JPM NUMBER: 2AD-016 JPM REVISION: 0	JPM TITLE: Plot and Evaluate 1/M Data

K/A REFERENCE: 2.1.43 4.1/4.3 TASK ID: 0011-003-01-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☐ FAULTED JPM ☒ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Determine that 1/M data predicts >500 pcm below ECP value for critical rod height. Notify SM/US that appropriate actions of 2OM-50.4.D must be taken. (No further rod withdrawal)
RECOMMENDED STARTING LOCATION:	Classroom
DIRECTIONS:	You are to perform the task Evaluate 1/M data
INITIAL CONDITIONS:	The unit is in Mode 2. A reactor startup is in progress. Control Bank C is at 129 steps. Control Bank D is at 1 step. RCS Boron concentration is 1875 ppm.
INITIATING CUE:	The Unit Supervisor directs you to complete the 1/M plot per 2OM-50.4.F data sheet 3 using the SR count rate data provided. Compare the 1/M data with the predicted ECP data and make a recommendation for further rod withdrawal. Document your recommendation in the box below. (Located on candidate direction sheet)
REFERENCES:	2OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev. 7
TOOLS:	Calculator; Ruler/straight edge.
HANDOUT:	2OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev. 7 partially completed Data Sheet 3 & Figure 1

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Evaluate 1/M data

INITIAL CONDITIONS:
The unit is in Mode 2.
A reactor startup is in progress.
Control Bank C is at 129 steps.
Control Bank D is at 1 step.
RCS Boron concentration is 1875 ppm.

INITIATING CUE: The Unit Supervisor directs you to complete the 1/M plot per 2OM-50.4.F data sheet 3 using the SR count rate data provided. Compare the 1/M data with the predicted ECP data and make a recommendation for further rod withdrawal. Document your recommendation in the box below.

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: 2AD-016 JPM REVISION: 0	JPM TITLE: Plot and Evaluate 1/M Data

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
1. Refer to data sheet 3	1.1 Applicant refers to data sheet 3 for count rate data. COMMENTS:	
2.C Refer to 1/M plot	2.1C Candidate evaluates count rate data from data sheet 3 and plots on the 1/M for 300, 325, 375, AND 385 total steps. **EVALUATOR NOTE: See attached Answer Key for 1/M plot values.** COMMENTS:	
3.C Evaluate 1/M plot data	3.1C Applicant determines that the 1/M plot predicts criticality >500 pcm below ECP. Maximum rod height is Bank D at 40 steps versus ECP of Bank D 101 steps. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-016 JPM REVISION: 0	JPM TITLE: Plot and Evaluate 1/M Data

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
4.**C** Inform SM/US	4.1**C** Applicant informs SM/US that 1/M data indicates that criticality will occur >500 pcm below the ECP. Recommend NO FURTHER ROD WITHDRAWALS. COMMENTS: **TERMINATING CUE: When the applicant makes a recommendation on continued startup, the evaluation for this JPM is complete.**	
	STOP TIME: _____	

JPM NUMBER: 2CR-558 JPM REVISION: 1	JPM TITLE: Perform the Daily Heat Balance

K/A REFERENCE: 015 A1.01 3.5/3.8
193007K1.08 3.1/3.4
2.1.7 4.4/4.7

TASK ID: 0021-009-06-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☒ FAULTED JPM ☒ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	The daily heat balance calculation is calculated and the required Power Range instrument gain adjustments are identified as specified in the Answer Key.
RECOMMENDED STARTING LOCATION:	Control Room
DIRECTIONS:	You are to perform the task Calculating the Daily Heat Balance.
INITIAL CONDITIONS:	The Unit is in Mode 1. Tavg matches Tref and power has been stable for at least 30 minutes. The plant computers are **UNAVAILABLE**.
INITIATING CUE:	The Unit Supervisor directs you to perform a daily heat balance in accordance with 2OM-54.4.C1, Daily Heat Balance, Part D, to comply with the Tech Spec Surveillance Logs. Perform steps D1 thru D6 and report the results. The LEFM Channel Check has been performed satisfactorily.
REFERENCES:	2OM-54.4.C1, Daily Heat Balance, Rev. 19
TOOLS:	Calculator Steam Tables
HANDOUT:	2OM-54.4.C1, Daily Heat Balance, Rev. 19 Plant Parameters Data Sheet

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task of Calculating a Daily Heat Balance.

INITIAL CONDITIONS: The Unit is in Mode 1. Tavg matches Tref and power has been stable for at least 30 minutes. The plant computers are **UNAVAILABLE**.

INITIATING CUE: The Unit Supervisor directs you to perform a daily heat balance in accordance with 2OM-54.4.C1, Daily Heat Balance, Part D, to comply with the Tech Spec Surveillance Logs. Perform steps D1 thru D6 and report the results. The LEFM Channel Check has been performed satisfactorily.

☐ 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: 2CR-558 JPM REVISION: 1	JPM TITLE: Perform the Daily Heat Balance

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	Simulator Setup: Simulator is not required for this JPM performance, a Plant Parameter Data sheet is to be provided to each candidate. **EVALUATOR NOTE:** Plant Parameter Data Sheet to contain the following; ▪ S/G Blowdown flow ΔP in Inches H_2O ▪ Power Range NI indications ▪ Feedwater Temperature from LEFM ▪ 10 min avg Feedwater Mass Flow rate from LEFM ▪ S/G Steam Pressures	
1. Candidate locates appropriate procedure.	1.1 Provide candidate with a copy of 2OM-54.4.C1 and a plant parameter data sheet. **EVALUATOR NOTE:** Procedure can be provided to candidate, if provided, N/A this JPM step. COMMENTS:	
2. Gathers the necessary data.	2.1. Candidate records ΔP's from plant parameter data sheet. 2.2. Candidate records NIS Indicated power levels from the plant parameter data sheet. **EVALUATOR NOTE:** Part "A" of procedure can be completed prior to providing to candidate, if previously completed, N/A this JPM step. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-558 JPM REVISION: 1	JPM TITLE: Perform the Daily Heat Balance

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
3. Candidate notes that a LEFM Channel check is required.	3.1 Candidate notes that per the initial conditions, a Channel Check has been performed. **EVALUATOR CUE:** If candidate asks question, restate that a Channel Check has been previously performed per the initial conditions. COMMENTS:	
4. Converts S/G blowdown flow from ΔP in Inches H_2O to "lbm/hr"	4.1 Candidate converts each S/G blowdown flow from ΔP in Inches H_2O to "lbm/hr" COMMENTS:	
5. Obtain and record appropriate plant data. All required data is provided on the plant parameter data sheet.	5.1 Candidate records data from the plant parameter data sheet 5.2 Records the LEFM Feedwater temperature. 5.3 Records the LEFM Feedwater Mass Flow Rate. 5.4 Records the S/G Steam pressures and converts to PSIA. 5.5 Records the S/G Blowdown flowrates previously calculated. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-558 JPM REVISION: 1	JPM TITLE: Perform the Daily Heat Balance

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
6.**C** Perform calculations.	6.1**C** Candidate calculates the average steam pressure for all 3 S/G's by adding all 3 indications and dividing by 3. 6.2**C** Candidate calculates the total S/G Blowdown mass flowrate by adding all 3 S/G blowdown flowrates together. 6.3**C** Candidate calculates the total Steam Mass flowrate by subtracting the total blowdown mass flowrate from the feedwater mass flowrate. COMMENTS:	
7.**C** Obtain Enthalpy's	7.1**C** Candidate obtains the steam enthalpy (h_{ST}) from the saturated steam table using "h_g" at the calculated average steam pressure. 7.2**C** Candidate obtains blowdown enthalpy (h_{BD}) of the blowdown from each steam generator by determining "h_f" for saturated fluid, based on the respective steam generator steam pressure. 7.3**C** Candidate obtains feedwater enthalpy (h_{FW}) by determining the "h_f" for saturated fluid, based on the LEFM feedwater temperature COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-558 JPM REVISION: 1	JPM TITLE: Perform the Daily Heat Balance

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
8.**C** Determine the Heat Transfer	8.1**C** Candidate multiplies the total steam mass flow rate times the steam enthalpy. 8.2**C** Candidate multiplies the blowdown mass flow rate from each steam generator times the respective blowdown enthalpy for each steam generator. 8.3**C** Candidate adds the blowdown mass flow rates for each steam generator 8.4 **C** Candidate multiplies the total feedwater mass flow rate times the feedwater enthalpy. COMMENTS:	
9.**C** Determine the NET reactor power.	9.1**C** Candidate calculates the RCS Output by adding the Steam and blowdown heat transfers **AND THEN** subtracting the Feedwater heat transfer. 9.2**C** Candidate calculates the Net Reactor Power by subtracting "33.105" from the RCS Output. 9.3**C** Candidate calculates the Megawatt Thermal by multiplying the Net Reactor Power times "10^{-6}" **AND** then dividing the resultant by "3.413". 9.4**C** Candidate calculates the "% Reactor Power" by dividing the Megawatt Thermal by "2900" **AND** then Multiplying the resultant by "100%". COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-558 JPM REVISION: 1	JPM TITLE: Perform the Daily Heat Balance

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
10. Review the results	10.1 Candidate compares the calculated power level to 2900 MWt and determines that 2OM-52.2.A does not need to be referred to for limitations on power. **EVALUATOR CUE:** Power is less than 2900 MWt. COMMENTS:	
11.C Determine if Power Range Channels gain adjustment s necessary. **EVALUATOR NOTE:** Alternate Path, Gain adjustment will be required to successfully complete JPM.	11.1C Candidate reviews criteria and determines that a gain adjustment will be required. **EVALUATOR NOTE:** The Criteria and required NI(s) needing gain adjustment is dependant upon the data given in the particular plant parameter data sheet. COMMENTS:	
12. Determine if calculated power is less than 70%	12.1 Candidate determines that calculated power level is greater than 70% therefore I&C does NOT need to reduce the Setpoints to 85%. **EVALUATOR NOTE:** Candidate should N/A the step. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-558 JPM REVISION: 1	JPM TITLE: Perform the Daily Heat Balance

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
13.**C** Complete table check marks for NI's needing adjustment.	13.1**C** Candidate completes procedure table with check marks in the appropriate locations for each NI. **EVALUATOR NOTE:** The required NI(s) needing gain adjustment is dependant upon the data given in the particular plant parameter data sheet. COMMENTS:	
14. Candidate requests review and approval of Heat Balance results.	14.1 Candidate reports to the SM/US the results of the Heat Balance and which specific NI's need gain adjustment. 14.2 Candidate requests that the results be reviewed and approved prior to NI Gain adjustment. **EVALUATOR CUE:** Report to candidate that another operator will review the heat balance results prior to performing NI Gain adjustment. **EVALUATOR NOTE:** Grader discretion is required when evaluating calculations. COMMENTS:	
	STOP TIME: _____	

JPM NUMBER: 2AD-017 JPM REVISION: 0	JPM TITLE: Prepare a Clearance Tagout (2SWE*P21B)

K/A REFERENCE: 2.2.13 (3.6) TASK ID: 0481-020-03-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☐ FAULTED JPM ☒ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 25 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Identify the tags and sequence of placement for a tagout of 2SWE*P21B Standby Service Water Pump.
RECOMMENDED STARTING LOCATION:	Classroom
DIRECTIONS:	You are to perform the task Prepare a Clearance Tagout
INITIAL CONDITIONS:	The plant is in Refueling Mode, no fuel is in the reactor. 2SWE*P21B Standby Service Water Pump is to be placed on clearance. Service Water Pumps 2SWS*P21A **AND** B are Operable and running. 2SWE*P21A Standby Service Water Pump is operable.
INITIATING CUE:	You are to identify the required clearance points (equipment), position (placement configuration), and sequence for clearing 2SWE*P21B Standby Service Water Pump for re-torque of valve 2SWE-308 Drain Isolation On Discharge At (2SWE-P21B) IAW the attached clearance coversheet. SOMS is out of service. Document your results on the table provided.
REFERENCES:	NOBP-OP-1001, Clearance Program, Rev. 0 NOP-OP-1001, Clearance/Tagging Program, Rev. 9
TOOLS:	None
HANDOUT:	NOBP-OP-1001, Clearance Program, Rev. 0 NOP-OP-1001, Clearance/Tagging Program, Rev. 9 OP Manual Fig. No. 30-1A, 10080-RM-430-1A, Rev. 4 OM Chapter 2OM-30.3.C, Power Supply and Control Switch Checklist. Clearance coversheet 2WO2-30-SWE-008

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Prepare a Clearance Tagout

INITIAL CONDITIONS: The plant is in Refueling Mode, no fuel is in the reactor. 2SWE*P21B Standby Service Water Pump is to be placed on clearance. Service Water Pumps 2SWS*P21A **AND** B are Operable and running. 2SWE*P21A Standby Service Water Pump is operable.

INITIATING CUE: You are to identify the required clearance points (equipment), position (placement configuration), and sequence for clearing 2SWE*P21B Standby Service Water Pump for re-torque of valve 2SWE-308 Drain Isolation On Discharge At (2SWE-P21B) IAW the attached clearance coversheet. SOMS is out of service. Document your results on the table provided.

☐ 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.

Component to be Worked:

WE-308

DRAIN ISOL ON DISCHARGE AT (2SWE-P21B)

2-AISX-705--

Description /Reason

200189213 RETORQUE VALVE PACKING

Placement Notes

MECH. MAINT. CLEARANCE

Cautions

REMOVES 2SWE-P21B FROM SERVICE
Valve retorque requires 2SWE-308 to be opened. System depressurized, not drained.

Completion Instructions /Feedback

Verify pump operability.

Clearance Attributes:

Attribute Description	Attribute Value
Equipment Required For Mode Change	No
Restored/Removed Prior to Mode	NOT APPLICABLE
ESF Clearance Required	No
Schedule	2W02
Clearance Type	Danger
ne to Post (In Minutes)	
Time to Remove (In Minutes)	
Impacts Reactivity	No
Time for Draining/Venting (In Minutes)	
Time for Filling/Venting (In Minutes)	
Crew Size for Draining	
Crew Size for Filling	
Posting Pre-Job Brief Card completed	
Removal Pre-Job Brief Card completed	
Regulatory Applicability Determination #	

Work Documents List: *12 WEEK SCHEDULE - RETORQUE VALVE PACKING 18 Month retorque valve was repacked to 200105844. The as left torque was 2 foot-lbs. Available gland height 5/16".

Clearance Verification:

Status	Description	Name	Verification Date
Prepared	Prepared By		
Reviewed	Reviewed By		
Second Reviewed	Second Reviewed By		
Approved	Approved By		
Issued for Work	Issued for Work By		
Restoration Review	Restoration Review By		
Removal Authorized	Removal Authorized By		
Clearance Closed	Clearance Closed By		

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-017 JPM REVISION: 0	JPM TITLE: Prepare a Clearance Tagout (2SWE*P21B)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	START TIME: _____	
	EVALUATOR NOTE: This task is normally performed using the SOMS clearance computer and signed electronically. For this JPM, the SOMS computer is NOT available. **EVALUATOR NOTE: Provide JPM handout and student copy of table.**	
1.**C** Candidate completes the table.	1.1**C** Candidates table matches the ANSWER KEY. COMMENTS: **TERMINATING CUE: When the candidate identifies and reports that all tags are identified, the evaluation for this JPM is complete.**	
	STOP TIME: _____	

ANSWER KEY (DO NOT GIVE TO STUDENTS)

Component ID	Component Description	Position	Sequence
2SWE*P21B-CS (AE)	Control Switch for Standby Service Water Pump 2SWS*P21C (AE)	Pull-To-Lock (PTL)	1
4KVS-2DF-2F19	Supply to Standby Service Water Pump 2SWE*P21B	Racked Out	2
SWE-224	Disch Isol Valve	Shut	3
SWE-260	Seal WTR Supply to STBY SW PP (2SWE-P21B) Isol	Shut	3
SWE-228	Disch Isol Valve To Screen Wash	Shut	3
SWE-308	Drain Isol On Discharge At 2SWE-P21B	Open	4

Evaluator NOTE: Student may identify additional points. The points listed above are the minimum required for this JPM. All additional points must be evaluated to ensure the clearance is correct.

STUDENT COPY

Component ID	Component Description	Position	Sequence

JPM NUMBER: 2AD-018 JPM REVISION: 0	JPM TITLE: Respond to a Radiation Monitor Alarm

K/A REFERENCE: 2.3.11 3.8 TASK ID: 0171-016-01-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☒ FAULTED JPM ☒ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 10 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Liquid Waste Eff Isol Vlv 2SGC-HCV100 is CLOSED and SG Blowdown Test Tank Pump 2SGC-P26B is stopped. RWDA-L Discharge Stop Data is documented.
RECOMMENDED STARTING LOCATION:	Simulator
DIRECTIONS:	You are to perform the task Respond to a Radiation Monitor Alarm.
INITIAL CONDITIONS:	Unit 2 is Mode 3 with the Shutdown banks withdrawn. A liquid waste discharge of Steam Generator Blowdown Test Tank 2SGC-TK23B is in progress to Unit 1 blowdown. A Discharge permit (RWDA-L – 99999T) has been issued for this discharge. A4-5C, Radiation Monitoring Level High alarm has been received in the control room.
INITIATING CUE:	The Unit Supervisor directs you to respond to the Radiation Monitoring Level High alarm in accordance with plant procedures.
REFERENCES:	2OM-43.4.AEE Rev. 5 2OM-43.4.AAC Rev. 1 2OM-43.4.ACC Rev. 4
TOOLS:	None
HANDOUT:	RWDA-L-99999T filled out up to the discharge in progress point. 2OM-25.4.L, Discharging Steam Generator Blowdown Evaporator Test Tank [2SGC-TK23A(B)] Contents To Cooling Tower Blowdown filled out up to the discharge in progress point.

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Respond to a Radiation Monitor Alarm.

INITIAL CONDITIONS: Unit 2 is Mode 3 with the Shutdown banks withdrawn. A liquid waste discharge of Steam Generator Blowdown Test Tank 2SGC-TK23B is in progress to Unit 1 blowdown. A Discharge permit (RWDA-L – 99999T) has been issued for this discharge. A4-5C, Radiation Monitoring Level High alarm has been received in the control room.

INITIATING CUE: The Unit Supervisor directs you to respond to the Radiation Monitoring Level High alarm in accordance with plant procedures.

☐ 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: 2AD-018 JPM REVISION: 0	JPM TITLE: Respond to a Radiation Monitor Alarm

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	Simulator Setup: **POST GREEN MAGNETIC PLACARD FOR SITE LIQUID WASTE DISCHARGE IN PROGRESS** Mode 3 Snap (IC-240 for 2LOT6 NRC exam) 1. Setup a LW discharge of 2SGC-TK23B using 2SGC-P26B, SG Blowdown Test Tank Pump. 2. Set ALERT setpoint of 2SGC-RQ100 to 1.22E-3 μCi/ml (1065 sel; channel items; 122-3 enter) 3. Set HIGH setpoint of 2SGC-RQ100 to 1.74E-3 μCi/ml. (174-3 enter) 4. Start sample pump. 5. Insert a failure to prevent 2SGC-HCV100 Liquid Waste Eff Isol Vlv. from AUTO closing on HIGH alarm from 2SGC-RQ100. 6. Insert malfunction to raise 2SGC-RQ100 above the high alarm setpoint. 7. Verify A4-5C, Radiation Monitoring Level High alarms Items 2, 3, and 4 will need to be done each time the simulator is reset. (they do not carryover in the IC)	
1. Applicant refers to ARP for A4-5C, Radiation Monitoring Level High 2OM-43.4.AAC.	1.1 Locates and refers to 2OM-43.4.AAC. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-018 JPM REVISION: 0	JPM TITLE: Respond to a Radiation Monitor Alarm

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
2. Perform the following at the RM-11 operators console: Press the grid 6 pushbutton AND Determine which radiation monitor in alarm (blinking and has turned red).	2.1 At DRMS panel depresses Grid 6 2.2 Verifies 1LX065 is blinking and RED COMMENTS:	
	EVALUTOR NOTE: The four digit number is the radiation monitor number less the letters (i.e. 1PA234 will be 1234).	
3. Type in the 4-digit numerical code number of the alarming monitor **AND** Press the SEL pushbutton.	3.1 Types 1065 on DRMS keyboard **AND** depresses the SEL pushbutton COMMENTS:	
4. Press the STATUS pushbutton.	4.1 Depresses the STATUS pushbutton on the DRMS keyboard. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-018 JPM REVISION: 0	JPM TITLE: Respond to a Radiation Monitor Alarm

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
5. Press SYSTEM ACK to silence the console alarm.	5.1 Depresses the SYSTEM ACK pushbutton on the DRMS keyboard. COMMENTS:	
6. If any radiation monitor is at **OR** approaching, 1000 times normal background, Immediately notify the SM/US **AND** Refer to 1/2OM-57, "Emergency Preparedness Plan" for further actions.	6.1 N/A **EVALUTOR CUE:** Role-play SM/US and inform the candidate that 2SGC-RQ100 is **NOT** 1000 times normal background. COMMENTS:	
7. Refer to local alarm response procedures 2OM-43.4.ACN through 2OM-43.4.AEJ and 2OM-43.4.AEL for corrective actions.	**EVALUTOR NOTE:** Candidate may also refer to 2OM-43.4.ACC in the next step. This would be acceptable. (This procedure also contains the "Critical" steps necessary to isolate the LW discharge). 7.1 Refers to 2OM-43.4.AEE. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-018 JPM REVISION: 0	JPM TITLE: Respond to a Radiation Monitor Alarm

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
8.**C** If a high radiation condition is suspected in [2SGC-TK23B]: Verify Closed [2SGC-HCV100], Liquid Waste Eff Isol Vlv. (BB-A).	8.1 Verifies 2SGC-HCV100 Liquid Waste Eff High Rad Isol Vlv Green light NOT LIT and RED light LIT 8.2**C** Rotates 2SGC-HIC100 Liquid Waste Eff High Rad Isol Vlv Controller counterclockwise until demand output is ZERO. 8.3 Verifies 2SGC-HCV100 Liquid Waste Eff High Rad Isol Vlv Green light - LIT and RED light - NOT LIT COMMENTS:	
9.**C** Stop [2SGC-P26A(B)], SG Blowdown Test Tank Pumps (BB-A).	9.1**C** Places CS for SG Blowdown Test Tank Pump 2SGC-P26B to STOP COMMENTS:	
10. Notify Health Physics.	10.1 Contacts Health Physics to inform them that the discharge was secured due to High Alarm on 2SGC-RQ100. **EVALUTOR CUE:** Role-play Health Physic and acknowledge the report. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-018 JPM REVISION: 0	JPM TITLE: Respond to a Radiation Monitor Alarm

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
11. Have chemistry sample the contents of the in service SG Blowdown Test Tank to verify high radiation condition.	11.1 Contacts Chemistry to inform them that the discharge was secured due to High Alarm on 2SGC-RQ100 AND request SG Blowdown Test Tank to verify high radiation condition. **EVALUTOR CUE:** Role-play Chemistry and acknowledge the report. COMMENTS:	
	EVALUTOR CUE: Role-play SM/US and direct the candidate to complete the required documentation on the RWDA-L for stopping the discharge. **EVALUTOR NOTE:** The guidance for completing the RWDA-L documentation is contained in 2OM-25.4.L Attachment D.	
12.**C** Record the following on the RWDA-L at the "Discharge Stop" • Date • Time • Tank Level	12.1**C** Records the following information on space provided on the RWDA-L • Date • Time • Tank Level equal to **CURRENT VALUE** in inches • Initials COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-018 JPM REVISION: 0	JPM TITLE: Respond to a Radiation Monitor Alarm

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
13.**C** Calculates the volume discharged and records on the RWDA-L at the "Discharge Stop"	13.1 Determines volume discharged by subtracting current volume for **CURRENT VALUE** in inches from original volume of 17, 705 13.2 IAW Table 1 on page 29 of 2OM-25.4.L **CURRENT VALUE** in inches equals **XXXX** gals. 13.3 17, 705 – **XXXX** = **YYYY** gals 13.4**C** Records **YYYY** gals on RWDA-L COMMENTS: **EVALUTOR NOTE:** The tank level may be different each time this JPM is performed depending on how quickly the candidate isolates the flowpath. It will be necessary to observe tank level to determine total volume discharged. Use Table 1 on page 29 of 2OM-25.4.L to calculate the total volume.	
	EVALUTOR CUE: That completes this JPM.	
	STOP TIME: _____	

JPM NUMBER: 2AD-019 JPM REVISION: 0	JPM TITLE: Plot and 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:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:		Performer SSN:
Time Critical: ☐ Yes ☒ No	Allotted Time: 20 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD: Determine that 1/M data predicts >500 pcm below ECP value for critical rod height. Determines No further rod withdrawal will be allowed, and the following actions must be taken:

- Insert all control rods to 0 Steps.
- Verify RCS Boron Concentration.
- Verify SDM
- DO NOT recommence S/U without Plant Manager approval.

RECOMMENDED STARTING LOCATION: Classroom

DIRECTIONS: You are to perform the task Evaluate 1/M data.

INITIAL CONDITIONS: The Unit is in Mode 2.
A reactor startup is in progress.
Control Bank C is at 129 steps.
Control Bank D is at 1 step.
RCS Boron concentration is 1875 ppm.

INITIATING CUE: The Unit Supervisor directs you to complete the 1/M plot per 2OM-50.4.F data sheet 3 using the SR count rate data provided. Compare the 1/M data with the predicted ECP data and determine actions related to further rod withdrawal. Document any recommended actions in the box below. (Located on the candidate direction sheet)

REFERENCES: 2OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, Rev. 49
2OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev. 7

TOOLS: None

HANDOUT: 2OM-50.4.F, Performing An Estimated Critical Position Calculation, Rev. 7 partially completed
Data Sheet 3 & Figure 1
2OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, Rev. 49

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Evaluate 1/M data.

INITIAL CONDITIONS:
The Unit is in Mode 2.
A reactor startup is in progress.
Control Bank C is at 129 steps.
Control Bank D is at 1 step.
RCS Boron concentration is 1875 ppm.

INITIATING CUE: The Unit Supervisor directs you to complete the 1/M plot per 2OM-50.4.F data sheet 3 using the SR count rate data provided. Compare the 1/M data with the predicted ECP data 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: 2AD-019 JPM REVISION: 0	JPM TITLE Plot and Evaluate 1/M Data and Determine Required Actions (SRO Only)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
1. Refer to Data sheet 3.	1.1 Applicant refers to data sheet 3 for count rate data. COMMENTS:	
2.**C** Refer to 1/M plot.	2.1**C** Candidate evaluates count rate data from data sheet 3 and plots on the 1/M for 300, 325, 375, AND 385 total steps. **EVALUATOR NOTE: See Attached Answer Key for 1/M plot values.** COMMENTS:	
3.**C** Evaluate 1/M plot data	3.1**C** Applicant determines that the 1/M plot predicts criticality >500 pcm below ECP. Maximum rod height is Bank D at 40 steps versus ECP of Bank D 101 steps. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-019 JPM REVISION: 0	JPM TITLE Plot and Evaluate 1/M Data and Determine Required Actions (SRO Only)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	EVALUATOR CUE: If necessary ask candidate to provide specific actions required.	
4.**C** Determines action for continued startup IAW 2OM-50.4.D Attachment 3 Action #4.	4.1**C** Applicant determines that 1/M data indicates that criticality will occur >500 pcm below the ECP. • Immediately insert ALL control banks to ZERO steps. • Verify RCS boron concentration. • Perform 2OST-49.2, "Shutdown Margin Calculation (Plant Shutdown)". • Notify the Plant General Manager or designee. • Notify Reactor Engineering to evaluate the initial ECP and all applicable calculation data. • Recalculate the ECP. • Subsequent reactor startup is NOT permitted without Plant General Manager permission. **TERMINATING CUE: When the applicant makes a recommendation on continued startup, the evaluation for this JPM is complete.** COMMENTS:	
	STOP TIME: _____	

JPM NUMBER: 2AD-025 JPM REVISION: 0	JPM TITLE: Prepare Partial OST [2OST-6.6] for Performance (SRO ONLY)

K/A REFERENCE: 2.1.20 4.6 TASK ID: 1320-006-03-023

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☐ FAULTED JPM ☒ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 15 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	All steps of 2OST-6.6 that relate specifically to 2RCS*MOV537 are omitted or marked N/A. (Answer Key provided to assist in this evaluation)
RECOMMENDED STARTING LOCATION:	Classroom
DIRECTIONS:	You are to perform the task Prepare a Partial OST for Performance.
INITIAL CONDITIONS:	Unit 2 is at 100% power. 2OST-6.6, PORV Isolation Valve Test and Position Check is on the Work Implementation Schedule (WIS) and is scheduled to be performed on your shift. PRZR PORV 2RCS*PCV455D is INOPERABLE but CAPABLE of being manually cycled. Technical Specification 3.4.11 required action A.1 has been completed and PORV 455D Motor Operated Isol Vlv 2RCS*MOV537 is CLOSED. All PORV Motor Operated Isol Vlvs were last stroked 70 days ago. The last ASME Valve remote position indication verification was performed 90 days ago on ALL PORV Motor Operated Isol Vlv.
INITIATING CUE:	As the Shift manager, IAW the guidance provided in NOP-LP-2601, Procedure Use And Adherence steps 4.5.5 and 4.5.6, Prepare 2OST-6.6, PORV Isolation Valve Test and Position Check for a Partial OST Performance. PORV 455D Motor Operated Isol Vlv 2RCS*MOV537 will NOT be stroke tested. Return the marked-up OST to the evaluator (Assume the evaluator will perform the second licensed SRO concurrence of your mark-ups).
REFERENCES:	NOP-LP-2601, Procedure Use And Adherence (Rev. 1) 2OST-6.6, PORV Isolation Valve Test and Position Check (Rev. 18)
TOOLS:	None
HANDOUT:	NOP-LP-2601, Procedure Use And Adherence (Rev. 1) 2OST-6.6, PORV Isolation Valve Test and Position Check (Rev. 18)

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Prepare a Partial OST for Performance.

INITIAL CONDITIONS: Unit 2 is at 100% power. 2OST-6.6, PORV Isolation Valve Test and Position Check is on the Work Implementation Schedule (WIS) and is scheduled to be performed on your shift. PRZR PORV 2RCS*PCV455D is INOPERABLE but CAPABLE of being manually cycled. Technical Specification 3.4.11 required action A.1 has been completed and PORV 455D Motor Operated Isol Vlv 2RCS*MOV537 is CLOSED. All PORV Motor Operated Isol Vlvs were last stroked 70 days ago. The last ASME Valve remote position indication verification was performed 90 days ago on ALL PORV Motor Operated Isol Vlv.

INITIATING CUE: As the Shift manager, IAW the guidance provided in NOP-LP-2601, Procedure Use And Adherence steps 4.5.5 and 4.5.6, Prepare 2OST-6.6, PORV Isolation Valve Test and Position Check for a Partial OST Performance. PORV 455D Motor Operated Isol Vlv 2RCS*MOV537 will NOT be stroke tested. Return the marked-up OST to the evaluator. (Assume the evaluator will perform the second licensed SRO concurrence of your mark-ups).

☐ 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: 2AD-025 JPM REVISION: 0	JPM TITLE: Prepare Partial OST [2OST-6.6] for Performance (SRO ONLY)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
1. The Shift Manager or designated SRO shall determine if the section or step will be designated as N/A or whether the section or step shall be performed. The Shift Manager or designated SRO shall document the decision in the official record copy of the procedure.	1.1 Determines based on initial conditions that, All steps related specifically to PORV 455D Motor Operated Isol Vlv 2RCS*MOV537 shall be omitted or marked N/A 1.2 Documents the following on page 3 of the OST under test results: • Circles Partial OST • Writes an explanation documenting why PORV 455D Motor Operated Isol Vlv 2RCS*MOV537 will NOT be performed. **EVALUTOR NOTE:** Completing Test Results section may be deferred until test completion; therefore candidate may NOT perform this step as part of the JPM. This is acceptable. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-025 JPM REVISION: 0	JPM TITLE: Prepare Partial OST [2OST-6.6] for Performance (SRO ONLY)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
2.**C** If the Shift Manager or designated SRO has granted approval, the performer or responsible supervisor shall ensure that the procedure section or step is designated as N/A, initialed and dated.	2.1 **C** Candidate documents the steps that are to be performed and the steps that are **NOT** to be performed on 2OST-6.6 PORV Isolation Valve Test and Position Check. COMMENTS: **EVALUTOR NOTE:** Grader discretion will be required. The "critical" portions of this JPM are to clearly document the steps that are to be performed and the steps that are NOT to be performed. An answer key is provided to assist in evaluating this JPM. Each step that MUST be performed and each step that MUST be marked N/A are identified in this key and are "CRITICAL" steps for the JPM. All other steps are optional.	
	EVALUTOR CUE: That completes this JPM.	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 0	JPM TITLE: Review/Approve Completed Surveillance of RHS 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:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS

Performer Name:	Performer SSN:

Time Critical: ☐ Yes ☒ No	Allotted Time: 10 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

EVALUATOR DIRECTION SHEET

TASK STANDARD:	2RHS*P21B is declared inoperable based on unacceptable Δ P and vibrations.
RECOMMENDED STARTING LOCATION:	Classroom
DIRECTIONS:	You are to perform the task Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria.
INITIAL CONDITIONS:	Unit 2 is in Mode 5 with RCS core exit thermocouple temperatures at 110°F. Surveillance 2OST-10.2 Residual Heat Removal Pump [2RHS*P21B] Performance Test has been completed by the RO and reviewed by the STA.
INITIATING CUE:	Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria. Document the results of your review in the comments section of the cover page.
REFERENCES:	2OST-10.2 Residual Heat Removal Pump [2RHS*P21B] Performance Test. Rev. 10
TOOLS:	None
HANDOUT:	2OST-10.2 Residual Heat Removal Pump [2RHS*P21B] Performance Test (Rev. 10) completed **With unacceptable Δ P and vibrations.**

OPERATIONS JOB PERFORMANCE MEASURE

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK:	You are to perform the task Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria.
INITIAL CONDITIONS:	Unit 2 is in Mode 5 with RCS core exit thermocouple temperatures at 110°F. Surveillance 2OST-10.2 Residual Heat Removal Pump [2RHS*P21B] Performance Test has been completed by the RO and reviewed by the STA.
INITIATING CUE:	Review/Approve completed Surveillance of RHR Pump 2RHS*P21B to determine operability as defined by the acceptance criteria. 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: 2AD-026 JPM REVISION: 0	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
1. Refers to appropriate procedure step.	1.1 Consult the Acceptance Criteria for acceptable performance. COMMENTS:	
2.**C** [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of ASME XI IST Program (**[ITS]** T.S.5.5.4) as follows: Motor Vibration (Data Sheet 1)	2.1 Compares Actual Motor Vibrations on Data Sheet 1 to Acceptable and Alert range. 2.2**C** Determines Motor Inboard (2) Axial is **GREATER THAN** Acceptable and Alert Range COMMENTS:	
3.**C** [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of ASME XI IST Program (**[ITS]** T.S.5.5.4) as follows: Pump Vibration (Data Sheet 1)	3.1. Compares Actual Pump Vibrations on Data Sheet 1 to Acceptable and Alert range. 3.2**C** Determines Pump Inboard (3) Horizontal and Vertical are **BOTH** greater than Acceptable and Alert Range. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 0	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
4.**C** [2RHS*P21B], Residual Heat Removal Pump: Operates within the limits of ASME XI IST Program (**[ITS]**T.S. 5.5.4) as follows: Delta-P (Data Sheet 2)	4.1 Compares calculated Delta P on Data Sheet 2 to Acceptable Range. 4.2**C** Determines calculated Delta P is **LESS THAN** Acceptable Range. COMMENTS:	
5. [2RHS*4], Residual Heat Removal Pump 21B Disch Check Vlv, operates within the requirements of ASME XI IST Program (**[ITS]** T.S. 5.5.4) for forward flow (full-stroke) at a flowrate of 4000 gpm (Step VII.B.9).	5.1 Reviews step VII.B.9 of OST to determine if 4000 gpm was achieved. 5.2 Determines step was completed satisfactorily. COMMENTS:	
6. [2SIS*141], SI Accum Tank 21C Check to Loop C Cold Leg, partial stroke forward flow test. (Check valve operation is acceptable **IF** III.A.1 above is met.) (**[ITS]** T.S. 5.5.4)	6.1 Determines **DOES NOT MEET** Acceptance criteria based on unacceptable Δ P and vibrations. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 0	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
7. RHR heat exchanger outlet temperature indication conforms with the expected temperature based on current plant conditions. (Data Sheet 3)	7.1 Compares the Data from Data sheet 3 to initial conditions of core exit thermocouples of 110°F. 7.2 Determines that these are as expected. COMMENTS:	
8. RHR heat exchanger outlet temperatures and RCS cold leg temperature are within 25°F of each other. (Data Sheet 3).	8.1 Compares Data from Data sheet 3; and, determines that RHR heat exchanger outlet temperatures and RCS cold leg temperature are within 25°F of each other. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-026 JPM REVISION: 0	JPM TITLE: Review/Approve Completed Surveillance of RHS Pump

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
9.**C** Complete the front cover sheet.	9.1 Places a checkmark in the Problems encountered block of cover page. 9.2 Lists the following problems on OST problem sheet: • **C** Motor Inboard (2) Axial vibration is **GREATER THAN** Acceptable and Alert Range • **C** Pump Inboard (3) Horizontal and Vertical vibrations are **BOTH** greater than Acceptable and Alert Range. • **C** Calculated Delta P is **LESS THAN** Acceptable Range. • [2SIS*141], SI Accum Tank 21C Check to Loop C Cold Leg, partial stroke forward flow test. (Check valve operation is unacceptable (Due to problems listed above). COMMENTS:	
	EXAMINER CUE: That completes this JPM	
	STOP TIME: _____	

JPM NUMBER: 2AD-023 JPM REVISION: 0	JPM TITLE: Review/Approve LW Discharge (SRO ONLY)

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:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 15 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	RWDA-L-99999T is **NOT** approved for the following reasons: Wrong tank volume and Wrong alternate radiation monitor alarm setpoint calculation.
RECOMMENDED STARTING LOCATION:	Classroom
DIRECTIONS:	You are to perform the task Review/Approve LW Discharge.
INITIAL CONDITIONS:	Unit 2 is at 100% power. RWDA-L-99999T has been prepared for discharging Steam Generator Blowdown Evaporator Test Tank 2SGC-TK23B. Steam Generator Blowdown Evaporator Test Tank 2SGC-TK23B level is 130 inches. Procedure 2OM-25.4.L, Discharging Steam Generator Blowdown Evaporator Test Tank [2SGC-TK23A(B)] Contents To Cooling Tower Blowdown has been completed through step IV.A.11.
INITIATING CUE:	Approve RWDA-L-99999T IAW procedure 2OM-25.4.L, Discharging Steam Generator Blowdown Evaporator Test Tank [2SGC-TK23A(B)] Contents To Cooling Tower Blowdown step IV.A.12. Document the results of your approval in appropriate steps of 2OM-25.4.L AND in the block below. (Located on candidate direction sheet)
REFERENCES:	2OM-25.4.L, Discharging Steam Generator Blowdown Evaporator Test Tank [2SGC-TK23A(B)] Contents To Cooling Tower Blowdown Rev. 24
TOOLS:	Calculator
HANDOUT:	RWDA-L-99999T filled out with the following errors: 18,000 gal volume for the tank instead of 17,705 gals. Wrong alternate radiation monitor alarm setpoint calculation. ($1.88E^{-3}$ instead of $1.88E^{-4}$ 2OM-25.4.L, Discharging Steam Generator Blowdown Evaporator Test Tank [2SGC-TK23A(B)] Contents To Cooling Tower Blowdown filled out up to step IV.A.12

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 2 is at 100% power. RWDA-L-99999T has been prepared for discharging Steam Generator Blowdown Evaporator Test Tank 2SGC-TK23B. Steam Generator Blowdown Evaporator Test Tank 2SGC-TK23B level is 130 inches. Procedure 2OM-25.4.L, Discharging Steam Generator Blowdown Evaporator Test Tank [2SGC-TK23A(B)] Contents To Cooling Tower Blowdown has been completed through step IV.A.11.

INITIATING CUE: Approve RWDA-L-99999T IAW procedure 2OM-25.4.L, Discharging Steam Generator Blowdown Evaporator Test Tank [2SGC-TK23A(B)] Contents To Cooling Tower Blowdown step IV.A.12.
Document the results of your approval in appropriate steps of 2OM-25.4.L AND in the block below.

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: 2AD-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: _____	
1. After the RWDA-L is approved by Radiation Protection AND Chemistry, have the SM or US review the RWDA-L to confirm the following: Verify that the Unit 1 SM **OR** US has signed the RWDA-L at "Approved By".	1.1 Verifies Unit 1 Shift Manager has signed the appropriate block on the RWDA-L COMMENTS:	
2.**C** The tank data is correct.	2.1**C** Refers to Tank Curve book and determines that the tank data is **INCORRECT**. The correct volume for 130 inches should be 17,705 gals. **NOT** 17,394 gals. **EVALUTOR NOTE:** Candidate may also refer to recirculation time of the tank. The recirculation time is more than the minimum required. COMMENTS:	
3. Verify Chemistry has authorized the RWDA-L.	3.1 Verifies Chemistry has signed the remarks block on the RWDA-L COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-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
4. Verify Radiation Protection has authorized the RWDA-L.	4.1 Verifies Rad Pro has signed the appropriate block on the RWDA-L COMMENTS:	
5.**C** All hand calculations are correct.	5.1**C** Determines that the alternate radiation Alarm setpoint calculation is **INCORRECT**. **EVALUTOR NOTE:** 4000/85 X $4.0E^{-6}$ should equal $1.88E^{-4}$ NOT $1.88E^{-3}$ AND this also makes $1.88E^{-4}$ X .7 INCORRECT. COMMENTS:	
6. Verify the effective period for the RWDA-L has **NOT** expired.	6.1 Determines RWDA-L is still effective. **EVALUTOR NOTE:** IAW P&L I on page 3 the RWDA-L is effective for 72 hours from the time the sample was drawn COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-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
7.**C** If the tank is NOT acceptable for discharge, an approval signature is NOT required. Mark the RWDA-L VOID, state reason, initial, AND Return the RWDA-L to Radiation Protection. (Otherwise N/A this step).	7.1**C** In the remarks section places the following information: • Mark the RWDA-L VOID • Tank volume is incorrect. • Radiation monitor alarm setpoint calculations are incorrect • Candidate initials **EVALUTOR NOTE:** 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. COMMENTS:	
	EVALUTOR CUE: That completes this JPM.	
	STOP TIME: _____	

JPM NUMBER: 2AD-021 JPM REVISION: 0	JPM TITLE: Classify an Emergency Event (Scenario Specific)

K/A REFERENCE: 2.4.41 (4.1) TASK ID: 1350-004-03-023

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☐ FAULTED JPM ☒ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 10 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	The correct EPP classification is made for the associated scenario **AND** all "critical" steps of the initial notification form are correctly completed.
RECOMMENDED STARTING LOCATION:	Simulator
DIRECTIONS:	You are to perform the task Classify An Emergency Event and complete the initial notification form.
INITIAL CONDITIONS:	The simulator scenario just completed.(2LOT6 NRC Exam)
INITIATING CUE:	As the Unit Supervisor, you are to classify the events in the scenario just completed in accordance with EPP/I-1a, Recognition and Classification of Emergency Conditions **AND** complete the initial notification form. For the purpose of filling out the initial notification form the following conditions exist: • The code word is "TANGO" • Unit 1 is at 100% steady state power • Wind direction at 150' is 65° • Wind speed at 35' is 7 mph
REFERENCES:	EPP/I-1a, Recognition and Classification of Emergency Conditions, Rev. 10
TOOLS:	None
HANDOUT:	EPP/I-1a, Recognition and Classification of Emergency Conditions, Rev. 10

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Classify An Emergency Event and complete the initial notification form.

INITIAL CONDITIONS: The simulator scenario just completed.(2LOT6 NRC Exam)

INITIATING CUE: As the Unit Supervisor, you are to classify the events in the scenario just completed in accordance with EPP/I-1a, Recognition and Classification of Emergency Conditions **AND** complete the initial notification form.
For the purpose of filling out the initial notification form the following conditions exist:

- The code word is "TANGO"
- Unit 1 is at 100% steady state power
- Wind direction at 150' is 65°
- Wind speed at 35' is 7 mph

☐ 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: 2AD-021 JPM REVISION: 0	JPM TITLE: Classify an Emergency Event (Scenario Specific)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	EVALUATOR NOTE: The Candidate is being evaluated on classifying the events in the scenario just completed. (2LOT6 NRC Exam) It may be necessary to review the events before beginning the JPM.	
1.**C** Classify the event in accordance with the Emergency Plan.	1.1**C** Candidate correctly classifies the event. • Scenario #1: Unusual Event, Tab 2.10 Steam/Feed Line Break • Scenario #2: Site Area Emergency, Tab 2.3, Failure of Reactor Protection • Scenario #3: Site Area Emergency, Tab 2.2, CSF Red Path on Heat Sink **OR** Tabs 1.1.1 & 1.2.1 potential Loss of Fuel and RCS Barriers • Scenario #4: Alert, Tab 2.3, Failure of Reactor Protection **OR** Alert, Tab 1.2.4 Loss of RCS Barrier COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-021 JPM REVISION: 0	JPM TITLE: Classify an Emergency Event (Scenario Specific)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
2.C Completes the initial notification form.	2.1 Places the following information on the space provided on the initial notification form. • Item 1 places a checkmark in the this is a drill box • Item 2 leaves name and notification time blank (this is for the communicator) places the word TANGO in the code space. • **C** Item 3 places a **checkmark in the appropriate classification box** (as identified in step 1 of the JPM above) and places a checkmark in the initial declaration box • Item 3 places a 2 in the Unit space, places current time in the declaration time space, places the date in the date space, places Unit 1 at 1005 and Unit 2 at 0% in the all units power level space. • **C** Item 4 places the appropriate **EAL tab number** in the EAL number space (as identified in step 1 of the JPM above). • Item 4 places the appropriate EAL description in the space provided (as identified in step 1 of the JPM above) • **C** Item 5 places a **checkmark** in the an airborne radiological release in progress due to this event box. • **C** Item 6 places **65°** and **7** mph in the wind speed and direction spaces • Item 7 is left blank or NONE • Item 8 places a checkmark in the this is a drill box	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2AD-021 JPM REVISION: 0	JPM TITLE: Classify an Emergency Event (Scenario Specific)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S U
	2.2 Places candidate name and current date in the approved space and date. **EVALUATOR NOTE:** **Refer to Answer Key for initial notification form critical steps.** **TERMINATING CUE:** **That completes this JPM** COMMENTS:	
	STOP TIME: _____	

JPM NUMBER: 2CR-647 JPM REVISION: 0	JPM TITLE: Perform Partial Movement Test (CB-D)

K/A REFERENCE: 001 A3.05 3.5/3.5 TASK ID: 0010010201
0011-002-06-013

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

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 10 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Control Bank 'D' is verified operable (moved 10 steps) AND Rod H2 is identified as NOT aligned by ± 12 steps.
RECOMMENDED STARTING LOCATION:	CONTROL ROOM
DIRECTIONS:	You are to perform the task of Control Rod Assembly Partial Movement Test.
INITIAL CONDITIONS:	The reactor is in Mode 1, 100% power. All procedural Initial Conditions are satisfied.
INITIATING CUE:	Your supervisor directs you to verify Control Bank 'D' is operable by performing Section VII.B of 2OST-1.1, Control Rod Assembly Partial Movement Test, and report your results to your supervisor.
REFERENCES:	2OST-1.1, Control Rod Assembly Partial Movement Test Rev. 10
TOOLS:	NONE
HANDOUT:	2OST-1.1 filled out up to step VII.B

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK:	You are to perform the task of Control Rod Assembly Partial Movement Test.
INITIAL CONDITIONS:	The reactor is in Mode 1, 100% power. All procedural Initial Conditions are satisfied.
INITIATING CUE:	Your supervisor directs you to verify Control Bank 'D' is operable by performing Section VII.B of 2OST-1.1, Control Rod Assembly Partial Movement Test, and report your results to your supervisor.

☐ 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: 2CR-647 JPM REVISION: 0	JPM TITLE: Perform Partial Movement Test (CB-D)

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	SIMULATOR SET-UP: Initialize IC-10. Turn on all PRZR heaters Stick rod H2 such that it ratchets down when outward rod motion is attempted. Rods in Auto	
1. Record the Rod Step Counter Control Bank 'D' Group 1 and 2 readings.	1.1 Logs Control Bank 'D' Group 1 and 2 Readings. COMMENTS:	
2. Using the DRPI, Record the rod height of the Control Bank D rods listed below: Rod H2_____Rod F6_____ Rod B8_____Rod F10_____ Rod H14_____Rod K10_____ Rod P8_____Rod K6_____	2.1 Records the rod height of the Control Bank D rods **EVALUATOR NOTE:** Although the Rods are at 229 steps, DRPI will only indicate 228 steps COMMENTS:	
3.**C** Place the Control Rod Bank Sel SW to MAN position.	3.1**C** Places the Control Rod Bank Sel SW to MAN position COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-647 JPM REVISION: 0	JPM TITLE: Perform Partial Movement Test (CB-D)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
4.**C** Using the IN-HOLD-OUT lever, drive CB 'D' 10 steps into the core until verification of individual rod movement is obtained by observation of the DRPIs.	4.1**C** Places the IN-HOLD-OUT lever to IN and Inserts rods 10 steps in 5 step increments as indicated by the Group Step Demand counters, and verifies individual rod motion on DRPI. **EVALUATOR NOTE:** Annuciator A4-9G, Computer Monitored Alarm is expected each time rod motion is demanded. COMMENTS:	
5. Record the Control Bank 'D' step counter position.	5.1 Records the Control Bank 'D' step counter position for Group 1 and 2. COMMENTS:	
6. Record the Control Bank 'D' rod position as indicated by DRPI.	6.1 Candidate locates each individual rod DRPI indication and records the rod height. COMMENTS:	
7. Compare the step counter indication for each rod group (from Step VII.B.5) with the DRPI indication for each RCCA (from Step VII.B.6). Verify the step counter and DRPI indications are within ± 12 steps as stated in T.S. 3.1.4.	7.1 Candidate compares the Group Step Demand counters against the DRPIs for Control Bank 'D'. Determines all rods are within ± 12 steps. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-647 JPM REVISION: 0	JPM TITLE: Perform Partial Movement Test (CB-D)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S U
	FAULT STATEMENT: **The next step of the JPM is Faulted. When the candidate begins to withdraw the control rods, Rod H2 will ratchet inward such that it will be misaligned by more than 12 steps from the rest of the bank.** **EVALUATOR NOTE:** Candidate may immediately STOP rod motion before achieving 229 steps.	
8.**C** Return Control Bank D rods (in 5 step increments) to the group positions recorded in Step VII.B.1.	8.1 Candidate locates the IN-HOLD-OUT lever. 8.2**C** Candidate places it to the OUT direction AND attempts to withdraw the Group Step Demand counters to 229 steps. 8.3**C** Candidate recognizes Rod H2 is ratcheting inward and stops rod motion. **EVALUATOR NOTE:** Candidate may refer to Annuciator A4-8G, Rod Position Deviation COMMENTS: **EVALUATOR CUE:** If necessary Role-play the Unit Supervisor and inform the candidate that another operator will address the AOP for Rod Misalignment.	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-647 JPM REVISION: 0	JPM TITLE: Perform Partial Movement Test (CB-D)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S U
	EVALUATOR CUE: If necessary Role-play the Unit Supervisor and instruct the candidate to **STOP** rod withdrawal **AND** remain here until further instructions. It may also be necessary to ask the candidate to re-perform step 7 of the JPM to verify rod alignment.	
9.**C** Compare the step counter indication for each rod group (from Step VII.B.5) with the DRPI indication for each RCCA (from Step VII.B.6). Verify the step counter and DRPI indications are within ± 12 steps as stated in T.S. 3.1.4.	9.1**C** Candidate compares the Group Step Demand counters against the DRPIs for Control Bank 'D'. Determines rod H2 is **NOT** within ± 12 steps of the other rods in the bank. COMMENTS:	
	EVALUATOR CUE: Terminate JPM at this point.	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-023 JPM REVISION: 9	JPM TITLE: Perform a Hot Bus Transfer

K/A REFERENCE: 062K1.04 3.7/4.2 TASK ID: 0361-013-01-013
062A4.01 3.3/3.1

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

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS

Performer Name:	Performer SSN:

Time Critical: ☐ Yes ☒ No	Allotted Time: 15 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

EVALUATOR DIRECTION SHEET

TASK STANDARD:	The 4kv Bus 2B is being supplied by the System Station Service Transformer.
RECOMMENDED STARTING LOCATION:	Control Room
DIRECTIONS:	You are to perform the task Perform a Hot Bus Transfer
INITIAL CONDITIONS:	The plant is at 100% power with all systems in NSA. It is desired to place the 2B 4KV bus on offsite power to allow for a relay check on ACB-142C.
INITIATING CUE:	Your supervisor directs you to transfer the 2B 4KV bus to the 2A SSST, but do not set it up for auto transfer back to the 2C USST.
REFERENCES:	2OM-36.4.C, Transferring 4KV system from USST to SSST, Rev 9
TOOLS:	None
HANDOUT:	2OM-36.4.C

OPERATIONS JOB PERFORMANCE MEASURE

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: Perform a Hot Bus Transfer

INITIAL CONDITIONS: The plant is at 100% power with all systems in NSA. It is desired to place the 2B 4KV bus on offsite power to allow for a relay check on ACB-142C.

INITIATING CUE: Your supervisor directs you to transfer the 2B 4KV bus to the 2A SSST, but do not set it up for auto transfer back to the 2C USST.

☐ 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: 2CR-023 JPM REVISION: 9	JPM TITLE: Perform a Hot Bus Transfer

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	SIMULATOR SETUP: Init in LRT 100% power IC set. Raise tap changer so that 4KV common volts are 4 volts higher for 2B 4KV bus on 2A SSST	
1. Obtain procedure 2OM-36.4.C, Transferring 4kv system from USST to SSST.	1.1 Candidate locates procedure. COMMENTS:	
2. Verify voltages on the 2B 4kv bus are approximately the same on all phases as on SSST 2A.	2.1 Candidate locates the 4KV Common volts meter, 4KV Bus 2B Volts meter, and 2A SS Serv Tmr Voltmeter Phase selector switch. 2.2 Checks all phases and verifies 2B bus and 2A SSST are within 2.0 volts. 2.3 Determines 4KV common volts are NOT within 2.0 volts. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-023 JPM REVISION: 9	JPM TITLE: Perform a Hot Bus Transfer

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
3. Adjust the appropriate bus load tap changer to equalize the 4KV Common Voltmeter indication to the appropriate 4KV Bus Volts.	3.1 Places load tap changer X winding –Bus 2B SS Serv TFMR 2A control switch to lower several times 3.2 Re-checks all phases and verifies 2B bus and 2A SSST are within 2.0 volts.	
4.**C** Place Live Bus Transfer Switch to ON.	4.1 Candidate locates Live bus Transfer Switch. 4.2**C** Turns switch to the ON position. COMMENTS:	
5.**C** Close ACB-142A.	5.1 Candidate locates control switch for 2A SS SERV TFMR TO 4KV BUS 2B ACB-142A. 5.2**C** Turns switch to the CLOSE position. 5.3 Verifies BOTH Red lights are – LIT and the white light is – NOT LIT COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-023 JPM REVISION: 9	JPM TITLE: Perform a Hot Bus Transfer

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
6. Verify that amps increase on Bus 2B Tfmr 2A ammeter.	6.1 Candidate locates 4KV BUS 2B TFMR 2A ammeter. 6.2 Verifies it indicates greater than ZERO amps. COMMENTS:	
7.**C** Open ACB-142C.	7.1 Candidate locates control switch for 2C US SERV TFMR TO 4KV BUS 2B ACB-142C. 7.2**C** Places it in the OPEN/TRIP position. 7.3 Verifies BOTH Red lights are – NOT LIT and the white light is – LIT COMMENTS:	
8. Place the Live Bus Transfer Switch to OFF.	8.1 Candidate locates Live Bus Transfer Switch. 8.2 Places it in the OFF position. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-023 JPM REVISION: 9	JPM TITLE: Perform a Hot Bus Transfer

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
9. Place Load Tap Changer in AUTO (only necessary if voltage adjusted earlier).	9.1 N/A 9.2 Places it in the AUTO position. COMMENTS: **EVALUATOR CUE:** That completes this JPM	
	STOP TIME: _____	

JPM NUMBER: 2CR-529 JPM REVISION: 3	JPM TITLE: Transfer to Cold Leg Recirculation (ES-1.3)

K/A REFERENCE: 006K4.08 3.4/3.6
006A4.02 4.0/3.8
006 A4.05 3.9/3.8

TASK ID: 0111-019-01-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☒ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 10 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Parallel redundant Cold Leg Recirculation flowpaths are established according to Step 5 of 2OM-53A, Procedure ES-1.3.
RECOMMENDED STARTING LOCATION:	CONTROL ROOM
DIRECTIONS:	You are to simulate (perform) the task Transfer to Cold Leg Recirculation (ES-1.3).
INITIAL CONDITIONS:	The plant is recovering from a Loss of Coolant Accident. The Control Room Operators are now at step 5 of ES-1.3, Transfer to Cold Leg Recirc.
INITIATING CUE:	Your supervisor directs you to perform Step 5 of ES-1.3 'Transfer to Cold Leg Recirc'.
REFERENCES:	2OM-53A.1.ES-1.3 (Issue 1C), Revision 5
TOOLS:	4 Shorting Bars
HANDOUT:	2OM-53A.1.ES-1.3

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: Transfer to Cold Leg Recirculation (ES-1.3)

INITIAL CONDITIONS: The plant is recovering from a Loss of Coolant Accident. The Control Room Operators are now at step 5 of ES-1.3, Transfer to Cold Leg Recirc.

INITIATING CUE: Your supervisor directs you to perform Step 5 of ES-1.3 'Transfer to Cold Leg Recirc'.

☐ 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: 2CR-529 JPM REVISION: 3	JPM TITLE: Transfer to Cold Leg Recirculation (ES-1.3)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	SIMULATOR SETUP: Malf RCS03C, Open 2CCS*AOV118 Start an Air compressor. Reset SI both trains. Stop both EDG's. Wait until RWST level <400 inches. Reset CIA & CIB. Ensure 2CHS*P21A/C running. Place both LHSI pumps in PTL. Energize charging pump suction and discharge valves via LOA-LOV093 thru 096, and LOV102 thru 105, Insert following to trip [2RSS*P21D] PMP-CSS010 Place service water isolated placard below CS for "B" HHSI pump and ensure the placard for "C" HHSI pump is removed **EVALUATOR NOTE:** Have 4 shorting bars available for candidate to perform this JPM	
1. Obtain a copy of procedure ES-1.3 of 2OM-53A.	1.1 Candidate locates ES-1.3 of 2OM-53A **EVALUATOR NOTE:** Procedure can be provided to Candidate, if provided, N/A this JPM step. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-529 JPM REVISION: 3	JPM TITLE: Transfer to Cold Leg Recirculation (ES-1.3)

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
2. Verify TWO charging/HHSI pumps running.	2.1 Verifies Charging Pump High Head Safety Inj 2CHS*P21A and C Red lights are – LIT and the white lights are – NOT LIT. COMMENTS:	
3.**C** Insert shorting bar into (2SIS*MOV836) High Head SI Cold Leg Isol. Valve Jack.	3.1**C** Candidate locates jack for High Head SI Cold Leg Isol Vlv 2SIS*MOV836 and inserts shorting bar. COMMENTS:	
4.**C** Open 2SIS*MOV836 HHSI Cold Leg Isol. Valve.	4.1 Candidate locates control switch for High Head SI Cold Leg Isol Vlv 2SIS*MOV836. 4.2**C** Candidate places CS to OPEN 4.3 Candidate verifies Red light is – LIT and green light is - NOT LIT COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-529 JPM REVISION: 3	JPM TITLE: Transfer to Cold Leg Recirculation (ES-1.3)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
5. Verify Recirc Spray pumps 21C and 21D – Both Running.	5.1 Candidate verifies Recirc Spray Pump 2RSS*P21C red light is – LIT and white light is – NOT LIT 5.2. Candidate verifies Recirc Spray Pump 2RSS*P21D red light is – NOT LIT and white light is – LIT **EVALUATOR CUE:** If necessary inform the candidate that Recirc Spray Pump 2RSS*P21D will **NOT START.** 5.3 Candidate verifies HHSI pumps 2CHS*P21 A and C red lights are – LIT and white lights are – NOT LIT COMMENTS:	
6.**C** Insert shorting bar into appropriate jacks and then close appropriate HHSI pump discharge isolation valves 2CHS*MOV8132A & B.	6.1**C** Candidate locates jacks for Charging Pump Disch Isol Vlv 2CHS*MOV8132A & B and inserts shorting bars. 6.2 Candidate locates control switches for Charging Pump Disch Isol Vlv 2CHS*MOV8132A & B. 6.3**C** Candidate places Control switches to CLOSE 6.4 Candidate verifies green lights are – LIT and red lights are – NOT LIT COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-529 JPM REVISION: 3	JPM TITLE: Transfer to Cold Leg Recirculation (ES-1.3)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
7. Verify 2SIS*FI945, (946) LHSI Train A & B flow is indicated.	7.1 Verifies 21A LHSI Pump Disch Flow 2SIS-FI945 indicates greater than ZERO flow COMMENTS:	
8. Verify [2SIS*FI940, 943] Train A, B flow – indicated.	8.1 Candidate locates HHSI TRN A and TRAIN B 2SIS*FI940 (943) indicates greater than ZERO flow COMMENTS:	
	STOP TIME: _____	

JPM NUMBER: 2CR-624 JPM REVISION: 5	JPM TITLE: Establish RCS Bleed and Feed per FR-H.1

K/A REFERENCE: E05 EA1.1 4.1/4.0 TASK ID: 0533-006-05-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☒ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☒ Simulator ☐ Classroom	☒ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☒ Training ☐ Other:	☐ BVT ☒ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 10 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: _____	

EVALUATOR DIRECTION SHEET

TASK STANDARD:	RCS Bleed and Feed are initiated (SI flow, one PRZR PORV open, al RX vessel head vents open). At least one SG isolated and depressurizing for low pressure water injection.
RECOMMENDED STARTING LOCATION:	Simulator
DIRECTIONS:	You are to perform the task of Establishing RCS Bleed and Feed per FR-H.1, Response To Loss of Secondary Heat Sink.
INITIAL CONDITIONS:	The plant has tripped from 100% power. FR-H.1, Response To Loss of Secondary Heat Sink has been entered. Steps 1 through 5 are complete. While performing step 6, the RCS bleed and feed criteria of continuous action Step 2 are met due to S/G WR levels dropping to less than 14%.
INITIATING CUE:	Your supervisor directs you to establish RCS bleed and feed by performing steps 13 through 16 of FR-H.1, Response To Loss of Secondary Heat Sink.
REFERENCES:	2OM-53A.1.FR-H.1, Issue 1C, Response To Loss of Secondary Heat Sink, Rev. 7
TOOLS:	None
HANDOUT:	2OM-53A.1.FR-H.1, Issue 1C, Response To Loss of Secondary Heat Sink, Rev. 7

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task of Establishing RCS Bleed and Feed per FR-H.1, Response To Loss of Secondary Heat Sink.

INITIAL CONDITIONS: The plant has tripped from 100% power. FR-H.1, Response To Loss of Secondary Heat Sink has been entered. Steps 1 through 5 are complete. While performing step 6, the RCS bleed and feed criteria of continuous action Step 2 are met due to S/G WR levels dropping to less than 14%.

INITIATING CUE: Your supervisor directs you to establish RCS bleed and feed by performing steps 13 through 16 of FR-H.1, Response To Loss of Secondary Heat Sink.

☐ 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: 2CR-624 JPM REVISION: 4	JPM TITLE: Establish RCS Bleed and Feed per FR-H.1

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S U
	START TIME: _____	
	SIMULATOR SETUP: Init **IC-237 for 2LOT6 NRC Exam** Defeat 2FWE-P22, 23A, & 23B. Fail 2FWS-HYV157A, B, & C closed. To establish conditions for JPM, trip 2FWS-P21A & B, place steam dumps in STM PRESS Mode at ~1005 psig. Stop 2RCS-P21A, B, & C. Allow SG levels to drop to < 13% and SNAP IC. Fail PRZR PORVs PCV455C and D from opening.	
1. Obtain procedure.	1.1 Candidate locates procedure FR-H.1 COMMENTS:	
2.**C** Actuate SI.	2.1**C** Candidate locates and actuates control switches for Train A and Train B Safety Injection. 2.2 Verifies alarm A12-1D "Safety Injection Signal" is - LIT COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-624 JPM REVISION: 4	JPM TITLE: Establish RCS Bleed and Feed per FR-H.1

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
3. Verify RCS Feed Path • HHSI Flow Indicated.	3.1 Candidate locates HHSI Train "B" flow indicator – [2SIS-FI943] and verifies HHSI flow is greater than ZERO. COMMENTS:	
	FAULT STATEMENT: The next step begins the alternate path for this JPM. There will only be ONE PRZR PORV available as a bleed path. The candidate will be required to OPEN all RX Vessel head vents to obtain adequate bleed flow.	
4. Establish RCS Bleed Path • Power to PRZR PORV block valves AVAILABLE.	4.1 Candidate verifies the following indicating lights: • 2RCS-MOV535, 536 and 537 red lights – LIT green lights – NOT LIT COMMENTS:	
5. Establish RCS Bleed Path • Verify block valves – ALL OPEN.	5.1 N/A Previously verified COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-624 JPM REVISION: 4	JPM TITLE: Establish RCS Bleed and Feed per FR-H.1

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S	U
	FAULT STATEMENT: **ONLY** PRZR PORV, 2RCS-PCV456 will open in the next step. This will require the candidate to Open RCS vent paths.		
6.**C** Establish RCS Bleed Path • Open all PORVs.	6.1 Candidate locates PRZR PORV Control Switches. 6.2**C** Places CS for PRZR PORV, 2RCS-PCV455C, 455D and 456 to OPEN. 6.3 Verifies PRZR PORV, 2RCS-PCV456 red light – LIT green light – NOT LIT 6.4 Recognizes/verifies PRZR PORV, 2RCS-PCV455C and 455D red lights – NOT LIT green lights – LIT COMMENTS:		
7.**C** Verify Adequate RCS Bleed Path. • PRZR PORV's and associated block valves – AT LEAST TWO OPEN	7.1**C** Determines that ONLY ONE PRZR PORV and associated block valve is open and Places all reactor vessel head vent control switches to OPEN. [2RCS-SOV200A, B] [2RCS-SOV201A, B] 7.2 Verifies red lights – LIT green lights – NOT LIT 7.3**C** Depresses Δ PB for 2RCS-HCVC250A and B 7.4 Verifies 2RCS-HCVC250A and B at 100% demand. COMMENTS:		

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-624 JPM REVISION: 4	JPM TITLE: Establish RCS Bleed and Feed per FR-H.1

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
8. Align any available low pressure water source.	8.1 Attempts to align a low press. water source to an intact SG. No action needed. **EVALUATOR CUE:** Another operator will work on a low pressure water source using Attachment A-1.10. COMMENTS: **EVALUATOR CUE:** In the next step, Role-play the Unit Supervisor and direct the candidate to use SG 21A for depressurization.	
9.**C** Isolate steam supply to Turbine driven Aux feed pump from S/G selected for depressurization.	9.1**C** Places CS for 2MSS*SOV105A and D to CLOSE. 9.2 Verifies red lights – NOT LIT green lights – LIT. COMMENTS:	
10.**C** Close MSIV on selected S/G.	10.1**C** Places CS for 21A SG MSIV 2MSS-AOV101A to CLOSE. 10.2 Verifies red lights – NOT LIT green lights – LIT. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-624 JPM REVISION: 4	JPM TITLE: Establish RCS Bleed and Feed per FR-H.1

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
11.**C** Open Atm Steam dump valve on selected SG to depressurize.	11.1**C** Places 21A S/G Atm Stm Dump Control 2SVS*PCV101A to MAN and depresses the output Δ PB 11.2 Verifies red light – LIT green light – NOT LIT and 100% demand on controller COMMENTS: **EVALUATOR CUE:** That completes this JPM	
	STOP TIME: _____	

JPM NUMBER: 2CR-155 JPM REVISION: 0	JPM TITLE: Respond to PRT Trouble

K/A REFERENCE: 007 A2.02 2.6 / 3.2
007 A2.05 3.2 / 3/6
007 A4.01 2.7 / 2.7

TASK ID: 007-003-0101

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☐ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 15 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD: PRT High Temperature alarm is cleared and PRT level is dropping.

RECOMMENDED STARTING LOCATION: Control Room

DIRECTIONS: You are to perform the task respond to Pressurizer Relief Tank Trouble.

INITIAL CONDITIONS:

- The plant is operating at 25% power.
- A PRZR PORV was leaking BUT is NOW NO LONGER LEAKING.
- The Pressurizer Relief Tank Trouble annunciator [A4-3H] has just actuated as a result of this leakage.

INITIATING CUE: Your supervisor directs you to respond to Annunciator A4-3H "Pressurizer Relief Tank Trouble" and take action to clear the annunciator.

REFERENCES: 2OM-6.4.AAY, Revision 8

TOOLS: NONE

HANDOUT: 2OM-6.4.AAY, Revision 8

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task respond to Pressurizer Relief Tank Trouble.

INITIAL CONDITIONS:

- The plant is operating at 25% power.
- A PRZR PORV was leaking BUT is NOW NO LONGER LEAKING.
- The Pressurizer Relief Tank Trouble annunciator [A4-3H] has just actuated as a result of this leakage.

INITIATING CUE: Your supervisor directs you to respond to Annunciator A4-3H "Pressurizer Relief Tank Trouble" and take action to clear the annunciator.

☐ 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: 2CR-155 JPM REVISION: 0	JPM TITLE: Respond to PRT Trouble

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	Simulator Setup: Initialize Simulator IC 238 for 2LOT6 NRC exam. Mode 1 ~ 25% power. TRGSET 2 XA1I097P ==1' IMFXMT RCS078A (2 0) 110 120 Trg2 When 2RCSAOV519 is opened reduce PRT temperature indication	
	START TIME: _____	
1. Obtain copy of 2OM-6.4.AAY.	1.1 Candidate locates 2OM-6.4.AAY, reviews and determines proper procedure section is PRT temperature is > 125°F and level is > 78% 1.2 Determines 2OM-6.4.AAY Part A for High temp and Part D for High level are both applicable. COMMENTS:	
	EVALUATOR CUE: Candidate may address the actions in either order. The JPM is formatted to address High temperature first. Step 6 of the JPM begins to address the high level. **Role-play the Unit Supervisor and direct the candidate to SIMULTANEOUSLY address both alarm conditions.**	
2.**C** Reduce PRZR Relief Tank Temperature < 125F as follows: • Open [2RCS-MOV516], PRZR Relief Tank Spray Vlv.	2.1**C** Places CS for PRZR Relief Tank Spray Vlv 2RCS-MOV516 to OPEN 2.2 Verifies red light – LIT and green light – NOT LIT COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-155 JPM REVISION: 0	JPM TITLE: Respond to PRT Trouble

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
3.**C** Open [2RCS-AOV519], PRZR Relief Tank Pri Grade M/U Wtr Inlet.	3.1**C** Places CS for PRZR Relief Tank Pri Grade M/U Wtr Inlet 2RCS-AOV519 to OPEN 3.2 Verifies red light – LIT and green light – NOT LIT COMMENTS:	
4.**C** When the desired PRT temperature is achieved, • Close [2RCS-AOV519], PRZR Relief Tank Pri Grade M/U Wtr Inlet. • Close [2RCS-MOV516], PRZR Relief Tank Spray Vlv.	4.1**C** Monitors PRT temperature to verify it has decreased below 125°F **EVALUATOR CUE:** If necessary, inform candidate that it is desired to reduce temperature below 120°F 4.2**C** Places CS for PRZR Relief Tank Pri Grade M/U Wtr Inlet 2RCS-AOV519 to CLOSE 4.3 Verifies red light – NOT LIT and green light – LIT 4.4**C** Places CS for PRZR Relief Tank Spray Vlv 2RCS-MOV516 to CLOSE 4.5 Verifies red light – NOT LIT and green light – LIT COMMENTS:	
5. Independently verify [2RCS-AOV519] closed and log in the Narrative Log.	5.1 N/A **EVALUATOR CUE:** Inform the candidate that another operator will perform the independent verification. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-155 JPM REVISION: 0	JPM TITLE: Respond to PRT Trouble

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	EVALUATOR NOTE: Candidate should proceed to 2OM-6.4.AAY Part D to address the PRT High level.	
6.**C** Lower PRZR Relief Tank level to < 67%, ([2RCS-LI470], VB-B): • Open [2RCS-MOV523], PRZR Relief Tank Drain Vlv, (BB-A)	6.1**C** Places CS for PRZR Relief Tank Drain Vlv 2RCS-MOV523 to OPEN 6.2 Verifies red light – LIT and green light – NOT LIT COMMENTS:	
7.**C** Start [2DGS-P21A(B)], Primary Drains Tfr Pump.	7.1**C** Places CS for Primary Drains Tfr Pump. 2DGS-P21A(B) to START 7.2 Verifies red light – LIT and green light – NOT LIT COMMENTS:	
	EVALUATOR CUE: Once PRZR Relief tank level is observed to be dropping, Inform the candidate that for the purpose of this JPM, PRZR relief tank level is now below 67%.	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-155 JPM REVISION: 0	JPM TITLE: Respond to PRT Trouble

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S	U
8.**C** When PRZR Relief Tank level to < 67%, Stop [2DGS-P21A(B)], Primary Drains Tfr Pump AND Return control switch to AUTO.	8.1 Monitors PRT level to verify level is dropping and has dropped below 67%. 8.2**C** Places CS for Primary Drains Tfr Pump. 2DGS-P21A(B) to AUTO 8.3 Verifies red light – NOT LIT and green light – LIT COMMENTS:		
9.**C** Close [2RCS-MOV523], PRZR Relief Tank Drain Vlv.	9.1**C** Places CS for PRZR Relief Tank Drain Vlv 2RCS-MOV523 to CLOSE 9.2 Verifies red light – NOT LIT and green light – LIT COMMENTS:		
	EVALUATOR CUE: That completes this JPM		
	STOP TIME: _____		

JPM NUMBER: 2CR-572 JPM REVISION: 1	JPM TITLE: Shift From Main Feedwater Reg Valves to Bypasses

K/A REFERENCE: 035A4.01 3.7/3.6 TASK ID: 0241-004-01-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☒ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 15 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: _____

JPM NUMBER: 2CR-072 JPM REVISION: 1	JPM TITLE: Shift From Main Feedwater Reg Valves to Bypasses

EVALUATOR DIRECTION SHEET

TASK STANDARD: The "A" Bypass Feed Regulating Valve has been placed in service in automatic mode and then, after candidate recognizes failure of automatic control, returned to Manual mode with candidate controlling steam generator level.

RECOMMENDED STARTING LOCATION: CONTROL ROOM

DIRECTIONS: You are to perform the task Transfer from Main Feed Regulating Valve to Bypass.

INITIAL CONDITIONS:

- A plant shutdown is in progress
- The plant is at approximately 25% power.
- 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5 has been completed up to Step IV.D.5.
- The 21B and C S/G main Feed Reg Valves have been removed from service.
- The 21A main Feed Reg Valve [2FWS-FCV478] operated erratically during the shutdown and is currently in "AUTO" for observation.

INITIATING CUE:

- Your supervisor directs you to place 21A S/G Bypass Feed Reg Valve [2FWS-FCV479] in service in accordance with 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5 Attachment 10 step A.
- [2FWS-FCV479] is to be placed in automatic to control steam generator level.
- You are to maintain 21A S/G NR level between 39% and 49%.

REFERENCES: 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5, Revision 9

TOOLS: None

HANDOUT: 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5, Attachment 10 Revision 9

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Transfer from Main Feed Regulating Valve to Bypass.

INITIAL CONDITIONS:

- A plant shutdown is in progress
- The plant is at approximately 25% power.
- 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5 has been completed up to Step IV.D.5.
- The 21B and C S/G main Feed Reg Valves have been removed from service.
- The 21A main Feed Reg Valve [2FWS-FCV478] operated erratically during the shutdown and is currently in "AUTO" for observation.

INITIATING CUE:

- Your supervisor directs you to place 21A S/G Bypass Feed Reg Valve [2FWS-FCV479] in service in accordance with 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5 Attachment 10 step A.
- [2FWS-FCV479] is to be placed in automatic to control steam generator level.
- You are to maintain 21A S/G NR level between 39% and 49%.

☐ 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: 2CR-572 JPM REVISION: 1	JPM TITLE: Transfer from Main Feedwater Reg Valves to Bypasses

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S U
	START TIME: _____	
	EVALUATOR NOTE: **Initialize IC-238 for 2LOT6 NRC Exam,** Set Bank D Control Rods to 126 steps. Put "SGWIDE" trend up on BOP's PCS screen. Open MFRV isolation valve 2FWS-MOV154A. Place 2FWS-FCV478 in AUTO, place 2FWS-FCV479 in MANUAL and close valve. To set up alternate path, set Trigger 1 to actuate when the Bypass controller AUTO pushbutton is depressed **TRGSET 1 'XC1I064E'** Insert command to fail Bypass to full open over 30 seconds from Trigger 1, (PB in AUTO) **IMF CNH-CFW11B (1 0) 100 30 ASIS**	
1. Obtain a copy of 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5, Attachment 10	1.1 Candidate locates a copy of 2OM-52.4.R.1.F, Station Shutdown From 100% Power To Mode 5, Attachment 10 **EVALUATOR NOTE:** Procedure can be provided to candidate, if provided, N/A this JPM Step. COMMENTS:	
2.**C** Place controller in MANUAL **AND** Slowly Open the 21A Bypass FCV.	2.1**C** Intermittently depresses the Bypass Control Valve [2FWS-FCV479] up pushbutton. 2.2 Verifies feed flow increases COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-572 JPM REVISION: 1	JPM TITLE: Transfer from Main Feedwater Reg Valves to Bypasses

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S	U
3. As the 21A Bypass FCV is being opened, close [2FWS-FCV 478], 21A Main Feedwater Reg Valve, in MANUAL **OR** AUTO to maintain 21A SG level **WITHIN** 39% to 49%.	3.1 Verifies 21A Main Feedwater Reg Valve 2FWS-FCV 478 demand signal is decreasing and feed flow is reducing. COMMENTS:		
4.**C** Continue to Open the 21A Bypass FCV **UNTIL** the 21A Main Feed Reg Valve is closed.	4.1**C** Intermittently depresses the Bypass Control Valve [2FWS-FCV479] up pushbutton. 4.2 Verifies 21A Main Feed Reg Valve green light – LIT and red light – NOT LIT COMMENTS:		
5.**C** WHEN the 21A Main Feed Reg Valve is fully closed, perform the following: • Verify the 21A Main Feed Reg Valve controller in MAN.	5.1**C** Places 21A Main Feed Reg Valve controller to MAN 5.2 Verifies MAN light – LIT and AUTO light is – NOT LIT COMMENTS:		

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-572 JPM REVISION: 1	JPM TITLE: Transfer from Main Feedwater Reg Valves to Bypasses

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
6. Observe Feedwater flow, steam flow and SG level for evidence of leakage past the 21A Main Feed Reg Valve.	6.1 Verifies feed flow, steam flow, and NR level are stable COMMENTS:	
7. Close [2FWS-MOV154A], 21A SG Main Feedwater Isol Vlv.	7.1 Places CS for 21A SG Main Feedwater Isol Vlv 2FWS-MOV154A to CLOSE 7.2 Verifies green light – LIT and red light – NOT LIT COMMENTS:	
	<u>FAULT STATEMENT</u>: This is where the alternate path will begin; valve will trend open to 100% over 30 seconds as soon as the controller PB is placed in AUTO.	
8.**C** Place controller for the 21A Bypass FCV in AUTO **AND** Monitor SG level **AND** flow.	8.1**C** Places controller for the 21A Bypass FCV in AUTO 8.2 Verifies MAN light – NOT LIT and AUTO light is – LIT 8.3 Determines valve is failing OPEN in Automatic. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-572 JPM REVISION: 1	JPM TITLE: Transfer from Main Feedwater Reg Valves to Bypasses

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
9.**C** If level control is **NOT** stable, restore the valve controller to MANUAL **AND** Maintain SG NR level between 39% and 49%.	9.1**C** Places controller for the 21A Bypass FCV in MAN 9.2 Verifies MAN light – LIT and AUTO light is – NOT LIT 9.3**C** Intermittently depresses the Bypass Control Valve [2FWS-FCV479] up/down pushbutton to regain manual control of SG level with NR level between 39% and 49%. COMMENTS:	
	EVALUATOR CUE: That completes this JPM	
	STOP TIME: _____	

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

K/A REFERENCE: 015 A3.03 3.9/3.9 TASK ID: 0021-011-06-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☐ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 10 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Hi level Rod stop is tested satisfactorily and the surveillance is **STOPPED** when the high level trip will not reset.
RECOMMENDED STARTING LOCATION:	Simulator
DIRECTIONS:	You are to perform the task of Nuclear Intermediate Range Channel Functional Test.
INITIAL CONDITIONS:	The plant is in Mode 2 with reactor power ~ 3%. 2OST-2.2, Nuclear Intermediate Range Channel Functional Test has been completed through step VII.B.9.
INITIATING CUE:	Your supervisor directs you to complete 2OST-2.2, Nuclear Intermediate Range Channel Functional Test Beginning at step VII.B.10.
REFERENCES:	2OST-2.2, Nuclear Intermediate Range Channel Functional Test Revision 7
TOOLS:	None
HANDOUT:	2OST-2.2, Nuclear Intermediate Range Channel Functional Test completed through step VII.B.9.

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK:	You are to perform the task of Nuclear Intermediate Range Channel Functional Test.
INITIAL CONDITIONS:	The plant is in Mode 2 with reactor power ~ 3%. 2OST-2.2, Nuclear Intermediate Range Channel Functional Test has been completed through step VII.B.9.
INITIATING CUE:	Your supervisor directs you to complete 2OST-2.2, Nuclear Intermediate Range Channel Functional Test Beginning at step VII.B.10.

☐ 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: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S U
	START TIME: _____	
	SIMULATOR SETUP: Initialize IC-**Mode 2 ~ 3% power** FAULT by making Hi flux trip NOT reset	
1.**C** Perform the test of the IRN-35 High Level Rod Stop as follows: • Place the Test Mode Switch in VARIABLE. • Verify that the "HIGH LEVEL ROD STOP" Drawer Status Light is OFF.	1.1**C** Rotates the Test Mode Variable control switch clockwise to the VARIABLE position. 1.2 Verifies N35 Drawer Status Light "HIGH LEVEL ROD STOP" is NOT LIT. COMMENTS:	
2.**C** Turn the Variable control knob clockwise until the "HIGH LEVEL ROD STOP" Drawer Status Light turns ON.	2.1**C** **SLOWLY** rotates the Test Mode Variable control knob clockwise UNTIL the "HIGH LEVEL ROD STOP" Drawer Status Light is LIT. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
3. Record the neutron level indication on the NIS Drawer meter when the Drawer Status Light turns ON: Verify the NIS Drawer indication satisfies the Acceptance criteria.	3.1 Records, in the space provided the neutron level indication on the N35 Drawer meter when the Drawer Status Light turns ON. 3.2 Verifies the value recorded is between the Low and High limits listed in the surveillance and initials the space provided. COMMENTS:	
4. Record the neutron level indication on [2NMI-NI35B], Intermediate Range Current, when the Drawer Status Light turns ON: Verify the indication on [2NMI-NI35B] is within the high and low limits.	4.1 Records, in the space provided the neutron level indication on [2NMI-NI35B], Intermediate Range Current when the Drawer Status Light turns ON. 4.2 Verifies the value recorded is between the Acceptance Criteria Low and High limits listed in the surveillance and initials the space provided. **EVALUATOR CUE:** If necessary to avoid contact with other candidates, CUE candidate that Benchboard [2NMI-NI35B], Intermediate Range Current is the **SAME AS** the drawer meter. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
5.**C** Turn the Variable control knob counterclockwise until the "HIGH LEVEL ROD STOP" Drawer Status Light turns OFF.	5.1**C** **SLOWLY** Rotates Variable control knob counterclockwise until the "HIGH LEVEL ROD STOP" Drawer Status Light is NOT LIT. COMMENTS:	
6. Record the neutron level indication on the NIS Drawer meter when the Drawer Status Light turns OFF: Verify the NIS Drawer indication is satisfies the Acceptance criteria.	6.1 Records, in the space provided the neutron level indication on the N35 Drawer meter when the Drawer Status Light is NOT LIT. 6.2 Verifies the value recorded is between the Low and High limits listed in the surveillance and initials the space provided. COMMENTS: **EVALUATOR NOTE:** IF the RESET of the ROD stop bistable is outside the allowable tolerance, It may be necessary to direct the candidate to repeat step 5 of the JPM. Since this tolerance is so tight, this is a common occurrence that is routinely handled by repeating the step much slower.	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
7. Perform the test of the Intermediate Range Neutron Flux High Reactor Trip Setpoint as follows: Verify the following: • Status Light C-9, "INT RNG N35 RX TRIP", is OFF. • PCS Point N0020D, "INT RNG CHAN 1 HIGH FLUX", indicates NORMAL.	7.1 Verifies the following: • Status Light C-9, "INT RNG N35 RX TRIP", is NOT LIT. • PCS Point N0020D, "INT RNG CHAN 1 HIGH FLUX", indicates NORMAL. **EVALUATOR CUE:** If necessary to avoid contact with other candidates, CUE candidate that Benchboard Status Light C-9, "INT RNG N35 RX TRIP", is NOT LIT. **AND** PCS Point N0020D, "INT RNG CHAN 1 HIGH FLUX", indicates NORMAL. COMMENTS:	
8.**C** Turn the Variable control knob clockwise until the "HIGH LEVEL TRIP" Drawer Status Light turns ON.	8.1**C** **SLOWLY** Rotates Variable control knob clockwise until the "HIGH LEVEL TRIP" Drawer Status Light is LIT. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	EVALUATOR NOTE: In the next step, the IRN-35 Trip Setpoint (recorded in Instruction A.4) High Limit has already been recorded in the space provided as part of a previously performed step in the initial conditions.	
9. Record the neutron level indication on the NIS Drawer meter when the Drawer Status Light turns ON: Verify the NIS Drawer indication satisfies the Acceptance criteria.	9.1 Records, in the space provided the neutron level indication on the N35 Drawer meter when the Drawer Status Light is LIT. 9.2 Verifies the value recorded below the High limit listed in the surveillance and initials the space provided. COMMENTS:	
10. If the NIS Drawer indication for the setpoint is NOT within the Acceptance Criteria, Refer to Attachment A, "Measurement of the [2NMI NM35A(36A)], Log Current Amplifier Output". (Otherwise N/A)	10.1 Determines reference to Attachment A, "Measurement of the [2NMI NM35A(36A)], Log Current Amplifier Output" is N/A based on values being within limits. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
11.**C** Record the neutron level indication on the [2NMI-NI35B], Intermediate Range Current, when the Drawer Status Light turns ON: • Verify the indication on [2NMI-NI35B] is within the high and low limits.	11.1**C** Records, in the space provided the neutron level indication on [2NMI-NI35B], Intermediate Range Current when the Drawer Status Light turns ON. 11.2 Verifies the value recorded is between the Acceptance Criteria Low and High limits listed in the surveillance and initials the space provided. **EVALUATOR CUE:** If necessary to avoid contact with other candidates, CUE candidate that Benchboard [2NMI-NI35B], Intermediate Range Current is the **SAME AS** the drawer meter. COMMENTS:	
12. If necessary, turn the Variable control knob clockwise until the "HIGH LEVEL TRIP" Drawer Status Light remains ON AND does NOT reset. (Otherwise N/A)	12.1 Determines N/A. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
13. Verify Status Light C-9, "INT RNG N35 RX TRIP", is ON **AND NOT** flashing. (Status Panel 308) Verify PCS Point N0020D, "INT RNG CHAN 1 HIGH FLUX", indicates TRIP.	13.1 Verifies the following: Status Panel 308 -9, "INT RNG N35 RX TRIP", is LIT **AND NOT** flashing. PCS Point N0020D, "INT RNG CHAN 1 HIGH FLUX", indicates TRIP. **EVALUATOR CUE:** If necessary to avoid contact with other candidates, CUE candidate that Benchboard Status Panel 308 - 9, "INT RNG N35 RX TRIP", is LIT **AND NOT** flashing. **AND** PCS Point N0020D, "INT RNG CHAN 1 HIGH FLUX", indicates TRIP. COMMENTS:	
14.**C** Turn the Variable control knob counterclockwise until the "HIGH LEVEL TRIP" Drawer Status Light turns OFF.	**FAULT STATEMENT:** The High level trip bistable WILL NOT reset in the next step. 14.1**C** **SLOWLY** Rotates Variable control knob fully counter clockwise. 14.2**C** Determines "HIGH LEVEL TRIP" Drawer Status Light **REMAINS LIT**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-646 JPM REVISION: 0	JPM TITLE: Perform Nuclear Intermediate Range Channel Functional Test

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	EVALUATOR NOTE: At this point the Surveillance **CANNOT** be completed without support from the I&C department. If the Level Trip Switch is returned to NORMAL, the reactor will trip. **EVALUATOR NOTE:** The candidate SHOULD recognize the impact of returning the level trip switch to normal. **EVALUATOR CUE:** That completes this JPM.	
	STOP TIME: _____	

JPM NUMBER: 2CR-537 JPM REVISION: 1	JPM TITLE: Batch To The Refueling Water Storage Tank

K/A REFERENCE: 004 A4.01 (3.8/3.9)
004 A4.04 (3.2/3.6)
004 A4.07 (3.9/3.7)

TASK ID: 0071-025-01-013

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☒ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 15 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Makeup flow to the RWST is initiated AND terminated after discovery of no boric acid flow.
RECOMMENDED STARTING LOCATION:	Control Room
DIRECTIONS:	You are to perform the task Batch To The Refueling Water Storage Tank.
INITIAL CONDITIONS:	The plant is in Mode 2 with reactor power at ~ 3%. The Refueling Water Storage Tank level is currently at 717.5". RWST boron concentration is 2500 ppm and Boric Acid Storage Tank concentration is 7500 ppm. The Spent Fuel Pool was being filled from the RWST. This operation has been secured. Annunciator A6-1D, RWST LEVEL OFF NORMAL has alarmed. Actual RWST level is just below the narrow range low level alarm setpoint.
INITIATING CUE:	Your supervisor directs you to batch 3000 gallons of borated water at current RWST boron concentration to the RWST by manual blender operation in accordance with 2OM-7.4.O, Makeup To The Refueling Water Storage Tank, beginning at step IV.B.5.
REFERENCES:	2OM-7.4.O, Makeup To The Refueling Water Storage Tank, Rev. 13
TOOLS:	Calculator
HANDOUT:	2OM-7.4.O, Makeup To The Refueling Water Storage Tank

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to perform the task Batch To The Refueling Water Storage Tank.

INITIAL CONDITIONS: The plant is in Mode 2 with reactor power at ~ 3%. The Refueling Water Storage Tank level is currently at 717.5". RWST boron concentration is 2500 ppm and Boric Acid Storage Tank concentration is 7500 ppm. The Spent Fuel Pool was being filled from the RWST. This operation has been secured. Annunciator A6-1D, RWST LEVEL OFF NORMAL has alarmed. Actual RWST level is just below the narrow range low level alarm setpoint.

INITIATING CUE: Your supervisor directs you to batch 3000 gallons of borated water at current RWST boron concentration to the RWST by manual blender operation in accordance with 2OM-7.4.O, Makeup To The Refueling Water Storage Tank, beginning at step IV.B.5.

☐ 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: 2CR-537 JPM REVISION: 1	JPM TITLE: Batch To The Refueling Water Storage Tank

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	SIMULATOR SETUP: Init IC-_____. Mode 2 ~ 3% PWR. Verify RWST level set to 717' 5" (ASISRWST = 7.43E6). Update RWST boron concentration placard to 2500 ppm and BA Storage Tank concentration placard to 7500 ppm. Verify LOA BAT6 to open 2CHS*87. Verify 2CHS*79 is overridden in the closed position LOA BAT 004. Set BA & Total Flow totalizers to ZERO and reset.	
1. Obtain procedure.	**EVALUATOR NOTE:** This step is optional. Evaluator may elect to provide procedure. If provided, N/A this JPM step ⇒. 1.1 Candidate locates 2OM-7.4.O, Makeup To The Refueling Water Storage Tank. **EVALUATOR CUE:** After candidate locates the procedure, provide a copy of 2OM-7.4.O, Makeup To The Refueling Water Storage Tank. COMMENTS:	
2. Place the Boric Acid Makeup Blender Control Switch in STOP.	2.1 Candidate locates and places Boric Acid Makeup Blender Control Switch in Stop. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-537 JPM REVISION: 1	JPM TITLE: Batch To The Refueling Water Storage Tank

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
3.**C** Place the Mode Selector Switch in MAN.	3.1**C** Candidate locates and places Mode Selector Switch in Manual. COMMENTS:	
4. Verify the following valves are in the closed position. a. [2CHS*FCV113B], Boric Acid Blender Disch To Chg Pumps b. [2CHS*FCV114B], Blender Outlet To Volume Control Tank c. [2CHS*SOV206], Alt Emergency Boration Vlv d. [2CHS*MOV350], Emergency Boration Isol Vlv	4.1 Candidate locates and verifies valves closed. 4.2 Candidate verifies green closed light lit and red open light not lit for each valve. COMMENTS:	
5. If this section is being performed for testing of the blender, THEN perform the following: (otherwise N/A)	5.1 Candidate N/A's step. **EVALUATOR NOTE:** If asked, inform the Candidate that no testing is being performed. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-537 JPM REVISION: 1	JPM TITLE: Batch To The Refueling Water Storage Tank

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
6. Determine Boric Acid Flow from the following calculation: $BoricAcidFlow = \frac{a \text{ x } b}{c}$	**EVALUATOR CUE:** If asked, inform the Candidate that Desired flowrate is 75 gpm. 6.1. Candidate calculates boric acid flow: $\frac{2500\,ppm \text{ x } 75\,gpm}{7500} = 25.0\,gpm\,(\pm 1 \text{ gpm})$ COMMENTS:	
7.**C** Set [2CHS*FCV113A] as follows: $Pot\ Setting = \frac{Boric\ Acid\ Flow}{4\ gpm}$	7.1**C** Candidate calculates and adjusts 2CHS*FCV113A to desired pot setting. $6.25\,(\pm 0.25) = \frac{25.0}{4\,gpm}$ COMMENTS:	
8.**C** Adjust [2CHS*HIC168], Blender Total Flow Auto Setpoint, to the blender total flow used in Step IV.A.9. $Pot\ Setting = \frac{Total\ Makeup\ Flow}{16\ gpm}$	8.1**C** Candidate locates and adjusts 2CHS*HIC168 to desired pot setting. $4.69\,(4.6 - 4.8) = \frac{75}{16\ gpm}$ COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-537 JPM REVISION: 1	JPM TITLE: Batch To The Refueling Water Storage Tank

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
9.**C** Adjust [2CHS*FCV114A] pot setting to the blender total flow used in Step IV.A.9. $Pot\ Setting = \frac{Total\ Makeup\ Flow}{16\ gpm}$	9.1**C** Candidate locates and adjusts 2CHS*FCV114A to desired pot setting. $4.69\ (4.6 - 4.8) = \frac{75}{16\ gpm}$ COMMENTS:	
10.**C** Set [2CHS-FQIS113], Boric Acid Flow To Blender Flow Totalizer, to the total volume in gallons of boric acid to be added from the following equation: $B.A.Vol = \frac{B.A\ Flow}{Total\ Makeup\ Flow} \times Total\ Makeup\ Vol$	10.1**C** Candidate locates and sets 2CHS-FQIS113 for the desired total volume of boric acid. $1000 = \frac{25 \pm 1}{75\ gpm} \times 3000$ 10.2 Candidate locates and resets 2CHS-FQIS113. COMMENTS:`	
11.**C** Set [2CHS-FQIS168], Total Makeup From Blender Flow Totalizer, to the desired total volume in gallons of makeup to be added.	11.1**C** Candidate locates and sets 2CHS-FQIS168 to 3000 gallons. 11.2 Candidate locates and resets 2CHS-FQIS168. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-537 JPM REVISION: 1	JPM TITLE: Batch To The Refueling Water Storage Tank

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S U
12. Record the following information into the Narrative Log: Total Makeup + Total Makeup From Blender Flow Totalizer = Total	12.1 Candidate indicates the values to be recorded in the Narrative Log. **EVALUATOR CUE:** Inform the Candidate that another operator will make the log entry. COMMENTS:	
13. Establish communications with an operator at the blender room (Aux. Bldg. 710')	13.1 Candidate uses page party to contact local operator in the blender room. **EVALUATOR CUE:** Inform the Candidate that an operator is standing by in the blender room. COMMENTS:	
14.**C** Open the following valves: (Aux. Bldg. Blender Rm, 710') a. [2CHS*87], Blender To Refueling Cavity Isolation b. [2CHS*89], Blender To RWST Isolation	14.1**C** Candidate directs local operator to open 2CHS*87 and 2CHS*89. **EVALUATOR CUE:** Report as local operator that 2CHS*87 and 2CHS*89 are open. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2CR-537 JPM REVISION: 1	JPM TITLE: Batch To The Refueling Water Storage Tank

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
15.**C** To initiate makeup, place the Boric Acid Makeup Blender Control Switch to START.	15.1**C** Candidate locates and places Boric Acid Makeup Control Switch in Start. 15.2. Candidate verifies red makeup light lit. COMMENTS:	
16.**C** Verify expected flows for the following parameters are being recorded at [2CHS-FR113], Boric Acid To Blender Total M/U Flow From Blender: a. Boric Acid To Blender (red pen) b. Total M/U Flow From Blender (green pen)	**FAULT STATEMENT:** 2CHS*79 is failed closed. In the next step Boric acid flow will be zero with total flow indicating 75 gpm. 16.1 Candidate locates 2CHS-FR113 and verifies boric acid flow and total makeup flow. 16.2**C** Candidate takes immediate action to terminate dilution by placing Boric Acid Makeup Control Switch in STOP. **EVALUATOR NOTE:** Stop the JPM after the Candidate secures the dilution. COMMENTS:	
	STOP TIME: _____	

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

K/A REFERENCE: 013A3.01 3.7/3.9 TASK ID: 0011-024-06-013
2.1.23 3.9/4.0

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

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☒ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☒ Other:

EVALUATION RESULTS			
Performer Name:		Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 10 Minutes (TRN A) 20 Minutes (TRN B)	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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Relay K622A (K601B and K620B) are tested IAW the surveillance procedure and determined to meet the acceptance criteria.
EVALUATOR NOTE:	This JPM is formatted to use either SSPS Train. During "Protected Train A" weeks, use 2OST 1.12A, Train B test and JPM pages 12-23. During "Protected Train B" weeks, use 2OST 1.11A, Train A test and JPM pages 6-11
RECOMMENDED STARTING LOCATION:	In Plant
DIRECTIONS:	You are to simulate the Main Feedwater Isolation safeguards test. Following completion of this portion of the OST, determine if the test results satisfy the acceptance criteria.
INITIAL CONDITIONS:	The plant is operating under steady-state conditions at 100% power. All plant systems are configured in their normal system arrangement. 2OST 1.11A, Safeguards Protection System Train A Blockable Test, (or 2OST 1.12A, Safeguards Protection System Train B Blockable Test) is in progress and has been completed up to the beginning of Section VII.B. Communications have been established with the control room and the front panel of the Safeguards Test Cabinet is unlocked and open.
INITIATING CUE:	Your supervisor directs you to locate and open the appropriate SSPS cabinet and continue with the test by completing Section VII.B, and when complete, determine if the test results satisfy the acceptance criteria.
REFERENCES:	2OST-1.11A Revision 15 2OST-1.12A Revision 19
TOOLS:	Key #79 Train A SSPS -or- Key #126 Train B SSPS
HANDOUT:	2OST-1.11A pages 1-16 (content) and 45-46 (table 1 & table 2) -or- 2OST-1.12A pages 1-21 (content) and 51-52 (table 1 & table 2)

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to simulate the Main Feedwater Isolation safeguards test. Following completion of this portion of the OST, determine if the test results satisfy the acceptance criteria.

INITIAL CONDITIONS: The plant is operating under steady-state conditions at 100% power. All plant systems are configured in their normal system arrangement. 2OST 1.11A, Safeguards Protection System Train A Blockable Test, (or 2OST 1.12A, Safeguards Protection System Train B Blockable Test) is in progress and has been completed up to the beginning of Section VII.B. Communications have been established with the control room and the front panel of the Safeguards Test Cabinet is unlocked and open.

INITIATING CUE: Your supervisor directs you to locate and open the appropriate SSPS cabinet and continue with the test by completing Section VII.B, and when complete, determine if the test results satisfy the acceptance criteria.

☐ 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: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
EVALUATOR NOTE: **This JPM is formatted to use either SSPS Train.** **During "Protected Train A" weeks, use 2OST 1.12A, Train B test and JPM pages 12-23.** **During "Protected Train B" weeks, use 2OST 1.11A, Train A test and JPM pages 6-11**	**EVALUATOR NOTE:** Normally two operators are assigned to perform this task. One is the performer and the other is the peer checker/placekeeper. It may be necessary to clarify the expectation that the candidate will be the performer, and the other operator will assist in placekeeping. **EVALUATOR CUE:** Unlock and open the Safeguards Test Cabinet [2RK*2P-TST-A]. Provide cues as appropriate. Provide a copy of 2OST-1.11A to the candidate.	
1. Notify SM/US to make a narrative log entry of relay inoperability and Tech Spec entry.	1.1 Candidate notifies SM/US to make a narrative log entry of relay inoperability and entry into Tech Spec. **EVALUATOR CUE:** Role-play SM/US and acknowledge the report **AND** inform the candidate that the appropriate log entries have been made COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
2. Verify white test lamps ON.	2.1. Candidate verifies white test lamps 040, 041, 042 ON. **EVALUATOR CUE:** White test lamps are **ON**. COMMENTS:	
3.**C** Rotate test switch to the PUSH TO TEST position.	3.1.**C** Candidate rotates test switch TRN A S811 to the PUSH TO TEST position. **EVALUATOR CUE:** Test switch is in the **PUSH TO TEST** position. 3.2. Candidate contacts the control room to verify annunciator A2-2H is in alarm. **EVALUATOR CUE:** Role-play control room operator and inform the candidate that Annunciator A2-2H is **IN ALARM**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
4. Verify red test lamp 081 is ON.	4.1. Candidate verifies red test lamp 081 is ON. **EVALUATOR CUE:** Red test lamp is **ON**. COMMENTS:	
5. Verify white test lamps are OFF.	5.1. Candidate verifies white test lamps 040, 041, 042 are OFF. **EVALUATOR CUE:** White test lamps are **OFF**. COMMENTS:	
6.**C** Depress and release test switch.	6.1**C** Candidate depresses and then releases test switch TRN A S811. **EVALUATOR CUE:** Test switch has been depressed and released. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
7.**C** Depress each white test lamp individually and verify each is ON as depressed and OFF when released.	7.1**C** Candidate depresses and then releases each lamp 040, 041, 042 and verifies each is ON when depressed and OFF when released. **EVALUATOR CUE:** Lamps **ON** when depressed and **OFF** when released. COMMENTS:	
8.**C** Place reset test switch to RESET and allow it to spring return to NORMAL.	8.1**C** Candidate places reset test switch TRN A S821 to RESET and allows it to spring return to NORMAL. **EVALUATOR CUE:** Test switch has been **RESET** and has spring returned to **NORMAL.** COMMENTS:	
9.**C** Verify white test lamps.	9.1**C** Candidate depresses and then releases each lamp 040, 041, 042 and verifies each remains OFF when depressed. **EVALUATOR CUE:** Lamps remain **OFF** when depressed. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
10. Check for stuck relays.	10.1. Candidate determines that no stuck relays are indicated and proceeds to the next step. COMMENTS:	
11.**C** Place test switch in NORMAL.	11.1**C** Candidate places test switch TRN A S811 in NORMAL **EVALUATOR CUE:** Test switch is in **NORMAL**. COMMENTS:	
12. Verify test/blocking lamps.	12.1. Candidate verifies white test lamps 040, 041, 042 ON. **EVALUATOR CUE:** White test lamps are **ON**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
13. Verify red test lamp 081 is OFF.	13.1. Candidate verifies red test lamp 081 is OFF. **EVALUATOR CUE:** Red test lamp 081 is **OFF**. 13.2. Candidate contacts the control room to verify annunciator A2-2H is OFF. **EVALUATOR CUE:** Role-play control room operator and inform the candidate that Annunciator A2-2H is **OFF**. COMMENTS:	
14.**C** Evaluate results against acceptance criteria.	14.1**C** Candidate evaluates results against OST acceptance criteria and determines that this portion of the OST meets the acceptance criteria. COMMENTS: **EVALUATOR CUE:** That completes this JPM.	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
EVALUATOR NOTE: **This JPM is formatted to use either SSPS Train.** **During "Protected Train A" weeks, use 2OST 1.12A, Train B test and JPM pages 12-23.** **During "Protected Train B" weeks, use 2OST 1.11A, Train A test and JPM pages 6-11**	**EVALUATOR NOTE:** Normally two operators are assigned to perform this task. One is the performer and the other is the peer checker/placekeeper. It may be necessary to clarify the expectation that the candidate will be the performer, and the other operator will assist in placekeeping. **EVALUATOR CUE:** Unlock and open the Safeguards Test Cabinet [2RK*2P-TST-B]. Provide cues as appropriate. Provide a copy of 2OST-1.12A to the candidate.	
1. Notify SM/US to make a narrative log entry of relay inoperability and Tech Spec entry.	1.1 Candidate notifies SM/US to make a narrative log entry of relay inoperability and entry into Tech Spec. **EVALUATOR CUE:** Role-play SM/US and acknowledge the report **AND** inform the candidate that the appropriate log entries have been made COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
2. Determine if the Reactor Trip Breakers are OPEN.	2.1. Candidate determines that the reactor trip breakers are closed (given in initial conditions), N/As steps B.2.a & B.2.b, and proceeds to step B.3. **EVALUATOR CUE:** If asked, reactor trip breakers are **CLOSED**. COMMENTS:	
3. Verify white test lamps ON.	3.1. Candidate verifies white test lamps 002, 004, 006 ON. **EVALUATOR CUE:** White test lamps are **ON**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
4.C Rotate test switch to the PUSH TO TEST position.	4.1C Candidate rotates test switch TRN B S801 to the PUSH TO TEST position. **EVALUATOR CUE:** Test switch is in the **PUSH TO TEST** position. 4.2 Candidate contacts the control room to verify annunciator A2-2H is in alarm. **EVALUATOR CUE:** Role-play control room operator and inform the candidate that Annunciator A2-2H is **IN ALARM**. COMMENTS:	
5. Verify red test lamp 081 is ON.	5.1. Candidate verifies red test lamp 081 is ON. **EVALUATOR CUE:** Red test lamp is **ON**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
6. Verify green blocking lamps are ON.	6.1. Candidate verifies green blocking lamps 001, 003, 005 are ON. **EVALUATOR CUE:** Green blocking lamps are **ON**. COMMENTS:	
7.**C** Depress and release test switch.	7.1**C** Candidate depresses then releases test switch TRN B S801. **EVALUATOR CUE:** Test switch has been depressed and released. COMMENTS:	
8. Verify white test lamps are OFF.	8.1. Candidate verifies white test lamps 002, 004, 006 are OFF. **EVALUATOR CUE**: White test lamps are **OFF**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
9.**C** Depress each white test lamp individually and verify each is ON as depressed and OFF when released.	9.1**C** Candidate depresses and then releases each lamp 002, 004, 006 and verifies each is ON when depressed and OFF when released. **EVALUATOR CUE:** Lamps **ON** when depressed and **OFF** when released. COMMENTS:	
10.**C** Place reset test switch to RESET and allow it to spring return to NORMAL.	10.1**C** Candidate places reset test switch TRN B S821 to RESET and allows it to spring return to NORMAL **EVALUATOR CUE:** Test switch has been **RESET** and has spring returned to **NORMAL**. COMMENTS:	
11.**C** Verify white test lamps.	11.1**C** Candidate verifies white test lamps 002, 004, 006 ON. **EVALUATOR CUE:** White test lamps are **ON**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
12. Check for stuck relays.	12.1. Candidate determines that no stuck relays are indicated and proceeds to the next step. COMMENTS:	
13.**C** Place test switch in NORMAL.	13.1**C** Candidate places test switch TRN B S801 in NORMAL. **EVALUATOR CUE:** Test switch is in **NORMAL**. COMMENTS:	
14. Verify test/blocking lamps.	14.1. Candidate verifies green blocking lamps 001, 003, 005 are OFF. **EVALUATOR CUE:** Green Blocking lamps are **OFF**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
15.**C** Rotate test switch to the PUSH TO TEST position.	15.1**C** Candidate rotates test switch TRN B S802 to the PUSH TO TEST position. **EVALUATOR CUE:** Test switch is in the **PUSH TO TEST** position. COMMENTS:	
16. Verify red test lamp 081 is ON.	16.1. Candidate verifies red test lamp 081 is ON. **EVALUATOR CUE:** Red test lamp is **ON**. COMMENTS:	
17. Verify green blocking lamps are ON.	17.1. Candidate verifies green blocking lamps 001, 003, 005 are ON. **EVALUATOR CUE:** Green blocking lamps are **ON**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
18.C Depress and **HOLD** test switch depressed.	18.1C Candidate depresses and **HOLDS** test switch TRN B S802. **EVALUATOR CUE:** Test switch is being held depressed. COMMENTS:	
19. Verify white test lamps are OFF.	19.1 Candidate verifies white test lamps 002, 004, 006 are OFF. **EVALUATOR CUE:** White test lamps are **OFF**. COMMENTS:	
20.C While holding the test switch depressed, depress each white test lamp individually and verify each is ON as depressed and OFF when released.	20.1C Candidate holds test switch TRN B S802 depressed AND depresses and then releases each lamp 002, 004, 006 and verifies each is ON when depressed and OFF when released. **EVALUATOR CUE:** Lamps **ON** when depressed and **OFF** when released. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
21.**C** Release test switch.	21.1**C** Candidate releases test switch TRN B S802. **EVALUATOR CUE:** Test switch released. COMMENTS:	
22.**C** Place reset test switch to RESET and allow it to spring return to NORMAL.	22.1**C** Candidate places reset test switch TRN B S821 to RESET and allows it to spring return to NORMAL. **EVALUATOR CUE:** Test switch has been **RESET** and has spring returned to **NORMAL**. COMMENTS:	
23. Verify white test lamps ON.	23.1. Candidate verifies white test lamps 002, 004, 006 ON. **EVALUATOR CUE:** White test lamps are **ON**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
24. Check for stuck relays.	24.1 Candidate determines that no stuck relays are indicated, and proceeds to the next step. COMMENTS:	
25.C Place test switch in NORMAL.	25.1C Candidate places test TRN B S802 in NORMAL. **EVALUATOR CUE:** Test switch is in **NORMAL**. COMMENTS:	
26. Verify green blocking lamps OFF.	26.1. Candidate verifies green blocking lamps 001, 003, 005 are OFF. **EVALUATOR CUE:** Green blocking lamps are **OFF**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
27. Verify red test lamp 081 is OFF.	27.1. Candidate verifies red test lamp 081 is OFF. **EVALUATOR CUE:** Red test lamp 081 is **OFF**. 27.2. Candidate contacts the control room to verify annunciator A2-2H is OFF. **EVALUATOR CUE:** Role-play control room operator and inform the candidate that Annunciator A2-2H is **OFF**. COMMENTS:	
28. Step 28 should be N/A.	28.1. Candidate determines step B.2 was not performed and documents step 28 N/A. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-048 JPM REVISION: 11	JPM TITLE: Safeguards Test of FWI

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	**S/U**
29. Step 29 should be N/A.	29.1. Candidate determines step B.2 was not performed and documents step 29 N/A. COMMENTS:	
30.**C** Evaluate results against acceptance criteria.	30.1**C** Candidate evaluates results against OST acceptance criteria and determines that this portion of the OST meets the acceptance criteria. COMMENTS: **EVALUATOR CUE:** That completes this JPM.	
	STOP TIME: _____	

JPM NUMBER: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

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

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☐ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☒ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS		
Performer Name:	Performer SSN:	
Time Critical: ☐ Yes ☒ No	Allotted Time: 15 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD: 2FWE*P22 tripped and Reset

RECOMMENDED STARTING LOCATION: Auxiliary Feed Pump Room

DIRECTIONS: You are to simulate the task Local Shutdown of [2FWE*P22].

INITIAL CONDITIONS:

- The Plant is in Mode 3 with SG pressures at 700 psig.
- 2OST-24.4A Steam Driven Auxiliary Feed Pump [2FWE*P22] Full Flow Test, is in progress and completed satisfactory through Part V.F.**(THE PUMP IS CURRENTLY RUNNING)**
- **NO RWDA-G Discharge Authorization** was required for this evolution.

INITIATING CUE: Your supervisor directs you to perform Part G Pump Shutdown step1.a through step 1.e of 2OST-24.4A Steam Driven Auxiliary Feed Pump [2FWE*P22] Full Flow Test, to shutdown [2FWE*P22].

REFERENCES:
2OST-24.4A, Rev. 19
2OM-24.4.R, Rev.20

TOOLS: Hardhat, safety glasses, gloves, and Dosimetry

HANDOUT:
2OST-24.4A, Part G step 1.a through 1.e (Rev. 19)
2OM-24.4.R, Rev.20

OPERATIONS JOB PERFORMANCE MEASURE

CANDIDATE DIRECTION SHEET

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: You are to simulate the task Local Shutdown of [2FWE*P22].

INITIAL CONDITIONS:

- The Plant is in Mode 3 with SG pressures at 700 psig.
- 2OST-24.4A Steam Driven Auxiliary Feed Pump [2FWE*P22] Full Flow Test, is in progress and completed satisfactory through Part V.F.**(THE PUMP IS CURRENTLY RUNNING)**
- **NO RWDA-G Discharge Authorization** was required for this evolution.

INITIATING CUE: Your supervisor directs you to perform Part G Pump Shutdown step1.a through step 1.e of 2OST-24.4A Steam Driven Auxiliary Feed Pump [2FWE*P22] Full Flow Test, to shutdown [2FWE*P22].

☐ 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: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
1. Obtain procedure 2OM-24.4.A.	**EVALUATOR CUE:** For exam sequencing this step may be omitted, the evaluator may provide a copy of the procedure. 1. Candidate locates 2OM-24.4.A. COMMENTS:	
1.**C** Stop [2FWE*P22] by pressing the Emergency Trip Manual Lever.	1.1 Locates the Emergency Trip Manual Lever. 1.2**C** Presses the Emergency Trip Manual Lever. (**DOWN**) 1.3 Verifies that the pump shaft has stopped rotating. **EVALUATOR CUE:** The pump shaft has stopped rotating. COMMENTS:	
2.**C** Close the following valves: (BB-C) [2MSS*SOV105A], Turb Driven AFW Pump Stm Hdr A Supply Isol Vlv. [2MSS*SOV105D], Turb Driven AFW Pump Stm Hdr A Supply Isol Vlv.	2.1 **C** Contacts the control room and requests operator to close [2MSS*SOV105A], Turb Driven AFW Pump Stm Hdr A Supply Isol Vlv. [2MSS*SOV105D], Turb Driven AFW Pump Stm Hdr A Supply Isol Vlv. **EVALUATOR CUE:** Role-play the control room operator and inform the candidate that [2MSS*SOV105A], Turb Driven AFW Pump Stm Hdr A Supply Isol Vlv. **AND** [2MSS*SOV105D], Turb Driven AFW Pump Stm Hdr A Supply Isol Vlv. are **CLOSED**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
3. Initiate Part I, "Plant Restoration", concurrently with the remaining steps in this part of the test (Part G) and Part H, "Remote Closed Position Verification of [2MSS*SOV105A, B and C]".	**EVALUATOR CUE:** Role-play the Unit supervisor and inform the candidate that another operator will complete (Part I) and Part H, "Remote Closed Position Verification of [2MSS*SOV105A, B and C]".	
4. Record the necessary information for stopping the discharge on the RWDA-G, Discharge Authorization. (N/A if RWDA-G is NOT required)	N/A NO RWDA-G in progress. COMMENTS:	
5. WHEN the pump shaft has come to a complete stop, Reset [2FWE*TTV22], Trip and Throttle Valve for 2FWE*P22, in accordance with 2OM-24.4.R, "Resetting and Opening TDAFW Pump Trip and Throttle Valve".	N/A Pump previously verified to be stopped. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
6. Locates procedure 2OM-24.4.R, "Resetting and Opening TDAFW Pump Trip and Throttle Valve" and reviews initial conditions, and P&Ls	6.1 Candidate locates 2OM-24.4.R. COMMENTS:	
7. Verify closed [2MSS*SOV105A-F].	7.1 Candidate contacts Control Room to determine valve positions. **EVALUATOR CUE:** All of the steam supply SOV's, [2MSS*SOV105A, B, C, D, E, F], are **CLOSED.** COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	**S/U**
8. Verify tripped or depress Manual Emergency Trip Lever.	8.1 N/A Previously performed COMMENTS:	
9. Verify [2FWE*TTV22] Trip Throttle valve is unlatched.	9.1 Candidate locates latch hook and verifies that the trip lever is not engaged. **EVALUATOR CUE:** Trip Throttle Valve is **NOT ENGAGED**. (Brass sleeve is full down) COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
	EVALUATOR CUE: The Turbine Driven Aux Feed pump will **NOT** be started within the next 15-20 minutes.	
10.C Reset and latch the overspeed trip device.	10.1C Candidate turns the handwheel CLOCKWISE until the sliding nut and lever raise to the trip hook.	
	EVALUATOR CUE: Brass Sliding nut and lever are all the way up.	
	10.2C Candidate locates and holds the overspeed trip connecting rod to the left, while ensuring the overspeed tappet washer flat side directly faces the overspeed trip lever.	
	EVALUATOR CUE: Trip Lever is to the **LEFT** and **ENGAGED** in the trip hook with flat side tappet washer directly facing the Overspeed Trip Lever.	
	10.3C Candidate releases the connecting rod, allowing spring tension to maintain the reset condition.	
	EVALUATOR CUE: After candidate releases the connecting rod the Overspeed Trip remains **RESET**.	
	10.4 Candidate ensures the washer flat side is flush against the vertical side overspeed trip lever.	
	EVALUATOR CUE: Washer flat side is flush against the overspeed trip lever vertical side.	
	10.5 Candidate verifies valve is latched by observing that the latch on the right side of the valve is fully engaged.	
	EVALUATOR CUE: The latch is **FULLY ENGAGED**.	
	COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate "S" FOR SAT or "U" FOR UNSAT)⇒	S/U
11.C Reopen Trip Throttle Valve.	11.1C Candidate locates [2FWE*TTV22] and turns handwheel CCW until it stops in the full open position. **EVALUATOR CUE:** [2FWE*TTV22] is **FULL OPEN**. 11.2 Candidate verifies that the pump does not accelerate in an uncontrolled manner. **EVALUATOR CUE:** The pump slowly rotates as you open the Trip **EVALUATOR CUE:** Acknowledge request for concurrent verification of the valve, inform candidate that other operators will perform this function using step 11 of the procedure. **Direct candidate to continue with step 8.** 11.3 Candidate adjusts the valve 1/4 turn off the backseat. **EVALUATOR CUE:** Valve is 1/4 Turn off its backseat. 11.4 Candidate verifies that the overspeed trip mechanism is reset by observing that the flat side of the washer remains engaged with the trip lever. **EVALUATOR CUE:** Flat side of the washer remains engaged with the trip lever 11.5 Candidate contacts the control room to verify that computer point Y5172D indicates OPER. **EVALUATOR CUE:** Role-play Control Room operator and inform the candidate that Y5172D indicates **OPER**. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-069 JPM REVISION: 4	JPM TITLE: Local Shutdown of 2FWE*P22 (IAW 2OST-24.4A)

STEP (**"C"** Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	EVALUATOR CUE: IF necessary, Role-play the Unit Supervisor and inform the candidate that the Governor Oil Pressure was **NOT** previously relieved.	
12.**C** Relieve governor oil pressure.	12.1 Candidate removes access cover to [2FWE-2CSSOV101].	
	EVALUATOR CUE: It is **NOT** necessary to remove the cover to simulate the depressing of the pushbuttons.	
	12.2**C** Candidate simultaneously depresses both pushbuttons until governor linkage movement has ceased and pushbuttons have been held for 15 seconds.	
	EVALUATOR CUE: All linkage movement has stopped, 15 seconds has elapsed.	
	12.3 Candidate replaces access cover to [2FWE-2CSSOV101].	
	EVALUATOR CUE: Cover is re-installed.	
	12.4 Candidate notifies Control Room that [2FWE*P22] is available.	
	COMMENTS:	
	EVALUATOR CUE: That completes this JPM.	
	STOP TIME: _____	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-606 JPM REVISION: 1	JPM TITLE: Locally Start the No. 1(2) Emergency Diesel Generator

K/A REFERENCE: 064A4.01 4.0/4.3
055EA1.01 4.3/4.4

TASK ID: 0362-003-01-043

JPM APPLICATION: ☒ REQUALIFICATION ☒ INITIAL EXAM ☐ TRAINING

☒ FAULTED JPM ☐ ADMINISTRATIVE JPM

EVALUATION METHOD:	LOCATION:	TYPE:	ADMINISTERED BY:
☐ Perform ☐ Simulate	☐ Plant Site ☐ Simulator ☐ Classroom	☐ Annual Requal Exam ☐ Initial Exam ☐ OJT/TPE ☐ Training ☐ Other:	☐ BVT ☐ NRC ☐ Other:

EVALUATION RESULTS

Performer Name:	Performer SSN:

Time Critical: ☐ Yes ☒ No	Allotted Time: 20 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: _____

EVALUATOR DIRECTION SHEET

TASK STANDARD:	Locally start the No. 1(2) Diesel Generator.
RECOMMENDED STARTING LOCATION:	In Plant
EVALUATOR NOTE:	This JPM is designed for either Train. Perform on Diesel Generator #2 if Protected Train A and on Diesel Generator #1 if Protected Train B. Train B equipment in parentheses.
DIRECTIONS:	You are to simulate the task locally start the No. 1(2) Emergency Diesel Generator.
INITIAL CONDITIONS:	A station blackout has occurred. OM-53A Procedure ECA-0.0, "Loss of All AC Power," has led the crew to the step which requires local action to restore power. 2SWS*P21A(B) control switch is in AUTO.
INITIATING CUE:	Your supervisor directs you to use Attachment A-1.5 of ECA-0.0 to locally start the No. 1(2) Diesel Generator and energize the 2AE(2DF) bus, but to not load equipment onto the bus. You are given the key for the Diesel Generator (use of keys will be simulated).
REFERENCES:	2OM-53A.1.A-1.5, Local Actions to Restore AC Power, Issue 1C, Revision 5
TOOLS:	Key 138 for Excitation Panel will be provided when needed Key for Local Start will be simulated (SR 27/28)
HANDOUT:	2OM-53A.1.A-1.5, Local Actions to Restore AC Power, Issue 1C, Revision 5

OPERATIONS JOB PERFORMANCE MEASURE

CANDIDATE DIRECTION SHEET

Use this sheet if Protected Train "A"

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: Locally start No. 2 Diesel Generator

INITIAL CONDITIONS: A station blackout has occurred. OM-53A Procedure ECA-0.0, "Loss of All AC Power," has led the crew to the step which requires local action to restore power. 2SWS*P21B control switch is in AUTO.

INITIATING CUE: Your supervisor directs you to use Attachment A-1.5 of ECA-0.0 to locally start the No. 2 Diesel Generator and energize the 2DF bus, but do not load equipment onto the bus. You are given the key for the Diesel Generator (use of keys will be simulated).

☐ 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

Use this sheet if Protected Train "B"

* THIS SHEET TO BE GIVEN TO CANDIDATE *

☐ Read:

TASK: Locally start No. 1 Diesel Generator

INITIAL CONDITIONS: A station blackout has occurred. OM-53A Procedure ECA-0.0, "Loss of All AC Power," has led the crew to the step which requires local action to restore power. 2SWS*P21A control switch is in AUTO.

INITIATING CUE: Your supervisor directs you to use Attachment A-1.5 of ECA-0.0 to locally start the No. 1 Diesel Generator and energize the 2AE bus, but do not load equipment onto the bus. You are given the key for the Diesel Generator (use of keys will be simulated).

☐ 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: 2PL-606 JPM REVISION: 1	JPM TITLE: Locally Start the No. 1(2) Emergency Diesel Generator

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	START TIME: _____	
	EVALUATOR NOTE: A copy of the procedure can be given to the candidate if starting in plant. Key #138 will be needed for the Excitation Panel. Provide key when candidate needs to get into the panel. Uses of Auto/Local key will be simulated.	
1.**C** Place Auto-Local Selector Switch in the LOCAL position.	1.1 Candidate locates Auto-Local Control key switch. 1.2 **C** Inserts key and places in the LOCAL position. **EVALUATOR CUE:** Diesel Generator is in **LOCAL**. COMMENTS:	
2. Verify following alarms are not lit: Engine Overspeed and Start Failure.	2.1 Candidate locates Alarm Panel. 2.2 Verifies Engine Overspeed and Start Failure alarms not lit. **EVALUATOR CUE:** No alarms present. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-606 JPM REVISION: 1	JPM TITLE: Locally Start the No. 1(2) Emergency Diesel Generator

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
	EVALUATOR NOTE: Candidate may depress both pushbuttons, although only one is needed.	
3. **C** Depress one local start pushbutton and maintain it depressed until the diesel starts and is self-sustaining and then release pushbutton.	3.1 Candidate locates Start Pushbutton, Start 1 or Start 2 3.2 **C** Depresses it until engine starts and is self-sustaining and then releases. **EVALUATOR CUE:** Diesel starts and is self-sustaining at **525 rpm**. COMMENTS:	
4.**C** Adjust Diesel Generator speed using governor raise-lower control to establish an operating speed of approximately 514 rpm (510 to 520 rpm)	4.1 Candidate locates Governor Raise-Lower control and speed indication. 4.2**C** Candidate simulates turning Governor Raise-Lower to "Lower" position to decrease speed to 514 rpm. 4.3 Verifies Engine speed at appx. 514 rpm. **EVALUATOR CUE:** Diesel speed is **514 rpm**. (510-520). COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-606 JPM REVISION: 1	JPM TITLE: Locally Start the No. 1(2) Emergency Diesel Generator

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
5. Verify Diesel Generator Volts greater than 4160 VAC.	5.1 Candidate locates Diesel Generator Voltmeter. 5.2 Verifies Engine voltage greater than 4160 VAC. **EVALUATOR CUE:** Diesel Generator Voltage is **ZERO**. COMMENTS:	
6.C Response to failure of Automatic Field Flash.	6.1 Candidate calls control room. 6.2. Candidate has operator flash generator field from bench board **EVALUATOR CUE:** Role-play Control room operator and inform the candidate the control room has attempted to flash the field, **HOWEVER**, Diesel Generator Voltage is still **ZERO**. 6.3 Candidate locates the K2 field flash contactor inside cab. [PNL-2DIGEN-1A (2A)] 6.4C Candidate simulates DEPRESSING the White Stabs on the K2 Field Flash Contactor until the voltmeter shows a rapid rise. **EVALUATOR CUE:** Diesel Generator Voltage is now indicating ~**4160 VAC** and stable. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-606 JPM REVISION: 1	JPM TITLE: Locally Start the No. 1(2) Emergency Diesel Generator

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
7. Attempt to Restore Diesel Generator Control to the Control Room.	7.1 Candidate locates Auto-Local key switch. 7.2 Verifies/Places it to AUTO. **EVALUATOR CUE:** Auto-Local key switch is in **AUTO**. IF necessary, Role-play the Control Room and confirm control of Diesel Generator in the control room. COMMENTS:	
8. Request Control Room Operator verify open or open emergency bus tie breaker.	8.1 Candidate contacts Control Room. 8.2 Has operator open or verify open 2E7(2F7) and 2A10(2D10) **EVALUATOR CUE:** Control Room reports both breakers open. COMMENTS:	

OPERATIONS JOB PERFORMANCE MEASURE

JPM NUMBER: 2PL-606 JPM REVISION: 1	JPM TITLE: Locally Start the No. 1(2) Emergency Diesel Generator

STEP ("C" Denotes CRITICAL STEP)	STANDARD (Indicate **"S" FOR SAT** or **"U" FOR UNSAT)⇒**	S/U
9.**C** Request Control Room operator close Diesel Generator Output Breaker 2E10(2F10).	9.1 Candidate contacts Control Room. 9.2**C** Candidate has operator close Diesel Generator Output breaker. **EVALUATOR CUE:** ACB 2E10(2F10) is closed. COMMENTS:	
	STOP TIME: _____	

Facility: BVPS 2 **Scenario No.: 1** Op Test No.: NRC

Examiners: _____ Candidates: _____ SRO

_____ _____ ATC

_____ _____ BOP

Initial Conditions: BOL, ~5% power following Xe free S/U, CB D = 104, 2027 PPM IC-165

Equipment OOS

[2SAS-C21B] Station Air Compressor undergoing a compressor overhaul, will not be returned until 3 days from now

Turnover: Continue plant startup IAW **2OM-52.4.A**.

Critical Tasks:

1. E-0.I Crew establishes flow from at least one high head ECCS pump before transition out of E-0.
2. E-0.P Crew manually actuates main steam line isolation before a Severe (orange path) challenge develops to either the Sub-criticality or Integrity CSF or before transition to ECA-2.1, whichever occurs first.
3. E-2.A Crew isolates the faulted SG and directs operator to close isolation valve(s) operated from outside of the control room before transition out of E-2.

Event No.	Malf. No.	Event Type	Event Description
1		R(RO) N(ALL)	Crew raises power IAW procedure (Must raise power above 10% before N-36 failure)
2	NIS07B	*SRO T.S.*	IRNI N-36 Intermediate Range Nuclear Instrument Inst Pwr fuse blows
3	XMT-RCS019A	I(RO/SRO) *SRO T.S.*	[2RCS*LT459] Controlling PRZR Level Channel fails low, L/D isolates
4		N(RO/SRO)	Alternate channel selected and L/D restored
5	CNH-CFW15B	C(BOP/SRO)	'C' BPFRV fails open in auto, manual control required
6	MSS01C	M(ALL)	Steam leak inside CNMT slowly progresses to Steam line RUPTURE inside CNMT, SI, CIA, CIB
7	PMP-CHS002 PPL07A	C(RO/SRO)	[2CHS*P21B] HHSI Pump trips on SI [2CHS*P21A] HHSI pump Fails to AUTO Start, requires manual start on SI
8	PPL10A PPL10B	C(BOP/SRO)	AUTO MSLI failure BOTH Trains, requires manual actuation

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

The crew will assume the shift at approximately 5% power BOL, with station air compressor [2SAS-C21B] OOS. Crew instructions are to continue the plant start-up. The crew will perform a Normal Power Increase to > 10%. When power is greater than 10%, the instrument power fuse will fail on Intermediate Range Channel N-36. The crew will respond to the annunciators and implement the actions of **AOP 2.2.1B**, Intermediate Range Channel Malfunction. After the US implements the required Technical Specification actions, the controlling channel of PRZR level [2RCS*LT459] will FAIL LOW causing letdown isolation. The crew will respond to the annunciators and implement the actions of instrument failure procedure **OM 2.6.4.IF ATT #1**. After stabilizing the plant, letdown will be restored IAW normal operating procedure **2OM-7.4.AB**, Restoring Charging and Letdown. After the US implements the required Technical Specification actions "C" BPFRV will FAIL OPEN in automatic. The crew will be required to take manual control of "C" BPFRV to restore and maintain SG level. After SG levels are stabilized, a steam leak will develop inside containment. The leak will slowly progress to a full steam line RUPTURE causing RX TRIP, SI, CIA and CIB. The crew will respond by implementing the actions of **E-0**, Reactor Trip or Safety Injection. The actions of E-0, Reactor Trip or Safety Injection will be complicated by HHSI pump 21B tripping after the SI start signal and HHSI pump 21A failing to automatically start on the receipt of the SI signal. The crew must identify these failures and manually start the 21A HHSI pump. The crew must then diagnosis the faulted SG and transition into **E-2**, Faulted SG Isolation. The actions of **E-2**, Faulted SG Isolation will be complicated by a failure of SLI. The crew must identify this failure and manually initiate SLI. After completing the actions of **E-2**, Faulted SG Isolation the crew must determine that the SI termination criteria have been met and transition into **ES-1.1**, SI Termination. After the crew has terminated HHSI flow the scenario will be terminated.

EOP Flow Path:
E-0, Reactor Trip or Safety Injection → E-2, Faulted Steam Generator Isolation → ES-1.1, SI Termination.

INITIAL CONDITIONS: Approx 5% Power, CBD = 104, XE increasing from XE free S/U, BOL, 2027 PPM Boron, IC-165

ADDITIONAL LINEUP CHANGES	STICKERS	VOND MARKINGS
[2SAS-C21B] – PTL	YCT	
EQUIPMENT STATUS	**DATE/TIME OOS**	**TECHNICAL SPECIFICATION(S)**
[2SAS-C21B]	1 week ago	N/A

SHIFT TURNOVER INFORMATION

1. Protected Train is Train "B"
2. [2SAS-C21B] undergoing a compressor overhaul, will not be returned until 3 days from now
3. [2FWS-P21A] operating, SG levels maintained via BPFRVs operating in AUTO
4. Continue plant S/U IAW **2OM-52.4.A.IV.A step 6**
5. Reactor Engineering has provided the reactivity plan for the continuation of the startup

SCENARIO SUPPORT MATERIAL REQUIRED

Reactivity plan placard for BOL
2OM-52.4.A.IV.A signed-off through step 5.
Placard for [2FWE*P22] position stating [2FWE*P22] is aligned to "A" header
Place plaque on wall for Protected Train "B"
2OM-48.I (Alt Trip) available on the floor

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Initialize IC Set 165, and establish initial plant conditions.	Reactor plant at approx 5% power, BOL, equilibrium conditions. RCS boron 2027 PPM, CBD = 104 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		
RUN			
IMF PMP-CAS004 (0 0) 1	[2SAS-C21B] OOS		
IMF PPL10A (0 0)	Prevent auto MSLI Trn "A"		
IMF PPL10B (0 0)	Prevent auto MSLI Trn "B"		
TRGSET 1 'JPPLSI(1) == 1'	Set trigger 1 on SI actuation		
IMF PMP-CHS002 (1 0) 1	[2CHS*P21B] trips on SI initiation		
IMF PPL07A (0 0) 0	[2CHS*P21A] fails to auto start on SI initiation, manual start required		
TRG 1 'IMF MSS01C 1E7'	'C' Steam line rupture inside CNMT on SI actuation		
TRGSET 2 'MCRFNS(3) <= 225'	Set trigger 2 on reactor trip		
TRG 2 'IMF MSS01C 1E7'	'C' Steam line rupture inside CNMT on reactor trip		
TRGSET 3 'TPCSTAAU <= 547'	Set trigger 3 on Tavg < 547F		
TRG 3 'IMF MSS01C 1E7'	'C' Steam line rupture inside CNMT when Tavg decreases below 547F		
BAT STUFFON.DAT	Horns, Printers, Sounds ready		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Assign shift positions SM:_____ US:_____ RO:_____ BOP:_____ STA:_____			
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.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #1:			
Normal Power Increase to > 10%			US directs crew to conduct power increase IAW **2OM-52.4.A** and the reactivity plan provided by Reactor Engineering
			RO Withdraws rods to raise reactor power.
			SRO directs and RO Blocks IR High Φ trip AND PR High Φ low setpoint trip
Continue with next event **AFTER** IRNI High Flux Trip has been blocked above 10% **AND** LE discretion			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #2:			
IRNI N-36 Instrument power fuse blows			
IMF NIS07B (0 0) 0	**IMMEDIATE PLANT RESPONSE:** A4-4E NIS DETECTOR COMPENSATOR TROUBLE (V0139D, V0132D) [2NMI-NI36B] Intermediate range current indicates low (BB B) N-36 meter at NIS racks indicates low N-36 Inst Pwr fuse indicates blown Light on N-36 rack drawer: CONTROL POWER ON – LIT HIGH LEVEL TRIP – LIT HIGH LEVEL ROD STOP – LIT POWER ABOVE P-6 PERMISSIVE – LIT		RO verifies alarms, diagnose failure of N-36 IRNI Crew identifies blown fuse
	LOSS OF DETECTOR VOLTS – LIT LOSS OF COMP VOLTS – LIT BB B Status panel 308 – LIGHT C-10 – LIT NO PLANT TRANSIENT		Crew refers to **ARP and AOP 2.2.1B**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Operable recorders selected on VB B		RO verifies operable recorders selected to VB B recorders
	MODE 1 operation		US refers to **TS 3.3.3** for post acc monitoring **(when time permits)** **Condition A: 30 days**
	Plant is above P10		US directs actions IAW **step 6** based on current plant operating conditions
	Both IRNIS block switches to BLOCK position		RO blocks both IRNIS Rod Stop and Reactor Trip functions (previously performed)
	Caution tags in place to prompt MANUAL Unblock of SRNI on plant S/D		RO places caution tags on both SRNI Block/Reset switches
			US directs continued plant operations and continue power increase
	Ann A4-5F NIS INT RANGE HIGH FLUX ROD WITHDRAWL STOP actuates Ann A4-5E NIS SOURCE/INT RANGE HIGH FLUX TRIP BYPASS – LIT (N0097D) – TRIPPED Status light "LEVEL TRIP BYPASS" – LIT		Crew bypasses reactor trip function by placing LEVEL TRIP switch of inoperable channel in BYPASS position

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Caution tag in place		BOP places Caution Tag on Level Trip switch for N-36
	Power increase continues		Crew continues power increase IAW **2OM-52.4.A** and reactivity plan
Continue with next event at LE discretion			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #3:			
PZR level Xmitter [2RCS*LT459] fails low	PZR level transmitter [2RCS*LT459] fails low.		RO recognizes problem with PZR level channel, informs US that [2RCS*LT459] failed low.
	IMMEDIATE PLANT RESPONSE:		
IMF XMT RCS019A (0 0) 0	A4-1C PZR CONTROL LEVEL DEVIATION LOW (L0493D)		
	A4-1B PZR CONTROL LEVEL LOW (L0491D)		RO places [2CHS*FCV122] in manual to reduce charging flow and control PZR level
	[2CHS*LCV460A], [2CHS*AOV200A,B,C] close		
	PZR heaters off.		
			Crew refers to ARP and **OM 2.6.4.IF ATT #1**, US directs operator to defeat level control input with PZR level channel and recorder selector switches.
	Level alarms clear, charging flow reduces, high flow alarm clears.		RO places Channels 460 and 461 in service. By placing Pressurizer level control channel selector switch to the III/II position.
	Adequate M/U to VCT exists		RO verifies M/U to VCT
	PZR heaters energized as desired		RO places PZR heaters in operation as necessary to restore normal PZR pressure control

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #4: **Restore Letdown Flow**			US directs operators to restore Letdown flow IAW **2OM-7.4.AB**
	[2CHS*FCV122] - CLOSED		RO places [2CHS*FCV122] in manual and closes the valve
	[2CHS*MOV289] - OPEN		RO verifies [2CHS*MOV289] open
	[2CHS*MOV310] - OPEN		RO verifies [2CHS*MOV310] open
	[2CHS*FCV122] throttled to obtain 30 – 50 gpm on [2CHS*FI122] (VB A)		RO throttles charging pump discharge flow control valve open to provide 30 – 50 gpm flow as indicated on [2CHS*FI122] (VB A)
	[2CHS*AOV200A, B, C] - CLOSED		RO verifies 3 L/D isolation valves are closed
	[2CHS*AOV204] - OPEN		RO verifies the NRHX L/D inlet valve is open (BB A)
	[2CHS*PCV145] – IN MANUAL AND ADJUSTED TO 50% OPEN DEMAND SIGNAL (BB A)		RO place NRHX Disch Pres control valve in MANUAL and adjusts for 50% output demand
	[2CHS*MOV100A] – OPEN [2CHS*MOV100B] – CLOSED		RO verifies positions of [2CHS*MOV100A], [2CHS*MOV100B]
	[2CHS*LCV460A, B] - OPEN		RO verifies Regen HX L/D Inlet valves open
	[2CHS*AOV200A, B] - OPEN		RO opens L/D isol valves to establish L/D flow at previous value

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	[2CHS*PCV145] adjusted to maintain 260 psig as indicated on [2CHS*PI145] SETPOINT of [2CHS*PCV145] – SET FOR 260PSIG [2CHS*PCV145] – PLACED IN AUTO [2CHS*FCV122] – PLACED IN AUTO		RO establishes automatic control of letdown flow
	PZR level trending to normal		RO monitors PZR level for proper response US refers to **TS. 3.3.1 Table 3.3.1-1 Function 9**, **Condition K:** Place channel in trip W/I 6 hrs **OR** Reduce THERMAL POWER to <P7 W/I 12 hrs **TS 3.3.4 and Bases Table B3.3.4 Function 4.a:** Remote S/D Indication and Controls requires 1 channel of PZR level operable **TS 3.3.3 Table 3.3.3-1 Function 11 Condition A:** Restore to operable status within 30 days RO informs the US that letdown has been reestablished.
IF DESIRED use the following to trip bistable per **2MSP-6.23-I:**			US directs operators to trip appropriate bistable.
IRF LOA-PCS001 (0 0) 1 **IMF BST-PCS097 (0 0) 0**	Protection rack C1 door open. 2LS/459A-1 (442, BS-1) hi level trip. A4-2B (L0480D)		US notifies I&C of problem.
IRF LOA-PCS001 (0 0) 0	Protection rack C1 door closed.		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Inform crew that bistable is tripped. Continue next event when letdown is reestablished **OR** at LE discretion			US is informed that bistable is tripped.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #5:			
'C' BPFRV Controller fails to 100%			
IMF CNH-CFW15B (0 0) 100	'C' BPFRV Controller fails to 100%		
	IMMEDIATE PLANT RESPONSE:		BOP identifies problem with "C" SG level control, reports to the crew
NOTE: **Depending on plant response, the crew could enter the DNB Tech Spec 3.4.1 for this event.**	[2FWS*FCV499] travels to the fully open position		
	A6-11F LOOP C FEEDWATER FLOW > STEAM FLOW (F0477D)		
	'C'SG NR LEVEL (3 indicators VB C) increases rapidly		
	RCS Tavg begins to reduce (3 indicators, 1 recorder VB B)		
	A6-11E SG 21C LEVEL DEVIATION FROM SETPOINT (L0479D)		
	[2FWS*FCV499] in manual & throttled closed		US directs BOP to take manual control of "C" BPFRV and restore level
	"C" SG level returning to normal		
			Crew refers to **ARPs**
Continue with next event at LE discretion			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #6:			
Steam leak develops in CNMT on "C" SG over a ten minute period			
IMF MSS01C (0 0) 1E6 600	Steam leak develops on "C" SG		
	IMMEDIATE PLANT RESPONSE:		
	CNMT Temp, Pres and Humidity slowly increase (indicators VB A)		Crew notes alarms, diagnose steam leak inside CNMT
	A1-1E CONTAINMENT AIR PRESSURE HIGH/LOW (Y5023D, UCP031)		
	A2-2B UNIDENTIFIED LEAKAGE SYSTEM TROUBLE		
	A1-1F CONTAINMENT AIR AVERAGE TEMP HIGH/LOW (Y5022D)		
	A1-2G INCORE INST ROOM/CNMT SUMP LEVEL HIGH/VALVE NOT RESET (L0002D)		
	CNMT condition continue to degrade		US directs manual reactor trip manual SI due to degrading plant/CNMT conditions
Crew enters **E-0**, performs immediate operator actions.			Crew performs IMAs of **E-0.**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT 7: **Main Steam Line Rupture inside CNMT** **IMF MSS01C (0 0) 1E7** **PRE-LOAD**	Annunciator A5-6D TURBINE TRIP DUE TO REACTOR TRIP - LIT Power range indication - LESS THAN 5% Neutron flux - DROPPING		RO verifies reactor tripped.
	Throttle Valves - ALL CLOSED OR Governor Valves - ALL CLOSED Main Generator Output Bkrs - OPEN Exciter Circuit Bkr - OPEN		BOP verifies turbine tripped.
	AC Emergency Busses - BOTH ENERGIZED		BOP verifies power to AC Emergency Buses.
	Check SI – ACTUATED CNMT Pressure - > 5 PSIG PZR Pressure - < 1860 PSIG SG Steam Pressure - < 500 PSIG		RO checks SI status
Crew continues E-0	Manually actuate SI (both trains)		RO manually actuates SI both trains
	Alert Plant Personnel		RO/BOP sound Standby Alarm, announce reactor trip and safety injection

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENTS #8&9: **ESF EQU. FAILURES** **PRE-LOAD** **IMF PMP-CHS002 (1 0) 1** **IMF PPL07A (0 0) 0**	Check [2HVS*FN204A(B)], Leak Collection Filtered Exhaust Fan – AT LEAST ONE RUNNING		BOP checks Leak Collection Exhaust Fan status
CRITICAL TASK Crew establishes flow from at least one high head ECCS pump before transition out of **E-0.**	Charging Pumps – **NONE** RUNNING **[2CHS*P21B] TRIPPED ON SI** **[2CHS*P21A] – REQUIRED MANUAL START** Charging Pumps – ONE RUNNING HHSI Flow – INDICATED LHSI Pumps – TWO RUNNING		RO verifies SI System status RO reports trip of [2CHS*P21B] RO reports manual start of [2CHS*P21A] required

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
IF REQUESTED TO PLACE 2CHS*P21C IN SERVICE ON THE 2DF BUS **IRF LOA-HIV065 (-1 0) RACKOUT** [2CHS*P21B] [ACB-2F12] racked out **IRF LOA-HIV005 (-1 0) BUS_2DF** [2CHS*P21C] manual transfer switch selected to 2DF bus **IRF LOA-HIV068 (-1 0) RACKIN** [2CHS*P21C] [ACB-2F15] racked in **IRF LOA-SWS020 (-1 0) 1 0** [2SWS*165] ([2CHS*E25C] B header supply) open **IRF LOA-SWS031 (-1 0) 1 0** [2SWS*339] ([2CHS*E25C] B header return) open **IRF LOA-SWS019 (-1 0) 0 0** [2SWS*164] ([2CHS*E25B] B header supply) closed **IRF LOA-SWS025 (-1 0) 0 0** [2SWS*182] ([2CHS*E25B] B header return) closed			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Motor-driven AFW Pumps – RUNNING Turb driven AFW Pump Stm Supply Isol Valves – OPEN AFW Throttle Vlvs – FULL OPEN Total AFW Flow – GREATER THAN 340 GPM		BOP verifies AFW System status
	Perform **Attachment A-0.11** "Verification Of Automatic Actions" in a timely manner		US directs performance of **Attachment A-0.11** when time/manpower permit
Attachment A-0.11 included with scenario beginning on Pg 26	**LIST ATT A-0.11 DICREPANCIES AS APPLICABLE** **MANUAL MSLI required** RCPs OPERATING – MONITOR Tavg RCPs STOPPED – MONITOR Tcold		RO/BOP check RCS Tavg stable at or trending to 547°F
	Check CIB – **ACTUATED** Recirc Spray HXs – SERVICE WATER FLOW TO ALL 4 HXs Check Recirc Spray Pumps – ANY RUNNING Check Recirc Spray Pumps – ALL RUNNING Check Recirc Spray Pumps – NOT CAVITATING		RO checks Recirc Spray Pump status
	All RCPs – STOPPED		RO Stops all RCPs due to CIB

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	PORVs – CLOSED Spray Valves – CLOSED Safety relief valves – (PSMS Detailed Data Page 1) – CLOSED Check PRT conditions – CONSISTENT WITH EXPECTED VALUES Power to at least one block valve – AVAILABLE Block valves – AT LEAST ONE OPEN		RO verifies PZR isolated
	RCPs PREVIOUSLY STOPPED		RO checks if RCPs should be stopped
	Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER OR ANY SG COMPLETELY DEPRESSURIZED		BOP checks if any SGs are faulted.
			CREW DETERMINES 1 OR MORE SGs ARE FAULTED, TRANSITIONS TO E-2 STEP 1
Crew transitions to E-2 step 1			US directs STA to monitor status trees.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
As U-1 operator, when requested, report proper CREVS actuation.	Check CREVS actuated: Control room air intake and exhaust dampers – CLOSED [2HVC*FN241A(B)] – AT LEAST ONE RUNNING Request U1 operator to verify CREVS actuation Commence Control Room ventilation actions IAW **ATT A-2.4**		BOP verifies CREVS actuated, requests Unit 1 CREVS verification.
<u>CRITICAL TASK</u> Crew manually actuates main steam line isolation before a Severe (orange path) challenge develops to either the Sub-criticality or Integrity CSF or before transition to **ECA-2.1**, whichever occurs first.	**AUTO MSLI FAILURE – BOTH TRAINS** **MSLI MANUALLY ACTUATED** Check All yellow SLI marks – LIT Check all SG pressures – ANY STABLE OR RISING		Crew verifies steam line isolation. Crew identifies failure of AUTO MSLI, MANUALLY actuates MSLI Both Trains BOP checks for any non-faulted SG.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Check all SGs pressure – ANY SG PRESSURE DROPPING IN AN UNCONTROLLED MANOR OR ANY SG COMPLETELY DEPRESSURIZED		BOP identifies "C" SG as faulted.
	"C" SG pressure dropping uncontrollably.		
CRITICAL TASK Crew isolates the faulted SG and directs operator to close isolation valve(s) operated from outside of the control room before transition out of **E-2.**	Check FWI – PREVIOUSLY VERIFIED		Crew verifies faulted SG (C) isolated
	[2FWS*HYV-157C] closed		BOP verifies "C" SG CNMT isolation vlv closed.
	[2FWS*FCV498] closed.		BOP verifies "C" MFRV closed.
	[2FWS*FCV499] closed.		BOP verifies "C" BPFRV closed.
	[2FWE*HCV100A, B] closed.		BOP closes [2FWE*HCV100A, B].
	Check Residual Heat Release valve – CLOSED		BOP closes [2SVS*HCV104].

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
IRF LOA-MSS011 (0 0) 0	Check Residual Heat Release Valve from faulted SG – PREVIOUSLY ISOLATED: SG 21C [2SVS*29]		Crew dispatch operator to close [2SVS*29]
	Close Turbine driven AFW pump steam supply isolation valves from faulted SG: [2MSS*SOV105C,F]		BOP closes [2MSS*SOV105C,F]
IF REQUESTED:	Close atmospheric steam dump isolation valve on faulted SG [2SVS*PCV101C]		BOP closes "C" SG atmospheric steam dump [2SVS*PCV101C]
IRF LOA-MSS018 (0 0) 0 **To close [2SVS*25]**			
	Verify SG blowdown isolation valve from faulted SG CLOSED: [2BDG*AOV100C1] OR [2BDG*AOV101C1]		BOP verifies SG blowdown isolated from "C" SG.
	Close [2SSR*AOV117C] SG blowdown sample outside CNMT isolation valves		BOP isolates SG blowdown sample from "C" SG
	Check [2FWE-TK210] PPDWST level - > 85 inches		Crew checks PPDWST level > 85 inches Or Refer to **Attachment A-1.8** for makeup.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER		Crew checks if SG tubes are intact.
	Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES [2ARC-RQ100] Air Ejector Discharge (1007) [2SSR-RQ100] SGBD sample		
	RCS Subcooling based on core exit TCs > 41F [59F ADVERSE CNMT] Secondary heat sink: Total feed flow to intact SGs – GREATER THAN 340 GPM OR Narrow range level in at least one intact SG – GREATER THAN 12% [31% ADVERSE CNMT]		RO/BOP check if SI flow should be reduced
	RCS pressure – STABLE OR RISING PRZR level – GREATER THAN 17% [38% ADVERSE CNMT]		Crew determines SI Termination criteria met, transitions to **ES-1.1**
Crew transitions to ES-1.1 Step 1			US directs STA to monitor status trees.
	SI, CIA & CIB - RESET		RO resets SI, CIA & CIB

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	All but one charging pump - STOPPED		RO stops all but one Charging Pump
	RCS Pressure – STABLE OR RISING		RO checks/reports RCS Pressure status
	HHSI Cold Leg Isol VLVs – CLOSED: [2SIS*MOV867A] [2SIS*MOV867B] [2SIS*MOV867C] [2SIS*MOV867D]		RO isolates HHSI injection path
Drill may be terminated after HHSI flow is isolated **CLASSIFY EVENT**	**GIVE SRO CANDIDATES THE JPM CUE SHEET FOR CLASSIFYING AND COMPLETING THE INITIAL NOTIFICATION FORM**		**UE TAB 2.10**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Attachment A-0.11 'Verification of *Automatic Actions' performed as time* & manpower permit			US directs operator to perform **Attachment A-0.11** as time & manpower permit
	Diesel generators – BOTH RUNNING		Check both EDGs running
	CNMT pressure – GREATER THAN 7 PSIG **OR** SG Steam Pressure – LESS THAN 500 PSIG **OR** Steamline pressure high rate of change – 100 PSIG DROP IN 50 SECONDS		Check if MSLI is required If **not required**, go to step 4
MANUAL MSLI REQUIRED	Yellow SLI marks - LIT		Verify steamline isolation
STEP 4	*Open [2CCS-AOV118] Domestic Water to* Station Air Compressor		Establish Domestic Water System Cooling to Station Air Compressors
	At least one Station Air Compressor – RUNNING		Start 1 Station Air Compressor as required
	CCP pumps – AT LEAST 1 RUNNING		Check CCP Pump status

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	[2NME-NR45] Nuclear Recorder selected to operable source and intermediate range displays		Align neutron flux monitoring for shutdown
	CNMT pressure – HAS REMAINED LESS THAN 11 PSIG		Check CIB status
	IF NOT		Actuate CIB if required
	Manually initiate CIB – BOTH SWITCHES FOR BOTH TRAINS		
	Manually align equipment as required All RCPs – STOPPED BV-1 operator verifies CREVS actuation Service water established to RSS HX(s)		Stop ALL RCPs
	Service Water Pumps – 2 RUNNING Service Water Header Pressure – GREATER THAN 55 PSIG SWS Seal Water Pressure – NOT LOW		Verify Service Water System in service
	[2HCS*SOV100A1, B1] – CNMT Sample amber light – LIT		Verify both CNMT hydrogen analyzers running

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	All Red SIS Marks – LIT All Orange CIA Marks – LIT All Green FWI Marks – LIT		Verify ESF Equipment status – Start/align equipment as required
	Power available to both Emergency AC Busses		Verify power to both AC Emergency busses
			Restore power as required
	Attachment A-0.11 – COMPLETE		Report any discrepancies to SM/US

Facility: BVPS 2 **Scenario No.: 2** Op Test No.: NRC

Examiners: _____ Candidates: _____ SRO

_____ _____ ATC

_____ _____ BOP

Initial Conditions: MOL, 75 % power Equ Xe, CB = 188, 1116 PPM IC-166

Equipment OOS

N-42 (PRNI) removed from service per **AOP 2.2.1C**

[2FWE*P23A] AUX Feed Pump Motor ground, repair estimate is 8 – 10 Hrs.

Rods in **MANUAL** @ request of I & C, Rod control is **FULLY** functional.

Turnover: Maintain current plant conditions

Critical Tasks:

1. E-1.C Crew trips all RCPs when RCS to highest SG D/P criteria is exceeded and SI flow verified prior to exiting procedure **E-1**.
2. FR-S.1.C Crew inserts negative reactivity into the core by inserting RCCAs before completing the immediate action steps of **FR-S.**1.
3. FR-S.1.B Crew starts AFW pumps before WR SG level is less than 10%.

Event No.	Malf. No.	Event Type	Event Description
1	XMT-MSS022A	I(BOP/SRO) *SRO T.S.*	[2MSS*FT485] "B" SG Selected Steam Flow Channel drifts HIGH
2	XMT-LDS003A	I(RO/SRO)	VCT Level control channel failure LOW
3	XMT-RCS032A	*SRO T.S.*	[2RCS*PT455] PRZR Pressure Protection Channel fails HIGH
4		R(RO) N(BOP/SRO)	Power reduction due to TS 3.0.3 requirement (No TS Action addressing two channels of OTΔT being inoperable)
5	RCP01A RCP06A	C(RO/SRO)	RCP #1 seal leakoff excessive, vibration increases (requires Rx trip)
6	PPL01A PPL01B	M(ALL)	ATWS – Failure of auto/manual Rx trip
7	LOA-AFW022 PPL07B	C(BOP/SRO)	[2FWE*P22], Turbine driven AFW pump trips during S/U, [2FWE-P23B] Motor Driven AFW Pump requires manual start
8	VLV-RCS032A	M(ALL)	PORV [2RCS*PCV455C] sticks open after auto open and its block valve [2RCS*MOV535] cannot be closed from CR (PRZR Vapor space leak)

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

The crew will assume the shift at approximately 75% power MOL equilibrium Xenon. Power Range Channel N-42 is OOS and removed from service IAW **AOP 2.2.1C**, Power Range Channel Malfunction. Motor driven AFW pump [2FWE*P23A] is also OOS. Crew instructions are to maintain the plant at 75% power. After the crew assumes the shift, the controlling channel of steam flow on the "B" steam generator [2MSS*FT485] will drift HIGH. The crew will respond to the alarms and implement the actions of instrument failure procedure **2OM 2.24.4.IF ATT #3** and take manual control of SGWLC on the "B" SG. The crew will swap controlling channels and return SGWLC to automatic. After the US implements the required **Technical Specification** actions, VCT level transmitter [2CHS*LT115] will FAIL LOW causing automatic make-up to VCT to begin. The crew will STOP the automatic make-up to VCT and respond to the alarms and implement the actions of instrument failure procedure **OM 2.7.4.IF ATT #1**. From this point on in the scenario, all VCT make-ups will need to be initiated manually. After stabilizing the plant, PRZR Pressure Protection channel [2RCS*PT455] will FAIL HIGH. The crew will respond to the annunciators and implement the actions of instrument failure procedure **OM 2.6.4.IF ATT #2**. While performing the actions of the procedure and **Technical Specifications**, the crew MUST recognize that there are NOW 2 channels of OTΔT OOS and **Technical Specification 3.0.3** is applicable. Plant management instructs the crew to begin an immediate power reduction to comply with Technical Specification 3.0.3 actions. The crew begins a power reduction IAW **2OM-52.4.B**, Load Follow. During the power reduction, #1 seal on the "B" RCP will degrade. The crew will respond to the alarms and implement the actions of **AOP 2.6.8**, RCP Malfunction. The seal degradation will worsen to the point where the **AOP 2.6.8**, RCP Malfunction will require the crew to initiate a manual reactor trip. The crew will enter **E-0**, Reactor Trip or Safety Injection only to find that manual and automatic reactor trips will not function. The crew will transition to **FR-S.1,** Response to Nuclear Power generation – ATWS. The actions of **FR-S.1**, Response to Nuclear Power generation – ATWS will be complicated by the steam driven AFW pump tripping during start-up and motor driven AFW pump [2FWE*P23B] failing to automatically start. This will require the crew to manually start motor driven AFW pump [2FWE*P23B]. The actions of **FR-S.1**, Response to Nuclear Power generation – ATWS will be further complicated by PRZR PORV failing to close, after automatically opening, and its associated block valve cannot be fully closed. (PRZR VAPOR SPACE LEAK). The reactor will be tripped locally by the operator dispatched during **FR-S.1**, Response to Nuclear Power generation – ATWS performance. The crew will transition back to **E-0**, Reactor Trip or Safety Injection and perform the actions to verify ECCS equipment operating and diagnose the vapor space leak. The crew will then transition into **E-1**, Loss of Reactor or Secondary Coolant and perform the actions to stabilize the plant. The scenario is terminated when the crew transitions into **ES-1.2**, Post LOCA Cooldown and Depressurization.

EOP Flow Path:
E-0, Reactor Trip or Safety Injection → FR-S.1, Response to Nuclear Power generation – ATWS → E-0, Reactor Trip or Safety Injection → E-1, Loss of Reactor or Secondary Coolant → ES-1.2, Post LOCA Cooldown and Depressurization

INITIAL CONDITIONS: 75 % Power, CBD = 188, EQU XE MOL, 1116 PPM Boron, IC-166

ADDITIONAL LINEUP CHANGES	STICKERS	VOND MARKINGS
N-42 Control Pwr fuses – REMOVED N-42 Rod Stop BP sw to BP Channel Comparator Defeat sw to N-42 NR-45 NOT selected to N-42 [2FWE*P23A] - PTL	N-42 meters (2) YCT Chan 2 OTDT Meter YCT Ann A4-4G, A4-5G, OTDT Trip/Rod stop YCT YCT – [2FWE*P23A] switch Rod Stop BP N-42 YCT Comp Chan Defeat N-42 YCT	
EQUIPMENT STATUS	**DATE/TIME OOS**	**TECHNICAL SPECIFICATION(S)**
N-42	2 Hrs. ago	TS 3.3.1
[2FWE*P23A]	3 Hrs. ago	TS 3.7.5

SHIFT TURNOVER INFORMATION

1. Protected Train is Train "B"
2. N-42 removed from service per **AOP 2.2.1C**,
3. [2FWE*P23A] Motor ground, repair estimate is 8 – 10 Hrs.
4. Maintain current plant conditions.
5. Rods are in MANUAL @ request of I&C. Rod control is **FULLY** functional.

SCENARIO SUPPORT MATERIAL REQUIRED

Reactivity plan placard for MOL
Placard for [2FWE*P22] position stating [2FWE*P22] is aligned to "A" header
Place plaque on wall for Protected Train "B"

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Initialize IC Set 166, and establish initial plant conditions.	Reactor plant at 75% power, MOL, equilibrium conditions. RCS boron 1116 PPM, CBD = 188 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		
RUN			
IRF LOA-HIV055 (0 0) 1	[2FWE*P23A] breaker racked out		
IMF PPL02A (30 120)	Train A trip BKR open		
IMF PPL02B (30 130)	Train B trip BKR open		
IRF LOA-CRF007 (30 140) 1	Trip A rod drive MG set		
IRF LOA-CRF008 (30 150) 1	Trip B rod drive MG set		
IMF PPL01A (0 0) 1	Set ATWS condition TRN "A"		
IMF PPL01B (0 0) 1	Set ATWS condition TRN "B"		
IMF VLV-RCS011 (0 0) 1	[2RCS*MOV535] cannot be closed from control room		
TRGSET 1 'JPPLSVS(1) == 1'	Set trigger 1 on Turbine Trip		
IMF VLV-RCS032A (1 0) 50	[2RCS*PCV455C] sticks open after auto open		
TRGSET 2 'OAFWT22 >= 1000'	Set trigger 2 on [2FWE*P22] speed		
IRF LOA-AFW022 (2 0) 1	[2FWE*P22] trips during startup		
IMF PPL07B (0 0) 5	[2FWE*P23B] fails to auto start, manual successful		
IMF NIS03B (0 0) 0	PRNI N-42 OOS		
IMF BST-PCS158 (0 0) 0	CH II OTDT Reactor trip B/S		
IMF BST-PCS159 (0 0) 0	CH II OTDT Rod Stop/Turbine Runback B/S		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Assign shift positions SM:_____ US:_____ RO:_____ BOP:_____ STA:_____			
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.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #1:			
[2MSS-FT485] drifts high			
IMF XMT-MSS022A (0 0) 5 30	IMMEDIATE PLANT RESPONSE: [2MSS-FI485] begins to drift high [2FWS*FCV488] begins to open "B" SG level begins to increase A6-10F LOOP B FEEDWATERFLOW > STEAM FLOW (F0476D) A6-10E (possible) SG21B LEVEL DEVIATION FROM SETPOINT (L0477D)		BOP notes/verifies alarms, informs US/Crew of apparent instrument failure of [2MSS*FT485]
			US/Crew refer to ARPs & Procedure **2OM-24.4.IF ATT 3**
	[2FWS-FCV488] – MANUAL		BOP places MFRV for "B" SG to manual and restores level
	[2FWS-FR488] – Position FT 487		BOP selects position FT 487 on [2FWS-FR488]

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
When Directed:			
IMF A4-7F-Y0218D (0 0) 0	Process rack door open		US directs personnel to place [2FWS-FR488] to Position FT 484 inside primary process rack RK-2PRI-PROC7
IOR XC1I077F (0 0) 0 to simulate placing [2FWS-FR488] in Position FT 484	[2FWS-FR488] – Position FT 484 A1-4E MAIN STEAM FLOW CHANNEL SELECTED TROUBLE A6-10F CLEARS		
DMF A4-7F-Y0218D	Process rack door closed		
			US declares [2FWS*LT486] SG21B NR Level Transmitter Channel III inoperable

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
			US refers to **TS 3.3.1, Table 3.3.1-1** Function 14 Condition E: **E.1**: Place channel in TRIP W/I 6 hrs **OR** **E.2:** Be in MODE 3 W/I 12 hrs US refers to **TS 3.3.2, Table 3.3.2-1** Functions 5.b and 6.b: 5.b & 6.b Condition D **D.1**: Place channel in TRIP W/I 6 hrs **OR** **D.2**: Be in MODE 3 W/I 12 hrs **AND** **D.2.2:** Be in MODE 4 W/I 18 hrs
When directed to trip bistables:			US refers to **ATT 1** to trip bistables for the failed channel, contacts I&C
IRF LOA-PCS003 (0 0) 1	Protection rack C3 door open		Crew monitors tripping of B/S
IMF BST-PCS041 (0 0) 0	2LS/486A (BS-1) low-low trip		
IMF BST-PCS032 (0 0) 0	2LS/486C (BS-2) high-high FWI		
IRF LOA-PCS003 (0 0) 0	Protection rack C3 door closed		US directs BOP to place [2FWS-FCV488] to auto when SG level returned to normal and stable
THEN report actions to CR Proceed with next event at LE discretion			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #2:			
[2CHS*LT115] fails LOW	**IMMEDIATE PLANT RESPONSE:**		
IMF XMT-LDS003A (0 0) 0	A2-2G VOLUME CONTROL TANK TROUBLE (L0145D)		
	[2CHS*LT115] VCT Level indicates 0, VB A		
	Auto M/U initiates (blender station BB A)		RO diagnoses **LOW** failure of [2CHS*LT115], reports to US/Crew
			Crew refers to **ARPs** or **2OM-7.4.IF ATT #1**
	Actual VCT level is well W/I normal level range and rising as indicated by [2CHS*LT112] (L2704A) on plant PCS		RO confirms failure by comparing VB A [2CHS*LI115] to PCS point (L2704A)
	Auto M/U in progress		RO reports auto M/U in progress
			US directs RO to place M/U control switch to OFF after rising VCT level is confirmed.
	Auto M/U stopped, VCT level rise stopped		RO places M/U switch to OFF
			Crew monitors Tavg for inadvertent boron change
			US directs I&C to investigate problem with [2CHS*LT115]
	[2CHS*LT112] indication SAT, blender controls remain in OFF		Crew controls VCT level in manual control
Continue with next event at LE discretion			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #3:			
[2RCS*PT455] fails high			
IMF XMT-RCS032A (0 0) 2500	[2RCS*PI455] indicates pegged high		RO diagnose high failure of [2RCS*PT455], reports to US/Crew
	IMMEDIATE PLANT RESPONSE:		
	A4-2D PRESSURIZER PRESSURE HIGH/LOW ACTUATES (P0480D) [2RCS*PI455] (CH I) indicates pegged high (2500 psig) on BB B [2RCS*TI412C] Loop 1 OTDT Setpoint indicates pegged high (150%) BB B		
			US ensures plant is stable US directs crew to **ARP A4-2D and IF procedure 2.6.4.IF Att 2**
	OPERABLE OT/OPDT channel selected on recorder [2RCS-TR412]		RO selects OPERABLE channel on [2RCS-TR412]

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
			US refers to TS 3.3.1 and Table 3.3.1-1 Function 6, 8.a and 8.b, TS 3.3.2 and Table 3.3.2-1 Function 1.d and 8.b, TS 3.3.4 and TS Bases Table B3.3.4-1 Function 2.a
	2TS/412C-1, OTDT trip – **CANNOT BE TRIPPED** 2TS/412C-2, OTDT rod stop – **CANNOT BE TRIPPED**		**TS 3.3.1, Table 3.3.1-1:** (RTS) **Function 6**: **OTDT** Condition E.1 – Place in TRIPPED Condition (6 hrs) **OR** E.2 – Be in MODE 3 (12 hrs)
			US refers to TS, determines that OTDT B/S cannot be tripped W/O causing a reactor trip
			US determines that **TS 3.0.3** applies **DUE TO NO ACTION STATEMENT FOR 2 CHANNELS OF OTDT BEING INOPERABLE.** US identifies **PZR Pressure** instrument related TS and **MAY** trip B/S associated with PZR Pres **Function 8.a**: **PZR Press LOW** Condition K.1 – Place in TRIPPED Condition (6 hrs) **OR** K.2 – Reduce THERMAL POWER to < P-7 (12 hrs)

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
			Function 8.b: **PZR Press HIGH** Condition E.1 – Place in TRIPPED Condition (6 hrs) **OR** E.2 – Be in MODE 3 (12 hrs) US refers to **ESFAS TS** associated with PZR Pres and **MAY** trip B/S associated with PZR Pres **TS 3.3.2, Table 3.3.2-1:** (ESFAS) **Function 1.d**: **PZR Press LOW** Condition D.1 – Place channel in TRIP (6 hrs) **OR** D.2.1 – Be in MODE 3 (12 hrs) **AND** D.2.2 – Be in MODE 4 (18 hrs) **Function 8.b**: **PZR Press P-11** Condition K.1 – Verify interlock is in required state for existing Unit condition (1 hr) **OR** K.2.1 – Be in MODE 3 (7 hrs) **AND** K.2.2 – Be in MODE 4 (13 hrs)
As Plant Management, direct US to commence an immediate plant S/D to MODE 3 As I&C use the following to trip the B/S and then inform the CR that **repairs will take a minimum of 10 – 12 Hrs.**			US informs Plant Management that a plant **S/D is required by TS**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
IF requested to trip **PZR Pres** bistables **THEN:**			US **may** decide to trip only the B/S associated with SI, HIGH/LOW press Rx Trip, P-11 and PORV Block
IRF LOA-PCS001 (0 0) 1	Protection rack 1 door open.		
IMF BST-PCS117 (0 0) 0	2PS/455A, high pressure trip.		
IMF BST-PCS118 (0 0) 0	2PS/455B, P-11.		
IMF BST-PCS125 (0 0) 0	2PS/455C, low pressure trip.		
IMF BST-PCS126 (0 0) 0	2PS/455D, low pressure SI.		
IMF BST-PCS127 (0 0) 0	2PS/455G, PORV block.		
IRF LOA-PCS001 (0 0) 0	Protection rack 1 door closed.		
Report actions to CR			
NOTE: IF the US insists on tripping the B/S associated with OTDT **THEN:**			
IMF BST-PCS151 (0 0) 0	2TS/412C-1, OTDT trip.		
IMF BST-PCS152 (0 0) 0	2TS/412C-2, OTDT rod stop.		
Report actions to CR			
Event #5 will be inserted upon trip, advance to page 15 for **E-0** actions	Reactor trip **SHOULD HAVE OCCURRED**		RO announce 1st out reactor trip **AND** that the reactor **DID NOT TRIP** US directs entry into **E-0**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #5:			
[2RCS*P21A] #1 seal degrades, vibration increases (slowly)	**IMMEDIATE PLANT RESPONSE:**		
IMF RCP01A (10 0) 3 600 **IMF RCP06A (10 0) 10 900** **PRE-LOAD**	A2-4D REACTOR COOLANT PUMP SEAL TROUBLE (F0125D) for the "A" RCP		RO checks alarms, reports indications of #1 seal failure on [2RCS*P21A] to US/Crew
TRG! 10 to actuate event			
			US refers to **ARPs, AOP 2.6.8 Step 2.g**
	[2CHS-FR154A] RED PEN indicates 6 gpm (off scale high for "A"RCP) [2RCS*P21A] vibration elevated		RO reports that "A" RCP #1 seal leakoff is > 6 gpm, vibration increasing
			US direct manual reactor trip, Directs RO to trip [2RCS*P21A] after completion of IMAs of **E-0,** Directs Crew to isolate [2RCS*P21A] seal leakoff W/I 3 – 5 min after tripping RCP
Crew enters E-0, performs immediate operator actions.			Crew performs IMAs of **E-0.**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Annunciator A5-6D TURBINE TRIP DUE TO REACTOR TRIP – **NOT LIT**		RO verifies reactor tripped.
	Power range indication – **NOT LESS THAN 5%**		RO Attempts manual reactor trip from BB B and BB A, reports reactor has **NOT** tripped
	Neutron flux – **NOT DROPPING**		
US transitions to FR-S.1	Reactor **IS NOT** tripped		US/Crew determine **FR-S.1** entry conditions met, transition to **FR-S.1** Step 1
When directed to locally trip the reactor:			Crew performs IMAs of **FR-S.1**
TRG! 30			
Time delays are built in.			
	Turbine is tripped		BOP manually trips the turbine
CRITICAL TASK Crew inserts negative reactivity into the core by inserting RCCAs before completing the immediate action steps of **FR-S.1.**	Control Rods are inserting		RO inserts control rods, **AUTO** at first, **THEN MANUAL** when required
CRITICAL TASK Crew starts AFW pumps before WR SG level is less than 10%.	**[2FWE*P23A] on clearance**		Crew verifies AFW status
	[2FWE*P23B] REQUIRE MANUAL START		BOP reports AFW status, **manually starts** [2FWE*P23B], verifies flow to SGs
	[2FWE*P22] TRIPPED during S/U		
	AFW Throttle Vlvs – FULL OPEN		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
SI may not have actuated at this time	Charging Pumps – AT LEAST 1 RUNNING		Crew initiates Emergency Boration
	SI – ACTUATED (possibly not at this time)		
	HHSI flow – INDICATED		
Step 3.e	[2CHS*MOV350] – OPEN		Crew aligns boration path
	In service boric acid Xfer pump – STARTED		
	Emergency Boration Flow - > 30 GPM		
	[2CHS*FCV122] adjusted for > 40 GPM		
	PZR Pressure < 2330 PSIG		RO checks PZR pres < 2330 PSIG
	Plant personnel alerted of ATWS		Crew alerts plant personnel, sounds STBY alarm and announces U2 reactor trip W/O SCRAM
	Turbine – TRIPPED		BOP verifies turbine tripped and reheat steam isolated
	[2MSS-MOV100A,B] – CLOSED		
	Reheater Controller – RESET		
	IF SI – ACTUATED **THEN:**		Crew checks SI Status
	First NINE steps of **E-0** performed when time and manpower permit		
	Power range channels - <5%		Crew checks if reactor is subcritical
	IRNI channels – NEGATIVE SUR		
	Boration continues for SDM considerations		Crew continues boration as necessary

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Scenario assumes the reactor has been locally tripped by this time			US directs return to **E-0** step 1
Crew enters **E-0,** performs immediate operator actions.			Crew performs IMAs of E-0.
	Annunciator A5-6D TURBINE TRIP DUE TO REACTOR TRIP - LIT		RO verifies reactor tripped.
	Power range indication - LESS THAN 5%		
	Neutron flux - DROPPING		
	Throttle Valves - ALL CLOSED		BOP verifies turbine tripped.
	OR		
	Governor Valves - ALL CLOSED		
	Main Generator Output Bkrs - OPEN		
	Exciter Circuit Bkr - OPEN		
	AC Emergency Busses - BOTH ENERGIZED		BOP verifies power to AC Emergency Buses.
	Check SI – ACTUATED		RO checks SI status
	CNMT Pressure - > 5PSIG		
	PZR Pressure - < 1860 PSIG		
	SG Steam Pressure - < 500 PSIG		**CREW DETERMINES SI REQUIRED**
Crew continues E-0	Manually actuate SI (both trains)		RO manually actuates SI both trains
	Alert Plant Personnel		RO/BOP sound Standby Alarm, announce reactor trip and safety injection

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Check [2HVS*FN204A(B)], Leak Collection Filtered Exhaust Fan – AT LEAST ONE RUNNING		BOP checks Leak Collection Exhaust Fan status
	Charging Pumps – TWO RUNNING		RO verifies SI System status
	HHSI Flow – INDICATED		
	LHSI Pumps – TWO RUNNING		
	Motor-driven AFW Pumps – **ONE** RUNNING		BOP verifies AFW System status
	Turb driven AFW Pump **TRIPPED** DURING S/U		
	AFW Throttle Vlvs – FULL OPEN		
	Total AFW Flow – GREATER THAN 340 GPM		
	Perform **Attachment A-0.11** "Verification Of Automatic Actions" in a timely manner		US directs performance of **Attachment A-0.11** when time/manpower permit
Attachment A-0.11 included with scenario beginning on Pg 25	**<u>LIST ATT A-0.11 DISCREPANCIES AS APPLICABLE:</u>**		
	[2FWE*P23B] required manual start		
	[2FWE*P22] tripped during S/U		
	RCPs OPERATING – MONITOR Tavg		RO/BOP check RCS Tavg stable at or trending to 547°F
	RCPs STOPPED – MONITOR Tcold		
	Check CIB – **NOT ACTUATED**		RO checks Recirc Spray Pump status

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	PORVs – **NOT ALL CLOSED**		RO verifies PZR isolated
	[2RCS*PCV455C] – **STUCK OPEN**		
	[2RCS*MOV535] – **CANNOT BE CLOSED**		RO reports status of [2RCS*PCV455C] AND its block valve [2RCS*MOV535]
Transition to E-1			US directs transition to **E-1** due to PORV/Block Valve status
	Control Room radiation monitor [2RMC*RQ201, 202] (1069, 1072) – NOT IN HIGH ALARM		Crew checks if CREVS should be actuated
	CIB – **HAS NOT OCCURRED**		
CRITICAL TASK Crew trips all RCPs when RCS to highest SG D/P criteria is exceeded and SI flow verified prior to exiting procedure **E-1.**	D/P between RCS pressure and highest SG pressure – LESS THAN 205 PSID [220 PSID ADVERSE CNMT]		RO checks if RCPs should be stopped
	AND		
	HHSI Flow – INDICATED		
	RCPs – STOPPED		RO stops RCPs
	CIB – **NOT ACTUATED**		RO checks Recirc Spray Pump status

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER OR ANY SG COMPLETELY DEPRESSURIZED		BOP checks if any SGs are faulted.
	SGs are NOT faulted		
	Narrow Range Levels – GREATER THAN 12% [31% ADVERSE CNMT]		BOP checks intact SG levels BOP controls feed flow to intact SGs to maintain NR level between 12% [31% ADVERSE CNMT] and 50%
	Check all SG levels – NONE RISING IN AN UNCONTROLLED MANNER Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES [2ARC-RQ100] (1007) Air ejector discharge [2SSR-RQ100] (1062) SGBD sample [2MSS*RQ101A,B,C] Main Steamline discharge (1005, 3005, 5005)		Crew checks if SG tubes are intact
	SG Tubes are intact		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Power to the Block Vlvs – AVAILABLE		RO checks PRZR PORVs and Block Valves
	PORVs – [2RCS*PCV455C] – **STUCK OPEN**		
	Block Vlvs – [2RCS*MOV535] – **CANNOT BE CLOSED**		
	RCS Subcooling based on core exit TCs **LESS THAN** 41F [59F ADVERSE CNMT]		RO/BOP check if SI flow can be reduced
	Secondary heat sink:		
	Total feed flow to intact SGs – GREATER THAN 340 GPM		
	OR		
	Narrow range level in at least one intact SG – GREATER THAN 12% [31-% ADVERSE CNMT]		
	RCS pressure – **REDUCING**		
	PRZR level – GREATER THAN 17% [38% ADVERSE CNMT]		RO/BOP check if SI flow can be reduced **(continued)**
	SI FLOW CANNOT BE REDUCED		
	Any Quench spray or recirc spray pump – **NONE RUNNING**		RO/BOP check if CNMT Spray should be stopped
	SI & CIA - RESET		RO resets SI and CIA

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	RCS Pressure - > 225 PSIG [250 PSIG ADVERSE CNMT]		RO checks if LHSI Pmps should be stopped
NOTE: RCS pressure **MAY** appear to be stable and RO will stop LHSI pumps	RCS Pressure – **REDUCING**		**IF STABLE**, RO stops LHSI pumps and places them in auto
	Check pressures in all SGs – STABLE OR RISING		RO/BOP check RCS and SG Pressures
	Check RCS Pressure – STABLE OR DROPPING		
	Verify AC emergency busses energized from offsite		BOP checks if EDGs should be stopped
	Stop any unloaded EDG by performing **2OM-36.4.AF(AG)**		Crew stops EDGs
	Recirc capability exists		US directs operators to perform **Att A-0.6** and verify cold leg recirculation capability
	Check Aux building and Safeguards radiation – CONSISTENT WITH PRE-EVENT		Crew tries to identify and isolate the leakage
			SM consults with TSC Staff to determine whether samples can be obtained
	Sample:		US directs Chemistry and HP to obtain pertinent samples
	CNMT atmosphere for radioactivity and hydrogen		
	CNMT sump for pH and boron		
	RCS liquid		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Crew performs **ATT A-1.1**		US directs crew to perform additional actions as required to aid in plant recovery per **ATT A-1.1**
	RCS Pressure - > 225 PSIG [250 PSIG ADVERSE CNMT]		RO checks if cooldown and depressurization is required US directs crew transition to **ES-1.2**
Terminate drill when crew transitions to **ES-1.2**			
Classify Event	**GIVE SRO CANDIDATES THE JPM CUE SHEET FOR CLASSIFYING AND COMPLETING THE INITIAL NOTIFICATION FORM**		**Site Area Emergency** **Tab 2.3**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Attachment A-0.11 'Verification of Automatic Actions' performed as time & manpower permit			US directs operator to perform **Attachment A-0.11** as time & manpower permit
	Diesel generators – BOTH RUNNING		Check both EDGs running
	CNMT pressure – GREATER THAN 7 PSIG		Check if MSLI is required
	OR		If **not required**, go to step 4
	SG Steam Pressure – LESS THAN 500 PSIG		
	OR		
	Steamline pressure high rate of change – 100 PSIG DROP IN 50 SECONDS		
	Yellow SLI marks - LIT		Verify steamline isolation
STEP 4	Open [2CCS-AOV118] Domestic Water to Station Air Compressor		Establish Domestic Water System Cooling to Station Air Compressors
	At least one Station Air Compressor – RUNNING		Start 1 Station Air Compressor as required
	CCP pumps – AT LEAST 1 RUNNING		Check CCP Pump status
	[2NME-NR45] Nuclear Recorder selected to operable source and intermediate range displays		Align neutron flux monitoring for shutdown

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	CNMT pressure – HAS REMAIND LESS THAN 11 PSIG		Check CIB status
	IF NOT		Actuate CIB if required
	Manually initiate CIB – BOTH SWITCHES FOR BOTH TRAINS		
	Manually align equipment as required		
	All RCPs – STOPPED		Stop ALL RCPs
	BV-1 operator verifies CREVS actuation		
	Service water established to RSS HX(s)		
	Service Water Pumps – 2 RUNNING		Verify Service Water System in service
	Service Water Header Pressure – GREATER THAN 55 PSIG		
	SWS Seal Water Pressure – NOT LOW		
	[2HCS*SOV100A1, B1] – CNMT Sample amber light – LIT		Verify both CNMT hydrogen analyzers running
	All Red SIS Marks – LIT		Verify ESF Equipment status – Start/align equipment as required
	All Orange CIA Marks – LIT		
	All Green FWI Marks – LIT		
	Power available to both Emergency AC Busses		Verify power to both AC Emergency busses
			Restore power as required
	Attachment A-0.11 – COMPLETE		Report any discrepancies to SM/US

Facility: BVPS 2 **Scenario No.: 4** Op Test No.: NRC

Examiners: _____ Candidates: _____ SRO

_____ _____ ATC

_____ _____ BOP

Initial Conditions: BOL, 100% power Equ Xe, CB 229, 1500 PPM IC-168

Equipment OOS

[2CHS*P21C] HHSI Pump, Motor replacement and will not be returned until next week

Turnover: Maintain current plant conditions

Critical Tasks:

1. E-0.A Crew manually trips the reactor from the control room before performing the mitigation strategy of **FR-S.1.**
2. E-0.D Crew manually actuates at least one train of SIS-actuated safeguards before transition to any ORP.
3. ECA-3.1.B Crew initiates cool down of the RCS to cold shutdown conditions at the highest rate achievable but less than 100°F per hour in all RCS cold legs.

Event No.	Malf. No.	Event Type*	Event Description
1	XMT-MSS042A	I(ALL) *SRO T.S.*	[2MSS*PT446] Selected First Stage Pressure Transmitter fails LOW
2	PMP-CHS002	C(RO/SRO) *SRO T.S.*	[2CHS*P21B] HHSI Pump trips
3	N/A	R(RO) N(BOP/SRO)	Crew begins power reduction
4	XMT-RCS030A	I(RO/SRO)	[2RCS-PT444] PRZR Pressure Control Channel fails HIGH
5	VLV-RCS032	C(RO/SRO)	[2RCS*PCV455C] PRZR PORV sticks open after lifting, block valve closure required
6	IMF PPL01A IMFPPL01B IOR XB1I021T	I(RO/SRO)	Automatic reactor trip failure Manual RX trip from BB 'B' UNSUCCESSFUL, Manual RX trip from BB 'A' SUCCESSFUL
7	RCS04C VLV-MSS003 VLV-MSS004 VLV-MSS005	M(ALL)	350 GPM SGTR on "C" SG with all MSIVs stuck open
8	PPL05A PPL05B	C(RO/SRO)	Auto SI failure, both trains, manual actuation required

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

The crew will assume the shift at 100% power BOL equilibrium xenon. HHSI pump [2CHS*P21C] is OOS. The crew is instructed maintain current plant conditions. After the crew assumes the shift, Selected first stage pressure transmitter [2MSS*PT446] will FAIL LOW. Control rods will begin stepping inward. The crew will verify no load rejection and then place rod control to manual. The crew will then implement the actions of instrument failure procedure **OM-24.4.IF Att.# 5** and stabilize the plant. The crew will swap controlling first stage pressure transmitters. After the US implements the required Technical Specification actions, HHSI pump [2CHS*P21B] will trip. The crew will implement the actions of **AOP 2.7.1**, Loss of Charging/Letdown. Crew will isolate letdown and start the standby HHSI pump [2CHS*P21A]. After the standby HHSI pump is started and letdown restoration is underway, and the US has implemented the appropriate Technical Specification actions, plant management will direct a power reduction to comply with the Technical Specification actions for only one operable HHSI pump. During the power reduction PRZR pressure control channel [2RCS-PT444] will FAIL HIGH. This will cause PRZR PORV [2RCS*PCV455C] to open. PRZR PORV [2RCS*PCV455C] will stick open forcing the crew to manually close the block valve. When the crew stabilizes the plant, a 350 GPM tube rupture will occur. The reactor will fail to trip automatically but can be tripped from the control room BB-A switch ONLY (BB-B switch will not work). The crew will enter E-0, Reactor Trip or Safety Injection. The actions of **E-0** will be complicated by the failure of SI to automatically actuate, this will require the crew to manually actuate SI. The crew will verify ECCS equipment operating and diagnose a SGTR. The crew will transition into **E-3**, SGTR. The actions of E-3 will be complicated by the failure of all MSIVs to CLOSE. This will require the crew to transition into **ECA-3.1**, SGTR With Loss Of Reactor Coolant – Subcooled Recovery Desired. The scenario is terminated when a cooldown to mode 5 has commenced in **ECA-3.1.**

EOP Flow Path:
E-0, Reactor Trip or Safety Injection → E-3, SGTR → ECA-3.1, SGTR With Loss Of Reactor Coolant – Subcooled Recovery Desired.

INITIAL CONDITIONS: 100% Power, BOL, CB D = 229, 1500 PPM Boron IC-168

ADDITIONAL LINEUP CHANGES	STICKERS	VOND MARKINGS
[2CHS*P21C]	YCT (both switches)	
EQUIPMENT STATUS	**DATE/TIME OOS**	**TECHNICAL SPECIFICATION(S)**
[2CHS*P21C]	Yesterday 1300	

SHIFT TURNOVER INFORMATION

1. Protected Train is Train "B"
2. [2CHS*P21C] is OOS for motor replacement and will not be returned until next week
3. Maintain current plant conditions
4.

SCENARIO SUPPORT MATERIAL REQUIRED

Reactivity plan placard for BOL
Placard for [2FWE*P22] position stating [2FWE*P22] is aligned to "A" header
Place plaque on wall for Protected Train "B"

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Initialize IC Set 168, and establish initial plant conditions.	Reactor plant at 100% power, BOL, equilibrium conditions. RCS boron 1500 PPM, CBD = 229 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		
RUN			
IMF PLP05A (0 0) 0	Auto SI failure (both trains)		
IMF PLP05B (0 0) 0			
IMF VLV-MSS003 (0 0) 1	3 MSIVs fail open and cannot be closed		
IMF VLV-MSS004 (0 0) 1			
IMF VLV-MSS005 (0 0) 1			
IMF PPL01A (0 0) 0	Failure of auto Rx trip TRN "A"		
IMF PPL01B (0 0) 0	Failure of auto Rx trip TRN "B"		
IMF RCS04C (30 0) 350	'C' SGTR 350 gpm		
IMF VLV-RCS032 (30 0) 1	[2RCS*PCV455C] sticks open		
IMF XMT-RCS030A (30 0) 2500	[2RCS-PT444] fails high		
IOR XB1I021T (0 0) 0	Prevent manual trip from BB B		
TRGSET 1 'RRCH535 <= 0.899'	Trigger 1 on [2RCS*MOV535] position		
IMF VLV-RCS011 (1 0) 3	[2RCS*MOV535] sticks partially open until a reactor trip occurs		
TRGSET 2 'MCRFNS(3) <=225'	Trigger 2 on reactor trip		
TRG 2 'DMF VLV-RCS011'	Trigger 2 allows closure of [2RCS*MOV535]		
TRGSET 3 'XB1I042C == 1'	Trigger 3 on [2RCS*MOV535] switch position to close		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
IOR XB1O042R (3 0) 1	Trigger 3 fails RED light on for [2RCS*MOV535]		
TRGSET 4 'RRCH535 <= 0.1'	Trigger 4 on [2RCS*MOV535] position		
TRG 4 'DOR XB1O042R'	Trigger 4 allows RED light to go out for [2RCS*MOV535]		
BAT STUFFON.DAT	Turn on horns/printers etc		
Assign shift positions SM:_____ US:_____ RO:_____ BOP:_____ STA:_____			
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.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #1:			
[2MSS*PT446] fails low			
IMF XMT-MSS042A (0 0) 0	**IMMEDIATE PLANT RESPONSE:**		Crew reports no load rejection, diagnose failure of [2MSS*PT446]
	1A FIRST STAGE STM PRESS [2MSS*PI446] Ch III indicates low (VB C)		
	(P2840D) TURB 1ST STAGE PRESS		
	Tref (green pen) indicates 547F on recorder [2RCS-TR408] (VB B)		
	Control rods begin to step in at fast speed		
	Ann A4-3C TAVG DEVIATION FROM TREF actuates (T0507D)		
	Ann A6-12G AMSAC TROUBLE actuates (Y2522D)		
	Panel 18 Status light D-10 STM DUMP TRIP OPEN actuates		
	Control rod motion stops		US directs RO to place control; rods in manual
AOP 2.1.3 STARTS HERE			US directs crew actions for **AOP 2.1.3**
	NO LOAD REJECTION		Crew reports no load rejection in progress
	Rod Motion – **STOPPED**		US directs RO to place Control Rods in MANUAL

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Tavg – **REDUCING**		US directs preparation for load reduction to match Tavg/Tref
	Restore Tavg by load reduction		
	OPERABLE PRNIS – W/I + 2% OF EACH OTHER		Crew checks core power distribution NORMAL
	CHANNEL DEVIATION light – **NOT LIT**		
	A4-4F – NIS POWER RANGE COMPARATOR – **NOT LIT**		
	Delta Flux Indicators – W/I TARGET BAND		
	Control Rod Positions – GREATER THAN RIL		RO reports Rods above RIL
	Reactor Power > 50%		RO reports power level
	QPTR in progress		STA previously directed to perform QPTR
	A4-3C TAVG DEVIATION FROM TREF – **LIT** (due to failed inst.)		Crew refers to ARPs as required
	Power operation continues		US directs recovery efforts to restore Tavg/Tref
	Minimize turbine load changes		
	Adjust boron to control Tavg		
			Crew completes actions of **AOP 2.1.3**
	180 SECONDS after the transmitter failure Ann A12-1E AMSAC BYPASSED BY C-20 PERMISSIVE actuates		Crew refers to appropriate ARPs
			Crew refers to IF procedure **24.4.IF ATT 5**
	[2MSS*PT446] has failed low		BOP reports [2MSS*PT446] failed low

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Control Rods previously placed in Manual		RO reports Control Rods in Manual, rod motion stopped
	[2MSS*PT447] selected A4-3C Clears (possible)		BOP selects redundant channel [2MSS*PT447] on BB C
	[2MSS*PK464] IN Manual with zero % output signal		BOP places Steam Dump control in the **STEAM PRESSURE** mode
	[2MSS*PK464] setpoint adjusted for 1005 psig		
	Train A/B Steam Dump Bypass Selector Switches in OFF/RESET		
	Steam Dump Mode Selector Switch in STM PRESS		
	[2MSS*PK464] in AUTO		
	[2RCS-TI408B] Tavg Steam Dump Demand, indicates 0%		
	Train A/B Steam Dump Bypass Selector Switches in ON		
	All Steam Dumps – CLOSED		
			Crew refers to **2OM-1.4.ACJ** for AMSAC restoration
	Control Rods **MAY** be returned to AUTO **if desired**		RO places Control Rods to AUTO IF Directed

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
			US refers to **TS 3.3.1** and **Table 3.3.1-1 Function 17.f**
			TS 3.3.1 W/I 1 Hr: Verify interlock is in required state for existing plant conditions
When directed to locally rearm AMSAC:			US directs additional personnel to rearm AMSAC IAW **2OM-1.4.ACJ & ACD**
IMF BST-PCS014 (0 0) 0	Test switch [TPS/2MSS 446] in test (up) position		
Then report actions to the Control Room	Following test lights are **ON:** [TL/2MSS446] [TL/2MSS447] [TL/2MSS440A] (2/2 impulse pres ≥ 40%) [TL/2MSS440B] (C-20 permissive)		
	Ann A12-1E AMSAC BYPASSED BY C-20 PERMISSIVE **clears**		
Proceed with the next event at LE discretion			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #2:			
	IMMEDIATE PLANT RESPONSE:		
2CHS*P21B Trips	[2CHS*P21B] bright white LIT (BB A)		
IMF PMP-CHS002 (0 0) 1	[2CHS*II21B] 21B CHG Pump Amps indicates 0 (VB A)		Crew diagnose trip of [2CHS*P21B]
	[2CHS*FI122A] charging flow indicates 0 (VB A)		
	[2CHS*FI130A, FI127A, FI124A],RCPs Seal injection indicates 0 (VB A)		US dispatch personnel to investigate the loss of [2CHS*P21B]
Role-play field operator and report motor ground.	Annunciators Actuate:		
	A2-3D CHARGING PUMP AUTO-START/AUTO-STOP (Y0116D)		
	A2-3E CHARGING FLOW PATH TROUBLE (F0101D)		
	A2-4D REACTOR COOLANT PUMP SEAL TROUBLE(F0112D, F0116D, F0118D)		
	[2CHS*TI140] Regen HX Letdown Temp begins to increase (VB A)		
	[2CHS*TI144] Letdown Temp begins to increase (VB A)		
	[2RCS*LI459A, LI461, LI460] PZR level CH I, III, II begin to decrease (BB B)		
	DELAYED RESPONSE:		
	Ann A2-3F LETDOWN FLOW PATH TROUBLE actuates (T0127D)		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Charging Pumps – **NONE** RUNNING		US implements **AOP 2.7.1** Loss of Charging/Letdown
	[2CHS*AOV200A,B,C] - CLOSED		RO closes L/D orifice isolation valves
	[2CHS*LCV115C,E] - OPEN		RO verifies CHP suction valves from VCT open
	VCT Level – NORMAL VCT Pressure – NORMAL		Crew verifies CHP **did not trip/stop** due to cavitation
	[2CHS*FCV122] - CLOSED		RO closes charging pumps discharge flow control valve
	[2CHS-HCV186] - CLOSED		RO closes RCP seal injection flow controller
	[2CHS*P21A] – RUNNING		RO starts the standby charging pump
	[2CHS*P21B] – PTL		RO places tripped charging pump in PTL
	[2CHS-HCV186] adjusted to obtain 6 to 9 gpm on [2CHS-FI130A, 127A, 124A]		RO adjusts RCP seal injection flow to 6 to 9 gpm for each RCP
	[2CHS*FCV122] adjusted as required to restore PZR level **AND THEN** placed in **AUTO**		RO adjusts charging pump discharge flow control valve to restore level as required and then places valve in auto
After appropriate delay report that [2CHS*P21A] is operating properly	[2CHS*P21A] operating properly		US dispatch operator to ensure proper operation of [2CHS*P21A] US directs operators to restore Letdown flow IAW **2OM-7.4.AB**
	[2CHS*FCV122] - CLOSED		RO places [2CHS*FCV122] in manual and closes the valve
	[2CHS*MOV289] - OPEN		RO verifies [2CHS*MOV289] open

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	[2CHS*MOV310] - OPEN		RO verifies [2CHS*MOV310] open
	[2CHS*FCV122] throttled to obtain 30 – 50 gpm on [2CHS*FI122] (VB A)		RO throttles charging pump discharge flow control valve open to provide 30 – 50 gpm flow as indicated on [2CHS*FI122] (VB A)
	[2CHS*AOV200A, B, C] - CLOSED		RO verifies 3 L/D isolation valves are closed
	[2CHS*AOV204] - OPEN		RO verifies the NRHX L/D inlet valve is open (BB A)
	[2CHS*PCV145] – IN MANUAL AND ADJUSTED TO 50% OPEN DEMAND SIGNAL (BB A)		RO place NRHX Disch Pres control valve in MANUAL and adjusts for 50% output demand
	[2CHS*MOV100A] – OPEN [2CHS*MOV100B] – CLOSED		RO verifies positions of [2CHS*MOV100A], [2CHS*MOV100B]
	[2CHS*LCV460A, B] - OPEN		RO verifies Regen HX L/D Inlet valves open
	[2CHS*AOV200A, B] - OPEN		RO opens L/D isol valves to establish L/D flow at previous value
	[2CHS*PCV145] adjusted to maintain 260 psig as indicated on [2CHS*PI145]		RO establishes automatic control of letdown flow
	SETPOINT of [2CHS*PCV145] – SET FOR 260 PSIG		
	[2CHS*PCV145] – PLACED IN AUTO [2CHS*FCV122] – PLACED IN AUTO		US directs personnel to perform **2OST-6.4**
	PZR level trending to normal		RO monitors PZR level for proper response

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
			US refers to **TS 3.5.2, 3.5.3** and **LRM 3.1.3, 3.1.4** **TS 3.5.2:** 2 ECCS TRAINS SHALL BE OPERABLE: Restore 2 Trains W/I 72 Hrs **OR** **MODE 3** W/I 6 Hrs **OR** **MODE 4** W/I 12 Hrs **TS 3.5.3**: Applicable **MODE 4 ONLY** **LRM 3.1.3:** Applicable **MODE 5 ONLY** **LRM 3.1.4:** 2 Charging Pumps **SHALL** be OPERABLE **MODE 1 – 4**: Restore two pumps to OPERABLE status W/I 72 Hrs **OR** **MODE 3** W/I 6.0 Hrs **AND** borated to SDM of 1% ΔK/K at 200F **AND** restore the required charging pump to OPERABLE status W/I 174 Hrs
When informed as plant management, direct the US to begin power reduction at 12 % hr			US informs plant management of the loss of [2CHS*P21B] and the requirement to S/D due to the status of [2CHS*P21C]

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #3:			Crew develops a reactivity plan for power reduction of 12%/hr
Normal Power reduction			
			US contacts Reactor Engineering for a complete reactivity plan to complete the load reduction
After appropriate delay, provide the crew with a reactivity plan that will allow the continued power reduction			Crew refers to **2OM-52.4.B** Load Follow for the load reduction
	Turbine control – 1ST STG OUT		BOP verifies turbine control in 1st STG OUT mode
	Setter – SET TO LOWER VALUE		BOP sets the EHC SETTER to a lower value as directed by the US
	1%/min selected		BOP selects 1%/min load rate on EHC panel
	Turbine load – REDUCING		BOP depresses the GO pushbutton on the EHC control panel when directed
	Blender controls set as desired per the reactivity plan		RO sets the blender controls for the desired boration rate/amount as determined by the reactivity plan

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	MAINTAIN: Tavg/Tref W/I ± 2F AFD W/I limits of CB-14 (TS 3.2.3 'AXIAL FLUX DIFFERENCE') Control Rods ABOVE RIL as defined by COLR Fig 4.1-1 VPL at 5% above turbine load Generator parameters W/I limit of 'Calculated Capability Curve' 2OM-52.5.A.5 (Figure 52-5) between a power factor of 0.90 lagging and 1.0 [2GSS-MOV204] – ADJUSTED as necessary to maintain gland steam pressure		Crew maintains plant/turbine & generator parameters as specified by **2OM-52.4.B** during the load reduction
	Power – LESS THAN 98%		BOP stops load reduction by pushing HOLD PB on EHC control panel
	Turbine Control – Transferred to 1st STG IN mode		BOP transfers turbine control to 1st STG IN mode by pushing the 1st STG IN PB on EHC control panel
	Turbine Load – REDUCING		BOP pushes GO PB on EHC control panel **When Directed** to resume load reduction
Continue with next set of events at LE discretion:			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
NOTE: the following Events #4 through 7 will occur **simultaneously.** All commands are **PRE-LOADED** and will actuate when **Trigger 30** is fired			
EVENTS#4, 5,6 7	**IMMEDIATE PLANT RESPONSE:**		
(4)	Annunciators actuate:		
[2RCS-PT444] Fails high	A4-1D PRESSURIZER CONTROL PRESSURE HIGH/LOW (P0501D)		
IMF XMT-RCS030A (30 0) 2500	A4-1E PRESSURIZER CONTROL PRESSURE DEVIATION HIGH/LOW(P0503D)		
(5)			
[2RCS*PCV455C] Sticks open	A4-2F PRESSURE RELIEF BLOCK (P0496D)		
IMF VLV-RCS032 (30 0) 1			
(6)	A4-1A PRESSURIZER POWER/SAFETY RELIEF TROUBLE (T0480D)		
Automatic reactor trip failure			
IMF PPL01A (0 0) 0	A4-1F – PRESSURIZER PORV OPEN PERMISSIVE (Y6672D) (immediate reset)		
IMF PPL01B (0 0) 0			
Manual trip from BB B unsuccessful	A2-4B REACTOR COOLANT SYSTEM SUBCOOLING OFF NORMAL (T0761D)		
IOR XB1I021T (0 0) 0			

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
(7) 350 GPM SGTR on "C" SG **IMF RCS04C (30 0) 350**	A4-5A RADIATION MONITORING SYSTEM TROUBLE (R0003D) A4-5C RADIATION MONITORING LEVEL HIGH (R0004D)		
WHEN DIRECTED:			
TRG! 30			
	[2RCS*LI459A, LI461, LI460] PZR level CH I, III, II begin to decrease (BB B)		
	[2RCS*PI455, PI456, PI457] PZR pres CH I, II, III begin to decrease (BB B)		
	[2RCS-PI445] PZR control pres indicator begins to decrease (VB B)		
	[2RCS-PR441] RCS Wide range pressure recorder red/green pens begin to decrease		
	(VB A)		
	RCS pressure rapidly reducing		RO verifies alarms, diagnose [2RCS-PT444] has failed high
	[2RCS*PCV455A,B] – CLOSED		RO closes Spray Valves, reduces MPC output to 0
EVENT #5	[2RCS*PCV455C] – **STUCK OPEN**		RO attempts to close [2RCS*PCV455C] reports it **does not close**
	[2RCS*MOV535] – TRAVELING CLOSED		RO closes [2RCS*MOV535]

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	1ST OUT ANNUNCIATOR: A5-4H PRESSURIZER PRESSURE LOW REACTOR TRIP (P0488D)		RO Reports 1st OUT Annunciator A5-4H
EVENT #6	Reactor – **NOT TRIPPED**		RO reports failure of automatic trip
CRITICAL TASK Crew manually trips the reactor from the control room before performing the mitigation strategy of FR-S.1.			
	Reactor – **NOT TRIPPED**		Ro attempts manual trip from BB B, reports **UNSUCCESSFUL**
	Reactor – **TRIPPED**		Ro attempts manual trip from BB A, reports **SUCCESSFUL**
	[2RCS*MOV535] – **CLOSED**		RO reports [2RCS*MOV535] closed after reactor trip
EVENT #7	RCS Pressure **APPEARS** to recover until the effects of the SGTR are seen		RO monitors RCS pressure and **MAY** report that it is recovering until the SGTR effects are seen
Crew enters **E-0,** performs immediate operator actions.			Crew performs IMAs of **E-0.**
	Annunciator A5-6D TURBINE TRIP DUE TO REACTOR TRIP - LIT Power range indication - LESS THAN 5% Neutron flux - DROPPING		RO verifies reactor tripped.

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Throttle Valves - ALL CLOSED OR Governor Valves - ALL CLOSED Main Generator Output Bkrs - OPEN Exciter Circuit Bkr - OPEN		BOP verifies turbine tripped.
	AC Emergency Busses - BOTH ENERGIZED		BOP verifies power to AC Emergency Buses.
	Check SI – ACTUATED CNMT Pressure - > 5PSIG PZR Pressure - < 1860 PSIG SG Steam Pressure - < 500 PSIG		RO checks SI status
			CREW DETERMINES SI REQUIRED
Crew continues **E-0**	Manually actuate SI (both trains)		RO manually actuates SI both trains
	Alert Plant Personnel		RO/BOP sound Standby Alarm, announce reactor trip and safety injection
	Check [2HVS*FN204A(B)], Leak Collection Filtered Exhaust Fan – AT LEAST ONE RUNNING		BOP checks Leak Collection Exhaust Fan status

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
EVENT #8:	Charging Pumps – **ONE** RUNNING HHSI Flow – INDICATED		RO verifies SI System status, reports auto SI failure on **BOTH** Trains, **MANUALLY** actuates both trains of SI
(PRE-LOADED)	LHSI Pumps – TWO RUNNING		
Both trains of auto SI fail to actuate, manual actuation successful	***BOTH TRAINS OF AUTO SI FAILURE***		
IMF PLP05A (0 0) 0 **IMF PLP05B (0 0) 0**	***ONLY ONE HHSI PUMP OPERATING***		
CRITICAL TASK Crew manually actuates at least one train of SIS-actuated safeguards before transition to any ORP.			
	Motor-driven AFW Pumps – RUNNING Turb driven AFW Pump Stm Supply Isol Valves – OPEN AFW Throttle Vlvs – FULL OPEN Total AFW Flow – GREATER THAN 340 GPM		BOP verifies AFW System status
	Perform **Attachment A-0.11** "Verification Of Automatic Actions" in a timely manner		US directs performance of **Attachment A-0.11** when time/manpower permit

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Attachment A-0.11 is included and begins on page 28 of scenario	**LIST ATT A-0.11 DISCREPANCIES AS APPLICABLE:**		
	Manual SI required – BOTH TRAINS		
	ONLY ONE HHSI PUMP RUNNING		
	RCPs OPERATING – MONITOR Tavg		RO/BOP check RCS Tavg stable at or trending to 547°F
	RCPs STOPPED – MONITOR Tcold		
	Check CIB – HAS NOT ACTUATED		RO checks Recirc Spray Pump status
	PORVs – **2 CLOSED** – [2RCS*PCV455C] Stuck **OPEN, ISOL by [2RCS*MOV535]**		RO verifies PZR isolated
	Spray Valves – CLOSED		
	Safety relief valves – (PSMS Detailed Data Page 1) – CLOSED		
	Check PRT conditions – CONSISTENT WITH **EXPECTED** VALUES		
	Power to at least one block valve – AVAILABLE		
	Block valves – AT LEAST ONE OPEN		
	D/P between RCS pressure and highest SG pressure – LESS THAN 205 PSID [220 PSID ADVERSE CNMT]		RO checks if RCPs should be stopped
	AND		**RO DOES NOT STOP RCPs**
	HHSI Flow – INDICATED		

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER OR ANY SG COMPLETELY DEPRESSURIZED		BOP checks if any SGs are faulted. **BOP REPORTS SGs NOT FAULTED**
	Check all SG levels – **"C" IS** RISING IN AN UNCONTROLLED MANNER		Crew checks if SG tubes are intact
	Check Secondary Radiation – CONSISTENT WITH PRE-EVENT VALUES [2ARC-RQ100] Air Ejector Discharge (1007) [2SSR-RQ100] SG Blowdown Sample (1062) [2MSS*RQ101A,B,C] Main Steamline Discharge (1005, 3005, 5005)		**CREW REPORTS INDICATION OF SGTR ON "C" SG**
Crew transitions to E-3 STEP 1			US directs transition to **E-3** US directs STA to monitor status trees
	CREVS not actuated CR radiation not in high alarm		BOP checks if CREVS should be activated
	CIB has not occurred		Crew commences control room ventilation action per **Attachment A-2.5**

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	D/P between RCS pressure and highest SG pressure – LESS THAN 205 PSID [220 PSID ADVERSE CNMT] AND HHSI Flow – INDICATED		RO checks if RCPs should be stopped **RO does not stop RCPs**
	"C" SG ruptured Unexpected rise in NR level Rad survey results: ANY SAMPLE [2MSS*RQ102A,B,C] SG N-16 monitors (1075, 2075, 3075) [2MSS*RQ101A,B,C] Main Stm Monitors (1005, 3005, 5005) High Radiation from any SG BD rad monitor		US identifies **"C" SG** as the ruptured SG US directs crew to isolate flow from the ruptured SG
IF REQUESTED: **IRF LOA-MSS018 (0 0) 0** **To close [2SVS*25]**	Close atmospheric steam dump on ruptured SG [2SVS*PCV101C]		BOP closes "C" SG atmospheric steam dump [2SVS*PCV101C] Setpoint raised to 100%
	Check Residual Heat Release valve – CLOSED		BOP closes [2SVS*HCV104].

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
IRF LOA-MSS011 (0 0) 0	Check Residual Heat Release Valve from faulted SG CLOSED:		Crew dispatch operator to close [2SVS*29]
To close [2SVS*29]	SG 21C [2SVS*29]		
	2 RUNNING		BOP checks motor driven AFW pumps
	[2MSS*SOV105C & F] CLOSED		BOP closes [2MSS*SOV105C & F]
	SG-21C blowdown isol valve [2BDG*AOV100C1] CLOSED		BOP closes SG 21C blowdown isol vlv
	SG-21C Main Stm Line drain [2SDS*AOV111C1] CLOSED		BOP closes SG 21C main steamline drain vlv
	RHR Piping Drain [2SDS*AOV129A] CLOSED		BOP closes RHR Piping drain vlv
<u>EVENT #7 (continued):</u>	3 BVPASS VLVS - CLOSED		BOP reports Bypass valves closed
(PRE-LOADED)			
3 MSIVs Stuck open	**NO MSIVs** can be closed		BOP reports that all **3 MSIVs** are stuck open and cannot be closed
IMF VLV-MSS003 **IMF VLV-MSS004** **IMF VLV-MSS005**			**RUPTURED SG CANNOT BE ISOLATED FROM 1 INTACT SG, GO TO ECA-3.1**
Crew transitions to **ECA-3.1 Step 1**			
	SI, CIA & CIB - RESET		RO resets SI, CIA & CIB

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Open [2CCS-AOV118] Domestic Water to Station Air Compressor		Establish Domestic Water System Cooling to Station Air Compressors
			US directs additional personnel to perform **Att A-1.20** as manpower permits
	At least one Station Air Compressor – RUNNING		Start 1 Station Air Compressor as required
	[2IAC-MOV131] & [2IAC*MOV130] – OPEN		Crew establishes Inst Air to CNMT
	CNMT Inst Air Press > 85 PSIG		
	All AC Busses – ENERGIZED BY OFFSITE POWER		BOP checks 4KV electrical status
	All PZR HTRS – PULL TO LOCK		RO places PZR HTRS in PTL
	Quench/Recirc Spray Pumps – **NONE RUNNING**		Crew checks if CNMT spray should be stopped
	"C" SG level > 12% [31% ADVERSE CNMT]		BOP checks ruptured SG level
	[2FWE*HCV100A,B] - CLOSED		Crew isolates feed flow to "C" SG
	[2FWS*HYV157C] CLOSED		Check FWI previously verified

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	RCS Pressure - > 225 PSIG [250 PSIG ADVERSE CNMT]		RO checks if LHSI Pmps should be stopped
	Pressure – STABLE OR RISING		
	LHSI Pmps stopped and in auto		RO stops LHSI Pmps and places them in auto
	Aux Bldg/Safeguards radiation – CONSISTENT WITH PRE-EVENT LEVELS		Crew evaluates plant status
	Obtain Pertinent samples		
	Pressures in all SGs – ANY DROPPING IN AN UNCONTROLLED MANNER		BOP checks if any SGs are faulted.
	OR ANY SG COMPLETELY DEPRESSURIZED		Crew checks faulted SGs previously isolated unless needed or C/D
	SGs ARE NOT FAULTED		
	Total AFW flow maintained >340 GPM until SG level > 12% [31% adverse CNMT] THEN CONTROL AFW flow to maintain level between 26% [33% adverse CNMT] and 50%		BOP checks intact SG levels, controls AFW flow to intact SGs

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	Shutdown margin requirements are satisfied for cooldown		US directs chemistry to sample as required, Crew maintains SDM during C/D
CRITICAL TASK Crew initiates cool down of the RCS to cold shutdown conditions at the highest rate achievable but less than 100°F per hour in all RCS cold legs.	C/D rate - < 100F/Hr Trend initiated/initialed at ½ hr interval RHR used if in service SI blocked when PZR Pres < 2000 PSIG		Crew initiates cooldown to MODE 5 at < 100F/hr
EVALUATOR NOTE It is not necessary to wait for 1 hour to evaluate the crews ability to demonstrate their ability to control RCS cold leg temperatures. The crew ONLY needs to demonstrates control of RCS cold leg temperatures AND sensitivity to the 100°F per hour limit in order to obtain credit for this critical task.	Condenser Stm Dmps operated in MANUAL control to cooldown Tavg interlock blocked < 541F		BOP operates Condenser Stm Dmps as required to maintain C/D rate W/I limits
Terminate drill after proper C/D rate established or at LE discretion	RWST Level - > 600 inches Ruptured (C) SG level - < 95% [79% ADVERSE CNMT]		Crew checks if subcooled recovery desired IF NOT TRANSITION TO ECA 3.2 STEP 1
Classify the event	**GIVE SRO CANDIDATES THE JPM CUE SHEET FOR CLASSIFYING AND COMPLETING THE INITIAL NOTIFICATION FORM**		**ALERT** **TAB 2.3** Entry into E-3 **OR** **TAB 1.2.4** Loss of RCS barrier

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
Attachment A-0.11 'Verification of Automatic Actions' performed as time & manpower permit			US directs operator to perform Attachment A-0.11 as time & manpower permit
	Diesel generators – BOTH RUNNING		Check both EDGs running
	CNMT pressure – GREATER THAN 7 PSIG		Check if MSLI is required
	OR		If **not required**, go to step 4
	SG Steam Pressure – LESS THAN 500 PSIG		
	OR		
	Steamline pressure high rate of change – 100 PSIG DROP IN 50 SECONDS		
	Yellow SLI marks - LIT		Verify steamline isolation
STEP 4	Open [2CCS-AOV118] Domestic Water to Station Air Compressor		Establish Domestic Water System Cooling to Station Air Compressors
	At least one Station Air Compressor – RUNNING		Start 1 Station Air Compressor as required
	CCP pumps – AT LEAST 1 RUNNING		Check CCP Pump status
	[2NME-NR45] Nuclear Recorder selected to operable source and intermediate range displays		Align neutron flux monitoring for shutdown

INSTRUCTIONAL GUIDELINES	PLANT STATUS OR RESPONSE	OBJECTIVE	EXPECTED STUDENT RESPONSE
	CNMT pressure – HAS REMAIND LESS THAN 11 PSIG		Check CIB status
	IF NOT		Actuate CIB if required
	Manually initiate CIB – BOTH SWITCHES FOR BOTH TRAINS		
	Manually align equipment as required		
	All RCPs – STOPPED		Stop ALL RCPs
	BV-1 operator verifies CREVS actuation		
	Service water established to RSS HX(s)		
	Service Water Pumps – 2 RUNNING		Verify Service Water System in service
	Service Water Header Pressure – GREATER THAN 55 PSIG		
	SWS Seal Water Pressure – NOT LOW		
	[2HCS*SOV100A1, B1] – CNMT Sample amber light – LIT		Verify both CNMT hydrogen analyzers running
MANUAL SI REQUIRED	All Red SIS Marks – LIT		Verify ESF Equipment status – Start/align equipment as required
ONLY ONE HHSI PMP RUNNING	All Orange CIA Marks – LIT		
	All Green FWI Marks – LIT		
	Power available to both Emergency AC Busses		Verify power to both AC Emergency busses
			Restore power as required
	Attachment A-0.11 – COMPLETE		Report any discrepancies to SM/US