</p> <p>Continue with next event at LE discretion</p>		
	A7-61, SG 1C Level Deviation From Setpoint	<p>SRO reviews Technical Specification 3.1.4, Conditions A and B for applicability.</p> <p>Condition A: Rod P-8 is INOPERABLE, within 1 hour verify SDM within limits OR Initiate boration to restore SDM AND be in Mode 3 within 6 hours.</p> <p>Condition B: Rod P-8 not within alignment limits, within 1 hour restore rod to within alignment limits OR either verify SDM or initiate boration to restore SDM AND reduce Thermal power to <math>\leq 75\%</math> RTP within 2 hours.</p> <p>BOP notes erratic automatic operation informs SRO and takes manual control of main feed regulating valve, FCV-1FW-498 and restores stable level at setpoint.</p> <p>SRO provides a control band and Rx trip criteria for operation of FCV-1FW-498 in Manual.</p> <p>Crew notifies I&amp;C of FCV-1FW-498 controller auto control failure with satisfactory manual control.</p>

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENT 6:**

Main turbine bearing #5 high vibration.

**IMF TUR03E (0 0) 15 8**

### **NOTE:**

ARP directs an immediate turbine trip if bearing vibration exceeds 14 mils

Bearing #5 vibration at 15 mils, adjacent bearings also indicate abnormally high vibration.

A7-104,Turbine Supervisory Instrument Trouble

BOP acknowledges and reports bearing vibration indications.

ATC reviews ARP.

### **ROLE PLAY:**

2 minutes after malfunction inserted report in to the Control Room as field operator; “State that the turbine deck is shaking.”

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENTS 7 - 10,** (all preloaded)

ATWS  
AFW pump auto start failures  
MSL break downstream of MSIV's  
Train "A" CIA actuation failure with  
failure of MOV-1CH-381 to auto close.

Crew determines that a manual turbine trip is warranted.

ATC attempts a manual reactor trip, reports trip failure/ ATWS condition.

**IMF CRF12A (0 0)**  
**IMF CRF12B (0 0)**  
**IMF CRF02A (5 0)**  
(preloaded)

SRO enters FR-S.1

US directs operators to perform IOA of FR-S.1, implements FR-S.1 at step 1 of E-0.



# BEAVER VALLEY POWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENTS 7 - 10, (continued)**

### **Critical Task FR-S.1.C:**

Crew inserts negative reactivity into the core by inserting RCCAs before completing the immediate action steps of FR-S.1.

When Bank D Rods insert to <165 steps, a steam line break will occur downstream of the MSIV's, this is to ensure a SI initiates, the steam break will isolate by automatic MSLI signal.

Crew performs Immediate Operator Actions of FR-S.1

BOP manually trips Turbine

ATC places rods in Manual and begins inserting rods.

### **Basis for Selection:**

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)."

# BEAVER VALLEY LOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENTS 7 – 10:** (continued)

### **Critical Task FR-S.1.B**

Crew starts AFW pumps before WR SG level is less than 10%.

#### **Basis for Selection:**

SAFETY SIGNIFICANCE -- Failure to start at least the minimum required number of AFW pumps under the postulated plant conditions can lead to violation of the RCS emergency stress limit.

**IMF INH20**

**IMF INH21**

**IMF INH35**

**IMF INH36**

(preloaded)

BOP verifies AFW status, Notes there are NO AFW pumps running.

BOP manually starts 1FW-P-3A and 1FW-P-3B motor-driven AFW pumps.

BOP manually opens TV-1MS-105A and 105B to start Turbine-driven AFW pump, 1FW-P-2 and verifies pump running by A7-7 NOT lit.

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 MOV-1CH-350

Starting "A" Boric Acid pump in "FAST"

Verifying Emergency Boration flow > 30 gpm.

Aligning Charging flow path by adjusting FCV-1CH-122 to establish > 75 gpm charging flow.

Verifying RCS pressure is < 2335 psig.

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENTS 7 – 10:** (continued)

### **ROLE PLAY:**

When requested to open the reactor trip breakers & trip the rod drive MG set output ACBs, insert:

### **TRG! 2**

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

**IMF CRF14A (2 120)**

**IMF CRF14B (2 125)**

**IMF CRF01A (2 140) 1**

**IMF CRF01B (2 145) 1**

### **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 1 Rx trip w/o SCRAM
- Dispatching an operator to locally trip the Rx.

Crew continues in FR-S.1 after dispatching an operator.

BOP verifies turbine is tripped.  
BOP verifies MOV-1MS-100A, B automatically CLOSED.  
BOP depresses the RESET Pushbutton on the Reheater Controller.

ATC checks if SI is actuated.

# BEAVER VALLEY .OWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b>EVENTS 7 – 10:</b> (continued)		
<p><b>NOTE:</b> 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.</p>	<p>When the Rx is locally tripped. SRO returns to E-0, step 1.</p>	<p>ATC checks if Rx is subcritical</p> <ul style="list-style-type: none"> <li>• Power range channels &lt; 5%</li> <li>• IR channels – negative startup rate.</li> </ul> <p>ATC verifies Reactor trip</p> <ul style="list-style-type: none"> <li>• Rx trip and bypass breakers open</li> <li>• Power range indication is &lt; 5%</li> <li>• Neutron flux is dropping</li> </ul> <p>BOP verifies Turbine trip</p> <ul style="list-style-type: none"> <li>• Throttle OR Governor valves ALL closed</li> <li>• Main Generator output brks - open</li> <li>• Exciter Circuit breaker – open</li> </ul> <p>BOP verifies Power to AC Emergency Busses</p> <ul style="list-style-type: none"> <li>• Using VB-C voltmeters, verifies either AE or DF has voltage indicated.</li> </ul> <p>BOP identifies that both emergency busses are energized from off-site power.</p> <p>SI automatically actuated due to the Main Steam Line Break.</p> <p>Check SI Status</p> <ul style="list-style-type: none"> <li>• ATC checks that SI is actuated</li> <li>• ATC manually actuates SI by depressing both trains pushbuttons.</li> </ul>

# BEAVER VALLEY . JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b><u>EVENTS 7 – 10:</u></b> (continued)</p> <p><b>ROLE PLAY:</b>            After the crew has opened the control room operated valves and dispatched a field operator;            Wait 7 minutes then insert:  <b>IMF XN02097 (0 0) ON</b>  <b>IMF XN02105 (0 0) ON</b>            Then report back to the CR that the WR Hydrogen analyzers have been placed in service.</p>		<p>ATC/BOP, Sounds Standby Alarm, announces reactor trip and safety injection.</p> <p>BOP checks 1VS-F-4A(B), Leak Collection Exhaust Fan – at least ONE RUNNING.</p> <p>Crew dispatches an operator to perform 1OM-46.4.G to place hydrogen analyzers in service.</p> <p>ATC verifies SI System Status</p> <ul style="list-style-type: none"> <li>• Two charging pumps running</li> <li>• Both LHSI pumps running</li> <li>• BIT Flow indicated,</li> </ul> <p>BOP verifies AFW status</p> <ul style="list-style-type: none"> <li>• Both motor-driven pumps running</li> <li>• Turbine-driven pump               <ul style="list-style-type: none"> <li>TV-1MS-105A, B open</li> <li>A7-7 is NOT LIT, turbine driven pump running</li> </ul> </li> <li>• AFW Throttle valves open</li> <li>• AFW flow &gt; 370 gpm is indicated.</li> </ul> <p>BOP reports ALL Aux Feedwater pumps were manually started earlier in FR-S.1.</p>

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b>EVENTS 7 – 10:</b> (continued)		
<b>NOTE:</b>		
Evaluation of BOP performing Attachment 1-K begins on page 23.	<u>List of Attachment 1-K Discrepancies:</u>	SRO directs BOP to perform Attachment 1-K
<b><u>Critical Task E-0.O:</u></b>		
Crew closes Cnmt isolation valves such that at least one valve is closed on each critical phase A penetration before the end of the drill.	Train “A” CIA failed to actuate. Train “B” CIA valve, MOV-1CH-381 failed to automatically close. All AFW pumps failed to automatically start, all started manually.	
<b>Basis for Selection:</b>		
SAFETY SIGNIFICANCE -- Failure to close at least one containment isolation valve on each critical phase-A penetration, under the postulated plant conditions and when it is possible to do so, constitutes "mis-operation or incorrect crew performance which leads to degradation of any barrier to fission product release." In this case, the containment barrier is needlessly left in a degraded condition.		
<b>NOTE:</b>		
Main steam line isolation signal was not inhibited for this scenario, fault was inserted to cause SI, therefore, automatic MSLI will have already occurred by this time.	Due to S/G Fault that was isolated by automatic MSLI, RCS temperature less than 547°F but is now trending to 547°F.	ATC checks RCS Tavg stable at or trending to 547°F
		ATC Check Recirc Spray Pumps – NONE RUNNING

BEAVER VALLEY . JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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**EVENTS 7 – 10:** (continued)

ATC verifies PRZR isolated

- PORVs – CLOSED
- Spray Valves – CLOSED
- Safety relief valves – CLOSED
- PRT conditions – CONSISTENT WITH EXPECTED VALUES
- Power to at least one block valve – AVAILABLE
- Block valves – AT LEAST ONE OPEN

ATC checks if RCPs should be stopped

- D/P between RCS pressure and highest S/G pressure – LESS THAN 200 PSID [350 PSID ADVERSE CNMT]

Crew determines criteria for stopping RCP's is not met – Crew leaves RCPs running.

ATC/BOP checks if any S/Gs are faulted

- Pressures in all S/Gs – ANY DROPPING IN AN UNCONTROLLED MANNER  
OR
- ANY S/G COMPLETELY DEPRESSURIZED

Crew determines NO S/G's are faulted.

BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b><u>EVENTS 7 – 10:</u></b> (continued)		<p>Crew checks if S/G tubes are intact</p> <ul style="list-style-type: none"> <li>• Check all S/G levels – NONE RISING IN AN UNCONTROLLED MANNER</li> <li>• Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES</li> </ul>
		<p>Crew determines no S/G levels are rising in an uncontrolled manner and Secondary Radiation – is CONSISTENT WITH PRE-EVENT VALUES.</p>
		<p>Crew determines S/G 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"> <li>• Cnmt radiation</li> <li>• Cnmt pressure</li> <li>• Cnmt sump level</li> </ul>
		<p>Crew determines the RCS is intact based on cnmt conditions being consistent with pre-event values.</p>



# BEAVER VALLEY , JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
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## **EVENTS 7 – 10:** (continued)

Crew checks if SI flow should be reduced

ATC verifies RCS Subcooling is greater than 46°F based on CETC's

BOP confirms secondary heat sink available by >370 gpm of feed flow available OR NR level in at least 1 S/G > 31%.

ATC confirms RCS pressure is stable or rising.

ATC confirms Pzr level is > 17%.

Crew determines that current plant conditions support SI reduction.

SRO determines transition to ES-1.1, SI Termination is appropriate.

Terminate scenario when the crew determines transition to ES-1.1 is appropriate.

Classify Event:

**SITE AREA EMERGENCY** due to TAB 2.3, Failure of the reactor protection system.

# BEAVER VALLEY , JWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<b>Attachment 1-K ‘Verification of Automatic Actions’</b>		BOP performs the verifications/actions of Attachment 1-K ‘Verification of Automatic Actions’ as follows:
	Both EDG’s are running	Diesel generators – BOTH RUNNING
		Station Instrument Air Header Pressure - GREATER THAN 100 PSIG
	Ensure Reheat Steam Isolation	Ensure Reheat Steam Isolation <ul style="list-style-type: none"> <li>• Verify [MOV-1MS-100A,B] - CLOSED</li> <li>• Reset reheater controller.</li> </ul>
		Verify CCR Pumps - TWO RUNNING
		Align Neutron Flux Monitoring For Shutdown <ul style="list-style-type: none"> <li>• Transfer [NR-1NI-45] Nuclear Recorder to operable source and intermediate range displays.</li> </ul>
		Verify River Water System In Service <ul style="list-style-type: none"> <li>• RPRW Pumps - TWO RUNNING</li> <li>• Check CCR Heat EX RW pressure - GREATER THAN 20 PSIG</li> </ul>

# BEAVER VALLEY , JOWER STATION

INSTRUCTIONAL GUIDELINES	PLANT STATUS / PROCEDURAL GUIDANCE	EXPECTED STUDENT RESPONSE
<p><b>Attachment 1-K ‘Verification of Automatic Actions’ (continued)</b></p>		<p>Check If Main Steamline Isolation Required</p> <ul style="list-style-type: none"> <li>• CNMT pressure - GREATER THAN 7 PSIG -OR-</li> <li>• Steamline pressure - LESS THAN 500 PSIG -OR-</li> <li>• Steamline pressure high rate of change - ANY ANNUNCIATOR LIT Annunciator A7-41, A7-49 or A7-57</li> </ul> <p>Determines steamline isolation previously occurred.</p> <p>Check CIB And CNMT Spray Status</p> <ul style="list-style-type: none"> <li>• Containment pressure - HAS REMAINED LESS THAN 11 PSIG</li> </ul> <p>Verify ESF Equipment Status</p> <ul style="list-style-type: none"> <li>• Verify SI status by checking all RED SIS marks – LIT</li> <li>• Verify CIA by checking all ORANGE CIA marks - LIT</li> <li>• Verify FWI by checking all GREEN FWI marks - LIT</li> </ul> <p>Verify Power To Both AC Emergency Busses</p> <p>Upon Completion, Report Any Discrepancies to SM/US</p>
<p><b><u>Critical Task FR-S.1.B</u></b> Crew starts AFW pumps before WR SG level is less than 10%.</p> <p><b><u>Critical Task E-0.O</u></b> Crew closes Cnmt isolation valves such that at least one valve is closed on each critical phase A penetration before the end of the scenario.</p>	<p>All AFW pumps failed to auto start. Train “A” CIA failed to actuate, manual actuation successful. Train “B” CIA valve, MOV-1CH-381 failed to automatically close, manual isolation successful.</p> <p><b>Discrepancies:</b> All AFW pumps failed to auto start. Train “A” CIA failed to actuate, manual actuation successful. Train “B” CIA valve, MOV-1CH-381 failed to automatically close, manual isolation successful.</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Calculate The RCS Initial Void Volume And Final Void Volume  
(IAW 10M-6.4.Q, "Response To Void In Reactor Vessel")

TRAINING MATERIAL NUMBER: 1AD-030

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-030

REVISION NUMBER: 0

TECHNICAL REFERENCES:

'OM-6.4.Q, "Response To Void In Reactor Vessel", Rev. 5

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 12 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-030		
Type of Change:		
<input type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # N/A  New Change #
List/Description of Change(s):  Original Issue		
Reason for Change (s):  To improve BVPS JPM Admin Infrastructure.		
APPROVALS:		
I. Forbes		<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Prepared by	Date	
Training Superintendent/Supervisor/Peer	Date	
<i>("Changes Not Requiring Revision" only)</i>		

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-030 JPM REVISION: 0	JPM TITLE: Calculate The RCS Initial Void Volume And Final Void Volume (IAW 1OM-6.4.Q, "Response To Void In Reactor Vessel")
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K/A REFERENCE: 2.1.7 4.4

TASK ID: 0061-016-01-013

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 SSN:

Time ☐ Yes  
Critical: ☒ No

Allotted  
Time: 12 Minutes

Actual  
Time: minutes

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

Comments: \_\_\_\_\_  
\_\_\_\_\_

## OBSERVERS

Name/SSN:

Name/SSN:

Name/SSN:

Name/SSN:

## EVALUATOR

Evaluator (Print): \_\_\_\_\_ Date: \_\_\_\_\_

Evaluator Signature: \_\_\_\_\_

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-030	JPM TITLE: Calculate The RCS Initial Void Volume And Final Void
JPM REVISION: 0	Volume (IAW 1OM-6.4.Q, "Response To Void In Reactor Vessel")

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** Calculated RCS Initial Void Volume is  $3995.325 \text{ FT}^3 \pm 4$  **AND** Final Void Volume is  $3835.512 \text{ FT}^3 \pm 4$

**RECOMMENDED  
STARTING LOCATION:** Classroom

**DIRECTIONS:** Calculate The RCS Initial Void Volume And Final Void Volume (IAW 1OM-6.4.Q, "Response To Void In Reactor Vessel")

**INITIAL CONDITIONS:**

- A Reactor trip from 100% power has occurred.
- SI has NOT been actuated
- Power was lost to all RCPs.
- Both Trains of RVLIS are inoperable.
- Normal Charging and Letdown are in operation.
- A plant cooldown was in progress.
- RCS Hot Leg temperature is stable.
- Voids are indicated in the Reactor Coolant System by an abnormal change in Pressurizer level due to a change in Reactor Coolant System pressure.

**INITIATING CUE:** The Unit Supervisor has directed the performance of 1OM-6.4.Q, Response To Void In Reactor Vessel. The necessary data to calculate the RCS Initial Void Volume And Final Void Volume has been collected and recorded within 1OM-6.4.Q, Response To Void In Reactor Vessel.

Using the data recorded in 1OM-6.4.Q, the Unit Supervisor directs you to Calculate The RCS Initial Void Volume And Final Void Volume IAW 1OM-6.4.Q, Response To Void In Reactor Vessel steps IV.A.11a. and b. Report your results in the space provided. (Space provided on candidate direction sheet).

**REFERENCES:** 1OM-6.4.Q, "Response To Void In Reactor Vessel", Rev. 5

**TOOLS:** Calculator

**HANDOUT:** 1OM-6.4.Q, "Response To Void In Reactor Vessel", Rev. 5 filled out up to step IV.A.11.

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK:

Calculate The RCS Initial Void Volume And Final Void Volume (IAW 1OM-6.4.Q, "Response To Void In Reactor Vessel")

INITIAL CONDITIONS:

- A Reactor trip from 100% power has occurred.
- SI has NOT been actuated
- Power was lost to all RCPs.
- Both Trains of RVLIS are inoperable.
- Normal Charging and Letdown are in operation.
- A plant cooldown was in progress.
- RCS Hot Leg temperature is stable.
- Voids are indicated in the Reactor Coolant System by an abnormal change in Pressurizer level due to a change in Reactor Coolant System pressure.

INITIATING CUE:

The Unit Supervisor has directed the performance of 1OM-6.4.Q, Response To Void In Reactor Vessel. The necessary data to calculate the RCS Initial Void Volume And Final Void Volume has been collected and recorded within 1OM-6.4.Q, Response To Void In Reactor Vessel.

Using the data recorded in 1OM-6.4.Q, the Unit Supervisor directs you to Calculate The RCS Initial Void Volume And Final Void Volume IAW 1OM-6.4.Q, Response To Void In Reactor Vessel steps IV.A.11a. and b. Report your results in the space provided. (Space provided on candidate direction sheet).

**RESULTS:**

RCS Initial Void Volume \_\_\_\_\_

RCS Final Void Volume \_\_\_\_\_

☐

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 NUMBER: 1AD-030 JPM REVISION: 0	JPM TITLE: Calculate The RCS Initial Void Volume And Final Void Volume (IAW 1OM-6.4.Q, "Response To Void In Reactor Vessel")
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD  (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <b>EVALUATOR NOTE:</b>            Provide candidate a place kept copy of IOM-6.4.Q filled out with data provided up to step IV.A.11.         </div>	
	<div style="border: 1px solid black; padding: 5px;"> <b>EVALUATOR NOTE:</b>            Some judgment may be required to determine satisfactory performance on this JPM.         </div>	
	START TIME: _____	
<p>1.C Calculate the size of the RCS initial void volume (<math>G_1</math>) as follows:</p> $G_1 = (V_c + V_2 - V_1) / (1 - (P_1/P_2))$ $G_1 = (\text{ } \text{ft}^3 + \text{ } \text{ft}^3) - \text{ } \text{ft}^3 / (1 - (\text{ } \text{psi} / \text{ } \text{psi}))$ $G_1 = \text{ } \text{ft}^3.$	<p>1.1C Calculates the size of the RCS initial void volume (<math>G_1</math>)</p> $G_1 = (V_c + V_2 - V_1) / (1 - (P_1/P_2))$ $G_1 = (\text{ } \text{ft}^3 + \text{ } \text{ft}^3) - \text{ } \text{ft}^3 / (1 - (\text{ } \text{psi} / \text{ } \text{psi}))$ $G_1 = (186.213 \text{ ft}^3 + 437.6 \text{ ft}^3 - 464 \text{ ft}^3) / (1 - (1800 \text{ psi} / 1875 \text{ psi}))$ $G_1 = (159.813 \text{ ft}^3 / (1 - .96 \text{ psi}))$ $G_1 = (159.813 \text{ ft}^3) / (.04)$ $G_1 = 3995.325 \text{ ft}^3.$ <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-030  
JPM REVISION: 0

JPM TITLE: Calculate The RCS Initial Void Volume And Final Void Volume (IAW 10M-6.4.Q, "Response To Void In Reactor Vessel")

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>2.C Calculate the size of the RCS final void volume (<math>G_2</math>) from the initial RCS void volume (Step A.11.a) as follows:</p> <p><math>G_2 = G_1 ( P_1 / P_2 )</math></p> <p><math>G_2 = ( \text{ } \text{ft}^3 ) ( \text{ } \text{psi} / \text{ } \text{psi} )</math></p>	<p>2.1C Calculates the size of the RCS final void volume (<math>G_2</math>) from the initial RCS void volume.</p> <p><math>G_2 = G_1 ( P_1 / P_2 )</math></p> <p><math>G_2 = ( 3995.325 \text{ ft}^3 ) ( 1800 \text{ psi} / 1875 \text{ psi} )</math></p> <p><math>G_2 = ( 3995.325 ) \times ( 0.96 )</math></p> <p><math>G_2 = 3835.512 \text{ ft}^3</math></p> <p>COMMENTS:</p>	
<p>3. Records Initial and Final Calculated Void Volume in the space provided on the candidate direction sheet.</p>	<p>3.1 Provides Initial and Final Void Volume calculated in the space provided on the candidate direction sheet.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> That Completes this JPM</p> </div>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Perform Shutdown Margin Calculation

TRAINING MATERIAL NUMBER: 1AD-008

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-008

REVISION NUMBER: 1

TECHNICAL REFERENCES:

'OST-49.1, Shutdown Margin Calculation (Plant Critical), Rev. 19

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-008

Type of Change:

☐ Changes Requiring Revision

Learning Objective Related Change?

☐ Yes ☐ No

New Rev. # 1

☐ Changes Not Requiring Revision

The Change Does Not Impact Learning Objectives or Material Quality.

Existing Rev. # 0

New Change #

List/Description of Change(s):

Updated JPM to reflect most current procedure revision.  
 Updated critical task and step to reflect procedure change (boration required changed).  
 Changed Rod Height in initial conditions to reflect most current plant configuration.  
 Added placekeeping to procedural handout.  
 Added calculator to tools needed to perform this JPM.  
 Changed Cb in initial conditions from 750 to 900 PPM to be more reflective of Cycle 21.  
 Removed Cycle 20 from Evaluator Note.

Reason for Change (s):

To maintain JPM updated for next use.

APPROVALS:

I. Forbes

Prepared by

Date

 Training Superintendent/Supervisor/Peer  
 ("Changes Not Requiring Revision" only)

Date

**NOTE:** Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-008  
JPM REVISION: 1

JPM TITLE: Perform Shutdown Margin Calculation

K/A REFERENCE: 2.1.25

TASK ID: 0011-006-01-013

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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-008  
JPM REVISION: 1

JPM TITLE: Perform Shutdown Margin Calculation

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** Determine that Shutdown Margin is not within the limits specified in accordance with 1OST-49.1 and Boration to 1844 ppm is necessary.

**RECOMMENDED  
STARTING LOCATION:** Classroom

**DIRECTIONS:** Determine if Shutdown Margin is within the limits specified in accordance with 1OST-49.1, Shutdown Margin Calculation (Plant Critical).

**INITIAL CONDITIONS:**

- The Unit is in Mode 1, 100% power.
- All rods are at 225 steps.
- Annunciator [A4-46], TAVG DEVIATION FROM TREF is "Off".
- Two (2) control rods have been determined to be inoperable, untrippable, and immovable during performance of 1OST-1.1, Control Rod Assembly Partial Movement Test.
- Current RCS boron concentration is 900 ppm.
- Core Burnup is 12,000 MWD/MTU

**INITIATING CUE:** Your Supervisor directs you to perform a shutdown margin calculation for the present plant conditions using 1OST-49.1, Shutdown Margin Calculation (Plant Critical), and report your results in the COMMENT section of the OST cover sheet.

**REFERENCES:** 1OST-49.1, "Shutdown Margin Calculation (Plant Critical)", Rev. 19

**TOOLS:** Calculator

**HANDOUT:** 1OST-49.1, Shutdown Margin Calculation (Plant Critical), Rev. 19 with SM authorization signature and place kept up to Step VII.A.

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

Determine if Shutdown Margin is within the limits specified in accordance with IOST-49.1, Shutdown Margin Calculation (Plant Critical).

INITIAL CONDITIONS:

- The Unit is in Mode 1, 100% power.
- All rods are at 225 steps.
- Annunciator [A4-46], TAVG DEVIATION FROM TREF is "Off".
- Two (2) control rods have been determined to be inoperable, untrippable, and immovable during performance of IOST-1.1, Control Rod Assembly Partial Movement Test.
- Current RCS boron concentration is 900 ppm.
- Core Burnup is 12,000 MWD/MTU

INITIATING CUE:

Your Supervisor directs you to perform a shutdown margin calculation for the present plant conditions using IOST-49.1, Shutdown Margin Calculation (Plant Critical), and 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

JPM NUMBER: 1AD-008  
JPM REVISION: 1

JPM TITLE: Perform Shutdown Margin Calculation

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><b>EVALUATOR NOTE:</b> Provide the Candidate with a copy of the attached 1OST-49.1 and a calculator.</p> </div>	
	START TIME: _____	
<p>1. If the plant is in Mode 1, Verify that Tavg is less than 5°F above Tref (Annunciator A4-46, TAVG DEVIATION FROM TREF is OFF) (Otherwise N/A).</p> <p>(Step VII.A.1)</p>	<p>1.1 Initials Step VII.A.1, (Plant in Mode 1, Tavg &lt; 5°F above Tref (Annunciator A4-46 OFF) from Initial Conditions.</p> <p>COMMENTS:</p>	
<p>2. If the plant is in Mode 2, Verify that Tavg is less than 8°F above Program Tavg as follows: (Otherwise N/A)</p> <p>(Step VII.A.2)</p>	<p>2.1 Places N/A in Step VII.A.2, (Plant not in Mode 2).</p> <p>COMMENTS:</p>	
<p>3. Request Chemistry to determine current RCS Boron concentration in ppm.</p> <p>(Step VII.A.3)</p>	<p>3.1. Determines current boron concentration is 750 ppm from initial conditions.</p> <p>COMMENTS:</p>	



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-008  
JPM REVISION: 1

JPM TITLE: Perform Shutdown Margin Calculation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4. Record the number of steps withdrawn for Control Bank D from the group demand counters, (BB-B) on Data Sheet 1.</p> <p>(Step VII.A.4)</p>	<p>4.1 Records Control Bank D as 225 steps withdrawn on Data Sheet 1 (section A 4.) from initial conditions.</p> <p>COMMENTS:</p>	
<p>5. Record the current reactor power level in percent of full power from [NR-1NI-45], Power Range Recorder, (VB-B) OR IPC computer point U1150, PWR RNG NUCLEAR FLUX 1M AVG, on Data Sheet 1.</p> <p>(Step VII.A.5)</p>	<p>5.1 Records reactor power as 100% on Data Sheet 1 (section A 5.).</p> <p>COMMENTS:</p>	
<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 Records number of immovable or untrippable rods as "2" on Data Sheet 1 (section A 6.) (given in Initial Conditions).</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-008  
JPM REVISION: 1

JPM TITLE: Perform Shutdown Margin Calculation

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>7.C If the number of immovable or untrippable 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)</p> <p>(Step VII.A.7)</p>	<p>7.1C Refers to Attachment 1 and determines for a burnup of 12,000 MWD/MTU (provided in initial conditions), the required boron concentration is 1844 ppm.</p> <p>7.2 Records 1844 ppm in step 7 and initials</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> If necessary role-play Reactor engineering and report core burnup as 12,000 MWD/MTU.</p> </div> <p>COMMENTS:</p>	
<p>8.C With the number of immovable or untrippable rods greater than one, the shutdown margin is &lt; 1.77% k/k. Perform Step VII.C.2 UNTIL the required boron concentration of Attachment 1 is reached.</p> <p>(Step VII.A.7.a)</p>	<p>8.1C Documents on OST cover sheet that shutdown margin is not met and that boration is required to restore required shutdown margin.</p> <p>COMMENTS:</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>TERMINATING CUE:</b> When the Candidate reports the results and need to borate, the evaluation for JPM is complete.</p> </div>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Complete Surveillance of RHR Pump (RO ONLY)

TRAINING MATERIAL NUMBER: 1AD-027

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-027

REVISION NUMBER: 0

TECHNICAL REFERENCES:

<sup>1</sup>OST-10.1, "Residual Heat Removal Pump Performance Test", Rev. 25

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-027

Type of Change:

<input type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # New Change #

List/Description of Change(s):

Original Issue.

Reason for Change (s):

To build Unit 1 Admin JPM Infrastructure.

APPROVALS:

I. Forbes

Prepared by

Date

Training Superintendent/Supervisor/Peer  
(*"Changes Not Requiring Revision" only*)

Date

**NOTE:** Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-027

JPM REVISION: 0

JPM TITLE: Complete Surveillance of RHR Pump

K/A REFERENCE: 2.2.37

3.6

TASK ID: 010-017-06-013

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 SSN:	
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/SSN:	Name/SSN:
Name/SSN:	Name/SSN:

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

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-027  
JPM REVISION: 0

JPM TITLE: Complete Surveillance of RHR Pump

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** 1RH-P-1A  $\Delta P$  is calculated and a determination is made that the  $\Delta P$  does **NOT** meet the acceptance Criteria. A determination is made that the pump vibrations do **NOT** meet the acceptance criteria.

**RECOMMENDED  
STARTING LOCATION:** Classroom

**DIRECTIONS:** You are to perform the independent verifications of the calculations on Data Sheet 1 of 1OST-10.1, "Residual Heat Removal Pump [1RH-P-1A] Performance Test" and determine if acceptance criteria is met.

**INITIAL CONDITIONS:**

- Unit 1 is in Mode 5 with RCS CET temperatures at 110°F.
- Surveillance 1OST-10.1, "Residual Heat Removal Pump [1RH-P-1A] Performance Test" is being performed **ONLY**.
- This is a **COMPRHENSIVE** Pump Test.
- Independent verifications of the calculations on Data Sheet 1 are required.

**INITIATING CUE:** Complete the required independent verifications of the calculations on Data Sheet 1 of 1OST-10.1, "Residual Heat Removal Pump [1RH-P-1A] Performance Test" **AND** Determine if the Pump meets **ALL** of the Applicable Acceptance Criteria specified in step III A. (disregard Data Sheet 3 & 4 which are for 1RH-P-1B)  
**DOCUMENT** the results of your Acceptance Criteria Determination in the comments section of the cover page or OST Problem Sheet (if applicable).

**REFERENCES:** 1OST-10.1, "Residual Heat Removal Pump Performance Test", Rev. 25

**TOOLS:** None

**HANDOUT:** 1OST-10.1, "Residual Heat Removal Pump Performance Test", Rev. 25 completed **With unacceptable  $\Delta P$  and vibrations.**

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

**DIRECTIONS:**

You are to perform the independent verifications of the calculations on Data Sheet 1 of 1OST-10.1, "Residual Heat Removal Pump [1RH-P-1A] Performance Test" and determine if acceptance criteria is met.

**INITIAL CONDITIONS:**

- Unit 1 is in Mode 5 with RCS CET temperatures at 110°F.
- Surveillance 1OST-10.1, "Residual Heat Removal Pump [1RH-P-1A] Performance Test" is being performed ONLY.
- This is a **COMPRHENSIVE** Pump Test.
- Independent verifications of the calculations on Data Sheet 1 are required.

**INITIATING CUE:**

Complete the required independent verifications of the calculations on Data Sheet 1 of 1OST-10.1, "Residual Heat Removal Pump [1RH-P-1A] Performance Test" **AND** Determine if the Pump meets **ALL** of the Applicable Acceptance Criteria specified in step III A. (disregard Data Sheet 3 & 4 which are for 1RH-P-1B)

**DOCUMENT** the results of your Acceptance Criteria Determination in the comments section of the cover page or OST Problem Sheet (if applicable).

☐

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 NUMBER: 1AD-027  
JPM REVISION: 0

JPM TITLE: Complete Surveillance of RHR Pump

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
<p>1. Reviews 1OST-10.1 and Data Sheet information provided.</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <b>EVALUATOR CUE:</b> Provide the candidate with the Handout Materials. Criteria/steps may be checked/verified in any order.         </div> <p>1.1 Reviews 1OST-10.1 and verifies calculations/data to determine if acceptance criteria (III.A) met.</p> <p>COMMENTS:</p>	
<p>2. Reviews 1RH-P-1A Pump Flowrate data provided.</p>	<p>2.1 4009 gpm - 0 gpm = 4009 gpm.</p> <p>2.2 Determines 4009 gpm is within Acceptable range of 3950-4050 gpm. (No information will be recorded in the comments section)</p> <p>COMMENTS:</p>	
<p>3.C [1RH-P-1A] Residual Heat Removal Pump: Operates within the limits of BVPS IST Program ( T.S.5.5.4) as follows: Differential Pressure (Data Sheet 1)</p>	<p>3.1 Calculates 1RH-P-1A Pump <math>\Delta P</math> and determines acceptance criteria. <math>110 \text{ psig} - 24 \text{ psig} (86 \text{ psig}) + 48/12 (4) + 15 - 65/12 (5.417) / 2.31 (5.88) = 91.88 \text{ psid}</math>.</p> <p>3.2C Determines 91.88 psid is <b>GREATER THAN</b> acceptable range of 86.7- 91.1 psid (Comprehensive Pump Test) by comparing calculated Delta P on Data Sheet 1 to Acceptable Range (III.A).</p> <p>COMMENTS:</p>	



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-027  
JPM REVISION: 0

JPM TITLE: Complete Surveillance of RHR Pump

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4.C [1RH-P-1A] Residual Heat Removal Pump: Operates within the limits of BVPS IST Program ( T.S.5.5.4) as follows: Motor Vibration (Data Sheet 2)</p>	<p>4.1 Compares Actual Motor Vibrations on Data Sheet 2 to Acceptable and Alert range.</p> <p>4.2C Determines Motor Inboard (2) Axial (A) vibrations are <b>GREATER THAN</b> Acceptable and Alert Range.</p> <p>COMMENTS:</p>	
<p>5.C Complete the front cover sheet.</p>	<p>5.1C Lists the following problems on OST problem or cover sheet:</p> <ul style="list-style-type: none"> <li>• C Motor Inboard (2) Axial(A) vibration is <b>GREATER THAN</b> Acceptable and Alert Range</li> <li>• C Calculated Delta P is <b>GREATER THAN</b> Acceptable Range.</li> </ul> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> Grader discretion may be required.</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>EXAMINER CUE:</b> That completes this JPM</p> </div>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Determine GW Storage Tank Discharge Bleed Flow Rate

TRAINING MATERIAL NUMBER: 1AD-010

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-010

REVISION NUMBER: 0

TECHNICAL REFERENCES:

1OM-19.4E, Decay Tank Discharge, Rev. 10

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 10 Minutes

PREPARED BY: R. J. Brooks *RJ Brooks* 4/23/10  
Date

PEER REVIEW BY: G. Starolis *George Starolis* 4.23.10  
Date

APPROVED FOR USE: *[Signature]* 5/4/10  
Training Supervisor & Designee Date

**REVISION VERIFIED**

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-010		
Type of Change:		
<input type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # New Change #
List/Description of Change(s):  New JPM		
Reason for Change (s):		
APPROVALS:		
R. J. Brooks	4/22/10	<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Prepared by	Date	
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only)	Date	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Determine GW Storage Tank Discharge Bleed Flow Rate

TRAINING MATERIAL NUMBER: 1AD-010

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-010

REVISION NUMBER: 0

TECHNICAL REFERENCES:

1OM-19.4E, Decay Tank Discharge, Rev. 10

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 10 Minutes

PREPARED BY: R. J. Brooks \_\_\_\_\_  
Date

PEER REVIEW BY: \_\_\_\_\_  
Date

APPROVED FOR USE: \_\_\_\_\_  
Training Supervisor or Designee Date

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-010

Type of Change:

☐ Changes Requiring Revision

Learning Objective Related Change?

New Rev. # 0

☐ Yes ☐ No☐ Changes Not Requiring Revision

The Change Does Not Impact Learning Objectives or Material Quality.

Existing Rev. #

New Change #

List/Description of Change(s):

New JPM

Reason for Change (s):

## APPROVALS:

R. J. Brooks

Prepared by

Date

Training Superintendent/Supervisor/Peer  
(*"Changes Not Requiring Revision" only*)

Date

**NOTE:** Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-010 JPM REVISION: 0	JPM TITLE: Determine GW Storage Tank Discharge Bleed Flow Rate
--	--

K/A REFERENCE: 2.3.11 3.8/4.3 TASK ID: 0191-006-01-011

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING  
☐ FAULTED JPM ☒ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
<input type="checkbox"/> Perform <input type="checkbox"/> Simulate	<input 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"/> 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 SSN:	
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/SSN:	Name/SSN:
Name/SSN:	Name/SSN:

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

## OPERATIONS JOB PERFORMANCE MEASURE

**EVALUATOR DIRECTION SHEET**

<b>TASK STANDARD:</b>	GW Storage Tank Discharge Bleed Flow rate is calculated to be <b>GREATER than 2 SCFM</b> and the candidate determines that the discharge <b>MUST BE TERMINATED</b> .
<b>RECOMMENDED STARTING LOCATION:</b>	Classroom
<b>DIRECTIONS:</b>	You are to calculate the GW Storage Tank Discharge Bleed Flow rate <b>AND</b> based on your calculation make a recommendation for continuing the discharge.
<b>INITIAL CONDITIONS:</b>	<ul style="list-style-type: none"><li>• The plant is in Mode 5, making preparations to enter Mode 6.</li><li>• Unit 1 Gaseous Waste Decay Tank 1GW-TK-1A is being discharged to the Unit 1 Atmospheric Vent, IAW 1OM-19.4.E, Decay Tank Discharge.</li><li>• The initial pressure of the tank was 64.2 psig.</li><li>• The discharge has been ongoing for 2 hours.</li><li>• The current pressure of the tank is 34.8 psig.</li><li>• The Shift chemist has completed proper tritium sampling.</li></ul>
<b>INITIATING CUE:</b>	<p>Determine the GW Storage Tank Discharge Bleed Flow rate IAW Step IV.K.17 of 1OM-19.4.E, <b>AND</b> make a recommendation for continuing the discharge in the box below.</p> <p>(Provided in the candidate direction sheet)</p>
<b>REFERENCES:</b>	1OM-19.4E, Decay Tank Discharge, Rev. 10 1/2-ENV-05.05.F01 RWDA-G
<b>TOOLS:</b>	Calculator
<b>HANDOUT:</b>	1OM-19.4.E, Decay Tank Discharge, Rev. 10 place kept up to step IV.K.17. 1/2-ENV-05.05.F01 RWDA-G filled out with a MAXIMUM undiluted discharge rate of 2 SCFM.

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:**DIRECTIONS:**

You are to calculate the GW Storage Tank Discharge Bleed Flow rate **AND** based on your calculation make a recommendation for continuing the discharge.

**INITIAL CONDITIONS:**

- The plant is in Mode 5, making preparations to enter Mode 6.
- Unit 1 Gaseous Waste Decay Tank, 1GW-TK-1A is being discharged to the Unit 1 Atmospheric Vent IAW 1OM-19.4.E, Decay Tank Discharge.
- The initial pressure of the tank was 64.2 psig.
- The discharge has been ongoing for 2 hours.
- The current pressure of the tank is 34.8 psig.
- The Shift chemist has completed proper tritium sampling.

**INITIATING CUE:**

Determine the GW Storage Tank Discharge Bleed Flow rate IAW Step IV.K.17 of 1OM-19.4.E, **AND** make a recommendation for continuing the discharge in the box below.

**Recommendation:**

- 
- ☐ 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 NUMBER: 1AD-010

JPM REVISION: 0

JPM TITLE: Determine GW Storage Tank Discharge Bleed Flow Rate

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
1. Reviews procedure step	1.1 Reviews 1OM-19.4E, Decay Tank Discharge, Step IV.K.17  COMMENTS:	
2.C Two hours after the discharge has been initiated, perform the following steps:  Confirm the bleed flow rate using the following equation:  Bleed flow rate (SCFM) = $\frac{(132\text{FT}^3)(P_i - P_f)}{(14.7 \text{ psi})(T_f - T_i)}$	2.1C Inserts the numbers from the initial conditions and determines bleed flow:  Bleed flow rate (SCFM) = $\frac{(132)(64.2 - 34.8)}{(14.7)(120)}$  Bleed flow rate (SCFM) = <b>2.2 SCFM</b>  COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-010

JPM REVISION: 0

JPM TITLE: Determine GW Storage Tank Discharge Bleed Flow Rate

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<p><b>EVALUATOR NOTE:</b>            Pi=Initial Decay Tank pressure in PSIG from [PR-1GW-103]             Pf=Current Decay Tank pressure in PSIG from [PR-1GW-103]             Ti=Time the discharge started             Tf=Current time             (Tf-Ti) shall have units of minutes</p>	
<p><b>3.C</b> If the bleed flow rate exceeds 2 SCFM, THEN Stop the discharge by performing Steps IV.K.18 thru IV.N.2 AND Notify Radiation Protection of the problem. (Otherwise N/A)</p>	<p><b>3.1C</b> Determines that the discharge <b>MUST be Terminated</b></p> <p>COMMENTS:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 20px;"> <p><b>EVALUATOR CUE:</b>            When the applicant makes the decision to terminate the discharge, the evaluation for this JPM is complete</p> </div>	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

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

TRAINING MATERIAL NUMBER: 1AD-019

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-019

REVISION NUMBER: 0

TECHNICAL REFERENCES:

1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, Rev. 54

1OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev. 4

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: I. Forbes

\_\_\_\_\_  
Date

PEER REVIEW BY: \_\_\_\_\_

\_\_\_\_\_  
Date

APPROVED FOR USE: \_\_\_\_\_

\_\_\_\_\_  
Training Supervisor or Designee

\_\_\_\_\_  
Date

RECEIVED

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-019		
Type of Change:		
<input type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # N/A  New Change #
List/Description of Change(s):  Original Issue		
Reason for Change (s):  To expand Unit 1 Admin JPM Infrastructure.		
APPROVALS:		
I. Forbes Prepared by _____ Date _____		<div style="border: 1px solid black; padding: 5px;"> <b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.         </div>
Training Superintendent/Supervisor/Peer ("Changes Not Requiring Revision" only) _____ Date _____		

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-019 JPM REVISION: 0	JPM TITLE: Evaluate 1/M Data and Determine Required Actions (SRO Only)
--	---

K/A REFERENCE: 2.1.43

4.3

TASK ID: 1340-007-03-023

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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-019	JPM TITLE: Evaluate 1/M Data and Determine Required Actions
JPM REVISION: 0	(SRO Only)

**EVALUATOR DIRECTION SHEET**

<b>TASK STANDARD:</b>	Determine that 1/M data predicts >500 pcm below ECP value for critical rod height. Determines No further rod withdrawal will be allowed, and 1OM-50.4.D, Attachment 2, Action #4 are applicable (Refer to JPM Step 4).
<b>RECOMMENDED STARTING LOCATION:</b>	Classroom
<b>DIRECTIONS:</b>	You are to evaluate 1/M data.
<b>INITIAL CONDITIONS:</b>	The Unit is in Mode 2. A reactor startup is in progress. Control Bank C is at 144 steps. Control Bank D is at 41 steps. RCS Boron concentration is 1874 ppm.
<b>INITIATING CUE:</b>	The Shift Manager directs you to review the 1/M plot per 1OM-50.4.F Data Sheet 3 using the SR count rate data provided. Compare the N-31 1/M data with the predicted ECP data (Data Sheet 1, Pg. 15) and determine actions related to further rod withdrawal. Document any recommended actions in the box below. (Located on the candidate direction sheet)
<b>REFERENCES:</b>	1OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev. 4 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, Rev. 54
<b>TOOLS:</b>	None
<b>HANDOUT:</b>	1OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev. 4, place-kept with a completed Data Sheet 3 & Figure 1. (Data Sheet 1 ECP Form pages 13, 14 & 16 removed with only pg 15 provided) 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, Rev. 54, place-kept up to D.14.f with Attachment 2 & 3 Bank Step Data completed.

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to evaluate 1/M data.

INITIAL CONDITIONS: The Unit is in Mode 2.  
A reactor startup is in progress.  
Control Bank C is at 144 steps.  
Control Bank D is at 41 steps.  
RCS Boron concentration is 1874 ppm.

INITIATING CUE: The Shift Manager directs you to review the 1/M plot per 1OM-50.4.F Data Sheet 3 using the SR count rate data provided. Compare the N-31 1/M data with the predicted ECP data (Data Sheet 1, Pg. 15) and determine actions related to further rod withdrawal. Document any recommended actions 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.

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-019	JPM TITLE Evaluate 1/M Data and Determine Required Actions
JPM REVISION: 0	(SRO Only)

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
	<b>EVALUATOR CUE:</b> Provide the candidate with a place kept copy of 1OM-50.4.D and 1OM-50.4.F which includes completed Data Sheet 3 (1/M Data) & Figure 1 (1/M Plot). Only Page 15 of Data Sheet 1 (ECP) is provided since the intent of this JPM is not for the candidate to review an ECP in its entirety.	
1. Refer to Data Sheet 3.	1.1 Refers to Data Sheet 3 for count rate data.  COMMENTS:	
2. Refer to 1/M plot.	2.1 Evaluates count rate data from Data Sheet 3 and compares the 1/M data recorded for 300, 400, AND 425 total steps and determines the data is properly recorded.  COMMENTS:	
3.C Evaluate 1/M plot data	3.1C Determines that the 1/M plot predicts criticality >500 pcm below ECP. Minimum rod height is Bank D at 50 steps versus ECP of Bank D 100 steps.  COMMENTS:	



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-019	JPM TITLE Evaluate 1/M Data and Determine Required Actions
JPM REVISION: 0	(SRO Only)

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
4.C Determines action for continued startup IAW 1OM-50.4.D Attachment 2 (Continuous Actions) Action # 4.	<p><b>EVALUATOR CUE:</b> If necessary ask candidate to provide specific actions required.</p> <p>4.1C Determines 1OM-50.4.D, Attachment 2, Action #4 actions are applicable.</p> <ul style="list-style-type: none"> <li>• Immediately insert ALL control banks to ZERO steps.</li> <li>• Verify RCS boron concentration.</li> <li>• Perform 1OST-49.2, "Shutdown Margin Calculation (Plant Shutdown)".</li> <li>• Notify the Plant General Manager or designee.</li> <li>• Notify Reactor Engineering to evaluate the initial ECP and all applicable calculation data.</li> <li>• Recalculate the ECP.</li> <li>• Subsequent reactor startup is NOT permitted without Plant General Manager permission.</li> </ul> <p><b>EVALUATOR NOTE:</b> It is also acceptable to document 1OM-50.4D Attachment 2 Action #4. Grader Discretion required.</p> <p><b>EVALUATOR CUE:</b> When the applicant makes a recommendation on continued startup, the evaluation for this JPM is complete.</p> <p>COMMENTS:</p>	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Review Shutdown Margin Calculation (SRO ONLY)

TRAINING MATERIAL NUMBER: 1AD-031

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-031

REVISION NUMBER: 0

TECHNICAL REFERENCES:

'OST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 21), Rev. 19  
Technical Specifications and Bases  
License Requirement Manual

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 15 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-031

Type of Change:

☐ Changes Requiring Revision

Learning Objective Related Change?

☐ Yes ☐ No

New Rev. # 0

☐ Changes Not Requiring Revision

The Change Does Not Impact Learning Objectives or Material Quality.

Existing Rev. # N/A

New Change #

List/Description of Change(s):

Original Issue

Reason for Change (s):

To build BVPS Unit 1 Admin JPM Infrastructure.

APPROVALS:

I. Forbes

Prepared by

Date

Training Superintendent/Supervisor/Peer  
(*"Changes Not Requiring Revision" only*)

Date

**NOTE:** Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-031 JPM REVISION: 0	JPM TITLE: Review Shutdown Margin Calculation (SRO ONLY)
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K/A REFERENCE: 2.1.25 (4.2)

TASK ID: 0011-006-06-013

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 SSN:	
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/SSN:	Name/SSN:
Name/SSN:	Name/SSN:

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

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-031  
JPM REVISION: 0

JPM TITLE: Review Shutdown Margin Calculation (SRO ONLY)

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** Identifies the correct Shutdown Margin Requirement required boron concentration is 1844 ppm versus 1651. Determines TS LCO 3.1.4.A actions apply (Initiate boration to restore SDM within 1 hour and be in Hot S/D within 6 hours).

**RECOMMENDED  
STARTING LOCATION:** Classroom

**DIRECTIONS:** Refer to Initiating Cue below.

**INITIAL CONDITIONS:**

- The Unit is in Mode 1, 100% power.
- All rods at 225 steps.
- Annunciator [A4-46], TAVG DEVIATION FROM TREF is "Off".
- TWO (2) control rods have been determined to be inoperable, untrippable, and immovable during performance of 1OST-1.1, "Control Rod Assembly Partial Movement Test".
- Current RCS boron concentration is 900 ppm.
- Current burnup is 12,000 MWD/MTU
- The RO has just performed a Shutdown Margin Calculation in accordance with 1OST-49.1, "Shutdown Margin Calculation (Plant Critical)".

**INITIATING CUE:** The Shift Manager directs you to review and verify the accuracy of the recently completed shutdown margin (SDM) calculation (1OST-49.1) Report your results in the space provided on the **CANDIDATE DIRECTION SHEET**. Be specific and include LCO required actions (if any).

**REFERENCES:** 1OST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 21), Rev. 19.  
Technical Specifications/ TS Bases.  
License Requirement Manual.

**TOOLS:** Calculator

**HANDOUT:** 1OST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 21), Rev. 19. (Handout should contain filled out incorrect data).  
Technical Specifications/ TS Bases.  
License Requirement Manual.

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

Refer to Initiating Cue below.

INITIAL CONDITIONS:

- The Unit is in Mode 1, 100% power.
- All rods at 225 steps.
- Annunciator [A4-46], TAVG DEVIATION FROM TREF is “Off”.
- TWO (2) control rods have been determined to be inoperable, untrippable, and immovable during performance of 1OST-1.1, “Control Rod Assembly Partial Movement Test”.
- Current RCS boron concentration is 900 ppm.
- Current burnup is 12,000 MWD/MTU
- The RO has just performed a Shutdown Margin Calculation in accordance with 1OST-49.1, “Shutdown Margin Calculation (Plant Critical)”.

INITIATING CUE:

The Shift Manager directs you to review and verify the accuracy of the recently completed shutdown margin (SDM) calculation (1OST-49.1) Report your results in the space provided on the **CANDIDATE DIRECTION SHEET**. Be specific and include LCO required actions (if any).

**RESULTS:**☐

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 NUMBER: 1AD-031  
JPM REVISION: 0

JPM TITLE: Review Shutdown Margin Calculation (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: 10px;"> <p><b>EVALUATOR CUE:</b> Provide the candidate with the erroneous marked up copy of IOST-49.1 for review. Also ensure there are adequate copies of Technical Specification, Technical Specification Basis, and License Requirement Manuals on hand for candidate reference.</p> </div>	
	START TIME: _____	
1.C Candidate reviews IOST-49.1, Shutdown Margin Calculation (Plant Critical) (Updated for Cycle 21) provided.	<p>1.1 Reviews IOST-49.1 provided.</p> <p>1.2C Determines incorrect Boron Concentration – should be 1844 PPM versus 1651 PPM and documents this on CANDIDATE DIRECTION SHEET.</p> <p>COMMENTS:</p>	
2.C Consults Technical Specification and/or basis and determines TS LCO 3.1.4 actions are applicable.	<p>2.1 Consults Technical Specification and/or basis.</p> <p>2.2C Determines TS LCO 3.1.4.A is applicable and there is a 1 hour action to initiate boration and 6 hour action to be in Hot Shutdown and documents the required actions on CANDIDATE DIRECTION SHEET.</p> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 10px;"> <p><b>EVALUATOR CUE:</b> When the candidate hands back the JPM paperwork and states completion, “That Completes this JPM”.</p> </div>	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Review/Approve Completed Surveillance of RHR Pump  
(SRO ONLY)

TRAINING MATERIAL NUMBER: 1AD-026

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-026

REVISION NUMBER: 0

TECHNICAL REFERENCES:

.OST-10.1, "Residual Heat Removal Pump Performance Test", Rev. 25

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee



## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-026		
Type of Change:		
<input type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # N/A  New Change #
List/Description of Change(s):  Original Issue.		
Reason for Change (s):  To expand BVPS Unit 1 Admin JPM Infrastructure.		
APPROVALS:		
I. Forbes		<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Prepared by	Date	
Training Superintendent/Supervisor/Peer ( <i>"Changes Not Requiring Revision" only</i> )	Date	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-026  
JPM REVISION: 0

JPM TITLE: Review/Approve Completed Surveillance of RHR Pump

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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-026  
JPM REVISION: 0

JPM TITLE: Review/Approve Completed Surveillance of RHR Pump

**EVALUATOR DIRECTION SHEET**

**TASK STANDARD:** 1RH-P-1A is declared inoperable based on unacceptable  $\Delta P$  **AND** vibrations.

**RECOMMENDED  
STARTING LOCATION:** Classroom

**DIRECTIONS:** You are to Review/Approve completed Surveillance of RHR Pump 1RH-P-1A to determine operability as defined by the acceptance criteria III.A **ONLY**.

**INITIAL CONDITIONS:**

- Unit 1 is in Mode 5 with RCS core exit thermocouple temperatures at 110°F.
- 1OST-10.1 "Residual Heat Removal Pump Performance Test" for 1RH-P-1A has been completed by the RO and reviewed by the STA.
- Comprehensive Test was performed (SDP Test was NOT performed).

**INITIATING CUE:** Review/Approve completed Surveillance of RHR Pump 1RH-P-1A to determine operability as defined by the acceptance criteria III.A. **ONLY**. Document the results of your review in the comments section of the cover page.

**REFERENCES:** 1OST-10.1, "Residual Heat Removal Pump Performance Test", Rev. 25

**TOOLS:** None

**HANDOUT:** 1OST-10.1, "Residual Heat Removal Pump Performance Test", Rev. 25, completed with unacceptable  $\Delta P$  and vibrations.

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to Review/Approve completed Surveillance of RHR Pump 1RH-P-1A to determine operability as defined by the acceptance criteria III.A **ONLY**.

INITIAL CONDITIONS:

- Unit 1 is in Mode 5 with RCS core exit thermocouple temperatures at 110°F.
- 1OST-10.1 "Residual Heat Removal Pump Performance Test" for 1RH-P-1A has been completed by the RO and reviewed by the STA.
- Comprehensive Test was performed (SDP Test was NOT performed).

INITIATING CUE: Review/Approve completed Surveillance of RHR Pump 1RH-P-1A to determine operability as defined by the acceptance criteria III.A. **ONLY**. Document 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

JPM NUMBER: 1AD-026  
JPM REVISION: 0

JPM TITLE: Review/Approve Completed Surveillance of RHR Pump

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
<p>1. Refers to IOST-10.1 and associated data provided.</p>	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> Provide the candidate with the Handout Materials. Criteria/steps may be checked/verified in any order.</p> </div> <p>1.1 Consults Acceptance Criteria III.A for acceptable performance.</p> <p>COMMENTS:</p>	
<p>2.C [1RH-P-1A], Residual Heat Removal Pump: Operates within the limits of BVPS IST Program (T.S.5.5.4) as specified in the Data Sheets for: Motor Vibration (Data Sheet 2)</p>	<p>2.1 Compares Actual Motor Vibrations on Data Sheet 2 to Acceptable and Alert range.</p> <p>2.2C Determines Motor Inboard (2) Axial (A) vibrations are <b>GREATER THAN</b> Acceptable and Alert Range.</p> <p>COMMENTS:</p>	
<p>3.C [1RH-P-1A], Residual Heat Removal Pump: Operates within the limits of BVPS IST Program (T.S.5.5.4) as specified in the Data Sheets for: Delta-P (Data Sheet 1)</p>	<p>3.1 Compares calculated Delta P on Data Sheet 1 to Acceptable Range.</p> <p>3.2C Determines calculated Delta P is <b>GREATER THAN</b> Acceptable Range for the Comprehensive Test.</p> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-026  
JPM REVISION: 0

JPM TITLE: Review/Approve Completed Surveillance of RHR Pump

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
4.C Complete the front cover sheet.	<p>4.1C Lists the following problems in Comments Section or OST problem sheet:</p> <ul style="list-style-type: none"> <li>• C Motor Inboard (2) Axial (A) vibrations are <b>GREATER THAN</b> Acceptable and Alert Range.</li> <li>• C Calculated Delta P is <b>GREATER THAN</b> Acceptable Range.</li> <li>• C Determines <b>that 1RH-P-1A is INOPERABLE.</b></li> </ul> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> Grader Discretion may be required. Acceptance Criteria for Flow is met and does not need to be documented.</p> </div>	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Review/Approve LW Discharge (SRO ONLY)

TRAINING MATERIAL NUMBER: 1AD-023

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-023

REVISION NUMBER: 0

TECHNICAL REFERENCES:

1OM-17.4.AN, "Discharging A Coolant Recovery Tank To Cooling Tower Blowdown", Rev. 2

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 20 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_  
Date

PEER REVIEW BY: \_\_\_\_\_  
Date

APPROVED FOR USE: \_\_\_\_\_  
Training Supervisor or Designee Date

## OPERATIONS JOB PERFORMANCE MEASURE

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-023

Type of Change:

<input checked="" type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # N/A New Change #

List/Description of Change(s):

Original Issue.

Reason for Change (s):

To expand BVPS Unit 1 Admin JPM Infrastructure.

APPROVALS:

I. Forbes

Prepared by

Date

Training Superintendent/Supervisor/Peer  
(*"Changes Not Requiring Revision" only*)

Date

**NOTE:** Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-023 JPM REVISION: 0	JPM TITLE: Review/Approve LW Discharge (SRO ONLY)
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K/A REFERENCE: 2.3.11

4.3

TASK ID: 1300-009-03-023

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 SSN:	
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/SSN:		Name/SSN:	
Name/SSN:		Name/SSN:	
EVALUATOR			
Evaluator (Print): _____		Date: _____	
Evaluator Signature: _____			

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-023  
JPM REVISION: 0

JPM TITLE: Review/Approve LW Discharge (SRO ONLY)

**EVALUATOR DIRECTION SHEET**

TASK STANDARD:	RWDA-L-00811 is <b>NOT</b> approved for the following reasons: <ol style="list-style-type: none"><li>1. Incorrect tank volume.</li><li>2. Incorrect alternate radiation monitor alarm setpoint calculation.</li></ol>
RECOMMENDED STARTING LOCATION:	Classroom
DIRECTIONS:	You are to perform the task Review/Approve LW Discharge.
INITIAL CONDITIONS:	<ul style="list-style-type: none"><li>• Unit 1 is at 100% power.</li><li>• RWDA-L-00811 has been prepared for discharging Coolant Recovery Tank (1BR-TK-4B) to Cooling Tower Blowdown.</li><li>• Coolant Recovery Tank (1BR-TK-4B) level is 12 feet.</li><li>• 1OM-17.4.AN, "Discharging A Coolant Recovery Tank To Cooling Tower Blowdown", has been completed up to step IV.D.1</li></ul>
INITIATING CUE:	<ul style="list-style-type: none"><li>• Review/Approve RWDA-L-00811 IAW 1OM-17.4.AN, "Discharging A Coolant Recovery Tank To Cooling Tower Blowdown" and COMPLETE Step IV.D.1 (includes steps 1a &amp; 1b)</li><li>• Document the results of your approval in appropriate steps of 1OM-17.4.AN, <b>AND</b> in the block below. (Located on candidate direction sheet) ENSURE <b><u>ALL</u></b> RESULTS ARE DOCUMENTED.</li></ul>
REFERENCES:	1OM-17.4.AN, "Discharging A Coolant Recovery Tank To Cooling Tower Blowdown", Rev. 2
TOOLS:	Calculator
HANDOUT:	<p>RWDA-L-00811 filled out with the following errors: 72,000 gal volume for the tank instead of 78,000 gals. Wrong alternate radiation monitor alarm setpoint calculation. (<math>1.70\text{E}^{-6}</math> instead of <math>1.70\text{E}^{-5}</math>) 1OM-17.4.AN, "Discharging A Coolant Recovery Tank To Cooling Tower Blowdown", Rev. 2, filled out up to step but not including Step IV.D.1. Tank Curve Book with the latest BR-TK-4A,4B, "Coolant Recovery Tanks" Tank Level Curve" (6/20/01)</p>

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET**

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐ Read:

TASK: You are to perform the task Review/Approve LW Discharge.

- INITIAL CONDITIONS:
- Unit 1 is at 100% power.
  - RWDA-L-00811 has been prepared for discharging Coolant Recovery Tank (1BR-TK-4B) to Cooling Tower Blowdown.
  - Coolant Recovery Tank (1BR-TK-4B) level is 12 feet.
  - 1OM-17.4.AN, "Discharging A Coolant Recovery Tank To Cooling Tower Blowdown", has been completed up to step IV.D.1
- INITIATING CUE:
- Review/Approve RWDA-L-00811 IAW 1OM-17.4.AN, "Discharging A Coolant Recovery Tank To Cooling Tower Blowdown" and COMPLETE Step IV.D.1 (includes steps 1a & 1b)
  - Document the results of your approval in appropriate steps of 1OM-17.4.AN, **AND** in the block below. ENSURE **ALL** RESULTS ARE DOCUMENTED.

**RESULTS:**

- ☐
- 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 NUMBER: 1AD-023 JPM REVISION: 0	JPM TITLE: Review/Approve LW Discharge (SRO ONLY)
--	---

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
<p>1.C After the RWDA-L has been generated by Radiation Protection, have the SM <b>OR</b> US review the RWDA-L to confirm the following:</p> <p>The tank data is correct.</p>	<p>1.1C Refers to Tank Curve Book and 1OM-17.4.AN and determines that the tank data is <b>INCORRECT</b> on RWDA-L-00811. The correct volume for 12 feet should be 78,000 gals. <b>NOT</b> 72,000 gals.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>EVALUATOR NOTE:</b> Candidate may also refer to recirculation time of the tank. The recirculation time is more than the minimum required.</p> </div> <p>COMMENTS:</p>	
<p>2. Confirm the RWDA-L has been Peer Reviewed by Radiation Protection or Environmental/Chemistry.</p>	<p>2.1 Verifies Rad Pro has signed the Peer Reviewed Signature on the RWDA-L</p> <p>COMMENTS:</p>	
<p>3.C Confirms all hand calculations are correct.</p>	<p>3.1C Determines that the alternate radiation Alarm setpoint calculation is <b>INCORRECT</b>.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>EVALUATOR NOTE:</b> 11000/35 X 542 should equal <math>1.70\text{E}^{-5}</math> <b>NOT</b> <math>1.55\text{E}^{-6}</math>  <b>AND</b> this also makes <math>1.70\text{E}^{-6}</math> X .7 <b>INCORRECT</b>.          (should be <math>1.70\text{E}^{-5}</math> X .7 = <math>1.19\text{E}^{-5}</math>)</p> </div> <p>COMMENTS:</p>	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-023  
JPM REVISION: 0

JPM TITLE: Review/Approve LW Discharge (SRO ONLY)

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
<p>4. Verify the effective period for the RWDA-L has <b>NOT</b> expired.</p>	<p>4.1 Determines RWDA-L is still effective.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR NOTE:</b> IAW P&amp;L G on page 3 the RWDA-L is effective for 72 hours from the time the sample was drawn</p> </div> <p>COMMENTS:</p>	
<p>5.C If the tank is <u>NOT</u> acceptable for discharge, an approval signature is <u>NOT</u> required. Mark the RWDA-L VOID, state reason, initial, AND Return the RWDA-L to Radiation Protection. (Otherwise N/A this step).</p>	<p>5.1C In the remarks section places the following information:</p> <p style="padding-left: 40px;">Mark the RWDA-L VOID</p> <p style="padding-left: 40px;"><b>C</b> Tank volume is incorrect.</p> <p style="padding-left: 40px;"><b>C</b> Radiation monitor alarm setpoint calculation is incorrect</p> <p style="padding-left: 40px;">Candidate initials</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUTOR NOTE:</b> Some discretion is required when grading this step of the JPM. It is NOT required to place the exact words listed here for the tank volume and radiation monitor alarm setpoint. However, it is critical the candidate documents all the errors on the form.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> <u>If necessary remind the candidate to perform ALL of Step IV.D.1.</u> (this cue is necessary only if they think they should go no further after finding first issue)</p> </div> <p>COMMENTS:</p>	
	<div style="border: 1px solid black; padding: 5px;"> <p><b>EVALUATOR CUE:</b> That completes this JPM.</p> </div>	
	<p>STOP TIME: _____</p>	

OPERATIONS JOB PERFORMANCE MEASURE (JPM)

TRAINING MATERIAL TITLE: Classify an Event and Determine Protective Action Recommendations

TRAINING MATERIAL NUMBER: 1AD-015

PROGRAM TITLE: Licensed Operator Training

COMPUTER CODE: 1AD-015

REVISION NUMBER: 0

TECHNICAL REFERENCES:

EPP/I-1a, Recognition And Classification of Emergency Conditions, Rev. 13

1/2-EPP-IP-4.1, Offsite Protective Actions, Rev. 28

INSTRUCTIONAL SETTING: Classroom

APPROXIMATE DURATION: 30 Minutes

PREPARED BY: I. Forbes \_\_\_\_\_ Date

PEER REVIEW BY: \_\_\_\_\_ Date

APPROVED FOR USE: \_\_\_\_\_ Date  
Training Supervisor or Designee

## TRAINING MATERIAL CHANGE FORM

Affected Training Materials: 1AD-015		
Type of Change:		
<input type="checkbox"/> Changes Requiring Revision	Learning Objective Related Change? <input type="checkbox"/> Yes <input type="checkbox"/> No	New Rev. # 0
<input type="checkbox"/> Changes Not Requiring Revision	The Change Does Not Impact Learning Objectives or Material Quality.	Existing Rev. # N/A New Change #
List/Description of Change(s):  Original Issue.		
Reason for Change (s):  To expand Unit 1 Admin JPM Infrastructure.		
APPROVALS:		
I. Forbes		<b>NOTE:</b> Additions, deletions or changes to training materials must be reviewed for their possible impact to the Training Qualification Matrix. See Incumbent Impact Review, NOBP-TR-1104.
Prepared by	Date	
Training Superintendent/Supervisor/Peer ( <i>"Changes Not Requiring Revision" only</i> )	Date	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-015 JPM REVISION: 0	JPM TITLE: Classify an Event and Determine Protective Action Recommendations
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K/A REFERENCE: 2.4.40 (4.5)

TASK ID: 1350-004-03-023  
1350-007-03-023

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 SSN:

Time ☒ Yes  
Critical: ☐ No

Allotted Time: 30 Minutes

Actual Time: minutes

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

Comments: \_\_\_\_\_  
\_\_\_\_\_

## OBSERVERS

Name/SSN:

Name/SSN:

Name/SSN:

Name/SSN:

## EVALUATOR

Evaluator (Print): \_\_\_\_\_ Date: \_\_\_\_\_

Evaluator Signature: \_\_\_\_\_



## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-015	JPM TITLE: Classify an Event and Determine Protective Action
JPM REVISION: 0	Recommendations

**EVALUATOR DIRECTION SHEET 1**

## EMERGENCY CLASSIFICATION

**TASK STANDARD:** Determines based on initial conditions and EPP/I-1a that a General Emergency Classification is required per Tab 3.1. This task must be performed within 15 minutes of beginning the JPM.

**RECOMMENDED  
STARTING LOCATION:** Classroom

**DIRECTIONS:** Classify an emergency event using EPP/I-1a.

**INITIAL CONDITIONS:**

- The Unit was operating at 100% power for 160 days.
- Emergency Diesel No. 1 was 12 hours into a maintenance outage to replace the motor driven fuel oil pump and not expected to return for another 16 hours.
- A lightning strike in the switchyard resulted in a loss of offsite power and a reactor trip.
- [ACB 1F9]. Emerg Gen No. 2 Circuit Breaker tripped on overcurrent de-energizing the 4KV 1DF Bus.
- 30 minutes into the event, SPDS displayed the 5 hottest CETs at greater than 730°F and RVLIS Full Range at 30%.
- No 4KV emergency power is expected for at least another 2 hours.

**INITIATING CUE:** As the Emergency Director, you are to evaluate the given plant conditions and determine the **emergency classification** in accordance with EPP/I-1a, Recognition and Classification of Emergency Conditions. Report your results in the box below. (Provided on candidate direction sheet) This JPM is time critical from the time you begin. The Initial Notification Form will NOT be completed for this JPM.

**REFERENCES:** EPP/I-1a, Recognition and Classification of Emergency Conditions, Rev.13

**TOOLS:** NONE

**HANDOUT:** EPP/I-1a, Recognition and Classification of Emergency Conditions, Rev. 13

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-015	JPM TITLE: Classify an Event and Determine Protective Action
JPM REVISION: 0	Recommendations

**EVALUATOR DIRECTION SHEET 2**

## PROTECTIVE ACTION RECOMMENDATIONS

**TASK STANDARD:** Determines the PAR(s) and downwind wedge as specified in JPM steps 4 & 5.

**RECOMMENDED  
STARTING LOCATION:** Classroom

**DIRECTIONS:** Determine Protective Action Recommendations in accordance with 1/2-EPP-IP-4.1

**INITIAL CONDITIONS:** A General Emergency has been declared at Unit 1 at 1200 hours following a small break LOCA and the loss of all 4KV emergency power.  
The following plant conditions exist:

- 35' wind direction is from 270° at 4 MPH.
- 150' wind direction is from 270° at 11 MPH.
- 500' wind direction is from 285° at 15 MPH.
- No radioactive release has occurred or is imminent (within 1 hour).
- Health Physics has provided the following dose projections:  
At the EAB: 11 REM TEDE; 8 REM CDE  
At 5 miles: 0.9 REM TEDE, 2.5 REM CDE  
At 2 miles: 1.5 REM TEDE; 4 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** are necessary. Provide PAR in box below. (Provided on candidate direction sheet)

This JPM is time critical from the time you begin. The Initial Notification Form will NOT be completed for this JPM.

**REFERENCES:** 1/2-EPP-IP-4.1, Offsite Protective Actions, Rev. 28

**TOOLS:** NONE

## OPERATIONS JOB PERFORMANCE MEASURE

**CANDIDATE DIRECTION SHEET 1**

## EMERGENCY CLASSIFICATION

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

Classify an emergency event using EPP/I-1a.

INITIAL CONDITIONS:

- The Unit was operating at 100% power for 160 days.
- Emergency Diesel No. 1 was 12 hours into a maintenance outage to replace the motor driven fuel oil pump and not expected to return for another 16 hours.
- A lightning strike in the switchyard resulted in a loss of offsite power and a reactor trip.
- [ACB 1F9], Emerg Gen No. 2 Circuit Breaker tripped on overcurrent de-energizing the 4KV 1DF Bus.
- 30 minutes into the event, SPDS displayed the 5 hottest CETs at greater than 730°F and RVLIS Full Range at 30%.
- No 4KV emergency power is expected for at least another 2 hours.

INITIATING CUE:

As the Emergency Director, you are to evaluate the given plant conditions and determine the **emergency classification** in accordance with EPP/I-1a, Recognition and Classification of Emergency Conditions. Report your results in the box below. (Provided on candidate direction sheet) This JPM is time critical from the time you begin. The Initial Notification Form will NOT be completed for this JPM.

**EMERGENCY CLASSIFICATION:****TAB:**☐

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

**CANDIDATE DIRECTION SHEET 2**

## PROTECTIVE ACTION RECOMMENDATIONS

\* THIS SHEET TO BE GIVEN TO CANDIDATE \*

☐

Read:

TASK:

Determine Protective Action Recommendations in accordance with 1/2-EPP-IP-4.1

INITIAL CONDITIONS:

A General Emergency has been declared at Unit 1 at 1200 hours following a small break LOCA and the loss of all 4KV emergency power.

The following plant conditions exist:

- 35' wind direction is from 270° at 4 MPH.
- 150' wind direction is from 270° at 11 MPH.
- 500' wind direction is from 285° at 15 MPH.
- No radioactive release has occurred or is imminent (within 1 hour).
- Health Physics has provided the following dose projections:  
At the EAB: 11 REM TEDE; 8 REM CDE  
At 5 miles: 0.9 REM TEDE, 2.5 REM CDE  
At 2 miles: 1.5 REM TEDE; 4 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** are necessary. Provide PAR in box below.  
This JPM is time critical from the time you begin. The Initial Notification Form will NOT be completed for this JPM.

**PAR:**☐

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 NUMBER: 1AD-015 JPM REVISION: 0	JPM TITLE: Classify an Event and Determine Protective Action Recommendations
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STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<div style="border: 1px solid black; padding: 5px;"> <b>EVALUATOR NOTE: Provide the Candidate with the <u>Candidate Direction Sheet #1</u> and a copy of EPP/I-1a, Recognition and Classification of Emergency Conditions. (DO NOT PROVIDE 1/2-EPP-IP-4.1 AT THIS TIME)</b> </div>	
	START TIME: _____	
1.C Correctly classify the emergency event within 15 minutes of recorded start time.	<p>1.1C Candidate classifies the event based on Tab 3.1, Loss of AC (Power Ops) as a General Emergency using the following criteria:</p> <ul style="list-style-type: none"> <li>• AE and DF 4KV emergency buses <u>NOT</u> energized from Unit 1 sources for &gt; 15 minutes, and</li> <li>• Five hottest CETs &gt; 719°F with no RCPs running and <u>RVLIS</u> full range &lt; 40%.</li> </ul> <p>1.2C Completes classification within 15 minutes of recorded start time.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <b>EVALUATOR CUE: In necessary, inform Candidate that the Initial Notification Form will NOT be completed at this time and record stop time for Part 1.</b> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <b>EVALUATOR NOTE: This JPM is conducted in two (2) parts. Once the Candidate determines the emergency classification, then administer the PAR section of the JPM.</b> </div> <p>COMMENTS:</p>	
	CLASSIFICATION STOP TIME: _____	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-015	JPM TITLE: Classify an Event and Determine Protective Action Recommendations
JPM REVISION: 0	

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	<b>EVALUATOR NOTE: Provide the Candidate with Candidate Direction Sheet #2 and a copy of 1/2-EPP-IP-4.1, Offsite Protective Actions.</b>	
	PAR START TIME: _____	
	<b>EVALUATOR CUE: Record start time after providing candidate with Direction Sheet # 2.</b>	
2. Locate Offsite Protective Action Recommendation Flowchart.	2.1 Refers to 1/2-EPP-IP-4.1, Attachment A, Offsite Protective Action Recommendation Flowchart.  COMMENTS:	
3. Determine offsite protective action.	3.1 Navigates PAR flowchart as follows: <ul style="list-style-type: none"> <li>• General Emergency already declared (↓)</li> <li>• Met data provided in Initial Conditions (↓)</li> <li>• None of the following are TRUE (↓):               <ul style="list-style-type: none"> <li>➤ 35' wind speed LESS than 2 MPH (or unavailable)?</li> <li>➤ Is either 150' or 500' wind directions unavailable?</li> <li>➤ The difference between the 150' &amp; 500' wind directions is <math>\geq 165</math> and <math>\leq 195</math> degrees? (opposite wind directions) or unavailable?</li> <li>➤ Release (other than a non-routine minor release below Federally approved operating limits or wholly comprised of tritium) has started or is imminent. (within one hour)</li> <li>➤ Release transport will span sunrise or sunset hours.</li> </ul> </li> </ul> COMMENTS:	

## OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 1AD-015	JPM TITLE: Classify an Event and Determine Protective Action Recommendations
JPM REVISION: 0	

STEP ( "C" Denotes CRITICAL STEP )	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
4.C Determine Offsite Protective Action Recommendations.	<p>4.1C Determines the following PARs:</p> <ul style="list-style-type: none"> <li>• Evacuate 2 miles, 360 degrees, and</li> <li>• Evacuate 5 miles downwind wedge, and</li> <li>• Shelter the remainder of 10 mile EPZ, and</li> <li>• Advise the general public to administer KI</li> </ul> <p><b>EVALUATOR CUE: If necessary, direct the Candidate to perform the downwind wedge determination as part of the PAR.</b></p> <p>COMMENTS:</p>	
5.C Determine downwind wedge.	<p>5.1 Determines that the 150' elevation downwind sectors are "CDEFG".</p> <p>5.2 Determines that the 500' evaluation downwind sectors are "DEFGH".</p> <p>5.3C Determines that the combined sectors are "CDEFGH".</p> <p>5.4C Completes PAR determination within 15 minutes of recorded start time.</p> <p><b>EVALUATOR CUE: If necessary, inform the Candidate that the Initial Notification Form will NOT be completed at this time.</b></p> <p>COMMENTS:</p>	
	<p><b>EVALUATOR CUE: When the candidate completes the Protective Action Recommendation, the evaluation for this JPM is complete. Grader discretion required.</b></p>	
	PAR STOP TIME: _____	