NRC Re-EXAM

In-Plant JPM I

Facility:	Ginna	Task No.:	
Task Title:	Locally Close MSIVs	JPM No.:	2019 NRC Re-Exam In-Plant Systems JPM I
K/A Reference:	039 A3.02 (3.1/3.5*) Ability to monitor automatic operation of the MRSS, including: Isolation of the MRSS		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: ____

Classroom ____ Simulator ____ Plant X

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:	• A fire has forced evacuation of the Control Room. • The operating crew has exited AP-CR.1, Control Room Inaccessibility, at Step 3 and transitioned to ER-FIRE.1, Alternate Shutdown for Control Room Abandonment.
Initiating Cue:	• The Shift Manager has directed you to perform ER-FIRE.1, Attachment 3, Head Control Operator (HCO).

Task Standard: The Operator will SIMULATE locally closing BOTH MSIVs in accordance with ER-FIRE.1, Attachment 3, Head Control Operator (HCO), Step 2.1.

Required Materials: Hearing Protection, Hard Hat, Gloves, Safety Shoes, Safety Glasses

NOTE: Double hearing protection is required in vicinity of MSIVs.

General References: ER-FIRE.1, Alternate Shutdown for Control Room Abandonment (Rev 043)

Handouts: Handout 1: Blank copy of ER-FIRE.1, Attachment 3.

Time Critical Task: NO

Validation Time: 10 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

N/A

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
1	(ER-FIRE.1, Attachment 3, Step 1.0) **PROCEED** to the IB Cold Side Basement **AND OBTAIN** ER-FIRE-EQUIPMENT tool bag.	The Operator proceeds to the Intermediate Building Cold Side and SIMULATES retrieving ER-FIRE tool bag from the ER-FIRE locker.	___	___	___
CUE	**ER-FIRE tool bag has been obtained.**				
2	(ER-FIRE.1, Attachment 3, Step 1.1) **ENSURE OPEN** the following: • 52-1/MG1A, CRD MG SET A BKR • 52-2/MG1B, CRD MG SET B BKR	The Operator proceeds to the Reactor Trip Breaker panel and verifies BOTH MG Set breakers are OPEN.	___	___	___
CUE	**Both MG Set breakers OPEN flag is showing.**				
3	(ER-FIRE.1, Attachment 3, Step 1.2) **CLOSE** IA CONTAINMENT MANUAL ISOL VLV, V-5397 (Penetration 310)	The Operator proceeds to Penetration 310 and SIMULATES rotating V-5397 handwheel in the clockwise direction.	___	___	___
CUE	**Handwheel no longer turns in that direction.**				
4	(ER-FIRE.1, Attachment 3, Step 2.0) **PROCEED** to Intermediate Building Clean Side Steam Header Area.	The Operator proceeds to the Steam Header Area.	___	___	___
5	(ER-FIRE.1, Attachment 3, Step 2.1) **VERIFY BOTH** MSIVs - CLOSED	The Operator locally checks the position of both MSIVs by observing the local valve position indicators and determines BOTH MSIVs are OPEN.	___	___	___
CUE	**BOTH MSIV position indicators are pointing at OPEN.**				
*6	(ER-FIRE.1, Attachment 3, Step 2.1.1) **IF BOTH** MSIVs **ARE NOT** CLOSED, **THEN PERFORM** the following for the OPEN MSIV(s): • MSIV A A. **CLOSE** IA ISOL VALVE TO S/G A MSIV, V-5408A	The Operator SIMULATES rotating V-5408A handle in the clockwise direction.	___	___	___
CUE	**Valve handle no longer turns in that direction.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*7	(ER-FIRE.1, Attachment 3, Step 2.1.1) **IF BOTH** MSIVs **ARE NOT** CLOSED, **THEN PERFORM** the following for the OPEN MSIV(s): • MSIV A B. **UNLOCK AND OPEN** A MSIV EMERG VENT, V-5471	The Operator SIMULATES unlocking restraints and rotating V-5471 handle 90 degrees in the OPEN direction.	___	___	___
CUE	**Valve handle is parallel to the vent piping.**				
*8	(ER-FIRE.1, Attachment 3, Step 2.1.1) **IF BOTH** MSIVs **ARE NOT** CLOSED, **THEN PERFORM** the following for the OPEN MSIV(s): • MSIV A C. **UNLOCK AND OPEN** A MSIV EMERG VENT, V-5473	The Operator SIMULATES rotating V-5473 handle 90 degrees in the OPEN direction.	___	___	___
CUE	**Valve handle is parallel to the vent piping.**				
CUE	**Feedback to Applicant "Air can be heard venting".**				
	Examiner NOTE: V-5471 and V-5473 are in series and BOTH MUST be OPEN in order to vent the IA from the MSIV actuator to allow 'A' MSIV to CLOSE.				
	Examiner NOTE: Due to obstructions and to prevent mis-positioning, it is acceptable to have the Applicant point to the air valves for 'B' MSIV.				
*9	(ER-FIRE.1, Attachment 3, Step 2.1.1) **IF BOTH** MSIVs **ARE NOT** CLOSED, **THEN PERFORM** the following for the OPEN MSIV(s): • MSIV B A. **CLOSE** IA ISOL VALVE TO S/G B MSIV, V-5409B	The Operator SIMULATES rotating V-5409B handle in the clockwise direction.	___	___	___
CUE	**Valve handle no longer turns in that direction.**				
*10	(ER-FIRE.1, Attachment 3, Step 2.1.1) **IF BOTH** MSIVs **ARE NOT** CLOSED, **THEN PERFORM** the following for the OPEN MSIV(s): • MSIV B B. **UNLOCK AND OPEN** B MSIV EMERG VENT, V-5472	The Operator SIMULATES unlocking restraints and rotating V-5472 handle 90 degrees in the OPEN direction.	___	___	___
CUE	**Valve handle is parallel to the vent piping.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*11	(ER-FIRE.1, Attachment 3, Step 2.1.1) **IF BOTH** MSIVs **ARE NOT** CLOSED, **THEN PERFORM** the following for the OPEN MSIV(s): • MSIV B C. **UNLOCK AND OPEN** B MSIV EMERG VENT, V-5474	The Operator SIMULATES rotating V-5474 handle 90 degrees in the OPEN direction.	___	___	___
CUE	**Valve handle is parallel to the vent piping.**				
CUE	**Feedback to Applicant "Air can be heard venting".**				
	Examiner NOTE: V-5472 and V-5474 are in series and BOTH MUST be OPEN in order to vent the IA from the MSIV actuator to allow 'B' MSIV to CLOSE.				
12	(ER-FIRE.1, Attachment 3, Step 2.1.2) **VERIFY** that the MSIVs are CLOSED.	The Operator locally checks the position of both MSIVs by observing the local valve position indicators and determines BOTH MSIVs are CLOSED.	___	___	___
CUE	**BOTH MSIV position indicators are pointing at CLOSED.**				
13	Notify SM that BOTH MSIVs are CLOSED.	The Operator contacts the SM and reports BOTH MSIVs are CLOSED.	___	___	___
CUE	**Acknowledge communications as SM.**				

CUE: Evaluation on this JPM is complete.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam In-Plant Systems JPM I

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

Initial Conditions:

- A fire has forced evacuation of the Control Room.
- The operating crew has exited AP-CR.1, Control Room Inaccessibility, at Step 3 and transitioned to ER-FIRE.1, Alternate Shutdown for Control Room Abandonment.

Initiating Cue:

- The Shift Manager has directed you to perform ER-FIRE.1, Attachment 3, Head Control Operator (HCO).

NRC Re-EXAM

In-Plant JPM J

Facility:	Ginna	Task No.:	
Task Title:	Alternate SFP Cooling Systems (A to B)	JPM No.:	2019 NRC Re-Exam In-Plant Systems JPM J
K/A Reference:	033 G2.1.29 (4.1/4.0) Knowledge of how to conduct system lineups, such as valves, breakers, switches, etc.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: ____

Classroom ____ Simulator ____ Plant X

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:

- The plant is Shutdown for a Refueling Outage and has just entered MODE 3.
- Preparations are being made to accommodate an upcoming Full Core Off-Load to the Spent Fuel Pool (SFP).
- Initial SFP temperature is 80°F.
- SFP Cooling System 'A' has just been removed from service.

Initiating Cue:

- The US has directed you to continue the swap of SFP Cooling Systems by placing 'B' SFP Cooling System in service in accordance with S-9, SFP Cooling System Operation, beginning at Step 6.4.4.

Task Standard:	The Operator will place 'B' SFP Cooling System in accordance with S-9, SFP Cooling System Operation, Section 6.4.
Required Materials:	Hearing Protection, Hard Hat, Gloves, Safety Shoes, Safety Glasses, Dosimetry
General References:	S-9, SFP Cooling System Operation (Rev 013) 33013-1248, Auxiliary Cooling Spent Fuel Pool Cooling (AC) P&ID (Rev 050) 33013-1250, 2, Station Service Cooling Water Safety Related (SW) P&ID (Rev 052)
Handouts:	Handout 1: Marked up copy of S-9
Time Critical Task:	NO
Validation Time:	14 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

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The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

N/A

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
	CAUTION **DO NOT** exceed 2500 GPM as indicated on SPENT FUEL POOL HEAT EXCHANGER B OUTLET FLOW INDICATOR, FI-8683.				
*1	(S-9, Step 6.4.4) **THROTTLE OPEN** 1B SFP HX SW RETURN ISOL VLV, V-8689, until SFP HX B outlet flow, FI-8683, indicates between 1450 and 1550 GPM.	The Operator SIMULATES rotating V-8689 handwheel counter-clockwise (OPEN) while monitoring FI-8683 to obtain 1450 – 1550 GPM as indicated on FI-8683.	___	___	___
CUE	**As Applicant throttles valve OPEN and monitors FI-8683, use a pencil/pen/pointing device on FI-8683 to indicate flow is rising from 0 GPM to 1500 GPM.**				
2	(S-9, Step 6.4.5) **RECORD** final flow on FI-8683 _____ GPM	The Operator records **1500** GPM.	___	___	___
3	(S-9, Step 6.4.6) **OPEN** 1B SERVICE WATER OUTLET BLOCK VALVE TO RE-20B, V-8634.	The Operator SIMULATES rotating V-8634 handle 90° to OPEN valve.	___	___	___
CUE	**Valve handle is parallel to pipe.**				
	Examiner NOTE: V-8634 is located on Operating Floor between 'A' and 'B' SFP HXs (5 feet)				
4	(S-9, Step 6.4.7) **THROTTLE** SFP HX B SW OUTLET VLV, V-8685, **UNTIL** SPENT FUEL POOL HEAT EXCHANGER B OUTLET TO RE-20B FLOW INDICATOR, FI-8631, indicates between 75 and 100 GPM.	The Operator SIMULATES rotating V-8685 handwheel counter-clockwise (OPEN) while monitoring FI-8631 to obtain 75 – 100 GPM as indicated on FI-8631.	___	___	___
CUE	**As Applicant throttles valve OPEN and monitors FI-8631, use a pencil/pen/pointing device on FI-8631 to indicate flow is rising from 0 GPM to 90 GPM.**				
	Examiner NOTE: V-8685 is located on Operating Floor Platform near 'B' CCW HX at top of stairs.				
5	(S-9, Step 6.4.8) **RECORD** flow on FI-8631 _____ GPM	The Operator records **90** GPM.	___	___	___
	Examiner NOTE: JPM Performance Steps 6 and 7 may be performed in either order.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6	(S-9, Step 6.4.9) **ENSURE** a leak check of the SFP suction line is performed prior to pump start.	The Operator checks the SFP suction line for leaks.	___	___	___
CUE	**No leaks are indicated.**				
7	(S-9, Step 6.4.10) **ENSURE** a visual verification has been performed that ensures the SFP pump suctions are not blocked and Spent Fuel Pool area is free of potential foreign material.	The Operator performs an inspection to ensure SFP suctions are not blocked and SFP area is free from foreign materials.	___	___	___
CUE	• **SFP suction lines are not blocked.** • **Spent Fuel Pool area is free of potential foreign material.**				
*8	(S-9, Step 6.4.11) **ENSURE OPEN** LOW SUCTION ISOL VLV TO SPENT FUEL POOL RECIRC PUMPS (ALT), V-782.	The Operator SIMULATES rotating V-782 handle in the counter-clockwise direction to OPEN valve.	___	___	___
CUE	**Valve handle no longer turns in that direction.**				
9	(S-9, Step 6.4.12) **ENSURE OPEN** HIGH SUCTION ISOL VLV TO SPENT FUEL POOL RECIRC PUMPS (NORMAL), V-781.	The Operator verifies V-781 is OPEN by visually checking valve stem is out.	___	___	___
CUE	• **Valve stem indicates OUT. (V-781 will already be OPEN at this point in procedure)** • **If Applicant checks V-781 in clockwise (CLOSED) direction, feedback valve handle moves in that direction.**				
*10	(S-9, Step 6.4.13) **THROTTLE CLOSED** ISOLATION GATE VALVE FROM SFP PUMP B TO SFP HEAT EXCHANGER B, V-8667, to approximately 80%-90% CLOSED.	The Operator SIMULATES rotating V-8667 handwheel in the clockwise (CLOSED) direction to approximately 80% - 90% CLOSED.	___	___	___
CUE	• **Valve handwheel turns in that direction.** • **Valve handwheel indicates V-8687 is approximately 80% - 90% CLOSED.**				
*11	(S-9, Step 6.4.14) **START** SFP Pump B by pressing PB1/SFPPB.	The Operator SIMULATES depressing PB1/SFPPB pushbutton.	___	___	___
		The Operator verifies 'B' SFP Pump is running. (Red light LIT)	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	• **When Operator SIMULATES depressing PB1/SFPPB, feedback "Normal pump motor noise on startup."** • **Red light is LIT.** • **If Applicant checks 'B' SFP Pump pressure on PI-8672, feedback "60 psig and stable".**				
CUE	**Acknowledge communications to Control Room, as necessary.**				
	CAUTION • **IF** SFP Cooling is being restored **PER** ATT-30.0 Attachment SFP COOLING RESTORATION **THEN** FLOW INDICATING TRANSMITTER FOR PAC07B (SFP Pump B), FIT-8667 is limited to the requirements of ATT-30.0 or this procedure, whichever is lower. • **DO NOT** exceed 1700 GPM as indicated on FLOW INDICATING TRANSMITTER FOR PAC07B (SPENT FUEL POOL PUMP B), FIT-8667.				
*12	(S-9, Step 6.4.15) **THROTTLE** ISOLATION GATE VALVE FROM SFP PUMP B TO SFP HEAT EXCHANGER B, V-8667, UNTIL flow is between 1100 and 1700 GPM on (SPENT FUEL POOL RECIRCULATION PUMP B), FIT-8667.	The Operator SIMULATES rotating V-8667 handwheel in the counter-clockwise (OPEN) while monitoring FIT-8667 to obtain 1100 – 1700 GPM as indicated on FIT-8667.	___	___	___
CUE	• **If Applicant checks initial flow on FIT-8667, use a pencil/pen/pointing device on FIT-8667 to indicate 300 GPM.** • **Valve handwheel turns in that direction.** • **Flow indicates 1250 GPM.**				
	Examiner NOTE: Applicant may contact the Control Room to check Annunciator K-21 is clear. Acknowledge communications and report Annunciator K-21 is clear.				
	CAUTION **IF** SW system flow rate greater than 1800 GPM through B SFP heat exchanger as indicated in Step 4.4, **THEN** an evaluation **SHALL** be performed.				
13	(S-9, Step 6.4.16) **THROTTLE** SFP HX B SW OUTLET ISOL VLV, V-8689, as required to maintain desired SFP temperature.	The Operator determines that SW system flow was previously throttled to 1500 GPM as indicated on FI-8683. (Step 6.4.4)	___	___	___
		The Operator verifies SFP temperature.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	• **If Applicant checks flow on FI-8683, use a pencil/pen/pointing device on FI-8683 to indicate 1500 GPM.** • **If Applicant checks SFP temperature, use a pencil/pen/pointing device to indicate SFP temperature is 80°F.** • **Acknowledge communications to Control Room, as necessary.**				
	Examiner NOTE: SFP temperature changes would take a significant amount of time to occur.				

CUE: Evaluation on this JPM is complete.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam In-Plant Systems JPM J

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant is Shutdown for a Refueling Outage and has just entered MODE 3.
- Preparations are being made to accommodate an upcoming Full Core Off-Load to the Spent Fuel Pool (SFP).
- Initial SFP temperature is 80°F.
- SFP Cooling System ‘A’ has just been removed from service.

Initiating Cue:

- The US has directed you to continue the swap of SFP Cooling Systems by placing ‘B’ SFP Cooling System in service in accordance with S-9, SFP Cooling System Operation, beginning at Step 6.4.4.

NRC Re-EXAM

In-Plant JPM K

Facility:	Ginna	Task No.:	
Task Title:	Locally Isolate CI/CVI Valves	JPM No.:	2019 NRC Re-Exam In-Plant Systems JPM K
K/A Reference:	EPE 009 EA1.08 (4.0/4.1) Ability to operate and monitor the following as they apply to a small break LOCA: Containment isolation system		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: ____

Classroom ____ Simulator ____ Plant X

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:

- The plant has experienced a Reactor Trip and Safety Injection.
- The operating crew is performing E-0, Reactor Trip or Safety Injection.
- The following Containment Isolation valves did not automatically CLOSE and can NOT be closed from the MCB: AOV-1003A, AOV-1003B, MOV-813, MOV-814, and AOV-539.

Initiating Cue:

- The US has directed you to perform the Alternate Isolation for AOV-1003A, AOV-1003B, MOV-813, MOV-814, and AOV-539 in accordance with ATT-3.0, Attachment CI/CVI.
- **SIMULATE** only. Do **NOT** manipulate any plant equipment.

Task Standard:	The Operator will SIMULATE locally isolating flowpaths in accordance with ATT-3.0, Alternate Isolation for AOV-1003A, AOV-1003B, MOV-813, MOV-814, and AOV-539.
Required Materials:	Hearing Protection, Hard Hat, Gloves, Safety Shoes, Safety Glasses, Dosimetry
General References:	ATT-3.0, Attachment CI/CVI (Rev 01200)
Handouts:	Handout 1: Blank copy ATT-3.0
Time Critical Task:	NO
Validation Time:	11 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

N/A

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
	Examiner NOTE: The isolation steps for each individual valve may be performed in any order.				
*1	(ATT-3.0, Alternate Isol) AOV-1003A (RCDT Pump A) and AOV-1003B (RCDT Pump B) Close AOV-1721 (Waste Panel)	The Operator locates AOV-1721 control switch and SIMULATES rotating to the CLOSE position.	___	___	___
		The Operator verifies AOV-1721 is CLOSED.	___	___	___
CUE	**Switch is in CLOSE position. Green light is LIT, Red light is OFF.**				
*2	(ATT-3.0, Alternate Isol) MOV-813 (CCW) Locally close MOV-813 (AB Int Level). IF MOV-813 can not be closed, THEN perform the following: 1) Direct AO with locked valve key to unlock and close breaker for MOV-817 (MCC D POS 10C) 2) Stop both RCPs 3) Manually close MOV-817 (MCB). IF MOV-817 will not close, THEN direct AO to locally close MOV-817 (AB INT LEVEL).	The Operator locates MOV-813: • SIMULATES depressing the Limitorque clutch lever handle downwards.	___	___	___
*		• SIMULATES turning handwheel in clockwise (CLOSE) direction.	___	___	___
CUE	• **Clutch lever is completely DOWN.** • **Valve handwheel no longer turns in that direction.**				
	Examiner NOTE: The clutch lever may be released once the Applicant begins turning the valve handwheel.				
*3	(ATT-3.0, Alternate Isol) MOV-814 (CCW) Close V-815A (AB INT LEVEL)	The Operator SIMULATES squeezing the locking trigger and turning V-815A handle 90° to CLOSE valve.	___	___	___
CUE	**Valve handle is perpendicular to pipe.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*4	(ATT-3.0, Alternate Isol) AOV-539 (PRT gas) Close V-546 (BY SFP HX A)	The Operator SIMULATES turning V-546 handwheel in clockwise (CLOSE) direction.	___	___	___
CUE	**Valve handwheel no longer turns in that direction.**				

CUE: Evaluation on this JPM is complete.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam In-Plant Systems JPM K

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant has experienced a Reactor Trip and Safety Injection.
- The operating crew is performing E-0, Reactor Trip or Safety Injection.
- The following Containment Isolation valves did not automatically CLOSE and can NOT be closed from the MCB: AOV-1003A, AOV-1003B, MOV-813, MOV-814, and AOV-539.

Initiating Cue:

- The US has directed you to perform the Alternate Isolation for AOV-1003A, AOV-1003B, MOV-813, MOV-814, and AOV-539 in accordance with ATT-3.0, Attachment CI/CVI.
- **SIMULATE** only. Do **NOT** manipulate any plant equipment.

NRC Re-EXAM

RO Admin JPM A1

Facility:	Ginna	Task No.:	
Task Title:	Perform a Daily Surveillance Log	JPM No.:	2019 NRC Re-Exam RO Admin JPM A1
K/A Reference:	G 2.1.18 (3.6/3.8) Ability to make accurate, clear, and concise logs, records, status boards, and reports.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom ____ Simulator X Plant ____

Applicability: RO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue Sheet (Last Page of this JPM) and Handout 1.

Initial Conditions:	• The plant is operating at 100% power, Beginning of Life (BOL). • PPCS is Out of Service.
Initiating Cue:	• You are the HCO. • The US has directed you to perform O-6.13, Daily Surveillance Log, Attachment 1, Modes 1, 2, and 3.

Task Standard: The Operator will correctly identify the three parameters outside allowable values and take the correct required actions in accordance with O-6.13.

Required Materials: NONE

General References: O-6.13, Daily Surveillance Log (Rev 198)

Handouts: Handout 1: Blank copy of O-6.13

Time Critical Task: NO

Validation Time: 15 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **any 100% BOL IC (IC-12).**

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

2. Insert **Override IND-NIS10 = 96.0** (NI-NI-42B Power Range #2 Percent Full Power)**.**
3. Insert **Override IND-SIS37 = 88.5** (LI-931 Sodium Hydroxide Level).
4. Insert **Override IND-RCS33 = 93.0** (RC-FI-416 Reactor Coolant Flow/Loop 1B-3).
5. Insert **Override IND-SIS44 = 91** (LI-921 Refueling Water Storage Tank Level).
6. Insert **Override IND-SIS45 = 91** (LI-920 Refueling Water Storage Tank Level).
7. Place Simulator in RUN.
8. Place Simulator in FREEZE.
9. ENSURE all PPCS monitors are turned OFF.
10. Reset to IC-159 (March 2019)
11. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
12. This completes the setup for this JPM.
13. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue Sheet (Last Page of this JPM) and Handout 1.**				
CUE	**Acknowledge any report of a parameter out of specification. If necessary, direct the Applicant to complete the entire Attachment if they stop after reporting the first parameter out of specification.**				
	Examiner NOTE: Only the parameters that are out of specification are identified in the JPM. Errors can be identified in ANY order.				
1	(O-6.13, Attachment 1) Reactor Coolant Flow (cc) Loop A Loop B	The Operator determines that RCS Flow indicator 1B-3 RX COOLANT FLOW, FI-416, is reading approx. 6% lower than the other two channels (FI-414 and FI-415)	___	___	___
*2	(O-6.13, Step 6.2.5) **PERFORM** the following for channel deviations of same parameter of ± 5% or greater of meter span: 1. **SUBMIT** an Issue Report for channel with deviation. 2. **REFER TO** TS for channel operability requirements.	The Operator determines that FI-416 deviation is greater than 5% of meter span (5.5%) and informs US	___	___	___
		The Operator informs US to: 1. Submit an Issue Report. 2. Refer to Technical Specifications for FI-416 failing channel check.	___	___	___
CUE	**Acknowledge communications as US and inform Applicant to continue with O-6.13, Attachment 1.**				
3	(O-6.13, Attachment 1) Spray Additive Tank Level * Maintain > 90.7%	The Operator determines that NaOH LEVEL indicator LI-931 is reading less than the administrative limit (> 90.7%)	___	___	___
*4	(O-6.13, Attachment 1, NOTE 3) Maintain more conservative admin limits due to instrument uncertainty. **IF** admin limit is met **AND** indication is believed to be valid, **THEN** LCO must be entered for the following: • NaOH Level LI-931	The Operator recognizes that NaOH Level LI-931 is below the Admin Limit and informs US	___	___	___
		The Operator informs US to enter the Technical Specification LCO for NaOH Level below Admin limit.	___	___	___
CUE	**Acknowledge communications as US and inform Applicant to continue with O-6.13, Attachment 1.**				
CUE	**IF the Applicant contacts the EO to locally verify NaOH tank level, THEN respond as the EO that local NaOH Tank level is approximately 90%.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*5	(O-6.13, Attachment 1) Power Range (cc) 2% Deviation Highest to Lowest PR	The Operator determines that greater than 2% deviation exists between N-42 and the other three PR channels and informs US	___	___	___
	NOTE • Sections which follow provide specific guidance as referenced within Attachment 1 and Attachment 2. • Power Range channels have a ± 2% deviation from highest to lowest channel. • Source Range channels are within a factor of 9 in CPS of each other. • RCS Subcooling Monitors have a ± 10% meter span channel check for operability. • For SI Accumulator levels perform actions at ± 7% or greater of meter span when comparing channels on same accumulator. • Pressurizer Level channels have a ± 7% meter span channel check for operability.				
6	(O-6.13, Step 6.2.5) **PERFORM** the following for channel deviations of same parameter of ± 5% or greater of meter span: 1. **SUBMIT** an Issue Report for channel with deviation. 2. **REFER TO** TS for channel operability requirements.	The Operator informs US to: 1. Submit an Issue Report. 2. Refer to Technical Specifications for N-42 failing channel check.	___	___	___
CUE	**Acknowledge communications as US and inform Applicant to continue with O-6.13, Attachment 1.**				

Terminating Cue: **Following recognition of the three deficiencies, Evaluation on this JPM is complete.**

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam RO Admin JPM A1

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant is operating at 100% power, Beginning of Life (BOL).
- PPCS is Out of Service.

Initiating Cue:

- You are the HCO.
- The US has directed you to perform O-6.13, Daily Surveillance Log, Attachment 1, Modes 1, 2, and 3.

NRC Re-EXAM

RO Admin JPM A2

Facility:	Ginna	Task No.:	
Task Title:	Calculate SDM for an Operating Reactor with a Misaligned Control Rod	JPM No.:	2019 NRC Re-Exam RO Admin JPM A2
K/A Reference:	G 2.1.37 (4.3/4.6) Knowledge of procedures, guidelines, or limitations associated with reactivity management.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom X Simulator ____ Plant ____

Applicability: RO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.

Initial Conditions:

- Plant is operating at 100% power.
- T_{AVG} is 574°F.
- The Operating crew was performing STP-O-1, Rod Control System, on Bank C.
- Control Rod D-10 (Bank C, Group 2) has been determined to be misaligned 15 steps low.
- The remaining Bank C control rods are at 225 steps.
- Burnup is 4000 MWD/MTU.
- Boron sample taken today at 0030: 1500 PPM
- Bank Rod Positions:
  - Bank C – 225 steps

- Bank D – 216 steps

Initiating Cue:	The Unit Supervisor has directed you to calculate Shutdown Margin in accordance with O-3.2, Shutdown Margin for an Operating Reactor, through Step 6.11. Determine if the Shutdown Margin requirements are satisfied.
Task Standard:	The Operator will calculate Shutdown Margin in accordance with O-3.2, Shutdown Margin for an Operating Reactor, and determine that the Shutdown Margin requirements are satisfied.
Required Materials:	• Calculator
General References:	O-3.2, Shutdown Margin for an Operating Reactor (Rev 041)
Handouts:	Handout 1: Blank copy of O-3.2
Time Critical Task:	NO
Validation Time:	19 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
	NOTE Shutdown Margin **SHALL** be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: • All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. **IF** any RCCAs is **NOT** capable of being fully inserted, **THEN** the reactivity worth of the RCCAs must be accounted for in the determination of SDM. • In Modes 1 and 2, the fuel and moderator temperatures are changed to the nominal hot zero power temperature.				
1	(O-3.2, Step 6.1) **CHECK** Tavg is at program Tavg ± 1.5°F.	The Operator recognizes that Tavg is at program.	___	___	___
2	(O-3.2, Step 6.2) **IF** Tavg is **NOT** at program Tavg, **THEN CONSULT** the Reactor Engineer. **OTHERWISE, MARK** this Step N/A.	The Operator marks this Step N/A.	___	___	___
	NOTE • **IF** the following calculations will be performed by a Licensed Operator, **THEN ENSURE** Independent Verification is performed by an STA **OR** the Reactor Engineer. • **IF** the following calculations will be performed by an STA **OR** the Reactor Engineer, **THEN ENSURE** Independent Verification is performed by a Licensed Operator.				
3	(O-3.2, Step 6.3) **RECORD** the cycle burnup (PPCS point ID Burnup). • DATE • MWD/MTU	The Operator enters **today**'s date and 4000 MWD/MTU from Initial Conditions.	___	___	___
4	(O-3.2, Step 6.4) **OBTAIN** last loop B boron sample results from on-duty RP **AND RECORD** date, time and concentration of sample. • Sample Date: • Time: • Concentration:	The Operator enters **today**'s date, time of **0030** hours, and concentration of **1500** ppm from Initial Conditions.	___	___	___
5	(O-3.2, Step 6.5) **RECORD** Reactor Power Level. • %	The Operator enters **100**% from Initial Conditions.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6	(O-3.2, Step 6.6) **RECORD** Bank C and D positions: • Bank C = • Bank D =	The Operator enters **225** steps for Bank C position and **216** steps for Bank D position from Initial Conditions.	___	___	___
	NOTE **WHEN** determining values based on burnup, **THEN** the following curves indicated for the applicable burnup range **SHALL** be used: • BOL to 6,132 MWD/MTU Use BOL curves • 6,133 to 12,265 MWD/MTU Use MOL curves • 12,266 to EOL MWD/MTU Use EOL curves The Total Power Defect determined in Step 6.7 will be a positive number.				
*7	(O-3.2, Step 6.7) **DETERMINE** total Power Defect, using the appropriate Total Power Defect attachment. **USE** Attachment 2, Total Power Defect Figure 5-7 (BOL), **OR** Attachment 3, Total Power Defect Figure 5-8 (MOL), **OR** Attachment 4, Total Power Defect Figure 5-9 (EOL), using the boron concentration recorded in Step 6.4 and power level recorded in Step 6.5 • Total Power Defect:	The Operator determines that Attachment 2 is to be used and determines Total Power Defect is + **1827.5 (± 25)** pcm and enters in procedure step.	___	___	___
	NOTE During power operation ensuring that the shutdown bank is fully withdrawn, and the control banks are within the limits of LCO 3.1.6 verifies adequate shutdown margin (ITS B3.1.1).				
*8	(O-3.2, Step 6.8) **DETERMINE** Control Rod negative reactivity available for insertion upon a Reactor trip as follows: 6.8.1 **DETERMINE** the negative reactivity inserted upon trip from the ARO position assuming the most reactive rod remains stuck at the full out position using Attachment 1, Negative Reactivity Added on Trip from ARO, and the current burnup from Step 6.3. • Rod Worth – Stuck Rod	The Operator determines – **4121** pcm of negative reactivity will be inserted using Attachment 1 and the burnup of 4000 MWD/MTU and enters in procedure step.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
	NOTE **WHEN** determining values based on burnup, **THEN** the following curves indicated for the applicable burnup range **SHALL** be used: • BOL to 6,132 MWD/MTU Use BOL curves • 6,133 to 12,265 MWD/MTU Use MOL curves • 12,266 to EOL MWD/MTU Use EOL curves The Integral Rod Worth determined in Step 6.8.2 will always be a positive value.				
*9	(O-3.2, Step 6.8.2) **DETERMINE** the integral rod worth from the rod position recorded in Step 6.6 to the full out position (ARO) using the appropriate Integral Rod Worth column BOL, MOL or EOL in Attachment 5. • Bank Worth to Full Out	The Operator determines + **10.2 (± 1)** pcm by using the BOL column on Attachment 5 and enters in procedure step.	___	___	___
	NOTE • Stuck rod worth may be obtained from the Stuck Rod Worth column of Attachment 1 for current core burnup and multiplied by a 1.5 factor to bound all rod configurations. Dropped rods are worth +250 pcm. Rods misaligned low are worth the lower of either + 250 pcm (which would indicate it is fully inserted) or + 15 pcm/step. • **IF** there are no stuck, dropped, **OR** misaligned rod(s), **THEN** 0 pcm is to be entered.				
	CAUTION Available Shutdown Margin is further reduced by the worth of any Control Rod known to be stuck out, dropped, or misaligned low relative to the bank position.				
10	(O-3.2, Step 6.8.3) **RECORD** the control rod reactivity due to a known stuck (untripable), a dropped (fully inserted) and a misaligned low control rods. 1. Stuck Rod: 2. Dropped Rod 3. Rod Misaligned Low	The Operator enters **0** pcm for Stuck Rod and Dropped Rod	___	___	___
*		The Operator determines from the NOTE that the misaligned low control rod (D-10) is worth + **225** pcm and enters in procedure step.	___	___	___
11	(O-3.2, Step 6.8.4) **DETERMINE** the reduction in control rod reactivity due to known stuck (untripable), dropped (fully inserted) or misaligned low control rods.	The Operator enters the values from Step 6.8.3 and determines that + **225** pcm Unavailable Rod Worth exists and enters in procedure step.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
12	(O-3.2, Step 6.8.5) **DETERMINE** the total available control rod negative reactivity.	The Operator enters the values from Steps 6.8.1, 6.8.2, and 6.8.4 and determines that - **3885.8** pcm of control rod negative reactivity exists.	___	___	___
*13	(O-3.2, Step 6.9) **CALCULATE** the Shutdown Margin by adding the negative reactivity added by the control rods in Step 6.8.5 to the positive reactivity from Power Defect recorded in Step 6.7.	The Operator enters the values from Steps 6.8.5 and 6.7 and determines that Shutdown Margin is – **2058.3 (± 25)** pcm.	___	___	___
	NOTE • 1.8% delta K/K = 1800 pcm (Single Loop Operation) • 1.3% delta K/K = 1300 pcm (Two Loop Operation)				
*14	(O-3.2, Step 6.10) **LOCATE** the required Shutdown Margin on Attachment 6, Required Shutdown Margin Figure COLR-2, **AND CONVERT** to pcm, using the latest boron sample recorded in Step 6.4, **AND RECORD** below. • Required SDM =	The Operator recognizes either form Attachment 6 on the NOTE preceding this Step that the Required Shutdown Margin is – **1300** pcm.	___	___	___
*15	(O-3.2, Step 6.11) **VERIFY** the Shutdown Margin requirements are satisfied as indicated by the value calculated in Step 6.9 being more negative than the Required SDM in Step 6.10.	The Operator compares the values and determines that the Shutdown Margin requirements **ARE** satisfied and circles **YES** on the Initial Conditions/Cue Sheet of the JPM.	___	___	___

JPM Stop Time: _____ **Terminating Cue: Applicant states task is complete.**

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam RO Admin JPM A2

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- Plant is operating at 100% power.
- TAVG is 574°F.
- The Operating crew was performing STP-O-1, Rod Control System, on Bank C.
- Control Rod D-10 (Bank C, Group 2) has been determined to be misaligned 15 steps low.
- The remaining Bank C control rods are at 225 steps.
- Burnup is 4000 MWD/MTU.
- Boron sample taken today at 0030: 1500 PPM
- Bank Rod Positions:
  - Bank C – 225 steps
  - Bank D – 216 steps

Initiating Cue: The Unit Supervisor has directed you to calculate Shutdown Margin in accordance with O-3.2, Shutdown Margin for an Operating Reactor, through Step 6.11.
Determine if the Shutdown Margin requirements are satisfied.

Applicant Name: _____

Shutdown Margin Requirements Satisfied: **NO / YES**

NRC Re-EXAM

RO Admin JPM A3

Facility:	Ginna	Task No.:	
Task Title:	Perform an HCO/CO Review of STP-O-36QC	JPM No.:	2019 NRC Re-Exam RO Admin JPM A3
K/A Reference:	G 2.2.42 (3.9/4.6) Ability to recognize system parameters that are entry-level conditions for Technical Specifications.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom X Simulator ____ Plant ____

Applicability: RO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.

Initial Conditions:	• Normally scheduled performance of STP-O-36QC, Standby Auxiliary Feedwater Pump C - Quarterly, was completed last shift. • SAFW Pump 'C' has been returned to OPERABLE status.
Initiating Cue:	• The US has directed you to perform the HCO/CO review of all attachments that require HCO/CO review in STP-O-36QC. • List any deviation(s)/error(s) and applicable required action(s) on the JPM CUE SHEET.

Task Standard: The Operator will correctly identify all deviations from acceptable test criteria and determine all applicable required action(s).

Required Materials: • NONE

General References: STP-O-36QC, Standby Auxiliary Feedwater Pump C - Quarterly (Rev 014)

Handouts: Handout 1: Marked up copy of STP-O-36QC

Time Critical Task: NO

Validation Time: 30 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

VERIFICATION OF COMPLETION

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
NOTE	**Applicant may identify errors in the body of the procedure, but these are NOT critical steps.**				
*1	(STP-O-36QC, Attachment 5) Perform HCO/CO review of Attachment 5, Valve Stroke Time Data Sheet	The Operator reviews Attachment 5 and notes on the Cue Sheet: • AOV-9710A Initial Stroke Time recorded is in Action Value High criteria.	___	___	___
*2	(STP-O-36QC, Attachment 5, Action Statement 2.0) An IR **SHALL** be initiated. Valve **SHALL** be retested immediately or declared inoperable. If the retest also exceeds the acceptance criteria, an analysis shall be performed by the IST Program Owner or designee within 96 hours to determine the potential impact on continued valve operational readiness, or the valve **SHALL** be declared inoperable. If the second set of data (that is, the retest) is within the acceptance criteria, the initial deviation shall be analyzed by the IST Program Owner or designee to determine the root cause of the deviation. There is no time stipulation for having the causal analysis completed and the valve remains operable. If not previously declared inoperable, based on it being within its prescribed Limiting Value(s) of stroke time.	The Operator determines and notes on the Cue Sheet: • An Issue Report (IR) must be initiated • AOV-9710A must be retested immediately or declared INOPERABLE	___	___	___
*3	(STP-O-36QC, Attachment 5) Perform HCO/CO review of Attachment 8, SAFW Pump C Inservice Test Sheet	The Operator reviews Attachment 8 and notes on the Cue Sheet: • Delta-P: Pump Differential Pressure is in Required Action Range.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*3	(STP-O-36QC, Attachment 8, Action Statement (1)) **IF** the measured test parameter values fall within the required action range, **THEN** the pump **SHALL** be declared INOPERABLE until either the cause of the deviation has been determined **AND** the condition is corrected, **OR** an analysis of the pump is performed which supports continued operation **AND** new reference values are established. **NOTIFY** the Shift Manager and IST Program Owner **AND INITIATE** an Issue Report.	The Operator determines and notes on the Cue Sheet: • SAFW Pump 'C' must be declared INOPERABLE.	___	___	___
*		• Notify Shift Manager and IST Program Owner.	___	___	___
		• An Issue Report (IR) must be initiated	___	___	___
*4	(STP-O-36QC, Attachment 14) Perform HCO/CO review of Attachment 8, SAFW Pump C Temperature Data Sheet	The Operator reviews Attachment 8 and notes on the Cue Sheet: • MOT temperature recorded is greater than the Temperature Range	___	___	___
		The Operator determines that an entry should be made on Attachment 15, Comments, and US/SM notified. (May also make entry into Attachment 15 instead)	___	___	___

Terminating Cue: Applicant states task is complete.

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam RO Admin JPM A3

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- Normally scheduled performance of STP-O-36QC, Standby Auxiliary Feedwater Pump C - Quarterly, was completed last shift.
- SAFW Pump ‘C’ has been returned to OPERABLE status.

Initiating Cue:

- The US has directed you to perform the HCO/CO review of all attachments that require HCO/CO review in STP-O-36QC.
- List any deviation(s)/error(s) and applicable required action(s) on the JPM CUE SHEET.

Applicant Name: _____

Deviation(s) / Error(s):

Required Actions:

NRC Re-EXAM

RO Admin JPM A4

Facility:	Ginna	Task No.:	
Task Title:	Determine Maximum Reactor Vessel Venting Time	JPM No.:	2019 NRC Re-Exam RO Admin JPM A4
K/A Reference:	G 2.3.11 (3.8/4.3) Ability to control radiation releases.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

Applicability: RO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 through 3.

Initial Conditions:

- The plant was operating at 100% power when a Small Break LOCA occurred.
- The operating crew has transitioned to ES-1.2, Post LOCA Cooldown and Depressurization.
- SI Pumps have been secured and SI Accumulators have been isolated.
- The RCS has been depressurized to 800 psig.
- The operating crew is referring to FR-I.3, Response to Voids in Reactor Vessel, due to a hard bubble existing in the Reactor Vessel.
- Chemistry Technician reports CNMT Hydrogen concentration is 0.3%.
- Containment average temperature is 128°F.
- You are an extra RO.

Initiating Cue:	The US has directed you to calculate maximum Reactor Vessel venting time in accordance with FR-I.3, Step 21.b.
Task Standard:	The Operator will correctly calculate maximum Reactor Vessel venting time in accordance with ATT-20.0, Attachment Vent Time.
Required Materials:	• Calculator
General References:	FR-I.3, Response to Voids in Reactor Vessel (Rev 026) ATT-20.0, Attachment Vent Time (Rev 4) FIG-12.0, Figure CNMT Hydrogen (Rev 0)
Handouts:	Handout 1: Marked up copy of FR-I.3 Handout 2: Blank copy of ATT-20.0 Handout 3: Blank copy of FIG-12.0
Time Critical Task:	NO
Validation Time:	8 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 through 3.**				
1	(FR-I.3, Step 21.b) Determine maximum venting time (Refer to ATT-20.0, ATTACHMENT VENT TIME)	The Operator proceeds to ATT-20.0.	___	___	___
2	(ATT-20.0, Step 1) Record H2 Concentration and RCS pressure. a. H2 Concentration b. RCS pressure	The Operator records H2 Concentration as **0.3**% and RCS pressure as **800** psig from Initial Conditions and enters in procedure.	___	___	___
*3	(ATT-20.0, Step 2) Determine Containment Volume at standard conditions (V).	The Operator uses CNMT temperature of **128°F** from Initial Conditions and calculates CNMT Volume is **$8.6x10^5$ to $8.7x10^5$** cu ft and enters in procedure.	___	___	___
*4	(ATT-20.0, Step 3) Determine the maximum H2 volume that can be vented (H).	The Operator uses CNMT hydrogen concentration of **0.3%** from Initial Conditions and CNMT volume calculated in ATT-20.0, Step 2, and calculates a Hydrogen Volume of **$2.32x10^4$ to $2.35x10^4$** cu ft (**23, 200 to 23, 500**) and enters in procedure.	___	___	___
*5	(ATT-20.0, Step 4) Determine H2 flow rate (F) from curve on Figure CNMT HYDROGEN and RCS pressure recorded in step 1b.	The Operator uses FIG-12.0 with an RCS pressure of 800 psig (Initial Conditions) and determines a Hydrogen flow rate of **1375 – 1425** SCFM and enters in procedure.	___	___	___
*6	(ATT-20.0, Step 5) Calculate the maximum venting time (T) a. T = H (from step 3) / F (from step 4) b. T =	The Operator uses the values calculated in ATT-20.0, Steps 3 and 4 and determines that maximum Reactor Vessel venting time is between **16.2 to 17.1** minutes and enters in procedure.	___	___	___

JPM Stop Time: _____ **Terminating Cue: Applicant states task is complete.**

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam RO Admin JPM A4

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

Initial Conditions:

- The plant was operating at 100% power when a Small Break LOCA occurred.
- The operating crew has transitioned to ES-1.2, Post LOCA Cooldown and Depressurization.
- SI Pumps have been secured and SI Accumulators have been isolated.
- The RCS has been depressurized to 800 psig.
- The operating crew is referring to FR-I.3, Response to Voids in Reactor Vessel, due to a hard bubble existing in the Reactor Vessel.
- Chemistry Technician reports CNMT Hydrogen concentration is 0.3%.
- Containment average temperature is 128°F.
- You are an extra RO.

Initiating Cue: The US has directed you to calculate maximum Reactor Vessel venting time in accordance with FR-I.3, Step 21.b.

NRC Re-EXAM

SIM JPM A

Facility:	Ginna	Task No.:	
Task Title:	Establish RCS Injection in AP-RCS.4 with CI Valve Failures	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM A (Alternate Path)
K/A Reference:	006 A4.01 (4.1/3.9) Ability to manually operate and/or monitor in the control room: Pumps		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handouts 1 and 2.

Initial Conditions:

- The plant is in the process of shutting down.
- O-2.2, Plant Shutdown from Hot Shutdown to Cold Conditions, has been completed up to Section 6.5, Alignment of Overpressure Protection and RHR Systems.
- Actions to place RHR in service have not yet started.
- RCS temperature was 340°F and pressure was 420 psig when a LOCA occurred.
- The crew has entered AP-RCS.4, Shutdown LOCA.
- Personnel have been evacuated from CNMT.
- Another board Operator will respond to alarms **NOT** associated with the JPM.

Initiating Cue:	• The US has directed you to continue with AP-RCS.4, beginning at Step 5.
Task Standard:	The Operator will establish RCS Injection with one SI Pump and isolate Containment in accordance with AP-RCS.4 and ATT-3.0, Attachment CI/CVI.
Required Materials:	None
General References:	AP-RCS.4, Shutdown LOCA (Rev 02300) FIG-1.0 Figure MIN Subcooling (Rev 00200) ATT-3.0, Attachment CI/CVI (Rev 01200)
Handouts:	Handout 1: Marked up copy of AP-RCS.4 Handout 2: Blank copy of FIG-1.0 Handout 3: Blank copy of ATT-3.0
Time Critical Task:	NO
Validation Time:	14 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the Examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **IC 002** (Ready for RHR/LTOP).

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

2. Insert **Remote EDS037 = CLOSED** (MOV878B AC Breaker Disconnect)**.**
3. Insert **Remote EDS038 = CLOSED** (MOV878D AC Breaker Disconnect)**.**
4. Insert **Remote EDS043 = CLOSED** (MOV878A AC Breaker Disconnect)**.**
5. Insert **Remote EDS044 = CLOSED** (MOV878C AC Breaker Disconnect)**.**
6. Insert **Remote EDS054 = CLOSED** (MOV-817 AC Breaker Disconnect)**.**
7. Insert **Malfunction RPS11-A3 = Isol Signal Only** (CI Failure – MOV-313)
8. Insert **Malfunction RPS11-A5A = Fails As Is** (CI Failure – MOV-813 (Train A))
9. Insert **Malfunction RPS11-H2 = Isol Signal Only** (CI Failure – AOV-745)
10. Insert **Malfunction RCS02A = 1000** (RCS Leak into CNMT: Loop A Hot Leg).
11. Place Simulator in RUN.
12. Perform actions of AP-RCS.4, Shutdown LOCA through Step 4.
13. Place Simulator in FREEZE.
14. Reset to IC-151 (March 2019).
15. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
16. This completes the setup for this JPM.
17. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 and 2.**				
	CAUTION ○ IF RWST LEVEL LOWERS TO LESS THAN 28%, THEN THE SI SYSTEM SHOULD BE ALIGNED FOR SUMP RECIRCULATION USING ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, STEPS 1 through 13. ○ RP TECH SHOULD BE CONSULTED PRIOR TO ENTERING A HIGH AIRBORNE AREA. ○ IF RCS LEAKAGE IS ISOLATED, STEPS GO TO STEP 38 TO TERMINATE SI FLOW.				
1	(AP-RCS.4, Step 5) Verify SI Injection Capability: a. Check RCS temperature – LESS THAN 350°F	The Operator monitors RCS temperature indications on MCB/PPCS: • TI-409A1 • TI-409B1 • TI-410A1 • TI-410B1	___	___	___
	Examiner Note: IF RCS temperature is greater than 350°F, JPM Performance Step 2 applies. IF RCS temperature is less than 350°F, JPM Performance Steps 3 and 4 apply.				
	Examiner Note: The Operator may trip 'A' RCP based on low seal D/P alarm (B-25).				
2	(AP-RCS.4, Step 5.a RNO) Perform the following: 1) Ensure SI pump discharge valves to RCS cold legs – OPEN • SI Pump A, MOV-878B • SI Pump B, MOV-878D 2) Go to Step 5c.	The Operator determines that MOV-878B and MOV-878D are CLOSED (Green light LIT, Red light OFF)	___	___	___
*		The Operator rotates SI PUMP 1A DISCH TO LOOP B COLD LEG MOV-878B control switch to OPEN	___	___	___
		The Operator verifies MOV-878B is OPEN (Red light LIT, Green light OFF)	___	___	___
*		The Operator rotates SI PUMP 1B DISCH TO LOOP A COLD LEG MOV-878D control switch to OPEN	___	___	___
		The Operator verifies MOV-878D is OPEN (Red light LIT, Green light OFF)	___	___	___
	Examiner Note: IF RCS temperature is greater than 350°F, JPM Performance Step 2 applies. Otherwise, JPM Performance Step 2 is N/A and NOT critical.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
3	(AP-RCS.4, Step 5) Verify SI Injection Capability: b. SI pump discharge valves to RCS – OPEN • MOV-878A, SI pump A • MOV-878B, SI pump A • MOV-878C, SI pump B • MOV-878D, SI pump B	The Operator determines that MOV-878A, MOV-878B, MOV-878C, and MOV-878D are CLOSED (Green light LIT, Red light OFF)	___	___	___
	Examiner Note: IF Operator attempts to OPEN MOV-878s prior to contacting the EO to close breakers, the 1st part of JPM Performance Step 4 is N/A.				
4	(AP-RCS.4, Step 5.b RNO) Manually open valves. Dispatch EO to locally restore power to the following if necessary (locked valve key required): • MOV-878A, MCC C position 8C • MOV-878B, MCC D position 8C • MOV-878C, MCC C position 8F • MOV-878D, MCC D position 8F	The Operator contacts the EO to close the breakers for MOV-878A, MOV-878B, MOV-878C, and MOV-878D	___	___	___
CUE	**Acknowledge communications as EO and report that the breakers for MOV-878A, MOV-878B, MOV-878C, and MOV-878D are CLOSED.**				
*		The Operator rotates SI PUMP 1A DISCH TO LOOP B HOT LEG MOV-878A control switch to OPEN	___	___	___
*		The Operator rotates SI PUMP 1A DISCH TO LOOP B COLD LEG MOV-878B control switch to OPEN	___	___	___
*		The Operator rotates SI PUMP 1B DISCH TO LOOP A HOT LEG MOV-878C control switch to OPEN	___	___	___
*		The Operator rotates SI PUMP 1B DISCH TO LOOP A COLD LEG MOV-878D control switch to OPEN	___	___	___
		The Operator verifies that MOV-878A, MOV-878B, MOV-878C, and MOV-878D are OPEN (Red light LIT, Green light OFF)	___	___	___
	Examiner Note: IF RCS temperature is less than 350°F, JPM Performance Steps 3 and 4 apply. Otherwise, JPM Performance Steps 3 and 4 are N/A and NOT critical.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
5	(AP-RCS.4, Step 5) Verify SI Injection Capability: c. SI pumps – AT LEAST TWO PUMPS AVAILABLE	The Operator determines that all SI Pumps are in PULL STOP but are available	___	___	___
CUE	**IF the Applicant contacts the EO to verify the SI Pump breakers are racked in on Buses 14 and 16, report that all SI Pump breakers are racked in.**				
6	(AP-RCS.4, Step 6) Establish SI Flow: a. Verify the following valves – OPEN • MOV-896A, RWST outlet valve • MOV-896B, RWST outlet valve • MOV-1815A, SI Pump C suction valve • MOV-1815B, SI Pump C suction valve	The Operator determines that the following valves are OPEN (Red light LIT, Green light OFF): • RWST OUTLET TO SI AND CS PUMPS MOV-896A • RWST OUTLET TO SI AND CS PUMPS MOV-896B • SI PUMP 1C SUCTION VLV MOV-1815A • SI PUMP 1C SUCTION VLV MOV-1815B	___	___	___
7	(AP-RCS.4, Step 6) Establish SI Flow: b. Open SI pump suction valves from RWST: • MOV-825A • MOV-825B	The Operator determines that the following valves are OPEN (Red light LIT, Green light OFF): • SI PUMP SUCTION FROM RWST MOV-825A • SI PUMP SUCTION FROM RWST MOV-825B	___	___	___
*8	(AP-RCS.4, Step 6) Establish SI Flow: c. Start ONE SI pump	The Operator rotates ONE SI PUMP control switch to START: • SI PUMP A • SI PUMP B • SI PUMP C BUSS 14 • SI PUMP C BUSS 16	___	___	___
		The Operator verifies that the SI Pump is running (Red light LIT, Green light OFF)	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
8 (cont)	(AP-RCS.4, Step 6) Establish SI Flow: c. Start ONE SI pump	The Operator verifies SI flow indication: • SI LINE FLOW TO RCS LOOP A FI-925 • SI LINE FLOW TO RCS LOOP B FI-924	___	___	___
9	(AP-RCS.4, Step 7) Initiate Actions To Protect Personnel In CNMT: a. Evacuate personnel from CNMT	The Operator recognizes that personnel have been evacuated from CNMT (Initial Conditions)	___	___	___
	b. Periodically monitor CNMT radiation	The Operator periodically monitors CNMT radiation monitors: • R10A CNMT IODINE • R11 CNMT PART • R12 CNMT GAS	___	___	___
*10	(AP-RCS.4, Step 8) Establish Required CNMT Conditions: a. Depress MANUAL CNMT ISOLATION pushbutton	The Operator depresses the MANUAL CNMT ISOLATION pushbutton	___	___	___
		The Operator verifies Annunciators A-25, CONTAINMENT VENTILATION ISOLATION and A-26, CONTAINMENT ISOLATION are LIT	___	___	___
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					
11	(AP-RCS.4, Step 8) Establish Required CNMT Conditions: b. Verify CI/CVI valves - CLOSED	The Operator verifies CI/CVI valve status lights are BRIGHT and recognizes the following valve status lights are DIM: • MOV-813 • MOV-313 • AOV-745	___	___	___
	Examiner NOTE: JPM Performance Steps 12 through 14 & 15 may be performed in any order.				
*12	(AP-RCS.4, Step 8.b RNO) Manually close affected CI and CVI Valve(s). **MOV-313**	The Operator rotates SEAL OR EXCESS LTDN RETURN ISOL VLV MOV-313 control switch to CLOSE	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
12 (cont)	(AP-RCS.4, Step 8.b RNO) Manually close affected CI and CVI Valve(s). **MOV-313**	The Operator verifies MOV-313 CLOSED (Green light LIT, Red light OFF)	___	___	___
*13	(AP-RCS.4, Step 8.b RNO) Manually close affected CI and CVI Valve(s). **AOV-745**	The Operator rotates CCW FROM EX LTDN HX ISOL VLV AOV-745 control switch to CLOSE	___	___	___
		The Operator verifies AOV-745 CLOSED (Green light LIT, Red light OFF)	___	___	___
14	(AP-RCS.4, Step 8.b RNO) Manually close affected CI and CVI Valve(s). **MOV-813** IF valve(s) can NOT be closed from MCB, THEN dispatch EO to locally close affected valve(s). IF valve(s) can NOT be locally closed, THEN close alternate isolation valve(s). (Refer to ATT-3.0, ATTACHMENT CI/CVI).	The Operator rotates CCW TO RX SUPP CLRS ISOL VLV MOV-813 control switch to CLOSE	___	___	___
		The Operator recognizes that MOV-813 remains OPEN (Red light LIT, Green light OFF)	___	___	___
		The Operator contacts the EO to locally close MOV-813	___	___	___
CUE	**Acknowledge communications as EO and report that MOV-813 will NOT close.**				
CUE	**WHEN Applicant recognizes that ATT-3.0 must be referenced, provide Applicant with Handout 3.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE: Locked valve key may be required for local operations.					
15	(ATT-3.0, Step 1) For each of the following AUTO ISOL VALVES that will not close, take action directed in the ALTERNATE ISOLATION column. **MOV-813 (CCW)** Locally close MOV-813 (AB Int Level). IF MOV-813 can not be closed, THEN perform the following: 1) Direct AO with locked valve key to unlock and close breaker for MOV-817 (MCC D POS 10C)	The Operator contacts the EO to close breaker for MOV-817 at MCC D position 10C	___	___	___
CUE	**Acknowledge communications as EO and report that MOV-817 breaker is closed.**				
	Examiner Note: IF 'A' RCP was previously stopped due to low seal D/P, stopping RCP A in JPM Performance Step 15 is N/A and NOT critical.				
*	(ATT-3.0, Step 1) For each of the following AUTO ISOL VALVES that will not close, take action directed in the ALTERNATE ISOLATION column. **MOV-813 (CCW)** Locally close MOV-813 (AB Int Level). IF MOV-813 can not be closed, THEN perform the following: 2) Stop both RCPs 3) Manually close MOV-817 (MCB). IF MOV-817 will not close, THEN direct AO to locally close MOV-817 (AB INT LEVEL).	The Operator rotates RCP A control switch to STOP	___	___	___
		The Operator verifies both RCPs are stopped (Green light LIT, Red light OFF) • RCP A • RCP B	___	___	___
*		The Operator rotates CCW TO CNMT ISOL VLV MOV-817 control switch to CLOSE	___	___	___
		The Operator verifies MOV-817 is closed (Green light LIT, Red light OFF	___	___	___

CUE: Evaluation on this JPM is complete.

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM A (Alternate Path)

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT UNSAT

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant is in the process of shutting down.
- O-2.2, Plant Shutdown from Hot Shutdown to Cold Conditions, has been completed up to Section 6.5, Alignment of Overpressure Protection and RHR Systems.
- Actions to place RHR in service have not yet started.
- RCS temperature was 340°F and pressure was 420 psig when a LOCA occurred.
- The crew has entered AP-RCS.4, Shutdown LOCA.
- Personnel have been evacuated from CNMT.
- Another board Operator will respond to alarms **NOT** associated with the JPM.

Initiating Cue:

- The US has directed you to continue with AP-RCS.4, beginning at Step 5.

NRC Re-EXAM

SIM JPM B

Facility:	Ginna	Task No.:	
Task Title:	Transfer 4160V Auxiliary Loads and Take Actions for Loss of Bus	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM B (Alternate Path)
K/A Reference:	062 A4.01 (3.3/3.1) Ability to manually operate and/or monitor in the control room: All breakers (including available switchyard)		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:	• Plant startup is in progress in accordance with O-1.2, Plant Startup from Hot Shutdown to Full Load. • The Main Generator has been synchronized to the grid and the crew is ready to transfer 4160V Auxiliary Loads to #11 Transformer. • Reactor Power is approximately 19%.
Initiating Cue:	The US has directed you to transfer 4160V Auxiliary Loads to #11 Transformer in accordance with O-1.2, Section 6.15.

Task Standard:	The Operator will transfer 4160V Auxiliary Loads to #11 Transformer in accordance with O-1.2, Section 6.15 and respond to Loss of Bus 11A by manually tripping the reactor and performing Immediate Actions of E-0, Reactor Trip or Safety Injection.
Required Materials:	None
General References:	O-1.2, Plant Startup from Hot Shutdown to Full Load (Rev 213) AR-A-17, MOTOR OFF RCP CCWP (Rev 8) AR-B-27, RCS LOOP A LO FLOW CHANNEL ALERT (Rev 9) AP-RCS.2, Loss of Reactor Coolant Flow (Rev 13) AR-K-18, MAIN FEEDWATER PUMPS TRIPPED (Rev 00901) AP-FW.1, Abnormal MFW Pump Flow or NPSH (Rev 02000) E-0, Reactor Trip or Safety Injection (Rev 049)
Handouts:	Handout 1: Marked up copy of O-1.2 Handout 2: Blank copy of AP-RCS.2 Handout 3: Blank copy of AP-FW.1
Time Critical Task:	NO
Validation Time:	11 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the Examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **IC-016** (20%, GEN SYNC).

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

2. Insert **Override OVR-EDS41D = TRUE** on **Trigger #1** (HS-52/11A TRIP Signal BUS 11A NORMAL FEED 4160V).
3. Insert **Malfunction TUR02** (Turbine Failure to Auto Trip)
4. Set Trigger #1 to **X05I151A==1**.
5. Place Simulator in RUN.
6. Synchronize Main Generator to grid and perform actions of O-1.2 through Section 6.14.
7. ENSURE Reactor power as low as possible (< 20%).
8. Place Simulator in FREEZE.
9. Reset to IC-152 (March 2019)
10. Placekeep the Control Room copy of O-1.2 up to Section 6.15 and place on the US's desk.
11. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
12. This completes the setup for this JPM.
13. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
	NOTE Performing next step will cause the following MCB Alarms to ILLUMINATE: • J-13, #11 OR #12 TRANSFORMER LOW SIDE PARALLELED • L-20, 12A XFMR OR 12A BUS TROUBLE • L-28, 12B XFMR OR 12B BUS TROUBLE				
1	(O-1.2, Step 6.15.1) **PERFORM** the following to energize Bus 11A from Main Generator: 1. **PLACE** synchroscope switch handle in BUS 11A NORMAL FEED SYNCHROSCOPE.	The Operator places the synchroscope switch handle in BUS 11A NORMAL FEED SYNCHROSCOPE	___	___	___
*2	(O-1.2, Step 6.15.1) **PERFORM** the following to energize Bus 11A from Main Generator: 2. **PLACE** BUS 11A NORMAL FEED SYNCHROSCOPE control switch to **ON**.	The Operator rotates BUS 11A NORMAL FEED SYNCHROSCOPE control switch to **ON**	___	___	___
*3	(O-1.2, Step 6.15.1) **PERFORM** the following to energize Bus 11A from Main Generator: 3. **CLOSE** BUS 11A NORMAL FEED 4160V Breaker.	The Operator rotates BUS 11A NORMAL FEED 4160V control switch to CLOSE	___	___	___
		The Operator verifies BUS 11A NORMAL FEED 4160V breaker closed (Red light LIT, Green light OFF)	___	___	___
4	(O-1.2, Step 6.15.1) **PERFORM** the following to energize Bus 11A from Main Generator: 4. **PLACE** BUS 11A NORMAL FEED SYNCHROSCOPE control switch to **OFF**.	The Operator rotates BUS 11A NORMAL FEED SYNCHROSCOPE control switch to **OFF**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*5	(O-1.2, Step 6.15.1) **PERFORM** the following to energize Bus 11A from Main Generator: 5. **OPEN** BUS 12A – BUS 11A TIE 4160V Breaker.	The Operator rotates BUS 12A – BUS 11A TIE 4160V control switch to TRIP	___	___	___
		The Operator verifies BUS 12A – BUS 11A TIE 4160V breaker open (Green light LIT, Red light OFF)	___	___	___
6	(O-1.2, Step 6.15.2) **PERFORM** the following to energize Bus 11B from Main Generator: 1. **PLACE** synchroscope switch handle in BUS 11B NORMAL FEED SYNCHROSCOPE.	The Operator places the synchroscope switch handle in BUS 11B NORMAL FEED SYNCHROSCOPE	___	___	___
*7	(O-1.2, Step 6.15.2) **PERFORM** the following to energize Bus 11B from Main Generator: 2. **PLACE** BUS 11B NORMAL FEED SYNCHROSCOPE control switch to **ON**.	The Operator rotates BUS 11B NORMAL FEED SYNCHROSCOPE control switch to **ON**	___	___	___
*9	(O-1.2, Step 6.15.2) **PERFORM** the following to energize Bus 11B from Main Generator: 3. **CLOSE** BUS 11B NORMAL FEED 4160V Breaker.	The Operator rotates BUS 11B NORMAL FEED 4160V control switch to CLOSE	___	___	___
		The Operator verifies BUS 11B NORMAL FEED 4160V breaker closed (Red light LIT, Green light OFF)	___	___	___
9	(O-1.2, Step 6.15.2) **PERFORM** the following to energize Bus 11B from Main Generator: 4. **PLACE** BUS 11B NORMAL FEED SYNCHROSCOPE control switch to **OFF**.	The Operator rotates BUS 11B NORMAL FEED SYNCHROSCOPE control switch to **OFF**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*10	(O-1.2, Step 6.15.2) **PERFORM** the following to energize Bus 11B from Main Generator: 5. **OPEN** BUS 11B – BUS 12B TIE 4160V Breaker.	The Operator rotates BUS 11B – BUS 12B TIE 4160V control switch to TRIP	___	___	___
		The Operator verifies BUS 11B – BUS 12B TIE 4160V breaker open (Green light LIT, Red light OFF)	___	___	___
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					
	SIMULATOR OPERATOR: VERIFY Trigger #1 actuates.				
	Examiner Note: Dependent upon which MCB Alarm Response the Applicant utilizes: • **if the Applicant recognizes Loss of 'A' RCP then JPM Performance Steps 11 through 14 are applicable for AP-RCS.2.** • **If the Applicant recognizes Loss of 'A' MFW Pump, then JPM Performance Steps 15 through 19 are applicable for AP-FW.1.** • **Mark JPM Performance Steps not required N/A.**				
	Examiner Note: The Applicant may trip the Reactor based on loss of RCP with Reactor critical, in which case PROCEED with JPM Performance Step 14.				
11	(AR-A-17, Step 1) Verify which motor tripped.	The Operator recognizes that RCP A has tripped (Green & White lights LIT, Red light OFF) (due to loss of 4160V Bus 11A)	___	___	___
	(AR-A-17, Step 2) IF a RCP has tripped, THEN GO TO AP-RCS.2 (LOSS OF REACTOR COOLANT FLOW).	The Operator proceeds to AP-RCS.2, Loss of Reactor Coolant Flow	___	___	___
12	(AR-B-27, Step 1) Perform a channel check of all three flow indicators for RCP A.	The Operator recognizes that all Loop A RX COOLANT FLOW indicators are < 91%	___	___	___
	(AR-B-27, Step 2) IF flow is < 91% on two or more indicators for RCP A, THEN verify Annunciator D-15 status. IF D-15 is lit, THEN GO TO E-0. IF D-15 is NOT lit, THEN GO TO AP-RCS.2.	The Operator recognizes that Annunciator D-15 is NOT lit and proceeds to AP-RCS.2, Loss of Reactor Coolant Flow	___	___	___
CUE	**Provide Applicant with Handout 2, Blank copy of AP-RCS.2.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
13	(AP-RCS.2, Step 1) Check RCS flows: a. Verify two loops operating: o Both RCPs running o Flow greater than 91% in both loops	The Operator recognizes that RCP A is tripped (Green & White lights LIT, Red light OFF)	___	___	___
*14	(AP-RCS.2, Step 1.a RNO) Perform the following: 1) IF reactor trip breakers closed, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION.	The Operator depresses the REACTOR EMERGENCY TRIP pushbutton	___	___	___
	Examiner Note: The Applicant may trip the Reactor based on loss of MFW Pumps with Reactor power > 8%, in which case PROCEED with JPM Performance Step 19.				
15	(AR-K-18, Step 4.1) Go to AP-FW.1.	The Operator proceeds to AP-FW.1, Abnormal MFW Pump Flow or NPSH	___	___	___
CUE	**Provide Applicant with Handout 3, Blank copy of AP-FW.1.**				
	NOTE: IF power reduction is required, OPG-REACTIVITY-CALC provides the amount and rate of Boric Acid Addition.				
16	(AP-FW.1, Step 1) Check MFW Requirements: a. Power – GREATER THAN 50%	The Operator recognizes that reactor power is less than 50%	___	___	___
17	(AP-FW.1, Step 1.a RNO) IF power less than 50%, THEN go to Step 2.	The Operator goes to Step 2	___	___	___
18	(AP-FW.1, Step 2) Verify At Least One MFW Pump - RUNNING	The Operator recognizes that FEEDWATER PUMP B is in PULL STOP (Green and Red lights OFF) and FEEDWATER PUMP A has tripped (Green and White lights LIT, Red light OFF)	___	___	___
*19	(AP-FW.1, Step 2 RNO) IF power greater than 8%, THEN trip the reactor and go to E-0, REACTOR TRIP OR SAFETY INJECTION	The Operator depresses the REACTOR EMERGENCY TRIP pushbutton	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
20	(E-0, Step 1) Verify Reactor Trip: o At least one train of reactor trip breakers – OPEN o Neutron flux – LOWERING o MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.	The Operator recognizes that both REACTOR TRIP BREAKERS (TRIP A and TRIP B) are open (Green light LIT, Red light OFF)	___	___	___
		The Operator recognizes that neutron flux is lowering on all Power Range channels	___	___	___
		The Operator recognizes that MRPI indicates ALL CONTROL AND SHUTDOWN RODS ON BOTTOM and no reports or indications of fire	___	___	___
21	(E-0, Step 2) Verify Turbine Stop Valves – CLOSED	The Operator recognizes both Turbine Stop Valves are OPEN (SVL OPEN and SVR OPEN are LIT RED)	___	___	___
*22	(E-0, Step 2 RNO) Manually trip turbine	The Operator depresses TURBINE EMERGENCY TRIP pushbutton	___	___	___
		The Operator recognizes both Turbine Stop Valves are closed (SVL CLOSED and SVR CLOSED are LIT GREEN)	___	___	___
23	(E-0, Step 3) Verify sufficient AC Emergency buses Energized To At Least 440 Volts: o Bus 14 OR Bus 16 -AND- o Bus 17 OR Bus 18	The Operator recognizes AC Emergency buses energized to approximately 480 volts: • BUS 14 VOLTMETER 480V • BUS 16 VOLTMETER 480V • BUS 17 VOLTMETER 480V • BUS 18 VOLTMETER 480V	___	___	___
24	(E-0, Step 4) Check if SI is Actuated: a. Any SI Annunciator - LIT	The Operator recognizes that all SI Annunciators are extinguished: • D-19 • D-21 • D-22 • D-28 • D-31	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
25	(E-0, Step 4.a RNO) IF any of the following conditions are met, THEN manually actuate SI and CI: o PRZR pressure less than 1750 psig -OR- o Steamline pressure less than 514 psig -OR- o CNMT pressure greater than 4 psig -OR- o SI sequencing started -OR- o Operator determines SI required	The Operator recognizes: • PRZR pressure > 1750 PSIG • S/G pressures > 514 psig • CNMT pressure < 4 psig • SI is NOT required	___	___	___
	IF SI is NOT required, THEN go to ES-0.1, REACTOR TRIP RESPONSE, Step 1.	The Operator informs US that E-0 Immediate Actions are complete	___	___	___

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM B (Alternate Path)

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT UNSAT

Examiner's Signature: _____ Date: _____

Initial Conditions:

- Plant startup is in progress in accordance with O-1.2, Plant Startup from Hot Shutdown to Full Load.
- The Main Generator has been synchronized to the grid and the crew is ready to transfer 4160V Auxiliary Loads to #11 Transformer.
- Reactor Power is approximately 19%.

Initiating Cue: The US has directed you to transfer 4160V Auxiliary Loads to #11 Transformer in accordance with O-1.2, Section 6.15.

NRC Re-EXAM

SIM JPM C

Facility:	Ginna	Task No.:	
Task Title:	Defeat a Failed RCS Temperature Channel	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM C
K/A Reference:	012 A4.04 (3.3*/3.3) Ability to manually operate and/or monitor in the control room: Bistable, trips, reset and test switches		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom ____ Simulator X Plant ____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), Handout 1, and the Protection Rack key.

Initial Conditions:

- The plant is operating at 100% power.
- RCS Temperature Channel TI-402 has just failed HIGH.
- All appropriate actions have been taken to stabilize the plant.
- The Brief for defeating the associated channel has been completed.
- You are the CO.

Initiating Cue:

- The US has directed you to defeat affected RCS Temperature channel in accordance with Attachment 2, White Channel – T_{AVG} 402/ΔT 406, of ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure.
- A Peer Check is NOT available.

Task Standard:	The Operator will defeat RCS Temperature channel TI-402 in accordance with Attachment 2 of ER-INST.1.
Required Materials:	Protection Rack Key
General References:	ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure (Rev 038)
Handouts:	Handout 1: Blank copy of Attachment 2, White Channel – T_{AVG} 402/ΔT 406, of ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure.
Time Critical Task:	NO
Validation Time:	15 minutes
NOTE:	This JPM should be Pre-Briefed in the Briefing Room.

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Reset to **IC-12** (Or any appropriate 100% power IC)

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

2. Place Simulator in RUN.
3. Insert **MALF RCS11B = 650** (RTD Failure: LP A Hot TE-402A (TT-402) II).
4. Respond using ER-INST.1 to Step 6.2.6.
5. Place ROD CONTROL BANK SELECTOR switch to **M**.
6. Place CHARGING PUMP A SPEED CONTROLLER to **MAN** and stabilize PRZR level.
7. Place Simulator in FREEZE.
8. Reset to IC-153 (March 2019)
9. Place place kept copy of ER-INST.1 on CO's desk.
10. Place Simulator in RUN when directed by Examiner.
11. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
12. This completes the setup for this JPM.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), Handout 1, and the Protection Rack key.**				
	NOTE • **IF** a RTD has failed, **THEN** BOTH annunciators F-15 **AND** F-24 will be lit. • **IF** the TAVG circuit has failed, **THEN** annunciator F-15 will be lit **AND** annunciator F-24 will be extinguished. • **IF** the ΔT circuit has failed, **THEN** annunciator F-24 will be lit **AND** annunciator F-15 will be extinguished.				
1	(ER-INST.1, Attachment 2, Step 1.0) **ENSURE** Rod Control selector switch in MANUAL.	The Operator observes the ROD CONTROL BANK SELECTOR switch is in **M**.	___	___	___
2	(ER-INST.1, Attachment 2, Step 2.0) **ENSURE** Charging Pump speed controllers in MANUAL.	The Operator observes CHARGING PUMP SPEED CONTROLLERs are in **MAN**.	___	___	___
	NOTE The following Step removes the failed ΔT input from the following functions: • ΔT Runback and Rodstop • RIL computer • Annunciators F-30 OP DELTA T TURBINE RUNBACK • Annunciator F-31 OT DELTA T TURBINE RUNBACK				
3	(ER-INST.1, Attachment 2, Step 3.0) In the RIL INSERTION LIMIT rack, **PLACE** T/405E DELTA T DEFEAT switch to LOOP A UNIT 2.	The Operator unlocks and opens the RIL INSERTION LIMIT rack door.	___	___	___
*		The Operator rotates the T/405E DELTA T DEFEAT switch to **LOOP A UNIT 2 TC 406 B/D** position.	___	___	___
		The Operator closes and locks the RIL INSERTION LIMIT rack door.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
NOTE The following Step removes the failed T_{AVG} input from the following functions: • Rod Control System • Steam Dump System • Pressurizer Level System					
4	(ER-INST.1, Attachment 2, Step 4.0) In the STEAM DUMP rack, **PLACE** the TAVG DEFEAT switch T/401A to LOOP A UNIT 2.	The Operator unlocks and opens the STEAM DUMP rack door.	___	___	___
*		The Operator rotates the T/401A TAVG DEFEAT switch to **LOOP A UNIT 2** position.	___	___	___
		The Operator closes and locks the STEAM DUMP rack door.	___	___	___
NOTE The following bistable status lights are expected to be lit after the DEFEAT: • LOOP A LO TAVG TC402A • OP∆T LOOP A TC406A • OT∆T LOOP A TC406C The following Annunciators are expected to be lit after the DEFEAT: • G-9, RCS LOOP A HIGH TAVG 579F • F-7, RCS LOOP A LO TAVG 545F • F-32, RCS OP DELTA T CHANNEL ALERT • F-23, RCS OT DELTA T CHANNEL ALERT					
5	(ER-INST.1, Attachment 2, Step 5.0) **DETERMINE** the expected Bistable proving light status for the post defeat condition as follows: 5.1 **RECORD** the following Data: • LOOP A-2 T_{AVG} TI-402 • LOOP 1A-2 ∆ TEMP TI-406B • OT∆T SP1 LOOP 1A-2 TEMP TI-406A • OP∆T SP2 LOOP 1A-2 TEMP TI-406C	The Operator observes: • LOOP A-2 Tavg TI-402 meter and records ≈ **584**°F. • LOOP 1A-2 ∆ TEMP TI-406B meter and records ≈ **75**°F. • OT∆T SP 1 LOOP 1A-2 TEMP TI-406A meter and records ≈ **68**°F. • OP ∆T SP 2 LOOP 1A-2 TEMP TI-406C meter and records ≈ **73**°F.	___ ___ ___ ___	___ ___ ___ ___	___ ___ ___ ___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6	(ER-INST.1, Attachment 2, Step 5.2) **DETERMINE** the expected post defeat Bistable proving light status and circle the expected status in table below: 402 LOOP A-2 • HIGH T'AVG Light OFF **IF** TI-402 ≥ 579°F • LOW T'AVG Light OFF **IF** TI-402 ≤ 545°F 406 LOOP A-2 • OVERTEMP TRIP Light OFF **IF** T-406B ≥ TI-406A • OVERPOWER TRIP Light OFF **IF** TI-406B ≥ TI-406C	The Operator recognizes that the: • HIGH T'AVG Proving Light is OFF if TI-402 ≥ 579°F and circles **OFF** for 402 LOOP A-2 HIGH T'AVG Bistable. • LOW T'AVG Proving Light is OFF if TI-402 ≤ 545°F and circles **ON** for 402 LOOP A-2 LOW T'AVG Bistable. • OVERTEMP TRIP Proving Light is OFF if T-406B ≥ TI-406A and circles **OFF** for 406 LOOP A-2 OVERTEMP TRIP Bistable. • OVERPOWER TRIP Proving Light is OFF if T-406B ≥ TI-406C and circles **OFF** for 406 LOOP A-2 OVERPOWER TRIP Bistable.	___	___	___
7	(ER-INST.1, Attachment 2, Step 6.0) **PLACE** the affected channel Bistables in the Trip condition by **PERFORMING** the following: 6.1 In the (WHITE) W-1 PROTECTION CHANNEL 2 rack, **PLACE** the following bistable proving switches to DEFEAT (UP) **AND VERIFY** the proving light status is correct per the table above: 402 LOOP A-2 • HIGH T'AVG • LOW T'AVG 406 LOOP A-2 • OVERTEMP TRIP • OVERPOWER TRIP	The Operator unlocks and opens the W1 PROTECTION CHANNEL 2 rack door.	___	___	___
*		The Operator places the 402 LOOP A-2 HIGH T'AVG proving switch to the UP position.	___	___	___
		The Operator verifies that the 402 LOOP A-2 HIGH T'AVG proving light remains OFF.	___	___	___
*		The Operator places the 402 LOOP A-2 LOW T'AVG proving switch to the UP position.	___	___	___
		The Operator verifies that the 402 LOOP A-2 LOW T'AVG proving light turns ON.	___	___	___
*		The Operator places the 406 LOOP A-2 OVER TEMP TRIP proving switch to the UP position.	___	___	___
		The Operator verifies that the 406 LOOP A-2 OVER TEMP TRIP proving light remains OFF.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*7 (cont)		The Operator places the 406 LOOP A-2 OVERPOWER TRIP proving switch to the UP position.	___	___	___
		The Operator verifies that the 406 LOOP A-2 OVERPOWER TRIP proving light remains OFF.	___	___	___
		The Operator closes and locks the W1 PROTECTION CHANNEL 2 rack door.	___	___	___
8	(ER-INST.1, Attachment 2, Step 6.2) **VERIFY** Correct Bistable Status Light and Annunciator status.	The Operator observes that the LOOP A LO TAVG TC402A bistable status light is LIT.	___	___	___
		The Operator observes that the OTΔT LOOP A TC406A bistable status light is LIT.	___	___	___
		The Operator observes that the OPΔT LOOP A TC406C bistable status light is LIT.	___	___	___
		The Operator observes that MCB Annunciator G-9, RCS LOOP A HIGH TAVG 579F, is LIT.	___	___	___
		The Operator observes that MCB Annunciator F-7, RCS LOOP A LO TAVG 545F, is LIT.	___	___	___
		The Operator observes that MCB Annunciator F-23, RCS OT DELTA T CHANNEL ALERT, is LIT.	___	___	___
		The operator observes that MCB Annunciator F-32, RCS OP DELTA T CHANNEL ALERT, is LIT.	___	___	___
9	(ER-INST.1, Attachment 2, Step 7.0) **DELETE** 402/406 from the PPCS by performing the following: 7.1 **SELECT** the “Group Update” display.	At the PPCS Console, the Operator selects “Group Update” display.	___	___	___
10	(ER-INST.1, Attachment 2, Step 7.2) **SELECT** “List Server Groups”.	At the PPCS Console, the Operator selects “List Groups”.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*11	(ER-INST.1, Attachment 2, Step 7.3) **SELECT** 402_406 from the pick list.	At the PPCS Console, the Operator selects "402_406" from the pick list.	___	___	___
*12	(ER-INST.1, Attachment 2, Step 7.4) **TURN "OFF"** scan processing, **THEN** click the "Set Scan Processing" button.	At the PPCS Console, the Operator: • selects "OFF," for scan processing. • Clicks the "Set Scan Processing" button.	___	___	___
*			___	___	___
		Operator enters a Description in the "Remove From Scan: Enter Change Description" block	___	___	___
*13	(ER-INST.1, Attachment 2, Step 7.5) **ANSWER** prompts.	At the PPCS Console, the Operator answers prompts.	___	___	___
14	(ER-INST.1, Attachment 2, Step 8.0) **GO TO** step 6.2.7.	The Operator reports to the US that Attachment 2 is complete, and that ER-INST.1 Step 6.2.7 must be addressed.	___	___	___
CUE	**Acknowledge as US.**				

CUE: Evaluation on this JPM is complete.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM C

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant is operating at 100% power.
- RCS Temperature Channel TI-402 has just failed HIGH.
- All appropriate actions have been taken to stabilize the plant.
- The Brief for defeating the associated channel has been completed.
- You are the CO.

Initiating Cue:

- The US has directed you to defeat affected RCS Temperature channel in accordance with Attachment 2, White Channel – TAVG 402/ΔT 406, of ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure.
- A Peer Check is NOT available.

NRC Re-EXAM

SIM JPM D

Facility:	Ginna	Task No.:	
Task Title:	Placing LTOP in Service	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM D
K/A Reference:	010 A4.03 (4.0/3.8) Ability to manually operate and/or monitor in the control room: PORV and block valves		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom ____ Simulator X Plant ____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.

Initial Conditions:

- A unit shutdown to Cold Shutdown is in progress.
- The operating crew is performing O-2.2, Plant Shutdown from Hot Standby to Cold Conditions, and are at Step 6.5.21 to place LTOP in service.
- O-7, Alignment and Operation of the Reactor Vessel Overpressure Protection System, has been started and is complete through Section 6.1, Initial Conditions.
- You are an extra RO.
- Another board Operator will respond to alarms **NOT** associated with the JPM.

Initiating Cue:	• The US has directed you to place PCV-430 on service in accordance with O-7, Section 6.2.
Task Standard:	The Operator will align LTOP using PCV-430 in accordance with O-7, Section 6.2.
Required Materials:	MCB key for LTOP operations.
General References:	O-2.2, Plant Shutdown from Hot Standby to Cold Conditions (Rev 161) O-7, Alignment and Operation of the Reactor Vessel Overpressure Protection System (Rev 05001)
Handouts:	Handout 1: Marked-up copy of O-7
Time Critical Task:	NO
Validation Time:	8 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the Examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **IC-002.** (Ready for RHR/LTOP)

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

2. Place Simulator in RUN.
3. Perform actions of O-2.2, Plant Shutdown from Hot Standby to Cold Conditions, through Step 6.5.20.
4. Perform actions of O-7, Alignment and Operation of the Reactor Vessel Overpressure Protection System, through Section 6.1.
5. ENSURE RCS temperature is between 350°F and 330°F.
6. ENSURE one RCP is running.
7. ENSURE RCS pressure is between 325 psig and 350 psig.
8. Place Simulator in FREEZE.
9. Reset to IC-154 (March 2019)
10. Replace Annunciator C-5 window with PPCS LTOP HI-LOW TEMPERATURE cover.
11. Replace Annunciator F-29 window with PPCS LTOP HI-LOW PRESSURE cover.
12. ENSURE C-5 and F-29 are ENABLED on LTOP display in PPCS.
13. Placekeep the Control Room copy of O-2.2 through Step 6.5.20 and place on US's desk.
14. Placekeep the Control Room copy of O-7 through Section 6.1 and place on HCO's desk.
15. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
16. This completes the setup for this JPM.
17. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
1	(O-7, Step 6.2.1) **VERIFY** the following MCB Alarms EXTINGUISHED: • AA-22, RCS OVER-PRESS PROTECTION TRAIN A HI PRESS • AA-23, RCS OVER-PRESS PROTECTION TRAIN B HI PRESS • AA-31, RCS OVER-PRESS PROTECTION TRAIN C HI PRESS	The Operator verifies MCB Annunciators AA-22, AA-23, and AA-31 are extinguished	___	___	___
*2	(O-7, Step 6.2.2) **ENSURE** PRZR PORV, PCV-430, control switch is in CLOSE.	The Operator rotates PRZR PORV PCV-430 control switch to CLOSE	___	___	___
		The Operator verifies PRZR PORV PCV-430 closed (Green light LIT, Red light OFF)	___	___	___
*3	(O-7, Step 6.2.3) **OPEN** ACCUM TO SURGE TK VLV, SOV-8616A. (MCB Rear)	The Operator inserts MCB key and rotates ACCUM TO SURGE TK VLV SOV-8616A key switch to OPEN	___	___	___
*4	(O-7, Step 6.2.4) **ENSURE** N_2 ARMING VLV, SOV-8619A, control switch is in ARM. (MCB Rear)	The Operator inserts MCB key and rotates N_2 ARMING VLV SOV-8619A key switch to ARM	___	___	___
5	(O-7, Step 6.2.5) VERIFY CLOSED **PRZR PORV, PCV-430.**	The Operator verifies PRZR PORV PCV-430 closed (Green light LIT, Red light OFF)	___	___	___
6	(O-7, Step 6.2.6) **RECORD** pressure on OP ACCUM A N_2 PRESSURE, PI-455: (MCB Rear)	The Operator reads OP ACCUM A N2 PRESS PI-455 indication and records in Step 6.2.6 **(≈ 755 psig)**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
7	(O-7, Step 6.2.7) **IF** Accumulator A pressure is **NOT** between 735 to 760 psig, **THEN CHARGE** accumulator **PER** S-29.2, Charging Reactor Vessel Over-Pressure Protection System. **OTHERWISE, MARK** this Step N/A.	The Operator recognizes that accumulator pressure is within band and that this Step is N/A	___	___	___
8	(O-7, Step 6.2.8) **ENSURE CLOSED** breaker for MOV-516 at MCC C – Position 6C (VLV-516 RCS).	The Operator contacts EO to ensure MOV-516 breaker at MCC C position 6C is CLOSED	___	___	___
CUE	**Acknowledge communications as EO and report that MOV-516 breaker is CLOSED.**				
9	(O-7, Step 6.2.9) **ENSURE OPEN** PRZR PORV BLOCK VLV, MOV-516.	The Operator verifies PRZR PORV BLOCK VLV MOV-516 is open (Red light LIT, Green light OFF)	___	___	___
10	(O-7, Step 6.2.10) **RECORD** time Train A LTOP is OPERABLE.	The Operator records the time in Step 6.2.10	___	___	___
		The Operator informs US that PCV-430 is on service.	___	___	___
CUE	**Acknowledge communications.**				

CUE: Evaluation on this JPM is complete.

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM D

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT UNSAT

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- A unit shutdown to Cold Shutdown is in progress.
- The operating crew is performing O-2.2, Plant Shutdown from Hot Standby to Cold Conditions, and are at Step 6.5.21 to place LTOP in service.
- O-7, Alignment and Operation of the Reactor Vessel Overpressure Protection System, has been started and is complete through Section 6.1, Initial Conditions.
- You are an extra RO.
- Another board Operator will respond to alarms **NOT** associated with the JPM.

Initiating Cue:

- The US has directed you to place PCV-430 on service in accordance with O-7, Section 6.2.

NRC Re-EXAM

SIM JPM E

Facility:	Ginna	Task No.:	
Task Title:	Vent RCS for Accumulator/RHR Injection	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM E (Alternate Path)
K/A Reference:	EPE W/E06 EA2.2 (3.5/4.1) Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:

- The plant has experienced a LOCA.
- In addition, Bus 15 has tripped. No cause for the Bus 15 trip has been identified.
- Due to malfunctions associated with the ARVs and Safety Injection, the ability to cool the core has been lost. Operating crew efforts to establish core cooling in accordance with FR-C.1, Response to Inadequate Core Cooling, have so far been unsuccessful.
- The operating crew is at Step 23 of FR-C.1.

Initiating Cue:

- The US has directed you to continue efforts to establish core cooling in accordance with FR-C.1.

Task Standard:	The Operator will vent the RCS using both PORVs and Reactor Vessel Head Vent Valves in accordance with FR-C.1 and ATT-12.0, Attachment N2 PORVS.
Required Materials:	None
General References:	FR-C.1, Response to Inadequate Core Cooling (Rev 028) E-0, Reactor Trip or Safety Injection (Rev 049) E-1, Loss of Reactor or Secondary Coolant (Rev 042) ATT-12.0, Attachment N2 PORVS (Rev 6)
Handouts:	Handout 1: Marked up copy of FR-C.1 Handout 2: Blank copy of ATT-12.0
Time Critical Task:	NO
Validation Time:	9 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the Examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **IC-24.**

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

2. Insert **Malfunction SIS03A** (SI Pump 1A Trip).
3. Insert **Malfunction SIS03B** (SI Pump 1B Trip).
4. Insert **Malfunction SIS03C** (SI Pump 1C Trip).
5. Insert **Malfunction STM04B = 0** (Atmospheric Relief Valve Failure: VLV 3411 (NO MAN)).
6. Insert **Malfunction STM04D = 0** (Atmospheric Relief Valve Failure: VLV 3410 (NO MAN)).
7. Insert **Malfunction RHR01A** (RHR Pump 1A Trip).
8. Insert **Malfunction RHR01B** (RHR Pump 1B Trip).
9. Insert **Malfunction EDS08 = Both** (Failure of 4KV Auto Bus Transfer).
10. Insert **Malfunction FDW12 = 0** (AFW Turbine Driven Pump Speed Control Failure).
11. Insert **Malfunction FDW11A** (Aux Feedwater Pump Failure: Motor Driven Pump 1A).
12. Insert **Malfunction FDW11B** (Aux Feedwater Pump Failure: Motor Driven Pump 1B).
13. Insert **Malfunction RPS05A = Manual Available** (Reactor Trip Bkr A Failure).
14. Insert **Malfunction RPS05B = Manual Available** (Reactor Trip Bkr B Failure).
15. Insert **Malfunction FDW02A** on **Trigger #1** (Feedwater Pump 1A Trip).
16. Insert **Malfunction FDW02B** on **Trigger #1** (Feedwater Pump 1B Trip).
17. Insert **Malfunction RCS02D = 300** on **Trigger #1** (RCS Leak into CNMT: Loop B Cold Leg).
18. Insert **Malfunction RPS11-A1 = Fails As Is** on **Trigger #1, 2 minute delay** (CI Failure – AOV-5392).
19. Place Simulator in RUN.
20. Initiate **Trigger #1** and perform actions of E-0 and E-1 as necessary.
21. ENSURE CETs are greater than 1200°F.
22. Place Simulator in FREEZE.
23. Reset to IC-155 (March 2019)
24. Placekeep a copy of FR-C.1 up to Step 23 and place on HCO's desk.
25. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
26. This completes the setup for this JPM.
27. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
NOTE Normal conditions are desired but not required for starting the RCPs.					
1	(FR-C.1, Step 23) Check If RCPs Should Be Started: a. Core Exit T/Cs – GREATER THAN 1200°F	The Operator observes CETs / PPCS indicate greater than 1200°F	___	___	___
	Examiner Note: In the next Step, the Applicant may recognize RCPs are not available (loss of power to RCP Oil Lift Pumps); however, it is acceptable for Applicant to attempt to start RCP Oil Lift Pump, then return to FR-C.1, Step 23.a. RCP Oil Lift Pumps will indicate running if attempted to start (Red light LIT, Green light OFF). However, the White light will not come on indicating NO lift oil pressure.				
2	(FR-C.1, Step 23) Check If RCPs Should Be Started: b. Check if an idle RCS cooling loop is available o Narrow range S/G level – GREATER THAN 7% [25% adverse CNMT] o RCP in associated loop – AVAILABLE AND NOT OPERATING	The Operator observes S/G narrow range levels are less than 25%	___	___	___
*3	(FR-C.2, Step 23.b RNO) Perform the following: 1) Reset SI.	The Operator depresses SAFETY INJECTION RESET pushbutton	___	___	___
		The Operator observes Annunciator K-6, THERMAL OVERLOAD RELAY BYPASSED is extinguished	___	___	___
*4	2) Reset CI.	The Operator depresses CNMT ISOLATION RESET pushbutton	___	___	___
		The Operator observes Annunciator A-26, CONTAINMENT ISOLATION is extinguished	___	___	___
5	3) Ensure adequate air compressor(s) running.	The Operator observes NO air compressors are running (Red light OFF, Green light OFF)	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
6	(FR-C.2, Step 23.b RNO) Perform the following: 4) Establish IA to CNMT.	The Operator depresses Y RLY X RLY IAIV AOV5392 pushbutton: ○ TRAIN A ○ TRAIN B	___	___	___
		The Operator observes INSTR AIR TO CNMT ISOL AOV-5392 is closed (Green light LIT, Red light OFF)	___	___	___
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					
7	5) Open all PRZR PORVs and block valves a) IF any block valve can NOT be opened, THEN ensure power supplied to block valve. b) IF IA NOT available, THEN refer to ATT-12.0, ATTACHMENT N2 PORVS.	The Operator recognizes PORV block valves are open (Red light LIT, Green light OFF) ○ PRZR PORV BLOCK VLV MOV-516 ○ PRZR PORV BLOCK VLV MOV-515	___	___	___
		The Operator rotates PRZR PORV PCV-430 control switch to OPEN	___	___	___
		The Operator observes PRZR PORV PCV-430 is closed (Green light LIT, Red light OFF)	___	___	___
		The Operator rotates PRZR PORV PCV-431C control switch to OPEN	___	___	___
		The Operator observes PRZR PORV PCV-431C is closed (Green light LIT, Red light OFF)	___	___	___
		The Operator recognizes that Instrument Air is NOT available and proceeds to ATT-12.0, Attachment N2 PORVs	___	___	___
CUE	**Provide Applicant with Handout 2, Blank copy of ATT-12.0.**				
	Examiner NOTE: Operator may NOT take PORV control switches to OPEN				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
WHEN IA to CNMT NOT available, THEN perform the following to operate one (or both) PRZR PORV(s) in accordance with guidance provided by the procedure step: **NOTE:** ○ **IF RCS overpressurization accumulator pressure lowers to less than 200 psig, then recharge accumulators using S-29.2, CHARGING THE REACTOR VESSEL OVERPRESSURE PROTETCION SYSTEM ACCUMULATORS WITH N2. This will require reset of CI and XY relays for the N2 supply valve to CNMT, AOV-846.** ○ **For FR-H.1, Bleed and Feed the PORV block valve is not required to be operable.**					
8	(ATT-12.0, Step A) Select a PORV with an operable block valve, obtain a key for the RCS overpressurization system, and perform the appropriate step below: ○ PCV-431C: a) Verify block valve MOV-515 – OPEN AND OPERABLE b) Place ACCUM TO SURGE TK VLV SOV-8616B to OPEN ○ PCV-430: c) Verify block valve MOV-516 – OPEN AND OPERABLE d) Place ACCUM TO SURGE TK VLV SOV-8616A to OPEN	The Operator recognizes PRZR PORV BLOCK VLV MOV-515 is open (Red light LIT, Green light OFF) and OPERABLE	___	___	___
*		The Operator inserts key and rotates ACCUM TO SURGE TK VLV SOV-8616B key switch to OPEN	___	___	___
		The Operator recognizes PRZR PORV BLOCK VLV MOV-516 is open (Red light LIT, Green light OFF) and OPERABLE	___	___	___
*		The Operator inserts key and rotates ACCUM TO SURGE TK VLV SOV-8616A key switch to OPEN	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*9	(ATT-12.0, Step B) To depressurize the RCS in accordance with the guidance provided by the EOP step, perform the following: o For PCV-431C, place overpressurization system arming switch, N2 ARMING VLV SOV-8619B, to ARM o For PCV-430, place overpressurization system arming switch, N2 ARMING VLV SOV-8619A, to ARM	The Operator inserts key and rotates N_2 ARMING VLV SOV-8619B key switch to ARM	___	___	___
*		The Operator inserts key and rotates N_2 ARMING VLV SOV-8619A key switch to ARM	___	___	___
		The Operator verifies both PORVs are open (Red light LIT, Green light OFF) • PRZR PORV PCV-430 • PRZR PORV PCV-431C	___	___	___
	Examiner Note: Dependent on Operator time to perform actions, JPM Performance Step 10 may NOT be performed since CETs / PPCS indicate less than 1200°F, in which case JPM Performance Step 10 is NOT critical and should be marked N/A.				
10	(FR-C.2, Step 23.b RNO) Perform the following: 6) IF core exit T/Cs remain greater than 1200°F, THEN open Rx vessel head vent valves. • SOV-590 • SOV-591 • SOV-592 • SOV-593	The Operator observes CETs / PPCS indicate greater than 1200°F	___	___	___
*		The Operator opens Rx vessel head vent valves by inserting key and rotating the following key switches clockwise: • RCS VENTING STOP VLV SOV-590 • RCS VENTING STOP VLV SOV-591 • RCS VENTING STOP VLV SOV-592 • RCS VENTING STOP VLV SOV-593	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
10 (cont)	(FR-C.2, Step 23.b RNO) Perform the following: 6) IF core exit T/Cs remain greater than 1200°F, THEN open Rx vessel head vent valves. • SOV-590 • SOV-591 • SOV-592 • SOV-593	The Operator verifies Reactor vessel head vent valves are OPEN by verifying Red light LIT, Green light OFF for the following: • RCS VENTING STOP VLV SOV-590 • RCS VENTING STOP VLV SOV-591 • RCS VENTING STOP VLV SOV-592 • RCS VENTING STOP VLV SOV-593	___	___	___

CUE: Evaluation on this JPM is complete.

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM E (Alternate Path)

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT UNSAT

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant has experienced a LOCA.
- In addition, Bus 15 has tripped. No cause for the Bus 15 trip has been identified.
- Due to malfunctions associated with the ARVs and Safety Injection, the ability to cool the core has been lost. Operating crew efforts to establish core cooling in accordance with FR-C.1, Response to Inadequate Core Cooling, have so far been unsuccessful.
- The operating crew is at Step 23 of FR-C.1.

Initiating Cue:

- The US has directed you to continue efforts to establish core cooling in accordance with FR-C.1.

NRC Re-EXAM

SIM JPM F

Facility:	Ginna	Task No.:	
Task Title:	Perform Intercept and Reheat Stop Valve Test with Low EH System Pressure	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM F (Alternate Path)
K/A Reference:	045 A4.01 (3.1/2.9) Ability to manually operate and/or monitor in the control room: Turbine valve indicators (throttle, governor, control, stop, intercept), alarms, and annunciators		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:

- The plant is operating at 48% power.
- The operating crew will be performing O-5.2, Load Ascension, following completion of Intercept and Reheat Stop Valve testing.
- T-18A is in progress and has been completed through Section 6.1.
- An Operator is standing by to observe valve operation with a stopwatch.
- PPCS is out of service and the operating crew is taking the appropriate compensatory actions in accordance with S-26.2, PPCS Out of Service.
- IMD is assisting in performance of valve testing.

Initiating Cue:	The US has directed you to perform T-18A, Intercept and Reheat Stop Valve Test, Section 6.2.
Task Standard:	The Operator will perform Test of the 2 ARV Reheat Stop and 2 AIV Reheat Intercept Valves in accordance with T-18A, Section 6.2. The Operator will also respond to an EH System low pressure alarm in accordance with AR-I-24, EH SYSTEM TEMPERATURE PRESSURE.
Required Materials:	None
General References:	T-18A, Intercept and Reheat Stop Valve Test (Rev 01400) AR-I-24, EH SYSTEM TEMPERATURE PRESSURE (Rev 016) E-0, Reactor Trip or Safety Injection (Rev 049)
Handouts:	Handout 1: Marked up copy of T-18A Handout 2: Blank copy of AR-I-24
Time Critical Task:	NO
Validation Time:	11 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the Examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **IC-014.**

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

2. Insert **Malfunction A-TUR17** on **Trigger 1** (I-24: EH System Temperature Pressure)**.**
3. Place Simulator in RUN.
4. ENSURE EH SETTER matches REFERENCE.
5. Place Simulator in FREEZE.
6. Turn OFF all PPCS Monitors.
7. Reset to IC-156 (March 2019)
8. Placekeep the Control Room copy of T-18A through Section 6.1 and place it on CO's desk.
9. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
10. This completes the setup for this JPM.
11. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
1	(T-18A, Step 6.2.1) **ENSURE** all four (4) Reheat Stop Valves and all four (4) Reheat Intercept Valves indicate FULL OPEN. 1. 1ARV, V-3555, OPEN 2. 1AIV, V-3559, OPEN 3. 2ARV, V-3557, OPEN 4. 2AIV, V-3561, OPEN 5. 1BRV, V-3554, OPEN 6. 1BIV, V-3558, OPEN 7. 2BRV, V-3556, OPEN 8. 2BIV, V-3560, OPEN	The Operator will verify the following red lights LIT on the EH VALVE STATUS Panel: 1. #1 ARV OPEN 2. #1 AIV OPEN 3. #2 ARV OPEN 4. #2 AIV OPEN 5. #1 BRV OPEN 6. #1 BIV OPEN 7. #2 BRV OPEN 8. #2 BIV OPEN	___	___	___
		The Operator will verify 1A 1B 2A 2B INTERCEPT VLV POSITION meters indicate 100%	___	___	___
2	(T-18A, Step 6.2.2) **ENSURE** a stopwatch is available to record approximately time from OPEN to CLOSE of the 2ARV Reheat Stop Valve in the next step.	The Operator recognizes from Initial Conditions that the Operator standing by locally has a stopwatch	___	___	___
NOTE Reheat Stop and Intercept Valves are interlocked such that **IF** one valve in a train has left the open position, **THEN** the Stop and Intercept Valves in the other train going to the same LP rotor should not close.					
*3	(T-18A, Step 6.2.3) **DEPRESS AND HOLD** "2A RVIV TEST" PUSHBUTTON until V-3557 (2ARV) Reheat Stop to LP Turb "B" **AND** V-3561 (2AIV) Reheat Intercept to LP Turb "B" both indicate CLOSED. 1. 2ARV, V-3557, CLOSED 2. 2AIV, V-3561, CLOSED	The Operator depresses and holds #2 ARV IV TEST pushbutton	___	___	___
		The Operator verifies the following green lights LIT on the EH VALVE STATUS Panel: 1. #2 ARV CLOSED 2. #2 AIV CLOSED	___	___	___
4	(T-18A, Step 6.2.4) **RECORD** 2ARV, V-3557, approximate time from OPEN to CLOSE.	The Operator will contact the Operator, requests approximate time for valve stroke, and records value in procedure	___	___	___
CUE	**Acknowledge communications and report 0.8 seconds from OPEN to CLOSE.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*5	(T-18A, Step 6.2.5) **RELEASE** "2A RV IV TEST" PUSHBUTTON. 2ARV (V-3557) and 2 AIV (V-3561) will SLOWLY OPEN. The test lights will indicate when these valves are FULLY OPEN. 1. 2ARV, V-3557, OPEN 2. 2AIV, V-3561, OPEN	The Operator releases #2 ARV IV TEST pushbutton after verifying #2 ARV and #2 AIV are closed	___	___	___
		The Operator will verify the following red lights LIT on the EH VALVE STATUS Panel: 1. #2 ARV OPEN 2. #2 AIV OPEN	___	___	___
		The Operator will verify 2A INTERCEPT VLV POSITION meter indicates 100%	___	___	___
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					
	SIMULATOR OPERATOR: Actuate Trigger #1 when BOTH valves in JPM Performance Step 5 indicate OPEN.				
6	(AR-I-24, Step 4.1) **DETERMINE** if Low Pressure or High Temperature condition exists using the following: PPCS: • P2010, EH SYSTEM HEADER PRESSURE • T2910, EH SYSTEM HEADER TEMPERATURE Local Indication: • EH HEADER PRESSURE INDICATING TRANSMITTER, PIT-2010 • EH CONTROL SYSTEM RSVR TEMP IND, TI-2016	The Operator will contact the EO to locally check EH System pressure and temperature • PIT-2010 • TI-2016	___	___	___
		The Operator determines that EH system pressure is low	___	___	___
CUE	**Acknowledge communications. Report EH System pressure is 1425 psig and slowly lowering. Report EH System temperature is approximately 125°F and steady.**				
7	(AR-I-24, Step 4.2) **CHECK** for any of the following: • EH Reservoir leaks. • EH System leaks. • EH Bypass Cooling Fan Skid for Alarms.	The Operator will contact the EO to check: • EH system for leaks • EH Bypass Cooling Fan Skid for Alarms	___	___	___
CUE	**Acknowledge communications.**				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*8	(AR-I-24, Step 4.3) **IF** low pressure condition exists, **THEN PERFORM** the following:	The Operator rotates EHC SYSTEM SUPPLY PUMP B control switch to START	___	___	___
	4.3.1 **PLACE** standby EHC Pump in service if necessary.	The Operator verifies EHC SYSTEM SUPPLY PUMP B is running (Red light LIT, Green light OFF)	___	___	___
9	4.3.2 **DETERMINE** if leakage can be isolated.	The Operator may contact EO to determine if leakage can be stopped.	___	___	___
CUE	**Acknowledge communications. Report leakage has worsened and can NOT be stopped.**				
10	4.3.3 **MAINTAIN** adequate reservoir level.	The Operator may contact EO to monitor EH Reservoir level	___	___	___
CUE	**Acknowledge communications. Report EH Reservoir level is lowering.**				
	Examiner NOTE: The EH System leakage will continue to worsen, resulting in a required Reactor Trip.				
11	4.3.4 **IF** EH pressure lowers to 1300 psig **AND CANNOT** be stabilized, **THEN PERFORM** the following:	The Operator will contact the EO to locally check EH System pressure on PIT-2010	___	___	___
*	1. **TRIP** the Reactor. 2. **GO TO** E-0, REACTOR TRIP OR SAFETY INJECTION.	The Operator depresses REACTOR EMERGENCY TRIP pushbutton	___	___	___
CUE	**Acknowledge communications. Report EH System pressure is 1320 psig and lowering.**				
12	(E-0, Step 1) Verify Reactor Trip: o At least one train of reactor trip breakers – OPEN o Neutron flux – LOWERING o MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.	The Operator recognizes that both REACTOR TRIP BREAKERS (TRIP A and TRIP B) are open (Green light LIT, Red light OFF)	___	___	___
		The Operator recognizes that neutron flux is lowering on all Power Range channels	___	___	___
		The Operator recognizes that MRPI indicates ALL CONTROL AND SHUTDOWN RODS ON BOTTOM and no reports or indications of fire	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
13	(E-0, Step 2) Verify Turbine Stop Valves – CLOSED	The Operator recognizes both Turbine Stop Valves are CLOSED (SVL CLOSED and SVR CLOSED are LIT GREEN)	___	___	___

CUE: After the Applicant verifies Turbine tripped, Evaluation on this JPM is complete.

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM F (Alternate Path)

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT UNSAT

Examiner's Signature: _____ Date: _____

Initial Conditions:

- The plant is operating at 48% power.
- The operating crew will be performing O-5.2, Load Ascension, following completion of Intercept and Reheat Stop Valve testing.
- T-18A is in progress and has been completed through Section 6.1.
- An Operator is standing by to observe valve operation with a stopwatch.
- PPCS is out of service and the operating crew is taking the appropriate compensatory actions in accordance with S-26.2, PPCS Out of Service.
- IMD is assisting in performance of valve testing.

Initiating Cue: The US has directed you to perform T-18A, Intercept and Reheat Stop Valve Test, Section 6.2.

NRC Re-EXAM

SIM JPM G

Facility:	Ginna	Task No.:	
Task Title:	Secure Containment Spray in E-1	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM G
K/A Reference:	026 A2.08 (3.2/3.7) Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Safe securing of containment spray when it can be done		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom ____ Simulator X Plant ____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM), and Handout 1.

Initial Conditions:

- The plant was operating at 100% power and experienced a large break LOCA 35 minutes ago.
- An automatic Reactor Trip and Safety Injection actuation occurred.
- The operating crew performed E-0, Reactor Trip or Safety Injection, and have transitioned to E-1, Loss of Reactor or Secondary Coolant.
- STA is addressing the Integrity CSFST Red Path Status.
- You are the HCO.

Initiating Cue:	The US has directed you to perform E-1, Step 13, Monitor if CNMT Spray should be stopped.
Task Standard:	The Operator will stop one CNMT Spray Pump, OPEN NaOH Tank Outlet Valves, and CLOSE CNMT Spray Pump Discharge Valves for the associated stopped CNMT Spray Pump.
Required Materials:	None
General References:	E-0, Reactor Trip or Safety Injection (Rev 049) E-1, Loss of Reactor or Secondary Coolant (Rev 042)
Handouts:	Handout 1: Marked up copy of E-1
Time Critical Task:	NO
Validation Time:	7 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the Examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **any 100% BOL IC (IC-12).**

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

2. Insert **Malfunction RCS02A = 10000** (RCS Leak into CNMT: Loop A Hot Leg)**.**
3. Place Simulator in RUN.
4. Perform actions in E-0 and transition to E-1.
5. Perform actions in E-1 through Step 12.
6. ENSURE CNMT pressure is less than 4 psig.
7. Place Simulator in FREEZE.
8. Reset to IC-157 (March 2019)
9. Placekeep the Control Room copy of E-1 up to Step 13 and place it on the HCO's desk.
10. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
11. This completes the setup for this JPM.
12. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
1	(E-1, Step 13) Monitor If CNMT Spray Should Be Stopped: a. CNMT spray pumps – ANY RUNNING	The Operator recognizes that both CNMT Spray Pumps are running (Red light LIT, Green light OFF): • CS PUMP A • CS PUMP B	___	___	___
2	(E-1, Step 13) Monitor If CNMT Spray Should Be Stopped: b. Determine number of CNMT spray pumps required from table:	The Operator recognizes CNMT pressure less than 4 psig as indicated on: • PI-945 • PI-947 • PI-949	___	___	___
		The Operator recognizes that four CNMT Recirc Fans are running (Red light LIT, Green light OFF): • CONTAINMENT RECIRC FAN A • CONTAINMENT RECIRC FAN B • CONTAINMENT RECIRC FAN C • CONTAINMENT RECIRC FAN D	___	___	___
		The Operator recognizes from Initial Conditions that CNMT SPRAY DURATION is less than 52 minutes	___	___	___
		The Operator determines that one CNMT Spray Pump is required from the Table	___	___	___
3	(E-1, Step 13) Monitor If CNMT Spray Should Be Stopped: c. CNMT spray pumps running – EQUAL TO NUMBER REQUIRED	The Operator recognizes that one CNMT Spray Pump should be stopped	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*4	(E-1, Step 13.c RNO) Manually operate (stop or start) CNMT spray pumps as necessary to equal table requirements. IF CNMT spray pump is to be stopped, THEN perform the following: 1) Place CNMT spray pump in PULL STOP	The Operator rotates either CS PUMP A **OR** CS PUMP B control switch to STOP and pulls to lock into PULL STOP	___	___	___
		The Operator verifies associated CNMT Spray Pump is stopped (Green and Red lights OFF)	___	___	___
5	2) Verify CNMT pressure – STABLE OR LOWERING. IF NOT, THEN manually operate CNMT spray pumps as necessary to reduce or stabilize CNMT pressure.	The Operator recognizes CNMT pressure is stable as indicated on: • PI-945 • PI-947 • PI-949	___	___	___
*6	3) IF CNMT pressure less than 4 psig, THEN perform the following: a) Place NaOH Tank outlet valve switches to OPEN • AOV-836A • AOV-836B	The Operator rotates CNMT SPRAY NaOH ADDITION AOV-836A control switch to OPEN	___	___	___
*		The Operator rotates CNMT SPRAY NaOH ADDITION AOV-836B control switch to OPEN	___	___	___
*7	b) Reset CNMT spray	The Operator depresses CNMT SPRAY RESET pushbutton	___	___	___
		The Operator verifies Annunciator A-27, CONTAINMENT SPRAY 2/3 + 2/3 > 28 PSI is EXTINGUISHED	___	___	___
*8	c) Close discharge valves for idle CNMT spray pump: ○ Pump A • MOV-860A • MOV-860B -OR- ○ Pump B • MOV-860C • MOV-860D	The Operator rotates the following control switches to CLOSE: • CNMT SPRAY PUMP 1A DISCHARGE VLV MOV-860A **OR** • CNMT SPRAY PUMP 1B DISCHARGE VLV MOV-860C	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*8 (cont)	c) Close discharge valves for idle CNMT spray pump: o Pump A • MOV-860A • MOV-860B -OR- o Pump B • MOV-860C • MOV-860D	The Operator rotates the following control switches to CLOSE: • CNMT SPRAY PUMP 1A DISCHARGE VLV MOV-860B **OR** • CNMT SPRAY PUMP 1B DISCHARGE VLV MOV-860D	___	___	___
		The Operator verifies CLOSED: (Green light LIT, Red light OFF) • MOV-860A **AND** MOV-860B **OR** • MOV-860C **AND** MOV-860D	___	___	___

CUE: Evaluation on this JPM is complete.

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM G

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT UNSAT

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant was operating at 100% power and experienced a large break LOCA 35 minutes ago.
- An automatic Reactor Trip and Safety Injection actuation occurred.
- The operating crew performed E-0, Reactor Trip or Safety Injection, and have transitioned to E-1, Loss of Reactor or Secondary Coolant.
- STA is addressing the Integrity CSFST Red Path Status.
- You are the HCO.

Initiating Cue: The US has directed you to perform E-1, Step 13, Monitor if CNMT Spray should be stopped.

NRC Re-EXAM

SIM JPM H

Facility:	Ginna	Task No.:	
Task Title:	Respond to Complete Loss of CCW Flow	JPM No.:	2019 NRC Re-Exam Control Room Systems JPM H (Alternate Path)
K/A Reference:	APE 026 AA1.02 (3.2/3.3) Ability to operate and/or monitor the following as they apply to the Loss of Component Cooling Water: Loads on the CCWS in the control room		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom ____ Simulator X Plant ____

Applicability: RO / SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM).

Initial Conditions:	The plant is operating at 100% power.
Initiating Cue:	Respond to all alarms and/or malfunctions.
Task Standard:	The Operator will respond to a CCW System rupture in accordance with AP-CCW.2, Loss of CCW During Power Operation. The Operator will attempt to restore CCW Surge Tank level, then isolate letdown, trip the reactor, and trip RCPs.
Required Materials:	None

General References: AR-A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI (Rev 12)
AP-CCW.2, Loss of CCW During Power Operation (Rev 024)

Handouts: Handout 1: Blank copy of AP-CCW.2

Time Critical Task: NO

Validation Time: 6 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the Examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

SIMULATOR OPERATIONAL GUIDELINES

1. Initiate to **IC-012.**

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

2. Insert **Malfunction CLG10** (CCW Pump Low Pressure Autostart Failure)
3. Insert **Malfunction CLG02B** on **Trigger 1** (CCW Pump B Trip)**.**
4. Insert **Malfunction CLG05 = 150** on **Trigger 2, 15 second delay** (CCW Supply Line Break)**.**
5. Set **Trigger 2 = X07I216B==1** ('A' CCW Pump to START).
6. Place Simulator in RUN.
7. ENSURE 'B' CCW Pump is running.
8. Place Simulator in FREEZE.
9. Reset to IC-158 (March 2019)
10. When the above steps are completed for this and other JPMs to be run concurrently then validate, if not previously validated, the concurrently run JPMs using the JPM Validation Checklist.
11. This completes the setup for this JPM.
12. Place Simulator in RUN when directed by Examiner.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM).**				
	SIMULATOR OPERATOR: Actuate Trigger #1 when the Applicant acknowledges the Initiating Cue.				
1	(AR-A-22, Step 1) GO TO the applicable AP-CCW procedure: • AP-CCW.2, LOSS OF CCW DURING POWER OPERATION • AP-CCW.3, LOSS OF CCW – PLANT SHUTDOWN	The Operator proceeds to AP-CCW.2, Loss of CCW During Power Operation	___	___	___
CUE	**Provide Applicant with Handout 1.**				
	Examiner NOTE: The Operator may manually start 'A' CCW Pump from memory in accordance with A-503.1, Section 5.3.D, Manual Backup. The Operator MUST still reference AP-CCW.2.				
CAUTION ○ IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS 200°F, THEN TRIP THE AFFECTED RCP. ○ IF CCW IS LOST, THEN SEAL INJECTION SHOULD BE MAINTAINED TO THE RCP(S) UNTIL RCS TEMPERATURE IS LESS THAN 150°F, OR UNTIL CCW IS RESTORED.					
2	(AP-CCW.2, Step 1) Check CCW Pump Status: ○ Both CCW pump breaker white lights – EXTINGUISHED ○ Annunciator A-17, MOTOR OFF RCP CCWP - EXTINGUISHED	The Operator recognizes that CCW PUMP B White light is LIT	___	___	___
3	(AP-CCW.2, Step 1 RNO) Perform the following: a. Ensure standby CCW pump running. IF no CCW pump can be operated, THEN perform the following:	The Operator recognizes that CCW PUMP A is stopped (Green light LIT, Red light OFF	___	___	___
*		The Operator rotates CCW PUMP A control switch to START	___	___	___
		The Operator verifies CCW PUMP A is running (Red light LIT, Green light OFF)	___	___	___
	SIMULATOR OPERATOR: Ensure Trigger #2 activates when the Applicant starts 'A' CCW Pump.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
4	(AP-CCW.2, Step 1 RNO) Perform the following: b. IF annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI, lit, THEN check closed CCW to RHR HXs (MOV-738A and MOV-738B).	The Operator verifies Annunciator A-22 extinguished	___	___	___
NOTE: ○ MCB CCW surge tank level indication should be verified locally in the AUX BLDG, if possible. ○ Local Pressure Indication (PI-2669 or PI-2670) reading greater than 5 psi with PPCS point L0618 off scale low may indicate that LT-618 level transmitter has failed low. ○ If it is suspected that CCW Fluid will enter the WHUT, NOTIFY the Chemistry Technician.					
5	(AP-CCW.2, Step *2) Monitor CCW Surge Tank Level – APPROXIMATELY 50% AND STABLE (PPCS Point L0618)	The Operator observes CCW Surge Tank level is less than 50% and lowering: • MCB CCW SURGE TANK LEVEL LI-618 • PPCS Point ID L0618	___	___	___
*6	(AP-CCW.2, Step 2 RNO) Perform the following: a. Open RMW to CCW surge tank, MOV-823.	The Operator rotates RMW TO CCW SURGE TANK MOV-823 control switch to OPEN	___	___	___
		The Operator verifies MOV-823 open (Red light LIT, Green light OFF)	___	___	___
*7	(AP-CCW.2, Step 2 RNO) Perform the following: b. Start RMW pump(s).	The Operator starts one or both RMW Pump(s) by rotating the following control switch(es) to START: • RMW PUMP 1A • RMW PUMP 1B	___	___	___
		The Operator verifies one or both RMW Pump(s) running (Red light LIT, Green light OFF): • RMW PUMP 1A • RMW PUMP 1B	___	___	___
EXAMINER NOTE: ALTERNATE PATH DECISION POINT OCCURS IN THE NEXT STEP					

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
8	(AP-CCW.2, Step 2 RNO) Perform the following: c. IF surge tank level stable or rising, THEN control level at approximately 50% while continuing with Step 3. IF CCW surge tank level can NOT be maintained greater than 10%, THEN perform the following:	The Operator observes CCW Surge Tank level is lowering: • MCB CCW SURGE TANK LEVEL LI-618 • PPCS Point ID L0618	___	___	___
*9	1) Close letdown isol, AOV-427.	The Operator rotates LTDN LOOP B COLD LEG TO RHX AOV-427 control switch to CLOSE	___	___	___
		The Operator verifies AOV-427 is closed (Green light LIT, Red light OFF)	___	___	___
10	2) Close excess letdown, HCV-123.	The Operator observes EXCESS LTDN (TI-122) HCV-123 hand controller dial at 0% DEMAND	___	___	___
*11	3) Trip the Reactor.	The Operator depresses REACTOR EMERGENCY TRIP pushbutton	___	___	___
		The Operator performs E-0 Immediate Actions: • Verify Reactor Trip • Verify Turbine Trip • Verify sufficient AC Emergency Bus Voltage • Verify SI not required	___	___	___
*12	4) WHEN all E-0 Immediate Actions done, THEN trip BOTH RCPs.	The Operator rotates both RCP A and RCP B control switches to STOP	___	___	___
		The Operator verifies both RCP A and RCP B are stopped (Green light LIT, Red light OFF)	___	___	___
*13	5) Place both CCW pumps in pull stop.	The Operator rotates both CCW PUMP A and CCW PUMP B control switches to STOP and pulls to PULL STOP	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
13 (cont)	5) Place both CCW pumps in pull stop.	The Operator verifies both CCW PUMP A and CCW PUMP B are pull stopped (Green light OFF, Red light OFF)	___	___	___
14	6) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.	The Operator informs US that crew should transition to E-0	___	___	___
CUE	**Acknowledge communications.**				

CUE: Evaluation on this JPM is complete.

JPM Stop Time: _____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam Control Room Systems JPM H (Alternate Path)

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT UNSAT

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions: The plant is operating at 100% power.

Initiating Cue: Respond to all alarms and/or malfunctions.

NRC Re-Exam

SRO Admin JPM A1

Facility:	Ginna	Task No.:	
Task Title:	Estimated Critical Rod Position Determination	JPM No.:	2019 NRC Re-Exam SRO Admin JPM A1
K/A Reference:	G 2.1.25 (4.2) Ability to interpret reference materials, such as graphs, curves, tables, etc.		

Examinee: Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom X Simulator ____ Plant ____

Applicability: SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.

Initial Conditions:

- Today's date is 7/25/2019, Time 1300
- The Station performed a Reactor Trip on 7/24/2019 @ 1000 due to a Loss of Service Water Cooling to both Main Feedwater Pumps. Repairs are expected to be completed within 48 hours.
- See Attachment - Plant Status for Critical Rod Position Calculation (Cycle 41) – Data Sheet

Initiating Cue:

- You are the Unit Supervisor.
- The Shift Manager has directed you to calculate an Estimated Critical Position per O-1.2.2, Critical Rod Position Calculation.
- PPCS and Vendor Supplied Data are NOT available.

Task Standard:	Calculate Critical Rod Position in accordance with O-1.2.2, Critical Rod Position Calculation, to +/- 15 steps of Answer Key.
Required Materials:	• General References must be available for the Operator to reference • Calculator
General References:	O-1.2.2, Critical Rod Position Calculation (Rev 073)
Handouts:	Handout 1: Blank copy of O-1.2.2 Handout 2 - Plant Status for Critical Rod Position Calculation (Cycle 41) – Data Sheet (Last page of JPM)
Time Critical Task:	NO
Validation Time:	40 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue Sheet and Data Sheet (Last 2 Pages of this JPM) and Handout 1.**				
1	(O-1.2.2, Step 5.5) **RECORD** Date **AND** Time of **ESTIMATED CRITICALITY**:	Enters expected time of criticality **(7/25/2019 @ 1600)** Initials Step	___	___	___
2	(O-1.2.2, Step 5.6) **RECORD** Reactor Power prior to trip **OR** beginning of shutdown	Enters power level **(100%)** Initials Step	___	___	___
3	(O-1.2.2, Step 5.7) **RECORD** cycle burnup	Enters Cycle Burnup **(8955 MWD/MTU)**	___	___	___
	NOTE The following values are used to determine applicable curve for core burnup.				
4	(O-1.2.2, Step 5.8) **DETERMINE** applicable curve to use based on Cycle Burnup in Step 5.7: (**MARK** Applicable Curve)	Marks **MOL – Middle of Life** as applicable curve.	___	___	___
	NOTE Power defect Worth will be a **POSITIVE** value.				
5	(O-1.2.2, Step 6.1.1) **DETERMINE** Prior to Shutdown Boron Concentration (B_C) as follows: 1. **RECORD** last Boron sample prior to shutdown.	Enters data from Data Sheet **(935 ppm)**	___	___	___
6	(O-1.2.2, Step 6.1.1) **DETERMINE** Prior to Shutdown Boron Concentration (B_C) as follows: 2. **DETERMINE** Boron Concentration (B_C) at time of trip **OR** beginning of shutdown (if **NO** trip occurred), using the last Boron sample **AND** the amount of Boron, **OR** RMW, added since last sample **AND** nomograph tables:	Determines value using amount of boron/RMW added since last sample (Data Sheet): Boron added: **0.0 gal** RMW added: **0.0 gal** Change in B_C: **0 ppm** Prior to Shutdown B_C: **935 ppm**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*7	(O-1.2.2, Step 6.1.2) **DETERMINE** reactivity due to Power Defect using one of the following: (**MARK** method **NOT** used N/A)	Determines Power Defect using Attachment 2 **(2310 ± 20 pcm)**	___	___	___
	NOTE Control Rod Worth will be a **POSITIVE** value.				
8	(O-1.2.2, Step 6.2.1) **DETERMINE** rod position at power level prior to shutdown **OR** trip.	Enters data from Data Sheet **(100%; Bank D @ 216 steps)**	___	___	___
*9	(O-1.2.2, Step 6.2.2) **DETERMINE** the Control Rod Worth using rod position in Step 6.2.1 to All Rods Out position from one of the following:	Determines rod worth using MOL Attachment; **(10 – 15 pcm)**	___	___	___
	NOTE • Alternative methods can be used to determine equivalent reactivity change due to Xenon: • Shutdown time determination for Xe and Sm reactivity calculations should use:				
10	(O-1.2.2, Step 6.3.1) **IF** using attachments **OR** Vendor Supplied Data, **THEN DETERMINE** Equivalent Steady State Power Level for Xenon	Determines Power Level from Data Sheet. **(100%)**	___	___	___
*11	(O-1.2.2, Step 6.3.2) **IF** using attachments **OR** Vendor Supplied Data, **THEN DETERMINE** hours shutdown using time of shutdown from Official Log **AND** time of Estimated Criticality:	Determines hours shutdown: **(30 hrs)**	___	___	___
*12	(O-1.2.2, Step 6.3.3) **DETERMINE** initial Xenon Worth from <u>one</u> of the following **AND MARK** methods **NOT** used N/A:	Determines Xenon worth using Equivalent Power Level of Step 6.3.1 **(100%)** and time zero of Attachment 6; **(2683 ± 20 pcm)**	___	___	___
*13	(O-1.2.2, Step 6.3.4) **DETERMINE** projected Xenon Worth for estimated time of criticality from **<u>one</u>** of the following:	Determines worth using Equivalent Power Level of Step 6.3.1 **(100%)** and Time Since Shutdown of Step 6.3.2 **(30 hrs)** using Attachment 6; **(1541 ± 20 pcm)**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*14	(O-1.2.2, Step 6.3.5) **CALCULATE** change in Xenon Worth as follows:	Calculates / records change in reactivity due to Xenon. **(+ 1142 ± 40 pcm)**	___	___	___
	NOTE • Reactor Engineer may specify a Boron depletion corrected Differential Boron Worth. Document basis for corrected worth on Attachment 13, Comments. • Differential Boron Worth will be a **NEGATIVE** value.				
15	(O-1.2.2, Step 6.4.1) **RECORD** current Boron Concentration	Records data using Data Sheet. **(1310 ppm)**	___	___	___
*16	(O-1.2.2, Step 6.4.2) **CALCULATE** change in Boron Concentration from shutdown to current conditions:	Calculates/records change in Boron concentration: **(375 ppm)**	___	___	___
*17	(O-1.2.2, Step 6.4.3) **CALCULATE** Average Boron Concentration from prior to Shutdown to Current conditions as follows:	Calculates/records Average Boron concentration: **(1123 ±1 ppm)**	___	___	___
18	(O-1.2.2, Step 6.4.4) **DETERMINE** Differential Boron Worth from <u>one</u> of the following using Average Boron Concentration in Step 6.4.3:	Determines Differential Boron Worth using MOL Curve of Attachment 8; **(Approximately 6.9 pcm/ppm)**	___	___	___
	NOTE • If Boron has been added, the resultant reactivity will have a **NEGATIVE** value. • If Boron has been lowered, the resultant reactivity will have a **POSITIVE** value.				
*19	(O-1.2.2, Step 6.4.5) **CALCULATE** change in Boron Worth between time of Shutdown and current Boron concentration as follows:	Performs calculation; **(2585 – 2610 pcm)**	___	___	___
	NOTE Change in Samarium Worth will be a **NEGATIVE** value.				
*20	(O-1.2.2, Step 6.5.1) **DETERMINE** current Samarium Worth using the appropriate attachment at **Time = Hours after shutdown**	Determines/calculates value using Power Level Prior to Shutdown of Step 5.6, the hours Shutdown of Step 6.3.2, and Attachment 10; **(1000 – 1010 pcm)**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*21	(O-1.2.2, Step 6.5.2) **DETERMINE** prior to shutdown Samarium Worth using the appropriate attachment at **Time = 0 hours**:	Uses time zero value of Attachment 10 to determine worth; **(964 pcm)**	___	___	___
*22	(O-1.2.2, Step 6.5.3) **CALCULATE** change in Samarium Worth as follows:	Subtracts current reactivity worth of Step 6.5.1 from Samarium reactivity worth prior to shutdown of Step 6.5.2; **(36 – 46 pcm)**	___	___	___
	NOTE The proper sign (+/-) must be carried for each value.				
*23	(O-1.2.2, Step 6.6.1) **CALCULATE** Total Reactivity Change by adding all Reactivity Worth values:	Calculates Total Reactivity Change **(781 – 906 pcm)**	___	___	___
	NOTE If Total Reactivity Change is **NEGATIVE**, a new Critical Rod Position Calculation will be required.				
24	(O-1.2.2, Step 6.6.2) **IF** Total Reactivity Change is negative, **THEN MARK** Subsection 6.7 N/A **AND PERFORM** Subsection 6.8. **OTHERWISE, MARK** this Step N/A.	Marks this Step N/A	___	___	___
	NOTE • The algebraic sum of reactivity changes determines rod position for the Reactor to attain criticality. Rod position at which the Reactor goes critical is the Critical Rod Position: - When the sum is **positive**, the Reactor will go critical with the rods still inserted some number of steps. - When the sum is **zero**, the Reactor will go critical with all rods withdrawn. - When the sum is **negative**, the Reactor will NOT go critical. Action must be taken to raise the sum greater than zero. • Reactor Engineer may interpolate rod worths between BOL and MOL, **OR** MOL and EOL, to obtain a better estimate of rod worth. Document any interpolation on Attachment 13, Comments.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*25	(O-1.2.2, Step 6.7.1) **DETERMINE** Critical Rod Position using Total Reactivity Change from the appropriate HZP Integral Rod Worth from Attachment 12, HZP Integral Rod Worth:	Determines Critical Rod Position using value of Step 6.6.1 and MOL column of Attachment 12; **(72 – 92 steps)**	___	___	___

Terminating Cue: When Critical Rod Position Value recorded, No further action required.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam SRO Admin JPM A1

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- Today's date is 7/25/2019, Time 1300
- The Station performed a Reactor Trip on 7/24/2019 @ 1000 due to a Loss of Service Water Cooling to both Main Feedwater Pumps. Repairs are expected to be completed within 48 hours.
- See Attachment - Plant Status for Critical Rod Position Calculation (Cycle 41) – Data Sheet

Initiating Cue:

- You are the Unit Supervisor.
- The Shift Manager has directed you to calculate an Estimated Critical Position per O-1.2.2, Critical Rod Position Calculation.
- PPCS and Vendor Supplied Data are NOT available.

DATA SHEET

Plant Status for Critical Rod Position Calculation
Cycle 41

Reactor power prior to beginning of shutdown (Assume steady state power for > 50 hours)	100%
Cycle Burnup	As of 7/24/2019 @1000 - 8955 MWD/MTU
Time of reactor trip	Date: 7/24/2019 Time: 1000
Time reactor subcritical	Date: 7/24/2019 Time: 1000
Last Boron sample before shutdown	Date: 7/24/2019 Time: 0400 935 ppm
Boron/RMW added between last sample and start of shutdown	BAST = 19,000 ppm Boric Acid - 0.0 Gals RMW - 0.0 Gals
Rod position prior to shutdown	Bank D at 216 Steps
Time of estimated criticality	Date: 7/25/2019 Time: 1600
Current boron concentration	Date: 7/25/2109 Time: 1200 1310 ppm

NRC Re-Exam

SRO Admin JPM A2

Facility:	Ginna	Task No.:	
Task Title:	Determine Operating Limits for Station 13A Transmission in accordance with O-6.9	JPM No.:	2019 NRC Re-Exam SRO Admin JPM A2
K/A Reference:	G 2.1.32 (4.0) Ability to explain and apply system limits and precautions		

Examinee: Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom X Simulator ____ Plant ____

Applicability: SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.

Initial Conditions:

- The plant is operating at 100% power.
- Station Electrical Alignment is 50/50 Normal.
- The current date and time are 7/24/19 at 1330.
- Outside Air Temperature is 92°F with winds from the South at 10 mph.
- RG&E Energy Control Center (ECC) reports thunderstorms are approaching from the south.
- The following equipment is Out of Service:
  - ‘A’ Reactor Coolant Flow Loop FI-411 for scheduled calibration. (LCO 3.3.1, Condition A was entered today at 0500 and all necessary paperwork has been completed).
  - RG&E ECC notifies the Ginna MCR that the Post Contingency Low Voltage Alarm (PCLVA) is OOS.
- Current Grid conditions are as follows:

- Station 13A Bus Voltage: 114.5 KV
- GSU Net MVARs: +80 MVAR

Initiating Cue:	• Determine the OPERABILITY status of the Offsite Power Circuits • List required action(s), **if any**, that the Operating crew must take. • Examiner will receive any Log entries and/or Notifications.
Task Standard:	The Operator will determine, using Attachment 2, that Offsite Power Circuits are INOPERABLE, and that the actions of Steps 6.2.4, 6.2.5, 6.2.8, and 6.2.9 are required.
Required Materials:	General References must be available for the Operator to reference
General References:	O-6.9, Ginna Station Operating Limits for Station 13A Transmission (Rev 040)
Handouts:	Handout 1: Blank copy of O-6.9
Time Critical Task:	NO
Validation Time:	15 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.**				
1	(O-6.9, Section 4.0) **Precautions and Limitations**	The Operator should review and placekeep all items in Section 4.0.	___	___	___
2	(O-6.9, Step 5.5) **VERIFY** one **OR** more of the following conditions exist: **MARK** other conditions N/A	Operator will recognize that Step 5.5.3 applies and initial this Step. The remaining Steps in this Section are N/A.	___	___	___
3	(O-6.9, Section 6.1) **Trip or Scheduled Outage of a Transmission Circuit**	Operator recognizes that this Section is N/A.	___	___	___
	NOTE Offsite power **SHOULD NOT** be declared **INOPERABLE** due to notification of a Ginna Post Contingency Low Voltage **Early Warning** Alarm: - 116kV during a 100/0, 0/100, OR 50/50A alignment - 111kV during 50/50N alignment				
4	(O-6.9, Step 6.2.1) **IF** RG&E ECC informs the Control Room that a Post Contingency Low Voltage Alarm has occurred, **THEN REQUEST** Post Contingency Low Voltage value from the SYSTEM OPERATOR. **OTHERWISE, MARK** this Step N/A.	Operator recognizes that this Step is N/A.	___	___	___
	NOTE • RG&E ECC will inform the Control Room **WHEN** the PCLVA clears and the post-contingency voltage is above the minimum required voltage. • Prior to declaring Offsite Power operable the following **SHALL** be performed: - An assessment of grid system loading and weather conditions is necessary to determine if the LCO should be exited. - Engineering and Licensing **SHOULD** be contacted to assist in this determination. Heavy grid loading and extreme weather conditions over several days can result in multiple entries and exits into Offsite Power LCOs resulting in multiple LER and Safety System Functional Failures. - Extending the LCO over multiple days may be desired.				

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
5	(O-6.9, Step 6.2.2) **WHEN** the PCLVA has cleared **OR** Station 13A voltage has been restored above the Operability Line on Attachments, **THEN PERFORM** the following:	Operator recognizes that this Step is N/A.	___	___	___
6	(O-6.9, Step 6.2.3) **WHEN** All the conditions in Step 6.2.2 are met, **THEN DECLARE** Offsite Power **OPERABLE.**	Operator recognizes that this Step is N/A.	___	___	___
*7	(O-6.9, Step 6.2.4) **IF** RG&E ECC informs the Control Room that the Post Contingency Voltage service is **NOT** available, **THEN PERFORM** the following, **OTHERWISE, MARK** this Step N/A. • **VERIFY** Offsite Power Operability using Attachments.	Operator should verify Offsite Power Operability using **Attachment 2, Offsite Power Operability Curves - All Circuits in at 13A, or 909 or 937 OOS**, using the given GRID Conditions the Operator will recognize that the Off-Site Power is **INOPERABLE**. Operator circles INOPERABLE on **Initial Conditions/Cue Sheet (Last Page of this JPM)**	___	___	___
*	• **REMOVE** EIN "GRID-ALARM-OOS", PCLGVA from service in Autolog.	The Operator will request removal of EIN - “GRID-ALARM-OOS” in AUTOLOG and annotate on **Initial Conditions/Cue Sheet (Last Page of this JPM)**	___	___	___
*8	(O-6.9, Step 6.2.5) **IF** using Attachments **AND** operating below the line, **THEN CONTACT** RG&E ECC to take actions to restore offsite power operability. **OTHERWISE, MARK** this Step N/A.	The Operator will annotate to contact RG&E ECC and request **“take actions to restore offsite power operability”,** on **Initial Conditions/Cue Sheet (Last Page of this JPM)**	___	___	___
9	(O-6.9, Step 6.2.6) **IF** using Attachments, **AND** PPCS is **UNAVAILABLE**, **THEN CONTACT** RG&E ECC for a MVARs value (GSU Net MVARS). **OTHERWISE, MARK** this Step N/A.	Operator recognizes that this Step is N/A.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
10	(O-6.9, Step 6.2.7) **WHEN** informed by RG&E ECC that the PCVA has been restored, **THEN STOP** using Attachments **AND** RESTORE EIN "GRID-ALARM-OOS", PCLVA to service in Autolog.	Operator recognizes that this Step is N/A.	___	___	___
11	(O-6.9, Step 6.2.8) **EVALUATE** current **AND** planned work to determine what work **OR** testing should be postponed **OR** suspended, **UNTIL** grid conditions improve.	The Operator will annotate to evaluate current and planned work to determine what work or testing should be postponed or suspended, until grid conditions improve**,** on **Initial Conditions/Cue Sheet (Last Page of this JPM)**	___	___	___
12	(O-6.9, Step 6.2.9) **REFER** to OPG-Notification, Attachment 1 for notification requirements due to unplanned LCO entry.	The Operator will annotate to refer to OPG-Notification, Attachment 1 for notification requirements due to unplanned LCO entry**,** on **Initial Conditions/Cue Sheet (Last Page of this JPM)**	___	___	___

Terminating Cue: When Applicant turns in JPM, No further action required.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam SRO Admin JPM A2

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant is operating at 100% power.
- Station Electrical Alignment is 50/50 Normal.
- The current date and time are 7/24/19 at 1300.
- Outside Air Temperature is 92°F with winds from the South at 10 mph.
- RG&E Energy Control Center (ECC) reports thunderstorms are approaching from the south.
- The following equipment is Out of Service:
  - 'A' Reactor Coolant Flow Loop FI-411 for scheduled calibration. (LCO 3.3.1, Condition A was entered today at 0500 and all necessary paperwork has been completed).
  - At 1330 RG&E ECC notifies the Ginna MCR that the Post Contingency Low Voltage Alarm (PCLVA) is OOS.
- Current Grid conditions are as follows:
  - Station 13A Bus Voltage: 114.5 KV
  - GSU Net MVARs: +80 MVAR

Initiating Cue:

- Determine the OPERABILITY status of the Offsite Power Circuits
- List required action(s), **if any**, that the Operating crew must take.
- Examiner will receive any Log entries and/or Notifications.

Applicant Name: _____

Off-Site Power Circuits are (circle ONE): **OPERABLE** **INOPERABLE**

Require Action(s), IF ANY, from O-6.9:

NRC Re-Exam

SRO Admin JPM A3

Facility:	Ginna	Task No.:	
Task Title:	Determine limitations in accordance with A-52.12, Nonfunctional Equipment Important to Safety	JPM No.:	2019 NRC Re-Exam SRO Admin JPM A3
K/A Reference:	G 2.2.40 (4.7) Ability to apply Technical Specifications for a system.		

Examinee: Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom X Simulator ____ Plant ____

Applicability: SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 through 3.

Initial Conditions

- The plant is operating at 100% power.
- The current date and time are 7/29/19 at 0700.
- The following equipment is Out of Service:
  - 'B' CCW Heat Exchanger (LCO 3.7.7, Condition B was entered today at 0500 and all necessary paperwork has been completed).
  - **At 0830 today**, the FLEX Diesel Fuel trailer will be removed from service for annual maintenance, which includes tank draining for internal inspection. This will require moving the unit to a maintenance area but not in the normal storage location.
  - Work Order C99992019 covers the maintenance activity.

Initiating Cue:	• You are the Unit Supervisor • Complete an A-52.12-F-01, Sections 1.0 through 4.0. • The EIN for FLEX Diesel Fuel Trailer is TBD01B. • A “what if” risk assessment has been performed. • PARAGON PRF Colors and Value are verified to match IWS expected risk. • PARAGON Plant Transient / Safety Function Risk is verified as: Yellow • PARAGON highest top-level system status color is verified as: Green
Task Standard:	The Operator will correctly complete Sections 1.0 through 4.0 of A-52.12-F-01.
Required Materials:	General References must be available for the operator to reference.
General References:	A-52.12, Nonfunctional Equipment Important to Safety (Rev 096) A-52.12-F-01, Control of Safeguards Equipment Important to Safety (Rev 000) A-601.16, On-Line Fire Risk Management (Rev 007) CC-GI-118, Ginna Implementation of Diverse and Flexible Coping Strategies (FLEX) and Spent Fuel pool Instrumentation Program (Rev 010)
Handouts:	Handout 1: Blank copy of A-52.12 Handout 2: Blank copy of A-52.12-F-01 Handout 3: Blank copy of A-601.16
Time Critical Task:	NO
Validation Time:	24 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 through 3.**				
	Examiner Note: The Operator will reference A-52.12, Section 6.6 to complete A-52.12-F-01. Wording does NOT have to be exactly as stated, but comparable.				
1	(A-52.12-F-01, Step 1.1) Equipment Description:	The Operator records **FLEX Diesel Fuel Trailer**	___	___	___
2	(A-52.12-F-01, Step 1.2) Equipment EIN:	The Operator records **TBD01B**	___	___	___
3	(A-52.12-F-01, Step 1.3) Reason Nonfunctional:	The Operator places a **checkmark in the "WO" checkbox**	___	___	___
		The Operator enters **Work Order C99992019** in A-52.12-F-01, Section 6.0, Restoration to Functional Status, "List Procedure or Other Basis" block of table	___	___	___
4	(A-52.12-F-01, Step 1.4) Present Plant MODE:	The Operator places a **checkmark in the "1" checkbox**	___	___	___
5	(A-52.12-F-01, Step 1.5) Issue Report #:	The Operator records **N/A**	___	___	___
*6	(A-52.12-F-01, Step 1.6) Reference #:	The Operator determines **A-52.12, Step 6.1.2.11** is appropriate and **records** in Step 1.6	___	___	___
7	(A-52.12-F-01, Step 1.7) **DOES** the above listed Equipment/Instrumentation support a Technical Specification related system **OR** component?	The Operator places a **checkmark in the "NO" checkbox**	___	___	___
8	(A-52.12-F-01, Step1.8) **PERFORM** a "What If" risk assessment in Paragon for NON-FUNCTIONAL equipment **PER** A-52.12, Step 6.6.1.9.	The Operator recognizes that the "What If" risk assessment has already been performed and initials Step 1.8	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
9	A-52.12-F-01, Step 1.9) **IF** equipment is being removed for **planned** maintenance, **THEN VERIFY** Paragon PRF Colors **AND** value matches IWS expected risk. • **IF** the color **AND** value matches IWM schedule expected risk, **THEN** continue with this form.	The Operator recognizes that the Maintenance is planned, the PARAGON Colors and Values match the IWS expected risk, and **places a checkmark** in the following checkboxes: • Paragon Plant Transient/Safety Function Risk: **Yellow** • Paragon highest top-level system status color: **Green**	___	___	___
		Operator initials step 1.9	___	___	___
10	(A-52.12-F-01, Step 1.10) **IF** equipment being removed from service is due to emergent maintenance issues, c) **NOTIFY** WWM **AND** implement Risk Mitigation Strategies **PER** A-52.12, Step 6.6.1.9.m **AND** 6.6.1.9.n. d) **IMPLEMENT** Risk Mitigation Strategies **PER** ER-AA-600, RISK MANAGEMENT.	The Operator recognizes that the equipment is being removed under a planned WO and **N/A**s **OR initials** Step 1.10.	___	___	___
11	(A-52.12-F-01, Step 1.11) **IF** the NON-FUNCTIONAL component is a fire risk important to nuclear safety is unavailable. **THEN DETERMINE** the required compensatory actions **PER** A-601.16, On-Line Fire Risk Management **AND RECORD** in Section 2.0 of this Form.	The Operator recognizes that the component being removed is not used for fire response and **N/A**s **OR initials** Step 1.11.	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*12	(A-52.12-F-01, Section 2.0) **REQUIRED ACTIONS/APPENDIX R COMPENSATORY ACTIONS (if applicable)**	The Operator recognizes the Required Actions in accordance with A-52.12, Step 6.1.2.11 A and completes the blocks as follows: • CONDITION: **B** • REQUIRED ACTIONS/ REMARKS: **Restore (Restoration of the function is required) (45 days)** • REQUIRED COMPLETION DATE/TIME: **09/12/19 / 0830**	___	___	___
		AND			
		• REQUIRED ACTIONS/ REMARKS: **Implement Compensatory Measures for the lost function (This could be designating other site equipment to perform the FLEX function.) (72 hours)** • REQUIRED COMPLETION DATE/TIME: **08/01/19 / 0830**	___	___	___
*13	(A-52.12-F-01, Section 3.0) **REQUIREMENTS IF REQUIRED ACTIONS/COMPLETION TIMES ARE NOT MET**	The Operator recognizes the Requirements if Actions / Completion Times Are Not Met in accordance with A-52.12, Step 6.1.2.11 C and completes the blocks as follows: • CONDITION: **C** • REQUIRED ACTIONS/ REMARKS: **1) Initiate actions to implement Compensatory Measures (24 hrs), AND** **2) Implement Compensatory Measures for the lost function (72 hrs)**	___	___	___
		• REQUIRED COMPLETION DATE/TIME: 1) **09/13/19 / 0830** **09/15/19 / 0830**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
	Examiner Note: The Operator may define the Compensatory Measures (e.g. replace the function with a Rental Fuel Trailer and store in the designated location).				
14	(A-52.12-F-01, Step 4.1) **DECLARE** equipment non-functional (Log in official log)	The Operator may initial the Step or leave blank	___	___	___
15	(A-52.12-F-01, Step 4.2) **Equipment** deemed non-functional by (HCO/CO): Date: Time:	The Operator records the following: Date: **07/29/19** Time: **0830**	___	___	___
		The Operator may enter their name in the Step or leave blank	___	___	___

Terminating Cue: When Applicant turns in JPM, No further action required.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam SRO Admin JPM A3

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions

- The plant is operating at 100% power.
- The current date and time are 7/29/19 at 0700.
- The following equipment is Out of Service:
  - 'B' CCW Heat Exchanger (LCO 3.7.7, Condition B was entered today at 0500 and all necessary paperwork has been completed).
  - **At 0830 today**, the FLEX Diesel Fuel trailer will be removed from service for annual maintenance, which includes tank draining for internal inspection. This will require moving the unit to a maintenance area but not in the normal storage location.
  - Work Order C99992019 covers the maintenance activity.

Initiating Cue:

- You are the Unit Supervisor
- Complete an A-52.12-F-01, Sections 1.0 through 4.0.
- The EIN for FLEX Diesel Fuel Trailer is TBD01B.
- A "what if" risk assessment has been performed.
- PARAGON PRF Colors and Value are verified to match IWS expected risk.
- PARAGON Plant Transient / Safety Function Risk is verified as: Yellow
- PARAGON highest top-level system status color is verified as: Green

NRC Re-Exam

SRO Admin JPM A4

Facility:	Ginna	Task No.:	
Task Title:	Review and Approve Gas Decay Tank Release Permit	JPM No.:	2019 NRC Re-Exam SRO Admin JPM A4
K/A Reference:	G 2.3.6 (3.8) Ability to approve release permits.		

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom X Simulator _____ Plant _____

Applicability: SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 and 2.

Initial Conditions:

- Plant is Operating at 100% Power.
- Gas Decay Tank 'D' is at 90 psi.
- Gas Decay Tank 'D' is held for release.
- Chemistry has initiated a release for Gas Decay Tank 'D'.

Initiating Cue: The on-shift Chemistry Technician has initiated a release for Gas Decay Tank 'D' and brought the Gaseous Waste Release Form (Attachment 1) from CH-703 (Release of GDT's and other Gaseous Batch Releases) to the Control Room.

- You, as the Shift Manager will Review and Approve the release permit for Gas Decay Tank 'D'.
- Identify any/all issues, if any, with the release permit in the Comments field below.

Task Standard:	The SRO will Review and Approve the release permit for Gas Decay Tank 'D'.
Required Materials:	General References must be available for the operator to reference
General References:	• CH-703, Release of GDT's and other Gaseous Batch Releases (Rev 00400) • S-4.2.5, Release of Gas Decay Tank (Rev 01902) • P-9, Radiation Monitoring System (Rev 105)
Handouts:	Handout 1: Filled in CH-703, Attachment 1, Gaseous Waste Release Form Handout 2: Blank copy of CH-703 Handout 3: Blank copy of P-9
Time Critical Task:	NO
Validation Time:	XX minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the Initiating Cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 and 2.**				
CUE	**Provide Applicant with Handout 3 (P-9) when requested.**				
*1	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The Operator recognizes that the "Authorized by Chemistry Supervision" signature should **NOT** be N/A'd	___	___	___
2	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The Operator recognizes that the "Date Tank Held" has the **incorrect date (year)**	___	___	___
*3	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The Operator recognizes that the "R-14 Alarm Set (P9)" is **INCORRECT (should be 1.3E+6)**	___	___	___
*4	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The Operator recognizes that the "R-14 Alarm Set (actual)" is **INCORRECT (should be 1.3E+6)**			
*5	(Attachment 1, Gaseous Waste Release Form) Review and Approve Gaseous Waste Release Form for Gas Decay Tank 'D'	The Operator recognizes that the "CHEMISTRY APPROVAL REQUIRED IF RELEASE IS **NOT** STARTED BEFORE" is **INCORRECT (should be 7/29/2019 14:33)**	___	___	___

JPM Stop Time: _____ **Terminating Cue: Applicant states task is complete.**

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam SRO Admin JPM A4

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

INITIAL CONDITIONS:

- Plant is Operating at 100% Power.
- Gas Decay Tank ‘D’ is at 90 psi.
- Gas Decay Tank ‘D’ is held for release.
- Chemistry has initiated a release for Gas Decay Tank ‘D’.

INITIATING CUE:

The on-shift Chemistry Technician as initiated a release for Gas Decay Tank ‘D’ and brought the Gaseous Waste Release Form (Attachment 1) from CH-703 (Release of GDT’s and other Gaseous Batch Releases) to the Control Room.

- You, as the Shift Manager will Review and Approve the release permit for Gas Decay Tank ‘D’.
- Identify any/all issues, if any, with the release permit in the Comments field below.

Applicant Name: _____

Attachment 1 to be Authorized: **YES** **NO**

Comments (if any)

Attachment 1, Gaseous Waste Release Form

Date: 7/29/2019 Permit No.: G2019035

Tank: Gas Decay Tank D NG Gamma Scan #: 537964.CNF

Sample Date/Time: 7/29/2019 02:33 Iodine Gamma Scan #: 537963.CNF

Curies: 8.392E-03

Recommended Release Rate: MAX

Estimated R-14 Reading : 4.44E+00 CPM Above Background

Analyst Authorized by Chemistry Supervision

Date Tank Held: 7/22/2109

Vent Monitors:	R-13 in service:	(YES) / NO
	R-14 in service:	(YES) / NO
	R-14A in service:	(YES) / NO
Iodine Monitors:	R-10B in service:	(YES) / NO

R-14 Alarm Set (P9) 1.3E+5 CPM R-14 Alarm Set (actual): 1.3E+5 CPM

Authorized by Shift Manager

***CHEMISTRY APPROVAL REQUIRED IF RELEASE IS **NOT** STARTED BEFORE 7/30/2019 02:33 ***

CHEMISTRY APPROVAL REQUIRED IF RELEASE IS INTERRUPTED FOR GREATER THAN 2 HOURS

	Date/Time	Pressure (PSIG)	Wind Data (MPH/Direct)	Operator Initials
Start				
Stop				

Shift Manager Completing Release Date/Time

NRC Re-Exam

SRO Admin JPM A5

Facility:	Ginna	Task No.:	
Task Title:	Determine Protective Action Recommendations in accordance with EP-CE-111	JPM No.:	2019 NRC Re-Exam SRO Admin JPM A5
K/A Reference:	G 2.4.41 (4.6) Knowledge of the emergency action level thresholds and classifications.		

Examinee: Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: ____ Actual Performance: X

Classroom X Simulator ____ Plant ____

Applicability: SRO

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handout 1.

Initial Conditions:

- The plant was operating at 100% power when it experienced an automatic reactor trip and SI due to a large break LOCA.
- Prior to the accident, 'A' CNMT Recirc Fan was INOPERABLE due to a short in the motor windings. A-52.4 submitted for ITS 3.6.6.D.
- Concurrent with the SI, a loss of all offsite power occurred, and 'B' D/G failed to start.
- CNMT pressure is 35 psig and slowly rising
- R-29/R-30 read ~1300 R/hr
- There has been no release of fission products from Containment.
- Field Teams report NO Exposure Rate Reading > background levels.
- Current weather conditions are fair with wind speed at 18 MPH with 15 min average wind direction from 315 degrees.

	• The Shift Manager / Shift Emergency Director has just declared a General Emergency based upon EAL FG1
Initiating Cue:	• The Shift Manager / Shift Emergency Director has directed you to determine the information for Block 6 of EP-CE-114-100-F-07 (GNP NY State Radiological Emergency Data Form (Part 1) (CNG)). • EP-CE-111, Emergency Classification and Protective Action Recommendations, has been completed to Step 4.3.1. • This is a **time critical JPM.**
Task Standard:	Determine required PARs in accordance with EP-CE-111
Required Materials:	General References must be available for the operator to reference.
General References:	• EP-CE-111, Emergency Classification and Protective Action Recommendations (Rev 7) • EP-CE-114-100, Emergency Notifications (Rev 8) • EP-CE-111-F-03, Ginna PAR Flowchart (Rev C) • EP-CE-114-100-F-07, GNP NYS Radiological Emergency Data Form (PART 1) (CNG) (Rev D)
Handouts:	Handout 1: Blank copy of EP-CE-111-F-03, Ginna PAR Flowchart Handout 2: Marked up copy of EP-CE-111 (completed up to Step 4.3.1) Handout 3: Marked up copy of EP-CE-114-100-F-07 (completed with exception of BLOCK 6)
Time Critical Task:	Yes
Validation Time:	10 minutes

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

Information For Evaluator's Use:

UNSAT requires written comments on respective step.

* Denotes critical steps.

Number any comments in the "Comment Number" column on the following pages. Then annotate that comment in the "Comments" section. The comment section should be used to document: the reason that a step is marked as unsatisfactory, marginal performance relating to management expectations, or problems the examinee had while performing the JPM. Comments relating to procedural or equipment issues should be entered and tracked using the site's appropriate tracking system.

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

The timeclock starts when the Applicant acknowledges the initiating cue.

JPM Start Time: _____

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
CUE	**Provide Applicant with Initial Conditions/Cue (Last Page of this JPM) and Handouts 1 – 3.**				
NOTE	**EAL FG1** is based upon; • Fuel Clad (FC) **Loss** – Containment Radiation monitors R-29 / R-30 reading >1,000 R/hr • Reactor Coolant System (RC) **Loss** - Automatic or manual SI Actuation is required by **EITHER** of the following: a. UNISOLABLE RCS **OR** b. Steam Generator Tube RUPTURE • Containment (CT) **Potential Loss** – a. Containment Pressure **≥ 28 psig AND** b. **EITHER** of the following conditions for **≥ 15 minutes**: < 2 CRFC units operating / < 1 CS pump operating				
1	(EP-CE-111, Step 4.3.2) **DETERMINE** PARs using the following flow charts: • EP-CE-111-F-02, Calvert Cliffs PAR Flowchart • EP-CE-111-F-03, Ginna PAR Flowchart • EP-CE-111-F-04, Nine Mile PAR Flowchart • EP-CE-111-F-05, Fitzpatrick PAR Flowchart	Operator determines that EP-CE-111-F-03 is applicable.	___	___	___
2	(EP-CE-111-F-03, Decision 1) Classification is a General Emergency?	Operator determines **YES**	___	___	___
3	(EP-CE-111-F-03, Decision 2) Is this the Initial PAR?	Operator determines **YES**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
4	(EP-CE-111-F-03, Decision 3) (See Note 1) **1.** Is there a Loss of the Primary Containment per the EAL's? **AND** **2. Either of the following:** **a.** Are the Containment Radiation Monitors > 1.0E+04 R/HR? **OR** **b.** Have the conditions for EAL RG1 been met **Notes**: 1. **If** the conditions for a Rapidly Progressing Severe Accident cannot be immediately confirmed, **then ANSWER No**.	Operator determines **NO** applies to both conditions	___	___	___
5	(EP-CE-111-F-03, Decision 4) Is there a Hostile Action event in Progress?	Operator determines **NO**	___	___	___
6	(EP-CE-111-F-03, Decision 5) Is this PAR from the Control Room?	Operator determines **YES**	___	___	___
7	(EP-CE-111-F-03, Decision 1) Flowchart Command Box, **1. Evacuate downwind areas.** **(Table 3)** **AND** **2. Evacuate all Lake ERPAs**	Using TABLE 3 and using the given initial conditions of a Wind Direction of 315 degrees, the Operator determines that **W-1, W-2, W-3 and all Lake ERPAs need to Evacuate**	___	___	___
8	(EP-CE-111, Step 4.3.6) **ENTER** the PAR information on the notification form.	The Operator will transition to **EP-CE-114-100-F-07, GNP NY STATE RADIOLOGICAL EMERGENCY DATA FORM (PART 1) (CNG)** in order to enter data in **Block 6 "Protective Action Recommendations"**	___	___	___

STEP	ELEMENT	STANDARD	SAT	UNSAT	Comment Number
*9	**Block 6**, **EP-CE-114-100-F-07, GNP NY STATE RADIOLOGICAL EMERGENCY DATA FORM (PART 1) (CNG)**	**In Block 6**, Operator will, **CIRCLE 'B', Evacuate** and implement the KI plan for the following ERPAs	___	___	___
*		**Circle W1, W2, W3, W-Lake, and M-Lake**	___	___	___

Terminating Cue: When Applicant turns in JPM, No further action required.

JPM Stop Time:_____

VERIFICATION OF COMPLETION

Job Performance Measure No.: 2019 NRC Re-Exam SRO Admin JPM A5

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:

Response:

Result: SAT _____ UNSAT _____

Examiner's Signature: _____ Date: _____

JPM CUE SHEET

Initial Conditions:

- The plant was operating at 100% power when it experienced an automatic reactor trip and SI due to a large break LOCA.
- Prior to the accident, 'A' CNMT Recirc Fan was INOPERABLE due to a short in the motor windings. A-52.4 submitted for ITS 3.6.6.D.
- Concurrent with the SI, a loss of all offsite power occurred, and 'B' D/G failed to start.
- CNMT pressure is 35 psig and slowly rising
- R-29/R-30 read ~1300 R/hr
- There has been no release of fission products from Containment.
- Field Teams report NO Exposure Rate Reading > background levels.
- Current weather conditions are fair with wind speed at 18 MPH with 15 min average wind direction from 315 degrees
- The Shift Manager / Shift Emergency Director has just declared a General Emergency based upon EAL FG1

INITIATING CUE:

- The Shift Manager / Shift Emergency Director has directed you to determine the information for Block 6 of EP-CE-114-100-F-07 (GNP NY State Radiological Emergency Data Form (Part 1) (CNG)).
- EP-CE-111, Emergency Classification and Protective Action Recommendations has been completed to Step 4.3.1
- You are the Unit Supervisor
- This is a **time critical JPM**

Appendix D	Scenario Outline	Form ES-D-1

Facility: Ginna Scenario No.: 1 Op-Test No.: N2019-301R

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: The plant is at 70% power due to Grid issues.

_____

_____

Turnover: Plant has been at 70% power for 50 hours. Off-site power circuit 767 is OOS

_____

Critical Tasks: CT #1: Take MANUAL control of Pressurizer pressure to prevent an automatic Reactor trip from occurring.

CT #2: ECA-2.1-A Control the AFW flowrate to 50 gpm per SG in order to minimize the RCS Cooldown rate before a severe challenge (Orange Path) develops to the integrity CSF (EOP-Based)

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP) R(ATC) N(US)	Raise Turbine Load to 100% in accordance with O-5.2, Load Ascension
2	PZR02D	I(ALL) TS(US)	PT-449, Pressurizer Pressure, fails HIGH
3	OVR-EDS44D	C(ALL) TS(US)	Loss of 4160V Bus 12B
4	STM05A STM05B STM03	M(ALL)	Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)
5	SIS02A SIS02B	C(ATC) C(US)	Safety Injection fails to Auto Actuate (manual successful)
6	RPS07E	C(ATC)	RHR Pump 'A' fails to Auto Start after SI initiation (manual successful
7			Entry into ECA-2.1, Uncontrolled Depressurization of Both Steam Generators

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

Ginna July 2019 NRC Simulator Exam #1

The plant is at 70% power following a plant power reduction to address Electrical Grid issues associated with storm damage that also resulted in a loss of Offsite Power Circuit 767. The plant has been at 70% power for 50 hours. Energy Operations has notified the station that grid stability has been restored and requests the station return to full power. Additionally, Offsite Power Circuit 767 will be available in approximately 3 hours.

The following equipment is Out-of-Service: Offsite Power Circuit 767. A-52.12 submitted for TRM TR 3.8.1, 72 hour Action.

Shortly after taking the watch, Operators will commence raising power at 10%/HR in accordance with O-5.2, Load Ascension.

Approximately 2 minutes after commencing load ascension, PT-449, Pressurizer Pressure, fails high causing the Pressurizer Spray valves to OPEN. The Operator will respond in accordance with AR-F-2, PRESSURIZER HI PRESS 2310 PSI, and enter AP-PRZR.1, Abnormal Pressurizer Pressure. AP-PRZR.1 will refer the Operator to ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure, for the defeat of PT-449. The Operator will address Technical Specification LCO 3.3.1, Reactor Trip System (RTS) Instrumentation; LCO 3.3.3, Post Accident Monitoring (PAM) Instrumentation, and Technical Requirements Manual TR 3.4.3, Anticipated Transient Without Scram (ATWS) Mitigation.

Approximately 12 minutes into the scenario, 4160V Bus 12B is lost. Operators will respond in accordance with AP-ELEC.1, Loss of 12A and/or 12B Busses. 'B' Emergency Diesel Generator will automatically start and energize the 480 VAC safeguards Buses 16 and 17. The Operator will address Technical Specification LCO 3.8.1, AC Sources – MODES 1, 2, 3, and 4, and Technical Requirements Manual TR 3.8.1, Offsite Power Sources.

Approximately 30 minutes into the scenario, a large Steamline break occurs downstream of the MSIVs. MSIVs will **NOT** close. Safety Injection fails to automatically actuate requiring the Operators to manually initiate Safety Injection. RHR Pump 'A' fails to automatically start on SI initiation, Operators will manually start 'A' RHR Pump.

The crew will enter E-0, Reactor Trip or Safety Injection, and transition to E-2, Faulted Steam Generator Isolation. The crew will have to transition to ECA-2.1, Uncontrolled Depressurization of Both Steam Generators.

The scenario will terminate at Step 16 of ECA-2.1, after the crew has determined whether SI Termination criteria have been met and either terminates SI at Step 17 or returns to Step 2; or transitions FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, due to an ORANGE path on Integrity CSFST.

Critical Tasks:

Take MANUAL control of Pressurizer pressure to prevent an automatic Reactor trip from occurring.

Safety Significance: Failure to manually control Pressurizer pressure will result in degrading Over-Temperature Delta-T conditions ultimately causing an automatic Reactor trip. In this case, Pressurizer pressure can be manually controlled from the control room. Therefore, failure to manually control Pressurizer pressure also represents a "demonstrated inability by the crew to take an action or combination of actions that would prevent a challenge to plant safety.

Additionally, under the postulated plant conditions, failure to manually control Pressurizer pressure (when it is possible to do so) results in a "significant reduction of safety margin beyond that irreparably introduced by the scenario."

Reduce AFW flow to both SGs to 50 gpm each per ECA-2.1, in order to minimize the RCS cooldown rate before a severe (orange-path) challenge develops to the integrity CSF (EOP-Based).

Safety Significance: Failure to control the AFW flow rate to the SGs leads to an unnecessary and avoidable severe challenge to the integrity CSF. Also, failure to perform the critical task increases the challenges to the subcriticality and the containment CSFs beyond those irreparably introduced by the postulated plant conditions.

Thus, failure to perform the critical task constitutes "demonstrated inability by the crew to take an action or combination of actions that would prevent a challenge to plant safety." It also causes a "significant reduction of safety margin beyond that irreparably introduced by the scenario."

PROGRAM: Ginna Operations Training

MODULE: Initial License Operator Training Class 17-1 Re-Exam

TOPIC: NRC Simulator Exam

Scenario #1

REFERENCES:

1. Technical Requirements Manual TR 3.8.1, Offsite Power Sources (Rev 50)
2. O-5.2, Load Ascension (Rev 080)
3. S-3.1, Boron Concentration Control (Rev 03200)
4. AR-F-2, PRESSURIZER HI PRESS 2310 PSI (Rev 11)
5. AR-F-26, PRESSURIZER HI PRESS CHANNEL ALERT 2377 PSI (Rev 9)
6. AP-PRZR.1, Abnormal PZR Pressure (Rev 01700)
7. A-503.1, Emergency and Abnormal Operating Procedures Users Guide (Rev 050)
8. ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure (Rev 038)
9. Technical Specification LCO 3.3.1, Reactor Trip System (RTS) Instrumentation (Amendment 112)
10. Technical Specification LCO 3.3.3, Post Accident Monitoring (PAM) Instrumentation (Amendment 90)
11. Technical Requirement TR-3.4.3, Anticipated Transient Without Scram (ATWS) Mitigation (Rev 67)
12. AR-L-28, 12B XFMR OR 12B BUS TROUBLE (Rev 01400)
13. AP-ELEC.1, Loss of 12A and/or 12B Busses (Rev 03203)
14. Technical Specification LCO 3.8.1, AC Sources – MODES 1, 2, 3, and 4 (Amendment 109)
15. Technical Requirements TR 3.8.1, Offsite Power Sources (Rev 50)
16. E-0, Reactor Trip or Safety Injection (Rev 049)
17. ATT-27.0, Attachment Automatic Action Verification (Rev 00400)
18. E-2, Faulted Steam Generator Isolation (Rev 014)
19. ECA-2.1, Uncontrolled Depressurization of Both Steam Generators (Rev 03601)

Validation Time: 97 minutes

Author: David Eckert

Facility Review: _____

Rev. 042619

Facility:	**Ginna**		Scenario No.:	**1**	Op Test No.: **N2019-301R**
Examiners:			Operators:		(SRO)
					(RO)
					(BOP)

Initial Conditions:	The plant is at 70% power (MOL). The plant was taken to 70% due to Electrical Grid issues 50 hours ago. Offsite Power Circuit 767 is OOS. It is intended to raise power to 100% this shift. The area has experienced overcast conditions for the past 4 hours, with wind from the Northwest at 15-25 mph, and this is expected to continue throughout the shift.
Turnover:	The following equipment is Out-Of-Service: Offsite Power Circuit 767 is OOS.

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP) R(ATC) N(US)	Raise Turbine Load to 100% in accordance with O-5.2, Load Ascension
2	PZR02D	I(ALL) TS(US)	PT-449, Pressurizer Pressure, fails HIGH
3	OVR-EDS44D	C(ALL) TS(US)	Loss of 4160V Bus 12B
4	STM05A STM05B STM03	M(ALL)	Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)
5	SIS02A SIS02B	C(ATC) C(US)	Safety Injection fails to Auto Actuate (manual successful)
6	RPS07E	C(ATC)	RHR Pump 'A' fails to Auto Start after SI initiation (manual successful
7			Entry into ECA-2.1, Uncontrolled Depressurization of Both Steam Generators

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

Ginna July 2019 NRC Simulator Exam #1

The plant is at 70% power following a plant power reduction to address Electrical Grid issues associated with storm damage that also resulted in a loss of Offsite Power Circuit 767. The plant has been at 70% power for 50 hours. Energy Operations has notified the station that grid stability has been restored and requests the station return to full power. Additionally, Offsite Power Circuit 767 will be available in approximately 3 hours.

The following equipment is Out-of-Service: Offsite Power Circuit 767. A-52.12 submitted for TRM TR 3.8.1, 72 hour Action.

Shortly after taking the watch, Operators will commence raising power at 10%/HR in accordance with O-5.2, Load Ascension.

Approximately 2 minutes after commencing load ascension, PT-449, Pressurizer Pressure, fails high causing the Pressurizer Spray valves to OPEN. The Operator will respond in accordance with AR-F-2, PRESSURIZER HI PRESS 2310 PSI, and enter AP-PRZR.1, Abnormal Pressurizer Pressure. AP-PRZR.1 will refer the Operator to ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure, for the defeat of PT-449. The Operator will address Technical Specification LCO 3.3.1, Reactor Trip System (RTS) Instrumentation; LCO 3.3.3, Post Accident Monitoring (PAM) Instrumentation, and Technical Requirements Manual TR 3.4.3, Anticipated Transient Without Scram (ATWS) Mitigation.

Approximately 12 minutes into the scenario, 4160V Bus 12B is lost. Operators will respond in accordance with AP-ELEC.1, Loss of 12A and/or 12B Busses. 'B' Emergency Diesel Generator will automatically start and energize the 480 VAC safeguards Buses 16 and 17. The Operator will address Technical Specification LCO 3.8.1, AC Sources – MODES 1, 2, 3, and 4, and Technical Requirements Manual TR 3.8.1, Offsite Power Sources.

Approximately 30 minutes into the scenario, a large Steamline break occurs downstream of the MSIVs. MSIVs will **NOT** close. Safety Injection fails to automatically actuate requiring the Operators to manually initiate Safety Injection. RHR Pump 'A' fails to automatically start on SI initiation, Operators will manually start 'A' RHR Pump.

The crew will enter E-0, Reactor Trip or Safety Injection, and transition to E-2, Faulted Steam Generator Isolation. The crew will have to transition to ECA-2.1, Uncontrolled Depressurization of Both Steam Generators.

The scenario will terminate at Step 16 of ECA-2.1, after the crew has determined whether SI Termination criteria have been met and either terminates SI at Step 17 or returns to Step 2; or transitions FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, due to an ORANGE path on Integrity CSFST.

Critical Tasks:

Take MANUAL control of Pressurizer pressure to prevent an automatic Reactor trip from occurring.

Safety Significance: Failure to manually control Pressurizer pressure will result in degrading Over-Temperature Delta-T conditions ultimately causing an automatic Reactor trip. In this case, Pressurizer pressure can be manually controlled from the control room. Therefore, failure to manually control Pressurizer pressure also represents a "demonstrated inability by the crew to take an action or combination of actions that would prevent a challenge to plant safety.

Additionally, under the postulated plant conditions, failure to manually control Pressurizer pressure (when it is possible to do so) results in a "significant reduction of safety margin beyond that irreparably introduced by the scenario."

Reduce AFW flow to both SGs to 50 gpm each per ECA-2.1, in order to minimize the RCS cooldown rate before a severe (orange-path) challenge develops to the integrity CSF (EOP-Based).

Safety Significance: Failure to control the AFW flow rate to the SGs leads to an unnecessary and avoidable severe challenge to the integrity CSF. Also, failure to perform the critical task increases the challenges to the subcriticality and the containment CSFs beyond those irreparably introduced by the postulated plant conditions.

Thus, failure to perform the critical task constitutes "demonstrated inability by the crew to take an action or combination of actions that would prevent a challenge to plant safety." It also causes a "significant reduction of safety margin beyond that irreparably introduced by the scenario."

SIMULATOR OPERATOR INSTRUCTIONS

	Bench Mark	ACTIVITY	DESCRIPTION
☐		**Reset to Temp IC 160 (March 2019) (Originally IC-20).**	**T = 0 (From IC-20):** **Raise Lake Temperature to 70°F** **Stabilize Secondary Plant temperatures** **Reduce Reactor power to approximately 70%** **Shift Electric Plant to 0/100 Lineup on Offsite Circuit 7T** **Place EH controls to OP PAN IMP IN** **Place PRZR Backup Heaters control switch to ON** **Take CIRCUIT BKR 76702 34 KV BUS Control Switch to PULL STOP** **Take BUS 12A ALT FEED FROM 767 52/12BY Control Switch to PULL STOP** **Take BUS 12B NORMAL FEED FROM 767 52/12BX Control Switch to PULL STOP** **Insert OVR-EDS42A = OFF (HS-76702 GREEN Lamp Circuit BKR 76702 34KV Bus)** **Hang LOTO Tags as necessary** **Insert MALF SIS02A = Manual Avail (SIS Train A Failure to Actuate)** **Insert MALF SIS02B = Manual Avail (SIS Train B Failure to Actuate)** **Insert MALF RPS07E (Auto Fail: A RHR Pump)** **Insert MALF STM05A = 100 (Main Steam Isolation Valve Failure: VLV 3517)** **Insert MALF STM05B = 100 (Main Steam Isolation Valve Failure: VLV 3516)** **Insert MALF PZR02D = 2500 (PZR Pressure Channel Failure: CH-449 (IV)) on T-1** **Insert OVR-EDS44D = TRUE (HS-52/12AX TRIP Signal Bus 12B ALT Feed From 7T 52/12AX) on T-2** **Insert MALF STM03 = 1.0e+006 (Steamline Break Outside CNMT Downstream of MSIV's) on T-3** **Mark up O-5.2 through Section 6.8.**

	Bench Mark	ACTIVITY	DESCRIPTION
☐	Prior to Crew Briefing		• **Hang Protective Tags per OPG-PROTECTED-EQUIPMENT (CKT 767)**
☐	**Crew Briefing** • Assign Crew Positions based on evaluation requirements. • Review the Shift Turnover Information with the crew. • Provide crew with O-5.2 and S-3.1. • Handout current Reactivity Plan.		

	Bench Mark	ACTIVITY	DESCRIPTION
☐	T-0	Begin Familiarization Period	
☐	At direction of examiner	**Event 1**	Load Ascension
☐	At direction of examiner	**Event 2** **Trigger #1** **MALF PZR02D = 2500**	PT-449, Pressurizer Pressure, fails HIGH
☐	At direction of examiner	**Event 3** **Trigger #2** **OVR-EDS44D = TRUE**	Loss of 4160V Bus 12B
☐	At direction of examiner	**Event 4** **Trigger #3** **MALF STM03 = 1.0e+006**	Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close) **MALF STM05A = 100 and MALF STM05B = 100 inserted at T=0.**
☐	Post-Rx Trip	**Event 5** **MALF SIS02A = Manual Avail** **MALF SIS02B = Manual Avail**	Safety Injection fails to Auto Actuate (manual successful) **Note: These malfunctions are inserted at T=0**
☐	Post-Rx Trip	**Event 6** **MALF RPS07E**	RHR Pump 'A' fails to Auto Start after SI initiation (manual successful **Note: This malfunction is inserted at T=0**
☐	Post-Rx Trip		Entry into ECA-2.1, Uncontrolled Depressurization of Both Steam Generators
☐	**Terminate the scenario upon direction of Lead Examiner**		

Op Test No.: 2019 Scenario # 1 Event # 1 Page 7 of 57

Event Description: **Load Ascension**

Shortly after taking the watch, the Operator will raise power in accordance with O-5.2, Load Ascension. The Operator will address S-3.1, Boron Concentration Control, to start the load ascension using Alternate Dilute.

SIM DRIVER Instructions: **N/A**

Indications Available: **N/A**

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: US may opt to perform Alternate Dilute prior to starting load ascension on **page 9**.
O-5.2, LOAD ASCENSION			
			NOTE: The US will commence the load ascension. The HCO will Dilute, and the CO will raise load on the Turbine based on Step 6.9.3. **NOTE:** US may opt to use MANUAL Rod Control to control T_{AVG} in addition to dilution.
		(Step 6.3.4) **IF** Rod Control System does **NOT** respond as expected, **THEN PERFORM** the following: **OTHERWISE, MARK** this Step N/A.	
	HCO	1. **STOP** rod motion.	
	US	2. **NOTIFY** supervision.	
	HCO	(Step 6.3.5) **ENSURE** ROD CONTROL BANK SELECTOR switch is in Manual position.	**NOTE:** US will assign HCO a Critical Parameter for T_{AVG}
		(Step 6.7.2) **WHEN** ready to raise load to greater than or equal to 50%, **THEN PERFORM** the following:	
	CO	1. **VERIFY** VALVE POS LIMIT light is **EXTINGUISHED.**	

Op Test No.: 2019 Scenario # 1 Event # 1 Page 8 of 57

Event Description: **Load Ascension**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	2. **IF** VALVE POS LIMIT light is ILLUMINATED, **THEN LOWER** EH Control **UNTIL** VALVE POS LIMIT light is EXTINGUISHED as follows; **OTHERWISE, MARK** this Step N/A	**NOTE:** This step is N/A.
		3. **VERIFY** CV TRACKING Meter is indicating approximately zero.	
		4. **RAISE** VPL POSITION LIMIT as desired using VVE POS LIMIT (GREEN) ▲ pushbutton.	
		(Step 6.7.3) **CONTINUE** with load ascension as follows:	**NOTE:** US may have CO place EH controls in IMP IN.
	CO	1. **RAISE** SETTER setpoint to desired value using (ORANGE) ▲pushbutton.	
		2. **DEPRESS** GO pushbutton.	
		3. **ENSURE** VLV POSITION LIMIT setpoint is adjusted as required.	
		4. **OBSERVE** turbine load rises at desired rate.	
	US	(Step 6.9.3) **IF** fuel preconditioning limits do **NOT** apply, **THEN PERFORM** the following: **OTHERWISE, MARK** this Step N/A.	
	US	1. **IF** raising Plant power from less than 85% **AND** Reactor Power is greater than 85% **AND** less than 95%, **THEN PERFORM** a calorimetric **PER** O-6.3, Maximum Unit Power. **OTHERWISE, MARK** this Step N/A.	**NOTE:** US will recognize that this Step does not yet apply.
	CO	2. **RAISE** unit power within prescribed load rate limits to desired power level.	**NOTE:** The CO will initiate a Load Ascension.
	US	(Step 6.9.5) **IF** returning to 100% power after an extended part-power operation **THEN PERFORM** the following: **OTHERWISE, MARK** this Step N/A.	

Op Test No.: 2019 Scenario # 1 Event # 1 Page 9 of 57

Event Description: **Load Ascension**

Time	Pos.	Expected Actions/Behavior	Comments
	US	1. **WHEN** Reactor Power is equal to 90%, **THEN STABILIZE** power with Control Bank D withdrawn to at least 210 Steps **AND RECORD** time.	**NOTE:** US recognizes that this Step will continue as in progress.
S-3.1, BORON CONCENTRATION CONTROL ATTACHMENT 4, ALTERNATE DILUTION			
			NOTE: The crew will perform dilutions based upon the Reactivity Plan provided.
	HCO	(Step 1.0) **ENSURE** Attachment 1, Makeup Determinations, is complete.	
	HCO	(Step 2.0) Board Operator **SHALL** inform US of intent to change core reactivity.	
	HCO	(Step 3.0) US **SHALL** acknowledge reactivity manipulation and provide input and oversight.	
	HCO	(Step 4.0) **PLACE** RMW MODE SELECTOR switch to ALT DIL position.	
	HCO	(Step 5.0) **SET** RMW TO BA BLENDER FLOW CONTROL VLV, HCV-111, controller to desired flowrate.	
	HCO	(Step 6.0) **SET** RMW COUNTER, YIC-111, to quantity determined in Attachment 1.	
	HCO	(Step 7.0) **PLACE** RMW Control Switch to START position.	
	HCO	(Step 8.0) **VERIFY** the following:	
		• RMW PUMP 1A **OR** 1B STARTS	
		• REACTOR MAKEUP TO VCT, AOV-110C, opens.	

Op Test No.: 2019 Scenario # 1 Event # 1 Page 10 of 57

Event Description: **Load Ascension**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	• RMW TO BA BLENDER FLOW CONTROL VLV, AOV-111, valve throttles open to preset flow position.	
		• REACTOR MAKEUP TO CHG PUMP, AOV-110B, opens	
	HCO	(Step 9.0) **WHEN** dilution is complete, **THEN PERFORM** the following:	
	HCO	(Step 9.1) **PLACE** RMW MODE SELECTOR control switch to AUTO position.	
	HCO	(Step 9.2) **PLACE** RMW CONTROL switch to START position, and **VERIFY** RMW control red light ILLUMINATED.	
	HCO	(Step 9.3) **SET** RMW TO BA BLENDER FLOW CONTROL VLV, HCV-111, controller to desired setpoint, normally 40 GPM.	
	HCO	(Step 9.4) **PLACE** “ALTERNATE DILUTE” Human Performance Label next to RMW Mode Selector switch on MCB.	
	HCO	(Step 9.5) Board operator **SHALL** INFORM US reactivity manipulation is complete.	
	HCO	(Step 9.6) **RECORD** amount of reactor makeup water added on S-12.4, RCS Leakage Surveillance Record Instructions, Attachment RCS Leakage Surveillance Record.	
At the discretion of the Lead Examiner move to Event #2			

Op Test No.: 2019 Scenario # 1 Event # 2 Page 11 of 57

Event Description: **PT-449, PRZR Pressure, fails LOW**

After commencing load ascension, PT-449, Pressurizer Pressure, fails high causing the Pressurizer Spray valves to OPEN. The Operator will respond in accordance with AR-F-2, PRESSURIZER HI PRESS 2310 PSI, and enter AP-PRZR.1, Abnormal Pressurizer Pressure. AP-PRZR.1 will refer the Operator to ER-INST.1, Reactor Protection Bistable Defeat After Instrumentation Loop Failure, for the defeat of PT-449. The Operator will address Technical Specification LCO 3.3.1, Reactor Trip System (RTS) Instrumentation; LCO 3.3.3, Post Accident Monitoring (PAM) Instrumentation, and Technical Requirements Manual TR 3.4.3, Anticipated Transient Without Scram (ATWS) Mitigation.

SIM DRIVER Instructions: **Operate Trigger #1 MALF PZR02D = 1500 (PZR Pressure Channel Failure: CH-449 (IV))**

Indications Available:

- MCB Annunciator F-2, PRESSURIZER HI PRESS 2310 PSI
- MCB Annunciator F-26, PRESSURIZER HI PRESS CHANNEL ALERT 2377 PSI
- PI-449 indicates 2500 psig, all others lowering slowly
- PRZR Spray Valves OPEN
- Master pressure Controller 431K output at 100%

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The US will go to AP-PRZR.1.
			Examiner NOTE: The crew may place the Turbine in HOLD and stop the dilution.
AR-F-2, PRESSURIZER HI PRESS 2310 PSI			
			NOTE: The HCO will take action to place 431K in MANUAL control, per the Guidance of A-503.1, Section 5.3.A.5.
	HCO	(Step 1) IF RCS pressure is high, THEN go to AP-PRZR.1.	**NOTE:** PI-449 will indicate 2500 psig
	US	(Step 2) IF due to instrument failure, THEN refer to ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE.	**NOTE:** While an instrument has failed, the failure has created a pressure transient, and AP-PRZR.1 is the appropriate procedure.

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The US will go to AP-PRZR.1.
AR-F-26, PRESSURIZER HI PRESS CHANNEL ALERT 2377 PSI			
	HCO	(Step 1) Perform a channel check.	**NOTE:** PI-449 will indicate 2500 psig
	US	(Step 2) Refer to AP-PRZR.1 or ER-INST.1 as necessary.	**NOTE:** The US will go to AP-PRZR.1.
AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE			
	HCO	(Step 1) Check PRZR Pressure: • All 4 narrow range channels- APPROXIMATELY EQUAL • All 4 narrow range channels – TRENDING TOGETHER	**NOTE:** PI-449 has failed high.
	HCO	(Step 1 RNO) IF one pressure channel deviates significantly from the other 3. THEN perform the following: a) IF the controlling PRZR pressure channel has failed, THEN place controller, 431K, in MANUAL and adjust output to restore PRZR pressure	**NOTE:** US will assign a Critical Parameter for PRZR Pressure to HCO.

CRITICAL TASK:

Take MANUAL control of Pressurizer pressure to prevent an automatic Reactor trip from occurring.

Safety Significance: Failure to manually control Pressurizer pressure will result in degrading Over-Temperature Delta-T conditions ultimately causing an automatic Reactor trip. In this case, Pressurizer pressure can be manually controlled from the control room. Therefore, failure to manually control Pressurizer pressure also represents a "demonstrated inability by the crew to take an action or combination of actions that would prevent a challenge to plant safety.

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
	US	b) Refer to ER-INST.1. REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE.	**NOTE:** The US may refer to ER-INST.1 here, or later when the pressure transient has been verified to be under control. AP-PRZR.1 continues on **page 18.**
ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE			
	HCO	(Step 6.1.1) **IDENTIFY** the failed instrument channel by observation of the bistable status light board, MCB annunciators, and the MCB metering indication.	**NOTE:** The US will identify that PI-449 has failed HIGH.
	US	(Step 6.1.2) **WHEN** a failed instrument loop and/or channel has been identified, **THEN REFER** to the appropriate section of this procedure listed below:	**NOTE:** The US will refer to PRZR Pressure Channel Failures, Section 6.3.
	HCO	(Step 6.3.1) **IF** the controlling PRZR Pressure channel has failed (normally PT-449, but PT-429 may be selected as controlling channel), **THEN PLACE** HC-431K in MANUAL at about 50% and control pressure manually	**NOTE:** This action was already performed in AP-PRZR.1.
	HCO	(Step 6.3.2) **IF** PT-429 **OR** PT-431 has failed, **THEN CLOSE** the associated block valve.	**NOTE:** Neither PT-429 nor PT-431 has failed.
	HCO	(Step 6.3.3) **IF** hot leg streaming has been causing single channel ΔT runback signals, **THEN PERFORM** the following:	**NOTE:** Hot leg streaming has NOT been causing runback signals.
	HCO	(Step 6.3.4) **REFER TO** the appropriate attachment to defeat the associated Protection and Control functions:	**NOTE:** The US will go to Attachment 8, Yellow Channel - PRZR Pressure PI-449.

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The US will hand Attachment 8 off to the CO.
ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE ATTACHMENT 8 YELLOW CHANNEL - PRZR PRESSURE PI-449			
			NOTE: The CO will conduct an Instrument Defeat Brief.
	HCO	(Step 1.0) **IF** PRZR Pressure channel failure resulted in a runback, **THEN PERFORM** the following:	**NOTE:** The failure did NOT result in a runback.
	CO	(Step 2.0) In the PLP PRZR PRESS AND LEVEL rack, **VERIFY** the PRZR pressure DEFEAT switch P/429A position. ○ **IF** P/429A is in NORMAL, **THEN PLACE** P/429A to DEFEAT-1.	**NOTE:** The CO will unlock and open the PLP PRZR PRESS AND LEVEL Rack Cabinet, take the required action, and then close and lock the cabinet door.
			NOTE: US may have HCO place HC-431K in AUTO
	CO	(Step 3.0) In the RIL INSERTION LIMIT rack, **PLACE** T/405F DELTA T DEFEAT switch to Loop B UNIT 2.	**NOTE:** The CO will unlock and open the RIL Insertion Limit Rack Cabinet, take the required action, and then close and lock the cabinet door.
	CO	(Step 4.0) **DETERMINE** the expected Bistable proving light status for the post defeat condition as follows:	
		(Step 4.1) **RECORD** the following Data:	
		• PRZR Pressure PI-449_____PSIG	**2500 psig**
		• LOOP 1B-2 Δ TEMP TI-408B _____^{0}F	**67°F**
	CO	• OTΔT SP1 LOOP 1B-2TEMP TI-408A_____^{0}F	**85°F**
	CO	(Step 4.2) **DETERMINE** the expected post defeat Bistable proving light status and circle the expected status in table below:	

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	408 LOOP B-2 • OVERTEMP TRIP Light OFF IF TI-408B ≥ TI-408A	**NOTE:** The CO will determine that the Proving Light should be ON in the Post-Defeat condition.
		449 CHANNEL 4 • LOW PRESS TRIP Light OFF IF PI-449 ≤ 1873 psig	**NOTE:** The CO will determine that the Proving Light should be ON in the Post-Defeat condition.
	CO	(Step 5.0) In the (YELLOW) Y-1 PROTECTION CHANNEL 4 rack, **PLACE** the following bistable proving switches to DEFEAT (UP) **AND VERIFY** the proving light status is correct per the table above: 408 LOOP B-2 OVER TEMP TRIP 449 CHANNEL 4 LOW PRESS TRIP	**NOTE:** The CO will unlock and open the Y-1 PROTECTION CHANNEL 4 Rack Cabinet, take the required action, and then close and lock the cabinet door.
	HCO	(Step 6.0) **PLACE** the PRZR pressure recorder transfer switch (MCB) to position 1-3	
	HCO	(Step 7.0) **VERIFY** the bistable status lights **AND** Annunciators listed above are lit.	
	CO	(Step 8.0) **DELETE** 404/408 from processing by performing the following on the PPCS:	
		(Step 8.1) **SELECT** “Group Update” display	
		(Step 8.2) **SELECT** “List Server Groups”	
		(Step 8.3) **SELECT** 404_408 from the pick list.	
	CO	(Step 8.4) **TURN** “OFF” scan processing, **THEN** click the “Set Scan Processing” button.	
		(Step 8.5) **ANSWER** prompts.	
		(Step 8.6) **SELECT** the “Sub/Delete/Restore” display.	

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 8.7) **SELECT** Point ID T0404.	
		(Step 8.8) **TURN** "ON" scan processing.	
		(Step 8.9) **SELECT** "Change".	
		(Step 8.10) **ANSWER** prompts.	
		(Step 8.11) **SELECT** the "Sub/Delete/Restore" display.	
		(Step 8.12) **SELECT** Point ID P0449.	
		(Step 8.13) **TURN** "OFF" scan processing.	
		(Step 8.14) **SELECT** "Change".	
		(Step 8.15) **ANSWER** prompts.	
	US	(Step 9.0) **GO TO** step 6.3.5.	**NOTE:** The US will return to the body of the procedure.
ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE			
	HCO	(Step 6.3.5) **RESTORE** the following systems to automatic operation as necessary: o PRZR Pressure control: • HC-431K • PRZR Spray Valves • PRZR Heaters	**NOTE:** The HCO will return HC-431K to AUTO.
	HCO	o PRZR Level Control	
	HCO	o Rod Control	**NOTE:** The US may elect to leave Rod Control in MANUAL due to Load Ascension.
	CO	o Steam Dump	
	CO	o Turbine EH control	**NOTE:** US may opt to leave EH controls in OP PAN IMP IN
	HCO	(Step 6.3.6) **OPEN** any PORV Block Valve closed in step 6.3.2.	**NOTE:** No Block Valve was Closed.

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 6.3.7) **REFER TO** the following ITS Sections for LCO's: • Section 3.3.1, Table 3.3.1-1, Functions 5, 7a and 7b (7b not required for PT-449) • Section 3.3.2, Table 3.3.2-1, Function 1d (not required for PT-449) • Section 3.3.3, Table 3.3.3-1, Functions 1 and 6	**NOTE:** The US will evaluate Technical Specifications.
	US	(Step 6.3.8) **REFER TO** TRM 3.4.3, Anticipated Transients Without Scram (ATWS) mitigation	**NOTE:** The US will evaluate Technical Requirements Manual.
	US	(Step 6.3.9) **IF** turbine runback has occurred AND rods are in MANUAL, **THEN** verify Rod Control is available by stepping Rods IN THEN OUT.	**NOTE:** The failure did NOT result in a runback.
	HCO	(Step 6.3.10) **RESTORE** AUTO Rod Control, if desired.	**NOTE:** The US may elect to leave Rod Control in MANUAL due to Load Ascension.
	US	(Step 6.3.11) **GO TO** step 6.16.	
	HCO	(Step 6.16.1) **IF** necessary, **VERIFY** an operable channel is selected for the affected recorder.	
	HCO	(Step 6.16.2) **VERIFY** the following systems in **AUTO** if desired: o Rod Control	**NOTE:** The US may elect to leave Rod Control in MANUAL due to Load Ascension.
	CO	o Turbine EH control	
	HCO	o PRZR Pressure control • HC 431K • PRZR spray valves • PRZR heaters	
	HCO	o PRZR level control	

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	○ Steam Dump (unless 1st stage pressure failed)	
		○ MFW control	
		○ S/G Atmos Relief Vlv Control	
	US	(Step 6.16.3) **NOTIFY** the following people: ○ Operations Supervision ○ STA ○ Work Week Manager	**NOTE:** The US may notify the SM/STA/WWM. **SIM DRIVER:** as **SM/STA/WWM**, acknowledge.
	US	(Step 6.16.4) **UPDATE** the Temporary Configuration Change Tracking Log for the following as necessary:	**NOTE:** The US will recognize that this Step is N/A.
	US	(Step 6.16.5) **REFER** to the following for Notification Requirements:	**NOTE:** The US may ask the SM. **SIM DRIVER:** as **SM**, acknowledge.
		• LS-AA-1020, REPORTABILITY TABLES AND DECISION TREES	
		• OPG-NOTIFICATION, REQUIRED NOTIFICATIONS TO THE PSC/PIO/CEG SENIOR MANAGEMENT/OPERATIONS MANAGEMENT	
AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE			
	HCO	(Step 2) Check Reactor Power- STABLE	
	HCO	(Step 3) Check PRZR Pressure: a) Pressure- LESS THAN 2235 PSIG b) Pressure- GREATER THAN 2000 PSIG	
		(Step 4) Check PRZR Heater Status:	

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	a. PRZR proportional heater breaker - CLOSED	
		b. PRZR heater backup group - ON	
	HCO	(Step 4.b RNO) IF PRZR pressure less than 2220 psig, THEN energize PRZR backup heaters.	**NOTE:** Dependent upon timing, this action may not be necessary.
	HCO	(Step 5) Verify Normal PRZR Spray Valves – CLOSED	
		• AOV-431A	
		• AOV-431B	
	HCO	(Step 6) Check PRZR Pressure Controller, 431K, Demand – LESS THAN 50%	
		(Step 7) Check PRZR PORVs:	
	HCO	a. PORVs – CLOSED	
		b. Annunciator F-19, PRZR PORV OUTLET HI TEMP 145°F - EXTINGUISHED	
	US	c. Go to Step 9	
		(Step 9) Check PRZR Safety Valves:	
	HCO	○ Position indicator – LESS THAN 0.1 INCH	
		○ Annunciator F-18, PRZR SAFETY VLV OUTLET HI TEMP 145°F - EXTINGUISHED	
		○ Annunciator AA-13, PRESSURIZER SAFETY VALVE POSITION - EXTINGUISHED	
	HCO	(Step 10) Check AUX Spray Valve, AOV-296 - CLOSED	

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Event Description: **PT-449, PRZR Pressure, fails LOW**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 11) Check PRZR Pressure Control Restored:	
		a. Pressure – TRENDING TO 2235 PSIG	
	US	b. Go to Step 16	
	HCO	(Step 16) Check PRT Indications:	
		a. Level- BETWEEN 61% and 84%	
		b. Pressure- APPROXIMATELY 1.5 PSIG AND STABLE	
		c. Temperature- AT CNMT AMBIENT TEMPERATURE AND STABLE	
	HCO	(Step 17) Establish PRZR Pressure Control In Auto:	
		a. Verify 431K in AUTO	
		b. Verify PRZR spray valves in AUTO	
		c. Verify PRZR heaters restored:	
		○ PRZR proportional heaters breaker – CLOSED	
		○ PRZR backup heaters breaker – RESET, IN AUTO	
	US	(Step 18) Evaluate MCB Annunciator Status (Refer to AR Procedures)	
	US	(Step 19) Notify Higher Supervision	**NOTE:** The US may notify supervision. **SIM DRIVER:** acknowledge as required.
			NOTE: US may request from WCC whether to re-commence load ascension **SIM DRIVER:** acknowledge and inform US to re-commence load ascension

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Event Description: **PT-449, PRZR Pressure, fails LOW**

<table>
<tr><th>Time</th><th>Pos.</th><th>Expected Actions/Behavior</th><th>Comments</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>(Step 20) Notify Reactor Engineer for Transient Monitoring Program</td><td>NOTE: The US may notify RE.
SIM DRIVER: acknowledge as required.</td></tr>
<tr><td></td><td></td><td></td><td>NOTE: The US will address the Technical Specifications.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">TECHNICAL SPECIFICATION 3.3.1, REACTOR TRIP (RTS) INSTRUMENTATION</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>APPLICABILITY: According to Table 3.3.1-1</td><td>NOTE: Functions 5 and 7a are affected.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr>
<tr><td>A. One or more functions with one channel inoperable.</td><td>A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s).</td><td>Immediately</td></tr>
<tr><td>D. As required by Required Action A.1 and referenced by Table 3.3.1-1</td><td>D.1
Place channel in trip</td><td>6 hours</td></tr>
<tr><td>K. As required by Required Action A.1 and referenced by Table 3.3.1-1</td><td>K.1
Place channel in trip</td><td>6 hours</td></tr>
</table>
</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">TECHNICAL SPECIFICATION 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

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Event Description: **PT-449, PRZR Pressure, fails LOW**

<table>
<tr><th>Time</th><th>Pos.</th><th>Expected Actions/Behavior</th><th>Comments</th></tr>
<tr><td></td><td>US</td><td>APPLICABILITY: MODES 1, 2, and 3.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr>
<tr><td>A. One or more functions with one required channel inoperable.</td><td>A.1 Restore required channel to OPERABLE status.</td><td>30 days</td></tr>
</table>
</td><td>NOTE: Functions 1 and 6 are affected.
NOTE: US will determine that all requirements ARE MET from Technical Specification Bases.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">TECHNICAL REQUIREMENT 3.4.3, ANTICIPATED TRANSIENTS WITHOUT SCRAM (ATWS) MITIGATION</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>TR 3.4.3 ATWS Mitigation shall be OPERABLE as follows:</td><td></td></tr>
<tr><td></td><td></td><td>a. Each PORV shall be capable of automatic actuation and each block valve shall be open;</td><td></td></tr>
<tr><td></td><td></td><td>b. Manual rod insertion shall be OPERABLE; and</td><td></td></tr>
<tr><td></td><td></td><td>c. ATWS Mitigation System Actuation Circuitry (AMSAC) shall be OPERABLE.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>APPLICABILITY: MODE 1 > 45% RTP.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr>
<tr><td>A. One or more PORV automatic flow path inoperable.</td><td>A.1 Declare ATWS mitigating capability inoperable.</td><td>Immediately</td></tr>
</table>
</td><td>NOTE: The US will determine that Condition A is applicable.</td></tr>
<tr><td></td><td></td><td></td><td>NOTE: The US will likely conduct a Plant Status Brief.</td></tr>
<tr><td colspan="4">At the discretion of the Lead Examiner move to Event #3</td></tr>
</table>

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Event Description: **Loss of Off-Site Power Circuit 7T**

Approximately 12 minutes into the scenario, 4160V Bus 12B is lost. Operators will respond in accordance with AP-ELEC.1, Loss of 12A and/or 12B Busses. 'B' Emergency Diesel Generator will automatically start and energize the 480 VAC safeguards Buses 16 and 17. The Operator will address Technical Specification LCO 3.8.1, AC Sources – MODES 1, 2, 3, and 4, and Technical Requirements Manual TR 3.8.1, Offsite Power Sources.

SIM DRIVER Instructions: Operate Trigger #2 OVR-EDS44D = TRUE (Loss of 4160V Bus 12B)

Indications Available:

- MCB Annunciator L-28, 12B XFMR OR 12B BUS TROUBLE
- Bus 12B ALT Feed Breaker WHITE Light ON
- Bus 12B Voltmeter indicates 0 volts
- 'B' EDG automatically starts and loads onto Buses 16 and 17
- Multiple MCB Annunciators

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The crew may enter AP-ELEC.1 directly.
AR-L-28, 12B XFMR OR 12B BUS TROUBLE			
			Examiner NOTE: The crew may place the Turbine in HOLD and stop the dilution, if NOT previously performed.
	US	(Step 4.1) **CHECK** Bus 12B voltage on all three (3) phases	
		(Step 4.1.1) **IF** Voltage is **LESS THAN** 3700 volts on all Phases **THEN GO TO**:	
		• AP-ELEC.1, LOSS OF 12A AND/OR 12B BUSSES **IF** RCS temperature is **GREATER THAN** 350°F	
	HCO/ CO	(Step 4.2) **DISPATCH** an AO to investigate the alarm at the 12B Relay panel (Relay Room Annex)	**NOTE:** The US will dispatch an EO. **SIM DRIVER:** as **EO**, acknowledge, WAIT 3 minutes and report 12B Transformer Alarms is LIT on 12B Relay panel.

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 4.2.1) **IF** the cause of the Alarm was a 12B Transformer Alarm **THEN DISPATCH** an AO to investigate the cause at the 12B Transformer Annunciator Panel (Transformer Yard)	**NOTE:** The US will dispatch an EO. **SIM DRIVER:** as **EO**, acknowledge
	US	(Step 4.3) **PERFORM** actions of the applicable local panel AR procedure.	
	US	(Step 4.4) **PERFORM** the following notifications:	**NOTE:** The US will notify indicated personnel. **SIM DRIVER:** Acknowledge, appropriately.
		(Step 4.4.1) **NOTIFY** Plant management staff per OPG-NOTIFICATION	
		(Step 4.4.2) **IF** the plant is on line **NOTIFY** the Work Week Manager	
		(Step 4.4.3) **IF** the plant is shutdown **NOTIFY** the Outage Control Center	
			NOTE: The US will go to AP-ELEC.1.
AP-ELEC.1, LOSS OF 12A AND/OR 12B BUSSES			
			NOTE: HCO may place Charging Pump in MANUAL to control PRZR level
	HCO	(Step 1) Check RCS Temperature – GREATER THAN 350ºF	
	HCO	(*Step 2) Monitor Tavg	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		a. Place Rods in MANUAL	**NOTE:** Control Rods may already be in MANUAL.
	HCO	b. Manually move control rods to control Tavg	

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 3) Verify RCPs – BOTH RUNNING	
	HCO/ CO	(Step 4) Verify Emergency D/G Associated With Deenergized Bus(es) – RUNNING	
		○ Bus 12A – D/G A	**NOTE:** 'B' EDG will automatically start and load
		○ Bus 12B – D/G B	
	CO	(Step 5) Verify Both Trains of AC Emergency Busses Energized To At Least 440 VOLTS on all phases:	**NOTE:** Crew will contact EO to monitor 'B' EDG **SIM DRIVER:** Acknowledge as EO
		○ Bus 14 and bus 18	
		○ Bus 16 and bus 17	
		(Step 6) Verify Service Water System Operation:	
	CO	a. Check at least one SW pump running in each loop	**NOTE:** Crew may have already started additional SW Pumps
		• A or B Pump in Loop A	
		• C or D Pump in Loop B	
		(Step 6.a RNO) Perform the following:	
	CO	1) Manually start pumps as necessary (257 kw each)	**NOTE:** Crew will start a SW Pump.
		2) IF adequate cooling can NOT be supplied to a running D/G, THEN perform the following:	**NOTE:** Adequate SW Pumps can be started.
		(Step 6) Verify Service Water System Operation:	
	CO	b. SW header pressure – GREATER THAN 40 PSIG IN EACH LOOP	
		(Step 7) Check CCW Pump Status:	

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	a. At least one CCW pump – RUNNING	
	HCO	b. Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED	
	HCO	(Step 8) Verify charging pump status – AT LEAST ONE RUNNING	
	CO	(Step 9) Verify Annunciator H-16, INSTRUMENT AIR COMP – EXTINGUISHED	
	CO	(Step 10) Verify Bus 11A And 11B Normal Feed Breakers – CLOSED	
	CO	(Step 11) Check MFW Regulating Valves – RESTORING S/G LEVEL TO 52% IN AUTO	
		(Step 12) Check VCT Makeup System:	
	HCO	a. Ensure the following:	
		1) RMW mode selector switch in AUTO	**NOTE:** The HCO may still be diluting depending on the status of the load ascension.
		2) RMW control armed – RED LIGHT LIT	**NOTE:** Crew may switch to AUTO Makeup to refill VCT.
	HCO	b. Check VCT level:	
		o Level GREATER THAN 20%	
		-OR-	
		o Level – STABLE OR RISING	
	HCO	(Step 13) Check Charging Pump Suction Aligned to VCT:	
		a. VCT level – GREATER THAN 20%	
		b. Align charging pumps to VCT	
		o LCV-112C open	

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	○ LCV-112B closed	
		(Step 14) Check CVCS Operation:	
	HCO	a. Charging pumps – AT LEAST ONE RUNNING	
		b. Check letdown indications:	
		○ Check PRZR level – GREATER THAN 13%	
		○ Letdown flow – APPROXIMATELY 40 gpm (60 gpm if AOV-202 OPEN)	
		○ Letdown flow - STABLE	
		c. Adjust charging pump speed and HCV-142 to restore PRZR level and labyrinth seal D/P	
	US	d. Go to Step 16	
	HCO	(Step 16) Verify PRZR Heaters Restored:	
		○ PRZR proportional heater breaker – CLOSED	
		○ PRZR backup heater breaker – RESET/IN AUTO	
		(Step 16 RNO) IF adequate D/G capacity available for PRZR heaters (400 kw each bank), THEN perform the following:	
		a. Reset and close PRZR proportional heaters breaker if necessary.	**NOTE:** Not required.
	HCO	b. Reset PRZR backup heater breaker and return to AUTO if necessary.	
		(Step 17) Verify Normal Rod Control Restored:	
	HCO	a. Annunciator C-5, PPCS ROD SEQUENCE OR ROD DEVIATION – EXTINGUISHED	

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	b. Annunciator E-28, POWER RANGE ROD DROP ROD STOP -5% / 5 sec – EXTINGUISHED	
		c. Annunciator F-15, RCS TAVG DEV 4°F - EXTINGUISHED	
		d. Place rods in AUTO if desired	**NOTE:** The HCO may place the Rods in AUTO.
	HCO	(Step 18) Establish Stable Plant Conditions:	
		a. Check Tavg – TRENDING TO TREF	**NOTE:** The crew may perform the RNO (Adjust rod position, boron concentration and Turbine load).
		b. Check PRZR pressure – TRENDING TO 2235 PSIG IN AUTO	
		c. Check PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL	**NOTE:** The crew may perform the RNO (Control Charging flow).
	HCO	(Step 18.c RNO) Perform the following:	
		1) Place affected charging pumps in MANUAL.	**NOTE:** Operator may start a second Charging Pump.
		2) Adjust charging pump speed to restore PRZR level to program.	
	CO	(Step 19) Restore Normal Electric System Alignment:	
		a. Verify circuit 767 and/or 7T - AVAILABLE	**NOTE:** Neither Offsite Power Circuit is available to Bus 12B.
	US	(Step 19.a RNO) Continue with Step 20. WHEN offsite power available, THEN do Steps 19b, 19c and 19d.	**NOTE:** US will continue with Step 20.
	HCO	(Step 20) Check CNMT Recirc Fans – AT LEAST 2 RUNNING	

Op Test No.: 2019 Scenario # 1 Event # 3 Page 29 of 57

Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 20 RNO) Establish 2 CNMT recirc fans running	**NOTE:** This action may not have to be performed.
			NOTE: US may elect to start additional CNMT Recirc Fans due to CNMT temperature
		(Step 21) Establish Control Systems In Auto:	
	HCO	a. Verify 431K in AUTO	
		b. Verify PRZR spray valves in AUTO	
		c. Verify PRZR heaters restored:	
		o PRZR proportional heaters breaker - CLOSED	
		o PRZR backup heaters breaker – RESET, IN AUTO	
		d. Verify charging pumps	
		o 2 charging pumps running	
		o One charging pump in AUTO	
		(Step 21.d RNO) Perform the following:	
	HCO	1) IF all seal cooling has been lost, THEN ensure seal injection isolated to affected RCPs	**NOTE:** Seal cooling was NOT lost.
		2) Establish 2 charging pumps running (75 kw each)	**NOTE:** A second Charging Pump may have been previously started.
		3) Place one charging pump in AUTO, if desired.	
		(Step 21) Establish Control Systems In Auto:	
	CO	e. Verify MFW regulating valves in AUTO	
		f. Restore EH controls	
		1) Place in OP PAN. IMP OUT	
		2) Select load rate to 10%/hour	
		3) Match setter and reference	

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	g. Verify annunciator G-15, STEAM DUMP ARMED – EXTINGUISHED	
	HCO	h. Verify Rods in AUTO	**NOTE:** US may elect to leave Rods in Manual and continue with load ascension.
	US	i. Go to Step 38	
		(Step 38) Check Status Of DC System Loads:	
	CO	a. Verify TURB emergency DC lube oil pump - OFF	
		b. Verify TDAFW pump DC oil pump – OFF IN AUTO	
		c. Verify both MFW pump DC oil pumps - OFF	
	CO	(Step 39) Check Status Of Battery Chargers:	
		a. Battery Chargers A OR A1 – ENERGIZED (Annunciator J-15, BATTERY CHRGR FAILURE OR PA INVERTER TROUBLE, EXTINGUISHED)	**NOTE:** The US may contact an EO. **SIM DRIVER:** as **EO**, acknowledge, and WAIT 3 minutes THEN report Battery Chargers A and B1 are energized.
		b. Battery Chargers B OR B1 – ENERGIZED (Annunciator J-15, BATTERY CHRGR FAILURE OR PA INVERTER TROUBLE, EXTINGUISHED)	
		(Step 40) Restore Equipment Alignment:	
	HCO	a. Check CCW pumps – ONLY ONE RUNNING	
	HCO	(Step 40.a RNO) IF two CCW pumps running, THEN manually stop one pump.	
	HCO	b. Check radiation monitoring systems:	

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	○ CNMT vent sample pump - RUNNING	
		○ Plant vent sample pump - RUNNING	
		○ All area and process monitors operating as required	
	US	c. Dispatch AO to verify proper operation of seal oil system	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge
	CO	d. Verify motor fire pump breaker - CLOSED	**NOTE:** RNO actions may have to be performed
	CO	(Step 40.d RNO) Close motor fire pump breaker.	
	CO	e. Verify annunciator L-1, AUX BLDG VENT SYSTEM CONTROL PANEL - EXTINGUISHED	
		(Step 40.e RNO) IF bus 11A or 11B energized, THEN dispatch AO to restore AUX BLDG ventilation (Refer to T-35A, AUX AND INTERMEDIATE BUILDING VENTILATION STARTUP AND SHUTDOWN)	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge
	CO	f. Verify MCC G - ENERGIZED	
	HCO	g. Verify control board valve alignment – NORMAL (Refer to O-6.13, DAILY SURVEILLANCE LOG)	
		h. Verify adequate Rx head cooling:	
	HCO/ CO	1) Verify at least one control rod shroud fan – RUNNING	
		2) Verify one Rx compartment cooling fan - RUNNING	

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior	Comments
	US	i. Dispatch AO to ensure one waste gas compressor in service	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge
	US	j. Dispatch AO to restore SFP cooling	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge
	HCO/ CO	k. Verify adequate electric driven air compressors - RUNNING	**NOTE:** 'C' IAC is running
	US	l. IF diesel air compressor supplying instrument air, THEN secure diesel air compressors (Refer to T-2F, BACKUP AIR SUPPLY)	**NOTE:** Diesel Air Compressor is secured
	US	(Step 41) Reset UV Relay Targets On Undervoltage Cabinets	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge
		• Bus 14	
		• Bus 16	
		• Bus 17	
		• Bus 18	
	HCO/ CO	(Step 42) Evaluate MCB Annunciator Status (Refer to AR Procedures)	
	US	(Step 43) Notify Higher Supervision	**NOTE:** The US may notify Supervision **SIM DRIVER:** as **applicable Supervision**, acknowledge.
	US	(Step 44) Return To Procedure Or Guidance In Effect	
			Examiner NOTE: Due to the length and transient nature of this evaluation, the Examiner may elect to evaluate Technical Specifications after the scenario.

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Event Description: **Loss of Off-Site Power Circuit 7T**

<table>
<tr><th>Time</th><th>Pos.</th><th>Expected Actions/Behavior</th><th>Comments</th></tr>
<tr><td colspan="4">TECHNICAL SPECIFICATION 3.8.1, AC SOURCES – MODES 1, 2, 3, AND 4</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>LCO 3.8.1 The following AC electrical sources shall be OPERABLE:</td><td></td></tr>
<tr><td></td><td></td><td>• One qualified independent offsite power circuit connected between the offsite transmission network and each of the onsite 480 V safeguards buses required by LCO 3.8.9, “Distribution Subsystems – MODES 1, 2, 3, and 4”; and</td><td></td></tr>
<tr><td></td><td></td><td>• Two emergency diesel generators (DGs) capable of supplying their respective onsite 480 V safeguards buses required by LCO 3.8.9.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>APPLICABILITY: MODES 1, 2, 3, and 4.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>ACTIONS</td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr>
<tr><td>A. Offsite power to one or more 480 V safeguards bus(es) inoperable.</td><td>A.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.
<u>AND</u>
A.2 Restore offsite circuit to OPERABLE status.</td><td>12 hours from discovery of Condition A concurrent with inoperability of redundant required feature(s)

72 hours</td></tr>
</table>
</td><td>NOTE: The US will identify that Condition A is applicable.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">TECHNICAL REQUIREMENT 3.8.1, OFFSITE POWER SOURCES</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>TR 3.8.1 Two qualified independent offsite power circuits shall be OPERABLE.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

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Event Description: **Loss of Off-Site Power Circuit 7T**

Time	Pos.	Expected Actions/Behavior			Comments
	US	APPLICABILITY: MODES 1, 2, 3, and 4.			
		ACTIONS			
		CONDITION	REQUIRED ACTION	COMPLETION TIME	**NOTE:** The US will identify that Condition C is now applicable.
		C. Two offsite power circuits inoperable.	C.1 Enter LCO 3.8.1.	Immediately	
At the discretion of the Lead Examiner move to Events #4 - 7					

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 35 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Approximately 30 minutes into the scenario, a large Steamline break occurs downstream of the MSIVs. MSIVs will **NOT** close. Safety Injection fails to automatically actuate requiring the Operators to manually initiate Safety Injection. RHR Pump 'A' fails to automatically start on SI initiation, Operators will manually start 'A' RHR Pump.

The crew will enter E-0, Reactor Trip or Safety Injection, and transition to E-2, Faulted Steam Generator Isolation. The crew will have to transition to ECA-2.1, Uncontrolled Depressurization of Both Steam Generators.

The scenario will terminate at Step 16 of ECA-2.1, after the crew has determined whether SI Termination criteria have been met and either terminates SI at Step 17 or returns to Step 16.a.

SIM DRIVER Instructions: Operate Trigger #3 MALF STM03 = 1.0e+006 (Steamline Break Outside CNMT Downstream of MSIV's)

Indications Available:

- Both S/G pressures and water levels lowering
- Reactor power rising
- Steam noise
- Fire System Panel alarms
- 'D' Panel alarms (delayed)

Time	Pos.	Expected Actions/Behavior	Comments
E-0, REACTOR TRIP OR SAFETY INJECTION			
	HCO	(Step 1) Verify Reactor Trip:	**Immediate Action**
		○ At least one train of reactor trip breakers – OPEN	**NOTE:** Reactor will have to be manually tripped.
		○ Neutron flux – LOWERING	
		○ MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.	
	HCO	(Step 1 RNO) Manually trip reactor.	
	CO	(Step 2) Verify Turbine Stop Valves - CLOSED	**Immediate Action**

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Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 2 RNO) Manually trip turbine.	
	CO	IF turbine trip can NOT be verified, THEN close both MSIVs.	**NOTE:** Both MSIVs will NOT close.
		IF the turbine CANNOT be tripped AND either MSIV CANNOT be closed from the Control Room THEN DISPATCH personnel to trip the Turbine locally.	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge. WAIT 3 minutes THEN report that turbine is tripped
	CO	(Step 3) Verify sufficient AC Emergency buses Energized To At Least 440 VOLTS:	**Immediate Action**
		○ Bus 14 OR Bus 16	**NOTE:** All safeguards Buses are energized
		-AND-	
		○ Bus 17 OR Bus 18	
	HCO	(Step 4) Check if SI is Actuated:	**Immediate Action**
		a. Any SI Annunciator – LIT	**NOTE:** Dependent upon timing, there may be SI Annunciators LIT.
	HCO	(Step 4.a RNO) IF any of the following conditions are met, THEN manually actuate SI and CI:	**NOTE:** SI will have to be manually actuated
		○ PRZR pressure less than 1750 psig	
		-OR-	
		○ Steamline pressure less than 514 psig	
		-OR-	
		○ CNMT pressure greater than 4 psig	
		-OR-	
		○ SI sequencing started	
		-OR-	

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Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	○ Operator determines SI required	
	HCO	IF SI is NOT required, THEN go to ES-0.1, REACTOR TRIP RESPONSE, Step 1.	
	HCO	(Step 4) Check if SI is Actuated:	**Immediate Action**
		b. SI sequencing – BOTH TRAINS STARTED	**NOTE:** SI will have to be manually actuated
	HCO	(Step 4.b RNO) Manually actuate SI and CI.	
E-0, REACTOR TRIP OR SAFETY INJECTION			
			NOTE: Operator may throttle MDAFW flow to each S/G to 50 gpm in accordance with A-503.1 actions.
	HCO/ CO	Foldout Page	**NOTE:** The crew will monitor these conditions throughout the performance of E-0.
	HCO/ CO	RCP TRIP CRITERIA	
		LOSS OF SW CRITERIA	
		AFW SUPPLY SWITCHOVER CRITERION	
	HCO/ CO	SFP COOLING CRITERIA	
		MULTIPLE FUNCTION LOSS CRITERIA	
	HCO	(*Step 5) Verify CNMT Spray Not Required:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		○ Annunciator A-27, CNMT SPRAY - EXTINGUISHED	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 38 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	○ CNMT pressure – LESS THAN 28 PSIG	
	HCO/ CO	(Step 6) Direct Operator to Perform ATT-27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION	
			NOTE: The US will hand off ATT-27.0 to either the HCO or the CO and continue with the other Operator in E-0. **Examiner** following Operator performing ATT-27.0 continue below. **Examiner** following Operator NOT performing ATT-27.0 continue at **Page 42**.
ATTACHMENT 27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION			
	HCO/ CO	(Step 1) Verify SI and RHR Pumps Running:	
		a. All SI pumps – RUNNING	
		b. Both RHR pumps – RUNNING	
	HCO/ CO	(Step 1.b RNO) Manually start RHR pumps.	**NOTE:** Operator will start 'A' RHR Pump.
	HCO/ CO	(Step 2) Verify CNMT RECIRC Fans RUNNING:	
		a. All fans - RUNNING	
	HCO/ CO	b. Charcoal filter dampers green status lights – EXTINGUISHED	
	HCO/ CO	(Step 3) Check If Main Steamlines Should Be Isolated:	
		a. Any MSIV – OPEN	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 39 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	b. Check CNMT pressure – LESS THAN 18 PSIG	
		c. Check if ANY main steamlines should be isolated:	
		○ Low Tavg (545°F) AND high steam flow ($0.5x10^6$ lb/hr) from either S/G	
		-OR-	
		○ High-High steam flow ($4.4x10^6$ lb/hr) from either S/G	
		d. Verify MSIV closed on the affected S/G(s)	
		(Step 3.d RNO) Manually close valves.	**NOTE:** Neither MSIV can be closed
	HCO/ CO	(Step 4) Verify MFW Isolation:	
		a. MFW pumps – TRIPPED	
		b. MFW Isolation valves - CLOSED	
		• S/G A, AOV-3995	
		• S/G B, AOV-3994	
		c. S/G blowdown and sample valves - CLOSED	
	HCO/ CO	(Step 5) Verify At Least Two SW Pumps - RUNNING	
	HCO/ CO	(Step 6) Verify CI and CVI:	
		a. CI and CVI annunciators - LIT	
		• Annunciator A-26, CNMT ISOLATION	
		• Annunciator A-25, CNMT VENTILATION ISOLATION	

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Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	b. Verify CI and CVI valve status lights - BRIGHT	
		c. CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT	
		• FCV-4561	
		• FCV-4562	
		d. Letdown orifice valves - CLOSED	
		• AOV-200A	
		• AOV-200B	
		• AOV-202	
	HCO/ CO	(Step 7) Check CCW System Status:	
		a. Verify CCW pump – AT LEAST ONE RUNNING	
	HCO/ CO	(Step 8) Verify SI And RHR Pump Flow:	
		a. SI flow indicators – CHECK FOR FLOW	
	HCO/ CO	(Step 8a RNO) IF RCS pressure less than 1300 psig manually start pumps and align valves. IF NOT, THEN go to Step 9.	**NOTE:** Dependent upon timing, RNO action may not have to be performed.
		(Step 8) Verify SI And RHR Pump Flow:	
	HCO/ CO	b. RHR flow indicator – CHECK FOR FLOW	
	HCO/ CO	(Step 8b RNO) IF RCS pressure less than 150 psig manually start pumps and align valves. IF NOT, THEN go to Step 9.	
		(Step 9) Verify SI Pump And RHR Pump Emergency Alignment:	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 41 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	a. RHR pump discharge to Rx vessel deluge - OPEN	
		• MOV-852A	
		• MOV-852B	
		b. Verify SI pump C – RUNNING	
		c. Verify SI pump A - RUNNING	
		d. Verify SI pump B - RUNNING	
		e. Verify SI pump C discharge valves - OPEN	
		• MOV-871A	
		• MOV-871B	
		(Step 10) Verify CREATS Actuation:	
	HCO/ CO	a. At least one damper in each flowpath - CLOSED	
		• Normal Supply Air	
		• Normal Return Air	
		• Lavatory Exhaust Air	
		b. CREATS fans – BOTH RUNNING	
		(Step 11) Verify CI and CVI During a Fire Event	
	HCO/ CO	a. A confirmed fire has occurred in the control complex or cable tunnel (fire systems S05, S06, S08, Z05, Z18, or Z19).	
	HCO/ CO	(Step 11.a RNO) Go to END	

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Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
E-0, REACTOR TRIP OR SAFETY INJECTION			
			Examiner following operator NOT performing ATT-27.0 continue **HERE**.
	CO/ HCO	(Step 7) Verify Both MDAFW Pumps - RUNNING	
	CO/ HCO	(Step 8) Verify AFW Valve Alignment:	
		a. AFW flow – INDICATED TO BOTH S/G(s)	
		b. AFW flow from each MDAFW pump - LESS THAN 230 GPM	
		(*Step 9) Monitor Heat Sink:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	CO/ HCO	a. Check S/G narrow range level GREATER THAN 7% [25% adverse CNMT] in any S/G	
	CO/ HCO	(Step 9.a RNO) Perform the following:	
		1) Verify total AFW flow - GREATER THAN 200 GPM	
	CO/ HCO	IF total AFW is less than 200 gpm, THEN manually start pumps and align valves to establish greater than 200 gpm AFW flow. IF AFW flow greater than 200 gpm can NOT be established, THEN go to FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Step 1.	
		2) Go to Step 10.	
	CO/ HCO	(Step 10) Check If TDAFW Pump Can Be Stopped:	

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Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	CO/ HCO	a. Both MDAFW pumps – RUNNING	
		b. PULL STOP TDAFW pump steam supply valves	
		• MOV-3504A	
		• MOV-3505A	
	HCO/ CO	(Step 11) Check CCW Flow to RCP thermal Barriers:	
		○ Annunciator A-7. RCP 1A CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED	**NOTE:** US may secure 'A' RCP due to SW Isolation and rising RCP temperatures
		○ Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED	
	HCO/ CO	(*Step 12) Monitor RCS Tavg – STABLE AT OR TRENDING TO 547ºF	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	CO/ HCO	(Step 12 RNO) IF temperature less than 547ºF and lowering, THEN perform the following:	
		a. Stop dumping steam.	
	CO/ HCO	b. Ensure reheater steam supply valves are closed.	
		c. IF cooldown continues, THEN control total feed flow between 200 gpm to 230 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.	**NOTE:** Operator will throttle AFW flow to 100 gpm to each S/G. **NOTE:** Operator may throttle MDAFW flow to each S/G to 50 gpm in accordance with A-503.1 actions.
		d. WHEN S/G level greater than 7% [25% adverse CNMT] in one S/G, THEN limit feed flow to that required to maintain level in at least one S/G.	

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Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	CO/ HCO	e. IF cooldown continues, THEN close both MSIVs.	**NOTE:** Neither MSIV can be closed
	CO/ HCO	(Step 13) Check PRZR PORVS And Spray Valves:	
		a. PORVs – CLOSED	
		b. Auxiliary spray valve (AOV-296) - CLOSED	
		c. Check PRZR pressure - LESS THAN 2260 PSIG	
		d. Normal PRZR spray valves - CLOSED	
		• PCV-431A	
		• PCV-431B	
		(Step 14) Monitor RCP Trip Criteria:	
	HCO/ CO	a. RCP status – ANY RCP RUNNING	
		b. SI pumps – AT LEAST TWO RUNNING	
		c. RCS pressure minus maximum S/G pressure – LESS THAN 210 psi [240 psi adverse CNMT]	
	US	(Step 14.c RNO) Go to Step 15.	
		(Step 15) Check If S/G Secondary Side Is Intact:	
	CO/ HCO	○ Pressure in both S/Gs - STABLE OR RISING	
		○ Pressure in both S/Gs – GREATER THAN 110 PSIG	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 45 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 15 RNO) IF any S/G pressure lowering in an uncontrolled manner OR completely depressurized, THEN go to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.	
E-2, FAULTED STEAM GENERATOR ISOLATION			
	HCO/ CO	Foldout Page	**NOTE:** The crew will monitor these conditions throughout the performance of E-2.
		LOSS OF SW CRITERIA	
		MULTIPLE FUNCTION LOSS CRITERIA	
	CO	(Step 1) Check MSIV Of Faulted S/G(s) - CLOSED	
	CO	(Step 1 RNO) Manually close valve.	**NOTE:** Neither MSIV can be closed
	US	IF valve will NOT close from MCB, THEN dispatch EO with locked valve key to locally closed faulted S/G(s) MSIV as follows:	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge. WAIT 3 minutes THEN report that neither MSIV can be closed
		○ S/G A	
		• close IA to MSIV, V-5408A	
		• open vent valves V-5471 AND V-5473	
		○ S/G B	
	US	• close IA to MSIV, V-5409B	
		• open vent valves V-5472 AND V-5474	
	CO	(Step 2) Check If Any S/G Secondary Side Is Intact:	
		○ Check pressure in S/G A – STABLE OR RISING	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 46 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
		-OR-	
	CO	○ Check pressure in S/G B – STABLE <u>OR</u> RISING	
	US	(Step 2 RNO) <u>IF</u> both S/G pressures lowering in an uncontrolled manner, <u>THEN</u> go to ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM GENERATORS, Step 1.	
ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM GENERATORS			
	HCO/ CO	Foldout Page	**NOTE:** The crew will monitor these conditions throughout the performance of ECA-2.1.
		LOSS OF SW CRITERIA	
		SI REINITIATION CRITERIA	
		E-2 TRANSITION CRITERIA	
		COLD LEG RECIRCULATION SWITCHOVER CRITERION	
		AFW SUPPLY SWITCHOVER CRITERION	
		E-3 TRANSITION CRITERIA	
		(Step 1) Check Secondary Pressure Boundary:	
		a. Verify all of the following:	
	CO	○ MSIVs - CLOSED	
		○ MFW flow control valves - CLOSED	
		• MFW regulating valves	
		• MFW bypass valves	
		○ MFW pump discharge valves - CLOSED	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 47 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	○ S/G blowdown and sample valves - CLOSED	
		○ TDAFW pump steam supply valves – PULL STOP	
		○ TDAFW pump flow control valves - CLOSED	
		○ S/G ARVs - CLOSED	
	CO	(Step 1.a RNO) Manually close valves one loop at a time.	
	US	IF valves can NOT be closed, THEN dispatch AO to locally isolate flowpaths, one loop at a time.	**NOTE:** The US will contact an EO. **SIM DRIVER:** as **EO**, acknowledge. WAIT 3 minutes THEN report that neither MSIV can be closed
		(Step 1) Check Secondary Pressure Boundary:	
	US	b. Dispatch AO to locally isolate S/Gs (Refer to ATT-10.0, ATTACHMENT FAULTED S/G)	**NOTE:** The US will dispatch an EO. **SIM DRIVER:** as **EO**, acknowledge, and perform Schedule ATT-10 for BOTH S/Gs.
		(Step 2) Control Feed Flow To Minimize RCS Cooldown:	
	HCO	a. Check cooldown rate in RCS cold legs – LESS THAN 100°F/HR	
	CO/ US	(Step 2.a RNO) Lower feed flow to 50 gpm to each S/G and go to Step 2c.	**NOTE:** CO may have already reduced AFW flow to 50 gpm to each S/G

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 48 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
CRITICAL TASK: **Control the AFW flowrate to 50 gpm per SG in order to minimize the RCS Cooldown rate before a severe challenge (Orange Path) develops to the integrity CSF (EOP-Based)** Safety Significance: Failure to control the AFW flow rate to the SGs leads to an unnecessary and avoidable extreme challenge to the integrity CSF. Also, failure to perform the Critical Task increases challenges to the SUBCRITICALITY Critical Safety Function which otherwise would not occur.			
		(Step 2) Control Feed Flow To Minimize RCS Cooldown:	
	HCO	c. Check RCS hot leg temperatures – STABLE OR LOWERING	
		(*Step 3) Monitor RCP Trip Criteria:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	a. RCP status – ANY RCP RUNNING	
		b. SI pumps – AT LEAST TWO RUNNING	
		c. RCS pressure minus maximum S/G pressure – LESS THAN 210 psi [240 psi adverse CNMT]	
	US	(Step 3.c RNO) Go to Step 4.	
	HCO	(*Step 4) Monitor PRZR PORVs And Block Valves:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		a. Power to PORV block valves - AVAILABLE	
		b. PORVs - CLOSED	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 49 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	c. Block valves – AT LEAST ONE OPEN	
		(Step 5) Check Secondary Radiation Levels - NORMAL	
	HCO	○ Steamline radiation monitor (R-31 and R-32)	**NOTE:** R-31 and R-32 are de-energized.
	US	○ Dispatch AO to locally check steamline radiation	**NOTE:** The US will dispatch an EO. **SIM DRIVER:** as **EO**, acknowledge.
	US	○ Request Chem Tech sample S/Gs for activity	**NOTE:** The US may call WCC/Chemistry to address the samples. If so, **SIM DRIVER** acknowledge as WCC/Chemistry.
	HCO	(Step 6) Reset SI	
	HCO	(*Step 7) Monitor If RHR Pumps Should Be Stopped:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		a. RHR pumps – ANY RUNNING IN INJECTION MODE	
		b. Check RCS pressure:	
		1) Pressure – GREATER THAN 300 psig [350 psig adverse CNMT]	
	HCO	2) Pressure – STABLE OR RISING	
		c. Stop RHR pumps and place in AUTO.	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 50 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(*Step 8) Monitor If CNMT Spray Should Be Stopped:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		a. CNMT spray pumps – ANY RUNNING	
	US	(Step 8.a RNO) Go to Step 9.	
	HCO	(Step 9) Check RWST Level – GREATER THAN 28%	
	HCO	(Step 10) Reset CI:	
		a. Depress CI reset pushbutton	
		b. Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED	
		(Step 11) Verify Adequate SW Flow:	
	CO	a. Check at least two SW pumps - RUNNING	
	US	b. Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)	**NOTE:** The US will dispatch an EO. **SIM DRIVER:** as **EO**, acknowledge, and perform Schedule SD-1
		(Step 12) Establish IA to CNMT:	
	CO	a. Verify non-safeguards buses energized from offsite power	**NOTE:** Bus 13 normal feed breaker is closed
		○ Bus 13 normal feed breaker - CLOSED	
		-OR-	
	CO	○ Bus 15 normal feed breaker - CLOSED	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 51 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
		(Step 12) Establish IA to CNMT:	
	CO	b. Verify SW isolation valves to turbine building - OPEN	
		• MOV-4613 and MOV-4670	
		• MOV-4614 and MOV-4664	
		(Step 12.b RNO) Perform the following:	
	US	1) Restore IA using Service Air Compressor per step 12c.	**NOTE:** Bus 13 is available
		(Step 12) Establish IA to CNMT:	
	CO	c. Verify adequate air compressor(s) - RUNNING	**NOTE:** Service Air Compressor will be started
	CO	(Step 12.c RNO) Manually start electric air compressor(s) as power supply permits:	
		• IF Buses 13/15 normal feed breakers are CLOSED – no restrictions	**NOTE:** Bus 13 normal feed breaker is closed
		• IF Buses 14/16 normal feed breakers are CLOSED – 6 amps per air compressor	
		• IF Buses 14/16 D/G breaker are CLOSED – 75 kw per air compressor	
	US	IF electric air compressors CAN NOT be started THEN start the diesel air compressor and tie in to Instrument Air (refer to ATT-11.2, ATTACHMENT DIESEL AIR COMPRESSOR)	
		(Step 12) Establish IA to CNMT:	
	CO	d. Check IA supply:	
		○ Pressure – GREATER THAN 60 PSIG	
		○ Pressure – STABLE OR RISING	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 52 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	e. Reset both trains of XY relays for IA to CNMT AOV-5392	
		f. Verify IA to CNMT AOV-5392 - OPEN	
		(Step 13) Check If SI ACCUMs Should Be Isolated:	
	HCO	a. Both RCS hot leg temperatures – LESS THAN 390°F	
	US	b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves	**NOTE:** The US will dispatch an EO. **SIM DRIVER:** as **EO**, acknowledge, and insert REM EDS035 = CLOSED and REM EDS036 = CLOSED
		• MOV-841, MCC C position 12F	
		• MOV-865, MCC D position 12C	
	HCO	c. Close SI ACCUM discharge valves	
		• MOV-841	
		• MOV-865	
	US	d. Locally reopen breakers for MOV-841 and MOV-865	**NOTE:** The US will dispatch an EO. **SIM DRIVER:** as **EO**, acknowledge
		(Step 14) Check Power Availability to Charging Pumps:	
	CO	a. Check Normal Power Available To Charging Pumps:	**NOTE:** Bus 14 normal feed breaker is closed
		• Bus 14 normal feed breaker - CLOSED	
		• Bus 16 normal feed breaker - CLOSED	
	CO	b. Verify adequate Safeguard Bus capacity to run charging pumps (6 amps each)	
		• Station Service transformer 14 ammeter	**NOTE:** Bus 14 normal feed breaker is closed

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 53 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	• Station Service transformer 16 ammeter	
	HCO	(Step 15) Check If Charging Flow Has Been Established:	
		a. Charging pumps – ANY RUNNING	**NOTE:** Charging Pumps were started in E-0
		b. Align charging pump suction to RWST:	
		o LCV-112B - OPEN	
		o LCV-112C - CLOSED	
		c. Start charging pumps as necessary and adjust charging flow to restore PRZR level	
	HCO	(*Step 16) Monitor SI Termination Criteria:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		a. SI pumps – ANY RUNNING	
		b. Check RCS pressure:	
		o Pressure – GREATER THAN 1650 psig [1650 psig adverse CNMT]	
		o Pressure – STABLE OR RISING	
		(Step 16.b RNO) DO <u>NOT</u> stop SI pumps. Perform the following:	
	HCO	1) Energize PRZR heaters and operate PRZR spray to stabilize RCS pressure greater than 1650 psig [1650 psig adverse CNMT]	**NOTE:** PRZR Spray is NOT available (no RCPs running)
	US	2) Return to Step 2.	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 54 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
		(*Step 16) Monitor SI Termination Criteria:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO/ US	c. RCS subcooling based on core exit T/Cs – GREATER THAN 0°F USING FIG-1.0, FIGURE MIN SUBCOOLING	
	US	(Step 16.c RNO) DO NOT stop SI pumps. Return to Step 2.	
		(*Step 16) Monitor SI Termination Criteria:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	d. PRZR level – GREATER THAN 10% [30% adverse CNMT]	
	HCO	(Step 16.d RNO) DO NOT stop SI pumps. Perform the following:	
	HCO	1) IF normal PRZR spray available, THEN try to stabilize RCS pressure with PRZR spray.	
	US	2) Return to Step 16a.	
	HCO	(Step 17) Stop SI and RHR Pumps And Place In Standby	
		a. Stop SI pumps and place in AUTO	
		b. RHR pumps – ANY RUNNING IN INJECTION MODE	
	US	(Step 17.b RNO) Go to Step 18.	
		(Step 17) Stop SI and RHR Pumps And Place In Standby	

Op Test No.: 2019 Scenario # 1 Event # 4, 5, 6, & 7 Page 55 of 57

Event Description: **Both Steam Generators faulted downstream of MSIVs (MSIVs fail to close)**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	c. Stop RHR pumps and place in AUTO	
At the discretion of the Lead Examiner terminate the exam			

TURNOVER SHEET for NRC Re-Exam Scenario #1

Core Age: MOL 70% Power, Equilibrium Xe Outside Air Temp = 46°F Water Temp = 70°F	Procedure in Use:	ACTIONS/NOTES: • The plant is at 70% power (MOL). • The plant was taken to 70% due to Electric Grid instabilities associated with storm damage 50 hours ago. • The area has experienced overcast conditions for the past 4 hours, with wind from the Northwest at 25-35 mph, and this is expected to continue throughout the shift. • Offsite Power Circuit 767 is OOS and will be available in approximately 3 hours. • It is intended to raise power to 100% this shift. • Protected equipment IAW OPG-PROTECTED-EQUIPMENT. (Offsite CKT 767)
Boron: 1031 ppm BAST: 19,000 ppm RCS Activity: Normal	RCS LEAKAGE: (gpm) Total: .021 Identified: .003 Unidentified: .018	

TURNOVER SHEET for NRC Re-Exam Scenario #1

Equipment Problems/OOS:	*Planned Activities for Shift:*	Electrical System Operator Declarations
Offsite CKT 767	Raise Reactor power to 100%	None in effect

A-52.4					
EQUIPMENT	**DATE/TIME OOS**	**LCO**	**TITLE**	**EXP DATE**	**ECD**
A-52.12					
EQUIPMENT	**DATE/TIME OOS**	**TRM /ODCM**	**TITLE**	**EXP DATE**	**ECD**
Offsite Power CKT 767	50 hours ago	TR 3.8.1	Offsite Power Sources	72 hours	3 hours

Facility: Ginna Scenario No.: 2 Op-Test No.: N2019-301R

Examiners: _____ Operators: _____

_____ _____

_____ _____

Initial Conditions: Plant is at 48% Power, EOL.

Turnover: Circuit 7T is OOS. MDAFW Pump 'B' is OOS for bearing replacement.

Critical Tasks: CT #1 - E-3 – A: Isolate feedwater flow into and steam flow from the ruptured SG before a transition to ECA-3.1 occurs.

CT #2 – E-3 – B: Establish/maintain an RCS temperature so that transition from E-3 does not occur because the temperature is either too high to maintain required subcooling or too low causing a challenge to the subcriticality or integrity CSF.

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP) N(US) R(ATC)	Load Reduction per O-2.1, Normal Shutdown to Hot Shutdown
2	ROD07	I(ALL)	T_{REF} Fails Low
3	CVC07A	C(ATC) C(US)	PCV–135 Fails Closed
4	EDS04D RPS07R	C(BOP) C(US) TS(US)	Loss of Bus 18 'D' Service Water Pump fails to automatically start (manual successful)
5	SGN04B	C(ALL) TS(US)	Steam Generator Tube Leak
6	SGN04B	M(ALL)	Steam Generator Tube Rupture
7	RPS07A RPS07B	C(ATC) C(US)	Safety Injection Pumps 'A' and 'B' fail to Auto Start (manual successful)
8	RPS07J	C(ATC)	CNMT Recirc Fan 'D' fails to Auto Start (manual successful)

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

Ginna July 2019 NRC Simulator Exam #2

The Plant is at 48% Power, EOL conditions. Station Management has decided to shutdown the unit due to the extended Circuit 7T outage.

The following equipment is Out-of-Service: Off-Site Power Circuit 7T. A-52.12 submitted for TRM TR 3.8.1, 72 hour Action; Motor Driven Auxiliary Feedwater Pump 'B' is Out-of-Service for bearing replacement. A-52.4 submitted for ITS LCO 3.7.5, 7 day Action.

Operators will commence Shutdown in accordance with O-2.1, Normal Shutdown to Hot Shutdown, at 10% / HR.

Approximately 2 minutes after commencing the shutdown, T_{REF} input to Rod Control fails **LOW** causing inward rod motion**.** The Operators should determine Rod Motion is not called for and the HCO places RODS in manual per AP-RCC.1, Continuous Control Rod Withdrawal/Insertion.

Approximately 10 minutes into the scenario, PCV-135 fails closed causing a loss of letdown flow. The HCO should recognize the failure of PCV-135 and take manual control to restore Letdown flow per AR-A-11, LETDOWN LINE HI PRESS 400 PSI.

Approximately 17 minutes into the scenario, a fault on 480V Bus 18 will occur, resulting in Bus 18 de-energizing. The Operator will respond in accordance with AR-L-23, BUS 18 UNDER VOLTAGE SAFEGUARDS, and/or AR-L-5, SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP, and enter AP-ELEC.17/18, Loss of Safeguards Bus 17/18. Operators will start Service Water Pump 'D'. The Operator will address Technical Specification LCO 3.8.1, AC Sources – Modes 1, 2, 3, and 4; and LCO 3.8.9, Distribution Systems – Modes 1, 2, 3, and 4.

Approximately 27 minutes into the scenario, a 5 gpm Steam Generator Tube Leak (SGTL) will develop on the 'B' Steam Generator. The Operator will respond in accordance with AR-PPCS-R47AR, SGTL INDICATED, and enter AP-SG.1, Steam Generator Tube Leak, and commence a load reduction. The Operator will address Technical Specification LCO 3.4.13, RCS Operational Leakage, and LCO 3.4.17, Steam Generator (SG) Tube Integrity.

Approximately 32 minutes into the scenario, the Steam Generator Tube Leak will rise to 375 gpm. The Operator will recognize that the Charging System will not maintain Pressurizer Level thereby requiring a Reactor Trip and Safety Injection actuations and transition to E-0, Reactor Trip or Safety Injection.

Safety Injection Pumps 'A' and 'B' and Containment Recirc Fan 'D' fail to automatically start on Safety Injection signal. Manual Start is successful.

The crew will transition to E-3, Steam Generator Tube Rupture.

The scenario will terminate at Step 22 of E-3 after the crew has completed RCS depressurization and secured SI and RHR Pumps.

Critical Tasks:

Isolate feedwater flow into and steam flow from the ruptured SG (B) so that minimum ΔP between the B SG and A SG is not less than 250 psid once target temperature is reached (Entry into ECA-3.1 at Step 16 RNO). (EOP-Based)

Safety Significance: Failure to isolate the ruptured SG causes a loss of ΔP between the ruptured SG and the intact SG. Upon a loss of ΔP, the crew must transition to a contingency procedure that constitutes an incorrect performance that "necessitates the crew taking compensating action which complicates the event mitigation strategy." If the crew fails to isolate steam from the SG, or feed flow into the SG, the ruptured SG pressure will tend to decrease to the same pressures as the intact SG, requiring a transition to a contingency procedure, and delaying the stopping of RCS leakage into the SG.

While in EOP-E-3, establish/maintain an RCS temperature so that transition from E-3 does not occur because the RCS temperature is in either (1) Too high to maintain 20°F of RCS Subcooling OR (2) below 284°F (RCS Integrity Red Path Limit) (EOP-Based)

Safety Significance: Failure to establish and maintain the correct RCS temperature during a SGTR leads to a transition from E-3 to a contingency procedure. This failure constitutes an incorrect performance that necessitates the operator taking compensating action that would unnecessarily complicate the event mitigation strategy.

PROGRAM: Ginna Operations Training

MODULE: Initial License Operator Training Class 17-1 Re-Exam

TOPIC: NRC Simulator Exam

Scenario #2

REFERENCES:

1. O-2.1, Normal Shutdown to Hot Shutdown (Rev 146)
2. S-3.1, Boron Concentration Control (Rev 03200)
3. AR-F-16, AVERAGE TAVG - TREF DEVIATION ± 5°F (Rev 6)
4. A-503.1, Emergency and Abnormal Operating Procedures Users Guide (Rev 050)
5. AP-RCC.1, Continuous Control Rod Withdrawal/Insertion (Rev 012)
6. AR-A-11, LETDOWN LINE HI PRESS 400 PSI (Rev 004)
7. AR-A-3, LO PRESS LTDN RELIEF VLV HI TEMP 130°F (Rev 7)
8. AR-L-5, SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP (Rev 010)
9. AP-ELEC.17/18, Loss of Safeguards Bus 17/18 (Rev 00802)
10. Technical Specification LCO 3.8.1, AC Sources – MODES 1, 2, 3, and 4 (Amendment 109)
11. Technical Specification LCO 3.8.9, Distribution Systems – MODES 1, 2, 3, and 4 (Amendment 80)
12. AR-PPCS-R47AR, SGTL INDICATED (Rev 000)
13. AP-SG.1, Steam Generator Tube Leak (Rev 017)
14. ATT-23.0, Attachment Transfer 4160V Loads (Rev 000)
15. Technical Specification LCO 3.4.13, RCS Operational LEAKAGE (Amendment 100)
16. Technical Specification LCO 3.4.17, Steam Generatoir (SG) Tube Integrity (Amendment 100)
17. E-0, Reactor Trip or Safety Injection (Rev 049)
18. ATT-27.0, Attachment Automatic Action Verification (Rev 00400)
19. E-3 Steam Generator Tube Rupture (Rev 04900)
20. FIG-1.0, Figure MIN Subcooling (Rev 00200)

Validation Time: 82 minutes

Author: David Eckert

Facility Review: _____

Rev. 042619

Scenario Event Description
NRC Scenario 2

Facility:	**Ginna**		Scenario No.:	**2**	Op Test No.: **N2019-301R**
Examiners:			Operators:		(SRO)
					(RO)
					(BOP)

Initial Conditions:	The Plant is at 48% Power, EOL conditions. Station Management has decided to shutdown the unit due to the extended Circuit 7T outage.
Turnover:	The following equipment is Out-of-Service: Off-Site Power Circuit 7T. A-52.12 submitted for TRM TR 3.8.1, 72-hour Action; Motor Driven Auxiliary Feedwater Pump 'B' is Out-of-Service for bearing replacement. A-52.4 submitted for ITS LCO 3.7.5, 7-day Action.

Event No.	Malf. No.	Event Type*	Event Description
1		N(BOP) N(US) R(ATC)	Load Reduction per O-2.1, Normal Shutdown to Hot Shutdown
2	ROD07	I(ALL)	T_{REF} Fails Low
3	CVC07A	C(ATC) C(US)	PCV–135 Fails Closed
4	EDS04D RPS07R	C(BOP) C(US) TS(US)	Loss of Bus 18 'D' Service Water Pump fails to automatically start (manual successful)
5	SGN04B	C(ALL) TS(US)	Steam Generator Tube Leak
6	SGN04B	M(ALL)	Steam Generator Tube Rupture
7	RPS07A RPS07B	C(ATC) C(US)	Safety Injection Pumps 'A' and 'B' fail to Auto Start (manual successful)
8	RPS07J	C(ATC)	CNMT Recirc Fan 'D' fails to Auto Start (manual successful)

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

Ginna July 2019 NRC Simulator Exam #2

The Plant is at 48% Power, EOL conditions. Station Management has decided to shutdown the unit due to the extended Circuit 7T outage.

The following equipment is Out-of-Service: Off-Site Power Circuit 7T. A-52.12 submitted for TRM TR 3.8.1, 72-hour Action; Motor Driven Auxiliary Feedwater Pump 'B' is Out-of-Service for bearing replacement. A-52.4 submitted for ITS LCO 3.7.5, 7-day Action.

Operators will commence Shutdown in accordance with O-2.1, Normal Shutdown to Hot Shutdown, at 10% / HR.

Approximately 2 minutes after commencing the shutdown, T_{REF} input to Rod Control fails **LOW** causing inward rod motion**.** The Operators should determine Rod Motion is not called for and the HCO places RODS in manual per AP-RCC.1, Continuous Control Rod Withdrawal/Insertion.

Approximately 10 minutes into the scenario, PCV-135 fails closed causing a loss of letdown flow. The HCO should recognize the failure of PCV-135 and take manual control to restore Letdown flow per AR-A-11, LETDOWN LINE HI PRESS 400 PSI.

Approximately 17 minutes into the scenario, a fault on 480V Bus 18 will occur, resulting in Bus 18 de-energizing. The Operator will respond in accordance with AR-L-23, BUS 18 UNDER VOLTAGE SAFEGUARDS, and/or AR-L-5, SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP, and enter AP-ELEC.17/18, Loss of Safeguards Bus 17/18. Operators will start Service Water Pump 'D'. The Operator will address Technical Specification LCO 3.8.1, AC Sources – Modes 1, 2, 3, and 4; and LCO 3.8.9, Distribution Systems – Modes 1, 2, 3, and 4.

Approximately 27 minutes into the scenario, a 5 gpm Steam Generator Tube Leak (SGTL) will develop on the 'B' Steam Generator. The Operator will respond in accordance with AR-PPCS-R47AR, SGTL INDICATED, and enter AP-SG.1, Steam Generator Tube Leak, and commence a load reduction. The Operator will address Technical Specification LCO 3.4.13, RCS Operational Leakage, and LCO 3.4.17, Steam Generator (SG) Tube Integrity.

Approximately 32 minutes into the scenario, the Steam Generator Tube Leak will rise to 375 gpm. The Operator will recognize that the Charging System will not maintain Pressurizer Level thereby requiring a Reactor Trip and Safety Injection actuations and transition to E-0, Reactor Trip or Safety Injection.

Safety Injection Pumps 'A' and 'B' and Containment Recirc Fan 'D' fail to automatically start on Safety Injection signal. Manual Start is successful.

The crew will transition to E-3, Steam Generator Tube Rupture.

The scenario will terminate at Step 22 of E-3 after the crew has completed RCS depressurization and secured SI and RHR Pumps

Critical Tasks:

Isolate feedwater flow into and steam flow from the ruptured SG (B) so that minimum ΔP between the B SG and A SG is not less than 250 psid once target temperature is reached (Entry into ECA-3.1 at Step 16 RNO). (EOP-Based)

Safety Significance: Failure to isolate the ruptured SG causes a loss of ΔP between the ruptured SG and the intact SG. Upon a loss of ΔP, the crew must transition to a contingency procedure that constitutes an incorrect performance that "necessitates the crew taking compensating action which complicates the event mitigation strategy." If the crew fails to isolate steam from the SG, or feed flow into the SG, the ruptured SG pressure will tend to decrease to the same pressures as the intact SG, requiring a transition to a contingency procedure, and delaying the stopping of RCS leakage into the SG.

While in EOP-E-3, establish/maintain an RCS temperature so that transition from E-3 does not occur because the RCS temperature is in either (1) Too high to maintain 20°F of RCS Subcooling OR (2) below 284°F (RCS Integrity Red Path Limit) (EOP-Based)

Safety Significance: Failure to establish and maintain the correct RCS temperature during a SGTR leads to a transition from E-3 to a contingency procedure. This failure constitutes an incorrect performance that necessitates the operator taking compensating action that would unnecessarily complicate the event mitigation strategy.

SIMULATOR OPERATOR INSTRUCTIONS

	Bench Mark	ACTIVITY	DESCRIPTION
☐		**Reset to Temp IC 161 (March 2019) (Originally IC-26).**	**T = 0 (From IC-26):** **Shift Electric Plant to 100/0 Lineup on Offsite Circuit 767** **Start 'C' CNMT Recirc Fan** **Secure 'D' CNMT Recirc Fan** **Take CIRCUIT BKR 7T1352 34 KV BUS Control Switch to PULL STOP** **Take BUS 12B ALT FEED FROM 7T 52/12AX Control Switch to PULL STOP** **Take BUS 12A NORMAL FEED FROM 7T 52/12AY Control Switch to PULL STOP** **Insert OVR EDS68A = OFF (HS-7T1352 GREEN Lamp Circuit BKR 7T1352 34KV Bus)** **Hang LOTO Tags as necessary** **Take AUXILIARY FEEDWATER PUMP B Control Switch to PULL STOP** **CLOSE MDAFW PUMP 1B DISCHARGE VLV MOV-4008** **Insert OVR IND-FDW21A = OFF (SL-1BOP GREEN Lamp AUX Steam Generator Feedwater Pump NO 1B AC Oil)** **Insert MALF A-FDW28 = ON (H-28: MOTOR DRIVEN AUX FEED PUMP OIL PUMP OFF)** **Insert MALF FDW11B (Aux Feedwater Pump Failure: Motor Driven Pump 1B)** **Hang LOTO Tags as necessary** **Insert MALF RPS07R (Auto Fail: D SW Pump)** **Insert MALF RPS07A (Auto Fail: A SI Pump)** **Insert MALF RPS07B (Auto Fail: B SI Pump)** **Insert MALF RPS07J (Auto Fail: D CNMT Recirc Fan)** **Insert MALF ROD07 = 500F (T-REF Failure in Rod Control) on T-1** **Insert MALF CVC07A = 0 (Letdown Pressure Cntrl Vlv Failure: Manual Cntrl Available (PCV-135)) on T-2**

	Bench Mark	ACTIVITY	DESCRIPTION
			Insert MALF EDS04D (Loss of Emergency Bus: 480V Bus 18) on T-3 **Insert MALF SGN04B = 5 (30 second ramp) (S/G B Tube Leak at Tube Sheet) on T-4** **Insert MALF SGN04B = 375 (5 minute ramp) (S/G B Tube Leak at Tube Sheet) on T-5** **Mark up O-2.1 through Section 6.3.**
☐	Prior to Crew Briefing		• **Hang Protective Tags per OPG-PROTECTED-EQUIPMENT (Ckt 7T and 'B' MDAFW Pump)** • **Place Black Dot on J-25, SAFEGUARDS EQUIPMENT LOCKED OFF, and H-28, MOTOR DRIVEN AUX FEED PUMP OIL PUMP OFF.**
☐	**Crew Briefing** • Assign Crew Positions based on evaluation requirements. • Review the Shift Turnover Information with the crew. • Provide crew with O-2.1 and S-3.1. • Handout current Reactivity Plan.		

	Bench Mark	ACTIVITY	DESCRIPTION
☐	T-0	Begin Familiarization Period	
☐	At direction of examiner	**Event 1**	Load Reduction per O-2.1, Normal Shutdown to Hot Shutdown
☐	At direction of examiner	**Event 2** **Trigger #1** **MALF ROD07**	T_{REF} Fails Low
☐	At direction of examiner	**Event 3** **Trigger #2** **MALF CVC07A**	PCV-135 Fails Closed
☐	At direction of examiner	**Event 4** **Trigger #3** **MALF EDS04D** **MALF RPS07R**	Loss of Bus 18 Manual Start of Service Water Pump "D" **Note: This malfunction is inserted at T=0**
☐	At direction of examiner	**Event 5** **Trigger #4** **MALF SGN04B**	Steam Generator Tube Leak Rate = 5 GPM
☐	At direction of examiner	**Event 6** **Trigger #5** **MALF SGN04B**	Steam Generator Tube Rupture = 375 GPM
☐	Post-Rx Trip	**Event 7** **MALF RPS07A** **MALF RPS07B**	'A' and 'B' Safety Injection Pumps fail to **AUTO** start (Manual successful) **Note: These malfunctions are inserted at T=0**
☐	Post-Rx Trip	**Event 8** **MALF RPS07J**	'D' Containment Recirc Fan failed to **AUTO** start (Manual successful) **Note: This malfunction is inserted at T=0**
☐	**Terminate the scenario upon direction of Lead Examiner**		

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Event Description: **Load Reduction**

Shortly after taking the watch, Operators will commence shutdown in accordance with O-2.1, Normal Shutdown to Hot Shutdown, at 10% / HR. The Operator will address S-3.1, Boron Concentration Control, to start the load reduction using Normal Boration.
SIM DRIVER Instructions: **N/A**
Indications Available: **N/A**

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: US may conduct a load reduction brief.
O-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN			
	HCO	(Step 6.1.7) **PLACE** PRZR BACKUP HEATERS control switch to the **ON** position.	
	HCO	(Step 6.2.1) **ENSURE** the ROD CONTROL BANK SELECTOR switch is in the desired A (Automatic) **OR** M (Manual) position **AND MARK** the position **NOT** used N/A.	**NOTE:** US will assign HCO a Critical Parameter for T_{AVG} IF rods are placed in MANUAL.
	US	(Step 6.2.2) **REFER TO** S-3.1, Boron Concentration Control, and OPG Reactivity CALC, **AND INITIATE** Boric Acid additions to the Reactor Coolant System, as necessary.	
S-3.1, BORON CONCENTRATION CONTROL ATTACHMENT 2, NORMAL BORATION			
			NOTE: The crew will perform borations based upon the Reactivity Plan provided.
	HCO	(Step 1.0) **ENSURE** Attachment 1, Makeup Determinations, is complete.	
	HCO	(Step 2.0) Board Operator **SHALL** inform US of intent to change core reactivity.	

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Event Description: **Load Reduction**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 2.1) US **SHALL** acknowledge reactivity manipulation and provide input and oversight.	
	HCO	(Step 3.0) **PLACE** RMW MODE SELECTOR switch to BORATE position.	
	HCO	(Step 4.0) **SET** BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, controller to flow rate determined in Attachment 1, Makeup Determinations, Step 1.1.	
	HCO	(Step 5.0) **SET** BA COUNTER, YIC-110, to quantity determined in Attachment 1.	
	HCO	(Step 6.0) **PLACE** RMW CONTROL switch to START position.	
	HCO	(Step 7.0) **VERIFY** the following:	
		• BORIC ACID TRANSFER PUMP A **OR** B STARTS	
		• BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, throttles open to preset flow position.	
		• REACTOR MAKEUP TO CHG PUMP, AOV-110B, opens	
	HCO	(Step 8.0) **WHEN** boration is complete, **THEN PERFORM** the following:	
	HCO	(Step 8.1) **PLACE** RMW MODE SELECTOR control switch to AUTO position.	
	HCO	(Step 8.2) **PLACE** RMW CONTROL switch to START position and **VERIFY** RMW control red light ILLUMINATED.	

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Event Description: **Load Reduction**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 8.3) **SET** BA TO BA BLENDER FLOW CONTROL VLV, HCV-110A, for current RCS boron concentration **PER** Boration/Dilution tables **OR** PPCS Engineering Menu Boration/Dilution display.	
	HCO	(Step 9.0) **PLACE** "BORATE" Human Performance Label next to RMW Mode Selector switch on MCB.	
	HCO	(Step 10.0) Board operator **SHALL** inform US reactivity manipulation is complete.	
	HCO	(Step 11.0) **RECORD** amount of boric acid added on S-12.4, RCS Leakage Surveillance Record Instructions, Attachment RCS Leakage Surveillance Record.	
O-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN			
		(Step 6.2.3) **START** the load reduction at the EH Control Panel as follows:	
	CO	3. **WHEN** less than or equal to 98% Reactor power **AND** it is desired to place the EHC Controls in the IMP-IN mode **THEN PERFORM** the following: **OTHERWISE, MARK** this Step N/A.	
		b. **DEPRESS** the IMP PRESS IN pushbutton.	
		c. **LOWER** the SETTER setpoint to desired value using the ▼ pushbutton.	**NOTE:** CO will lower SETTER to 0.
		d. **VERIFY** the IMP PRESS IN pushbutton back light is **ILLUMINATED**.	
		e. **DEPRESS** the GO pushbutton to resume power reduction.	

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Event Description: **Load Reduction**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 6.4.2) **WHEN** power is lowered to less than 40% (225 PSIG first stage pressure), **THEN ENSURE** the AMSAC MANUAL BLOCK switch is in the **BLOCK** position.	
At the discretion of the Lead Examiner move to Event #2			

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Event Description:	**T_{REF} Fails Low**		

Shortly after commencing the shutdown, T_{REF} input to Rod Control fails **LOW** causing inward rod motion**.** The Operators should determine Rod Motion is not called for and the HCO places RODS in manual per AP-RCC.1, Continuous Control Rod Withdrawal/Insertion

SIM DRIVER Instructions: **Operate Trigger #1 MALF ROD07 = 500°F (T-REF Failure in Rod Control)**

Indications Available:

- MCB Annunciator F-16, TAVG - TREF DEVIATION +/- 5 DEGREE F
- Inward ROD Motion
- PPCS Point TREF = BAD

Time	Pos.	Expected Actions/Behavior	Comments
AR-F-16, TAVG - TREF DEVIATION +/- 5 DEGREE F			
			Examiner NOTE: The crew may place the Turbine in HOLD and stop the boration.
			NOTE: HCO may verify no apparent cause for Rod Motion (Turbine Load Rejection / Instrument Channel Failure and place Rods in manual) prior to entry into AP-RCC.1 per the Guidance of A-503.1, Step 5.3.A.5.
	HCO	(Step 1) Check Avg Tavg and Tref Indication	**NOTE:** HCO should notice T_{REF} on MCB recorder RK-6, pt. 2 has failed LOW (540°F)
	HCO	(Step 2) Check for instrument failures on Tavg channels and Turbine first stage pressure (PI-485)	**NOTE:** T_{AVG} and PI-485 will be reported as normal
	US	(Step 3) Go to appropriate procedure • AP-RCC.1 (if control rod failures) • ER-INST.1 (for instrument failures)	**NOTE:** US will transition to AP-RCC.1.

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Event Description: **T_{REF} Fails Low**

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: AP-RCC.1 will provide follow-up direction for placing RODS in manual and checking for instrument channel failures
AP-RCC.1, CONTINUOUS CONTROL ROD WITHDRAWAL/INSERTION			
		(Step 1) Evaluate Rod Control System Operability:	
	CO	a. Check turbine load - STABLE	
	HCO	b. Place Rods to MANUAL	**NOTE:** HCO will place Control Rods to MANUAL if not already performed. US will assign a Critical Parameter for T_{AVG} control.
		c. Verify control rod motion stops	**NOTE:** Rod motion previously arrested
	HCO	(*Step 2) Monitor Tavg:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		• Tavg – GREATER THAN 545°F • Tavg – LESS THAN 579°F	
	HCO	(Step 3) Check Tavg – TRENDING TO Tref	**NOTE:** HCO may reverify T_{REF} failure when checking T_{AVG} and T_{REF} indications / meters / recorder on MCB
	HCO	(Step 3 RNO) IF Tavg greater than Tref, THEN restore Tavg to Tref by one or more of the following:	**NOTE:** RNO actions may have to be performed.
		• Insert control rods	
		• RCS boration	
	HCO	(Step 4) Check RCS Tavg Channel Indications:	
		○ All 4 Channels indicate approximately the same value	

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Event Description: **T_{REF} Fails Low**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	○ All 4 channels responding to the power change	
	CO	(Step 5) Check Turbine 1st Stage Pressure Channel, PI-485 – APPROXIMATELY EQUAL TO PI-486	**NOTE:** CO will report indications are equal
		(Step 6) Check NIS PR Indication:	
	HCO	○ All PR total channel indicators – APPROXIMATELY EQUAL	
		○ All ΔI indicators – APPROXIMATELY EQUAL	
		(Step 7) Establish Stable Plant Conditions:	
	HCO	a. Tavg – TRENDING TO TREF	**NOTE:** US should recognize that the RNO actions do NOT need to be taken
		b. PRZR pressure – TRENDING TO 2235 PSIG IN AUTO	
		c. PRZR level – TRENDING TO PROGRAM IN AUTO CONTROL	
		d. Rod insertion limit alarms – EXTINGUISHED	
		e. NIS PR ΔI – WITHIN DESIRED OPERATING BAND	
			NOTE: US may opt to place Steam Dump Mode Selector to MANUAL in accordance with AR-F-15.
		(Step 8) Verify Rod Control Indications:	
	HCO	a. Rods in MANUAL with no demand signal indicated on MCB	**NOTE:** US will recognize that Control Rods are OPERABLE
		b. Rod Speed indicates 66 SPM	

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Event Description: **T_{REF} Fails Low**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	c. MCB Annunciator C-6, ROD CONTROL NON-URGENT FAILURE AND C-30, ROD CONTROL URGENT FAILURE ROD STOP are extinguished	
	HCO	(Step 9) Restore control rods to desired position	**NOTE:** Control Rods will remain in MANUAL
		(Step 10) Establish Control Systems In Auto:	
	HCO	a. Verify rods in AUTO	
		(Step 10.a RNO) Place rods in AUTO, if desired.	**NOTE:** Control Rods will remain in MANUAL
	HCO	(Step 10) Establish Control Systems In Auto:	
		b. Verify 431K in AUTO	
		c. Verify PRZR spray valves in AUTO	
		d. Verify PRZR heaters restored:	
		○ PRZR proportional heaters breaker - CLOSED	
		○ PRZR backup heaters breaker – RESET IN AUTO	**NOTE:** US will maintain PRZR backup heaters ON due to load reduction
		e. Verify one charging pump in AUTO	
	HCO/ CO	(Step 11) Evaluate MCB Annunciator Status (Refer to AR Procedures)	
	US	(Step 12) Notify Higher Supervision	**NOTE:** The US may notify supervision. **SIM DRIVER:** acknowledge as required.
	US	(Step 13) Return To Procedure Or Guidance In Effect	

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Event Description: **T_{REF} Fails Low**

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The US will likely conduct a Plant Status Brief.
At the discretion of the Lead Examiner move to Event #3			

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Event Description: **PCV-135 Fails Closed**

Approximately 10 minutes into the scenario, PCV-135 fails closed causing a loss of letdown flow. The HCO should recognize the failure of PCV-135 and take manual control to restore Letdown flow per AR-A-11, LETDOWN LINE HI PRESS 400 PSI.

SIM DRIVER Instructions: **Operate Trigger #2 MALF CVC07A = 0 (Letdown Pressure Cntrl Vlv Failure: Manual Cntrl Available (PCV-135))**

Indications Available:

- MCB Annunciator A-11, LETDOWN LINE HI PRESS 400 PSI
- MCB Annunciator A-3, LO PRESS LTDN RELIEF VLV HI TEMP 130°F
- LOW PRESS LTDN PRESS PI-135 PCV-135 Controller indicat6es CLOSE

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: HCO may place PCV-135 Controller to MANUAL and restore Letdown pressure per the Guidance of A-503.1, Step 5.3.A.5.
AR-A-11, LETDOWN LINE HI PRESS 400 PSI			
	HCO	(Step 1) Adjust PCV-135 Controller to lower setting.	
	HCO	(Step 2) Transfer PCV-135 controller to manual if necessary.	**NOTE:** If not already performed, HCO will take MANUAL control at this time.
	HCO	(Step 3) Verify letdown flow (FI-134) is consistent with letdown orifice in service.	
AR-A-3, LO PRESS LTDN RELIEF VLV HI TEMP 130°F			
	HCO	(Step 1) Check PI-135; IF greater than 500 PSI, reduce letdown pressure.	
	HCO	(Step 2) Check operation of PCV-135.	

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Event Description: **PCV-135 Fails Closed**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 3) Verify AOV-371 is open.	
	HCO	(Step 4) Monitor PRT for the following:	
		○ Pressure (PI-440)	
		○ Level (LI-442)	
		○ Temperature (TI-439)	
			NOTE: The US may notify the SM/STA/WWM. **SIM DRIVER:** as **SM/STA/WWM**, acknowledge.
			NOTE: The US will likely conduct a Plant Status Brief.
At the discretion of the Lead Examiner move to Event #4			

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Event Description: **Loss of Bus 18**

Approximately 17 minutes into the scenario, a fault on 480V Bus 18 will occur, resulting in Bus 18 de-energizing. The Operator will respond in accordance with AR-L-23, BUS 18 UNDER VOLTAGE SAFEGUARDS, and/or AR-L-5, SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP, and enter AP-ELEC.17/18, Loss of Safeguards Bus 17/18. Operators will start Service Water Pump 'D'. The Operator will address Technical Specification LCO 3.8.1, AC Sources – Modes 1, 2, 3, and 4; and LCO 3.8.9, Distribution Systems – Modes 1, 2, 3, and 4.

SIM DRIVER Instructions: **Operate Trigger #3 MALF EDS04D (Loss of Emergency Bus: 480V Bus 18)**

Indications Available:

- MCB Annunciator L-5, SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP
- MCB Annunciator J-7, 480V MAIN OR TIE BREAKER TRIP
- MCB Annunciator J-8, 480V MCC SUPPLY BREAKER TRIP
- 'A' EDG automatically starts but does NOT energize Bus 18
- BUS 18 NORMAL FEED 480V Breaker indicates tripped (White and Green lights LIT)

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The crew may enter AP-ELEC.17/18 directly.
			Examiner NOTE: The crew may place the Turbine in HOLD and stop the boration.
AP-ELEC.17/18, LOSS OF SAFEGUARDS BUS 17/18			
	HCO	(Step 1) Verify Emergency D/G Associated with Affected Bus - RUNNING	**NOTE:** US may opt to start an additional SW Pump.
		○ Bus 18 - D/G A	
		○ Bus 17 – D/G B	
	CO	(Step 2) Verify Both Trains Of AC Emergency Busses Energized To At Least 440 VOLTS:	
		○ Bus 14 and Bus 18	**NOTE:** Bus 18 is de-energized
		○ Bus 16 and Bus 17	

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Event Description: **Loss of Bus 18**

Time	Pos.	Expected Actions/Behavior	Comments
		(Step 2 RNO) IF Bus 14 AND Bus 16 are deenergized, THEN go to ECA-0.0, LOSS OF ALL AC POWER.	
		IF one train deenergized, THEN perform the following:	
	HCO/ CO	a. Ensure D/G aligned for unit operation	
		o Mode switch in UNIT	
		o Voltage control selector in AUTO	
		b. Check D/G Running.	
		c. Adjust D/G voltage to approximately 480 volts.	
		d. Adjust D/G frequency to approximately 60 Hz.	
	CO	(Step 3) Verify Service Water System Operation:	
		a. SW pumps – AT LEAST ONE RUNNING IN EACH LOOP	
		o A or B pump in Loop A	
		o C or D pump in Loop B	
		(Step 3 RNO) Perform the following:	
	CO	1) Manually start SW pumps as necessary (257 kw each).	**NOTE:** Operator will start Service Water Pump 'D' if not already started.
	CO	(Step 3) Verify Service Water System Operation:	
		b. SW header pressure – GREATER THAN 40 PSIG IN EACH LOOP	
	CO	(Step 4) Restore Normal Electric System Alignment:	
		a. Verify all AC bus normal feed breakers - CLOSED	

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Event Description: **Loss of Bus 18**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	• Bus 13	
		• Bus 14	
		• Bus 15	
		• Bus 16	
		• Bus 17	
		• Bus 18	
		(Step 4 RNO) Perform the following:	
	CO	1) Refer to AR-L-5 to reset safeguards bus overcurrent condition	**NOTE:** Operator will refer to AR-L-5
		2) Restore all non-faulted AC busses and MCCs to normal power supply (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)	**NOTE:** US will determine that Bus 18 troubleshooting is not complete and Bus 18 can NOT be restored.
	US	IF normal power to all AC emergency buses can NOT be restored, THEN go to step 5.	
AR-L-5, SAFEGUARD BUS MAIN BREAKER OVERCURRENT TRIP			
	HCO/ CO	(Step 1) To prevent the D/G from loading onto the affected Safeguards bus while troubleshooting is in progress, **PULL STOP** the affected D/G supply breaker.	**NOTE:** Operator will place D/G A BUS 18 SUPPLY BREAKER control switch to PULL STOP
	US	(Step 2) Notify the following:	**NOTE:** US may contact the WCC to perform the notifications
		○ Electricians	**NOTE:** The US will notify the required personnel. **SIM DRIVER:** acknowledge notifications.
		○ Scheduling	
		○ Operations Supervision	
	US	(Step 3) Refer to ITS LCO 3.8.1 OR 3.8.2.	

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Event Description: **Loss of Bus 18**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 4) Direct Electricians to investigate cause of overcurrent condition.	**NOTE:** The Operator may notify the Electricians. **SIM DRIVER:** as Electricians, acknowledge.
AP-ELEC.17/18, LOSS OF SAFEGUARDS BUS 17/18			
		(STEP 5) Restore Equipment Alignment:	
	CO	a. Check SW Pumps – AT LEAST ONE PUMP RUNNING IN EACH LOOP	
		○ Pump A or B in Loop A	
		○ Pump C or D in Loop B	
		b. Restore affected bus equipment as desired	
		○ MCC G	**NOTE:** Operator will close SCREENHOUSE MCC G2 SUPPLY breaker
		○ Intake Heaters	**NOTE:** The Operator will contact EO **SIM DRIVER:** as **EO**, acknowledge.
		○ House Heating Boiler	
		○ Motor Fire Pump	
		○ Canal Sample Pump	
	HCO / CO	(Step 6) Evaluate MCB Annunciator Status (Refer to AR Procedures)	**NOTE:** Operators will refer to Alarm Response Procedures to address annunciators **SIM DRIVER:** as **EO**, insert REM MIS074 = RESET to clear MCB Annunciator K-31.
	US/C O	(Step 7) Verify Emergency AC Bus Normal Feed Breakers Closed	
		• Bus 17	
		• Bus 18	

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Event Description: **Loss of Bus 18**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 7 RNO) Return to Step 3	
TECHNICAL SPECIFICATION 3.8.1, AC SOURCES – MODES 1, 2, 3, AND 4			
	US	LCO 3.8.1 The following AC electrical sources shall be OPERABLE:	
		a. One qualified independent offsite power circuit connected between the offsite transmission network and each of the onsite 480 V safeguards buses required by LCO 3.8.9, "Distribution Subsystems – MODES 1, 2, 3, and 4"; and	
		b. Two emergency diesel generators (DGs) capable of supplying their respective onsite 480 V safeguards buses required by LCO 3.8.9.	
	US	APPLICABILITY: MODES 1, 2, 3, and 4.	
		ACTIONS	

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Offsite power to one or more 480 V safeguards bus(es) inoperable.	A.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable. AND A.2 Restore offsite circuit to OPERABLE status.	12 hours from discovery of Condition A concurrent with inoperability of redundant required feature(s) 72 hours

NOTE: The US will identify that Conditions A, B, and C are applicable.

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Event Description: **Loss of Bus 18**

Time	Pos.	Expected Actions/Behavior			Comments
		B. One DG inoperable.	B.1 Perform SR 3.8.1.1 for the offsite circuit AND B.2 Declare required feature(s) supported by the inoperable DG inoperable when its required redundant feature(s) is inoperable. AND B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure. OR B.3.2 Perform SR 3.8.1.2 for OPERABLE DG. AND B.4 Restore DG to OERABLE status.	1 hour AND Once per 8 hours thereafter 4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s). 24 hours 24 hours 7 days	
		C. Offsite power to one or more 480 V safeguards bus(es) inoperable. AND One DG inoperable.	C.1 Restore required offsite circuit to OPERABLE status. OR C.2 Restore DG to OPERABLE status.	12 hours 12 hours	
TECHNICAL SPECIFICATION 3.8.9, DISTRIBUTION SYSTEMS – MODES 1, 2, 3, AND 4					

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Event Description: **Loss of Bus 18**

Time	Pos.	Expected Actions/Behavior	Comments
	US	LCO 3.8.9 Train A and Train B of the following electrical power distribution subsystems shall be OPERABLE:	
		a. AC power;	
		b. AC instrument bus power; and	
		c. DC power.	
	US	APPLICABILITY: MODES 1, 2, 3, and 4.	
		ACTIONS	
		CONDITION / REQUIRED ACTION / COMPLETION TIME	**NOTE:** The US will identify that Condition A is applicable.
		A. One AC electrical power distribution train inoperable. / A.1 Restore AC electrical power distribution train to OPERABLE status. / 8 hours	
			NOTE: The US will likely conduct a Plant Status Brief.
At the discretion of the Lead Examiner move to Event #5			

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Event Description: **Steam Generator Tube Leak**

Approximately 27 minutes into the scenario, a 5 gpm Steam Generator Tube Leak (SGTL) will develop on the 'B' Steam Generator. The Operator will respond in accordance with AR-PPCS-R47AR, SGTL INDICATED, and enter AP-SG.1, Steam Generator Tube Leak, and commence a load reduction. The Operator will address Technical Specification LCO 3.4.13, RCS Operational Leakage.

SIM DRIVER Instructions: **Operate Trigger #4 MALF SGN04B = 5 (30 second ramp) (S/G B Tube Leak at Tube Sheet)**

Indications Available:

- PPCS Alarm R47AR, SGTL INDICATED
- 'A' Charging Pump speed rising

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The crew may enter AP-SG.1 directly.
			Examiner NOTE: The crew may place the Turbine in HOLD and stop the boration.
AR-PPCS-R47AR SGTL INDICATED			
	HCO/ CO	(Step 1) IF SG Tube Rupture is evident, THEN go to E-0, REACTOR TRIP OR SAFETY INJECTION.	**NOTE:** Parameters indicate "Tube Leak" conditions
	HCO/ CO	(Step 2) Trend PPCS point R-47G.	
	US	(Step 3) Notify RP/Chemistry to IMMEDIATELY obtain and analyze an air ejector grab sample per CH-360, Primary to Secondary Leakage Sampling and Measurement.	**NOTE:** US will notify Chemistry. **SIM DRIVER:** as **Chemistry**, acknowledge.
	US	(Step 4) Determine the estimated leak rate using PPCS point R47G or the R-47 Local Reading and the Conversion Table (Curve Book #06-004).	**NOTE:** US / HCO / CO will determine that leak rate is 5 gpm IAW PPCS Point R47G

Op Test No.: 2019 Scenario # 2 Event # 5 Page 27 of 56

Event Description: **Steam Generator Tube Leak**

Time	Pos.	Expected Actions/Behavior	Comments
	US	(Step 5) IF any condition below is met, THEN go to AP-SG.1, STEAM GENERATOR TUBE LEAK:	
		○ R47G (PPCS) greater than 5 gpd, OR	**NOTE:** Transition to AP-SG.1 will be performed due to R47G greater than 5 gpd
		○ R-47 greater than or equal to 5 gpd (per conversation table), OR	
		○ Air ejector grab sample indicates S/G tube leakage > 5 gpd, OR	
		○ SM discretion	
AP-SG.1 STEAM GENERATOR TUBE LEAK			
	HCO	(*Step 1) Monitor PRZR Level – STABLE AT PROGRAM LEVEL	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(Step 1 RNO) IF PRZR level lowering, THEN start additional charging pumps and raise speed as necessary to stabilize PRZR level.	**NOTE:** HCO will place Charging Pumps in MANUAL and stabilize PRZR level and obtain a leak rate (approximately 5 gpm). US will assign a Critical Parameter for PRZR Level
	HCO	(*Step 2) Monitor S/G Tube Leak Rate:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	a. Estimate S/G tube leak rate:	
		○ Charging / Letdown mismatch	
		○ Δ VCT	
		○ PPCS Point R47G	
		○ R-47 Drawer indication (using conversion table, Curve Book #06-004)	

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Event Description: **Steam Generator Tube Leak**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	b. Check Total RCS to secondary leak rate – LESS THAN 1 GALLON PER MINUTE (1440 GPD)	
	US	(Step 2 b RNO) Go to Step 8.	
		(Step 8) Initiate Load Reduction	
	US	a. Notify Higher Supervision.	**NOTE:** US will contact WCC **SIM DRIVER:** as **WCC**, acknowledge.
	HCO	b. Verify Rods in AUTOMATIC	**NOTE:** Rods are in MANUAL from previous T_{REF} Failure
		(Step 8.b RNO) Perform the following:	
		1) Place rods to MANUAL.	
		2) Adjust rods to match Tavg and Tref.	
		(Step 8) Initiate Load Reduction	
	HCO	c. Initiate boration at the rate determined in OPG-REACTIVITY-CALC.	
	CO	d. Reduce turbine load in Auto as follows:	
		1) Place Turbine EH Control in OPER PAN., IMP PRESS IN, if desired	**NOTE:** EH controls are already in OP PAN IMP IN.
		2) Select rate of 3%/min on thumbwheel	
		3) Reduce the setter to zero	
		4) Depress the GO button	
	HCO	e. Place PRZR backup heaters switch to ON	
	CO	f. Transfer 4160V Auxiliary load from #11 Transformer. (Refer to ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS)	

Op Test No.: 2019 Scenario # 2 Event # 5 Page 29 of 56

Event Description: **Steam Generator Tube Leak**

Time	Pos.	Expected Actions/Behavior	Comments
ATT-23.0, ATTACHMENT TRANSFER 4160V LOADS			
	CO	(Step 1) Place Bus 12A – BUS 11A TIE SYNCHROSCOPE to ON.	
	CO	(Step 2) Close BUS 12A – BUS 11A TIE 4160V.	
	CO	(Step 3) Place Bus 12A – BUS 11A TIE SYNCHROSCOPE to OFF.	
	CO	(Step 4) Open BUS 11A NORMAL FEED 4160V.	
	CO	(Step 5) Place BUS 11B – BUS 12B TIE SYNCHROSCOPE to ON.	
	CO	(Step 6) Close BUS 11B – BUS 12B TIE 4160V.	
	CO	(Step 7) Place Bus 11B – BUS 12B TIE SYNCHROSCOPE to OFF.	
	CO	(Step 8) Open BUS 11B NORMAL FEED 4160V.	
	CO	(Step 9) Reset alarms L-20 AND L-28, locally in the Relay Room Addition.	**NOTE:** CO will contact EO **SIM DRIVER:** as **EO**, acknowledge and RESET 12A and 12B alarms on Local Panels Display.
AP-SG.1 STEAM GENERATOR TUBE LEAK			

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Event Description: **Steam Generator Tube Leak**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(*Step 9) Monitor RCS Tavg	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		○ Tavg – GREATER THAN 545°F	
		○ Tavg – LESS THAN 579°F	
	HCO	(Step 10) Adjust Boric Acid Addition Rate As Necessary To: (Refer to OPG-REACTIVITY-CALC)	
		○ Maintain control rods above insertion limits	
		○ Match Tavg and Tref	
		○ Compensate for Xenon	
	US	(Step 11) While Continuing With This Procedure, Perform The Following:	
		a. Perform parts A AND B of ATT-16.1, ATTACHMENT SGTL	**NOTE:** US will contact EO **SIM DRIVER:** as **EO**, acknowledge
		b. Dispatch an EO to perform T-35H, NUCLEAR HOUSE HEATING STEAM TO BOILER STEAM SUPPLY CHANGE OVER	**NOTE:** US will contact EO **SIM DRIVER:** as **EO**, acknowledge
	US	(Step 12) Request Chemistry to obtain the following samples:	**NOTE:** US will contact Chemistry **SIM DRIVER:** as **Chemistry**, acknowledge
		• RCS Boron	
		• RCS Activity (ITS 3.4.16)	
	HCO	(*Step 13) Monitor PRZR Pressure - TRENDING TO 2235 PSIG IN AUTO	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.

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Event Description: **Steam Generator Tube Leak**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(*Step14) Monitor MFW Regulating Valves - RESTORING S/G LEVEL TO 52% IN AUTO	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(*Step 15) Monitor PRZR Level – TRENDING TO PROGRAM IN AUTO CONTROL	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(Step 15 RNO) Perform the following:	
		a. Place affected charging pumps in MANUAL	**NOTE:** US will assign a Critical Parameter for PRZR Level.
		b. Adjust charging pump speed to restore PRZR level to program	
		(Step 16) Check IA Available To CNMT	
	CO	○ IA pressure – GREATER THAN 60 PSIG	
	HCO	○ Instr Air to CNMT Isol Valve, AOV-5392 - OPEN	
	CO	(*Step 17) Check Steam Dump Status:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		○ Annunciator G-15, STEAM DUMP ARMED - LIT	**NOTE:** Annunciator G-15 is extinguished
		○ Steam dump operating properly in AUTO	
		(Step 17 RNO) IF steam dump required but NOT operating, THEN perform the following:	**NOTE:** Steam Dump operation is NOT warranted.

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Event Description: **Steam Generator Tube Leak**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(*Step 18) Check if Condensate Booster Pumps Should Be Secured	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		a. Condensate booster pumps – 2 PUMPS RUNNING	
	US	(Step 18.a RNO) IF only one condensate booster pump running, THEN go to step 18e. IF no condensate booster pumps running, THEN go to step 19.	
		(Step 19) Check If One MFW Pump Should Be Secured	
	HCO	a. Power – LESS THAN 50%	
	US	b. Verify at least one MFWP Seal Booster pump in service	**NOTE:** US will contact EO **SIM DRIVER:** as **EO**, acknowledge and report both Seal Booster Pumps are running
	CO	c. Two MFW Pumps running	
	US	(Step 19.c RNO) Go to Step 20.	
		(Step 20) Check AMSAC System Status	
	HCO	a. Power – LESS THAN 35%	
	US	(Step 20.a RNO) Return to Step 9.	
			Examiner NOTE: Due to the length and transient nature of this evaluation, the Examiner may elect to evaluate Technical Specifications after the scenario.

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Event Description: **Steam Generator Tube Leak**

<table>
<tr><th>Time</th><th>Pos.</th><th>Expected Actions/Behavior</th><th>Comments</th></tr>
<tr><td colspan="4">TECHNICAL SPECIFICATION 3.4.13, RCS OPERATIONAL LEAKAGE</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>LCO 3.4.13 RCS operational LEAKAGE shall be limited to:</td><td></td></tr>
<tr><td></td><td></td><td>a. No pressure boundary LEAKAGE;</td><td></td></tr>
<tr><td></td><td></td><td>b. 1 gpm unidentified LEAKAGE;</td><td></td></tr>
<tr><td></td><td></td><td>c. 10 gpm identified LEAKAGE; and</td><td></td></tr>
<tr><td></td><td></td><td>d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>APPLICABILITY: MODES 1, 2, 3, and 4.</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>ACTIONS</td><td></td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>CONDITION</th><th>REQUIRED ACTION</th><th>COMPLETION TIME</th></tr>
<tr><td>B. Required Action and associated Completion Time not met.
<u>OR</u>
RCS pressure boundary LEAKAGE exists.
<u>OR</u>
Primary to secondary LEAKAGE not within limit.</td><td>B.1 Be in MODE 3.

<u>AND</u>

B.2 Be in MODE 5.</td><td>6 hours.

36 hours</td></tr>
</table>
</td><td>NOTE: The US will identify that Condition B is applicable.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">TECHNICAL SPECIFICATION 3.4.17, STEAM GENERATOR (SG) TUBE INTEGRITY</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>US</td><td>LCO 3.4.17 SG tube integrity shall be maintained.</td><td></td></tr>
<tr><td></td><td></td><td><u>AND</u></td><td></td></tr>
<tr><td></td><td></td><td>All Sg tubes satisfying the tube repair criteria shall be plugged in accordance with the Steam Generator Program.</td><td></td></tr>
</table>

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Event Description: **Steam Generator Tube Leak**

<table>
<tr><th>Time</th><th>Pos.</th><th colspan="3">Expected Actions/Behavior</th><th>Comments</th></tr>
<tr><td></td><td></td><td colspan="3"></td><td></td></tr>
<tr><td></td><td>US</td><td colspan="3">APPLICABILITY: MODES 1, 2, 3, and 4.</td><td></td></tr>
<tr><td></td><td></td><td colspan="3"></td><td></td></tr>
<tr><td></td><td></td><td colspan="3">ACTIONS</td><td></td></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td><td>CONDITION</td><td>REQUIRED ACTION</td><td>COMPLETION TIME</td><td rowspan="2">NOTE: The US will identify that Condition B is applicable.</td></tr>
<tr><td>B. Required Action and associated Completion Time of Condition A not met.
<u>OR</u>
SG tube integrity not maintained.</td><td>B.1 Be in MODE 3.

<u>AND</u>

B.2 Be in MODE 5.</td><td>6 hours.

36 hours</td></tr>
<tr><td></td><td></td><td colspan="3"></td><td></td></tr>
<tr><td colspan="6">At the discretion of the Lead Examiner move to Events # 6 - 8</td></tr>
</table>

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Approximately 32 minutes into the scenario, the Steam Generator Tube Leak will rise to 375 gpm. The Operator will recognize that the Charging System will not maintain Pressurizer Level thereby requiring a Reactor Trip and Safety Injection actuations and transition to E-0, Reactor Trip or Safety Injection.
Safety Injection Pumps 'A' and 'B' and Containment Recirc Fan 'D' fail to automatically start on Safety Injection signal. Manual Start is successful.
The crew will transition to E-3, Steam Generator Tube Rupture.
The scenario will terminate at Step 22 of E-3 after the crew has completed RCS depressurization and secured SI and RHR Pumps.

SIM DRIVER Instructions: **Operate Trigger #5 MALF SGN04B = 375 (5 minute ramp) (S/G B Tube Leak at Tube Sheet)**

Indications Available:

- RCS Pressure lowering
- PRZR Level lowering
- MCB Annunciator F-4, PRESSURIZER LEVEL DEVIATION -5 NORMAL +5
- MCB Annunciator F-14, CHARGING PUMP SPEED

Time	Pos.	Expected Actions/Behavior	Comments
AP-SG.1 STEAM GENERATOR TUBE LEAK			
	HCO	(*Step 1) Monitor PRZR Level – STABLE AT PROGRAM LEVEL	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	(Step 1 RNO) IF PRZR level lowering, THEN start additional charging pumps and raise speed as necessary to stabilize PRZR level.	
		IF PRZR level continues to lower, THEN close letdown isolation, AOV-427 and excess letdown AOV-310.	
		IF available charging pumps are running at maximum speed with letdown isolated, AND PRZR level is lowering, THEN trip the reactor and go to E-0, REACTOR TRIP or SAFETY INJECTION.	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
E-0, REACTOR TRIP OR SAFETY INJECTION			
		(Step 1) Verify Reactor Trip:	**Immediate Action**
	HCO	o At least one train of reactor trip breakers – OPEN	
		o Neutron flux – LOWERING	
		o MRPI indicates – ALL CONTROL AND SHUTDOWN RODS ON BOTTOM with no instrument fluctuations concurrent with fire.	
	CO	(Step 2) Verify Turbine Stop Valves - CLOSED	**Immediate Action**
		(Step 3) Verify sufficient AC Emergency buses Energized To At Least 440 VOLTS:	**Immediate Action**
	CO	o Bus 14 OR Bus 16	
		-AND-	
		o Bus 17 OR Bus 18	
		(Step 4) Check if SI is Actuated:	**Immediate Action**
	HCO	a. Any SI Annunciator – LIT	
	HCO	(Step 4.a RNO) IF any of the following conditions are met, THEN manually actuate SI and CI:	**NOTE:** HCO will manually actuate SI and CI.
		o PRZR pressure less than 1750 psig	
		-OR-	
		o Steamline pressure less than 514 psig	
		-OR-	
		o CNMT pressure greater than 4 psig	
		-OR-	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
		o SI sequencing started	
		-OR-	
		o Operator determines SI required	
	HCO	(Step 4) Check if SI is Actuated:	**Immediate Action**
		b. SI sequencing – BOTH TRAINS STARTED	
	HCO/ CO	Foldout Page	**NOTE:** The crew will monitor these conditions throughout the performance of E-0.
	HCO/ CO	RCP TRIP CRITERIA	
		LOSS OF SW CRITERIA	
		AFW SUPPLY SWITCHOVER CRITERION	
		SFP COOLING CRITERIA	
		MULTIPLE FUNCTION LOSS CRITERIA	
	HCO	(*Step 5) Verify CNMT Spray Not Required:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
		o Annunciator A-27, CNMT SPRAY - EXTINGUISHED	
		o CNMT pressure – LESS THAN 28 PSIG	
	CO	(Step 6) Direct Operator to Perform ATT-27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION	

Op Test No.: 2019 Scenario # 2 Event # 6 - 8 Page 38 of 56

Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
			NOTE: The US will hand off ATT-27.0 to either the HCO or the CO and continue with the other operator in E-0. **Examiner** following operator performing ATT-27.0 continue below. **Examiner** following operator NOT performing ATT-27.0 continue at **Page 41**.
ATTACHMENT 27.0, ATTACHMENT AUTOMATIC ACTION VERIFICATION			
		(Step 1) Verify SI and RHR Pumps Running:	
	HCO/ CO	a. All SI pumps – RUNNING	
	HCO/ CO	(Step 1.a RNO) Manually start SI pumps	**NOTE:** Operator will start 'A' and 'B' SI Pumps.
		(Step 1) Verify SI and RHR Pumps Running:	
	HCO/ CO	b. Both RHR pumps – RUNNING	
		(Step 2) Verify CNMT RECIRC Fans RUNNING:	
	HCO/ CO	a. All fans - RUNNING	
	HCO/ CO	(Step 2.a RNO) Manually start fans.	**NOTE:** Operator will start 'D' CNMT Recirc Fan.
		(Step 2) Verify CNMT RECIRC Fans RUNNING:	
	HCO/ CO	b. Charcoal filter dampers green status lights – EXTINGUISHED	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
		(Step 3) Check If Main Steamlines Should Be Isolated:	
	HCO/ CO	a. Any MSIV – OPEN	
		b. Check CNMT pressure – LESS THAN 18 PSIG	
		c. Check if ANY main steamlines should be isolated:	
		○ Low Tavg (545°F) AND high steam flow ($0.5x10^6$ lb/hr) from either S/G	
		-OR-	
		○ High-high steam flow ($4.4x10^6$ lb/hr) from either S/G	
	HCO/ CO	(Step 3.c RNO) Go to Step 4.	
		(Step 4) Verify MFW Isolation:	
	HCO/ CO	a. MFW pumps – TRIPPED	
		b. MFW Isolation valves - CLOSED	
		• S/G A, AOV-3995	
		• S/G B, AOV-3994	
		c. S/G blowdown and sample valves - CLOSED	
	HCO/ CO	(Step 5) Verify At Least Two SW Pumps - RUNNING	
		(Step 6) Verify CI and CVI:	
	HCO/ CO	a. CI and CVI annunciators - LIT	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	• Annunciator A-26, CNMT ISOLATION	
		• Annunciator A-25, CNMT VENTILATION ISOLATION	
		b. Verify CI and CVI valve status lights - BRIGHT	
		c. CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT	
		• FCV-4561	
		• FCV-4562	
		d. Letdown orifice valves - CLOSED	
		• AOV-200A	
		• AOV-200B	
		• AOV-202	
		(Step 7) Check CCW System Status:	
	HCO/ CO	a. Verify CCW pump – AT LEAST ONE RUNNING	
		(Step 8) Verify SI And RHR Pump Flow:	
	HCO/ CO	a. SI flow indicators – CHECK FOR FLOW	**NOTE:** May have to perform RNO actions
	HCO/ CO	(Step 8a RNO) IF RCS pressure less than 1300 psig manually start pumps and align valves. IF NOT, THEN go to Step 9.	
		(Step 8) Verify SI And RHR Pump Flow:	
	HCO/ CO	b. RHR flow indicator – CHECK FOR FLOW	
		(Step 9) Verify SI Pump And RHR Pump Emergency Alignment:	

Op Test No.: 2019 Scenario # 2 Event # 6 - 8 Page 41 of 56

Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	a. RHR pump discharge to Rx vessel deluge - OPEN	
		• MOV-852A	
		• MOV-852B	
		b. Verify SI pump C – RUNNING	
		c. Verify SI pump A - RUNNING	
		d. Verify SI pump B - RUNNING	
		e. Verify SI pump C discharge valves - OPEN	
		• MOV-871A	
		• MOV-871B	
		(Step 10) Verify CREATS Actuation:	
	HCO/ CO	a. At least one damper in each flowpath - CLOSED	
		• Normal Supply Air	
		• Normal Return Air	
		• Lavatory Exhaust Air	
		b. CREATS fans – BOTH RUNNING	
		(Step 11) Verify CI and CVI During a Fire Event	
	HCO/ CO	a. A confirmed fire has occurred in the control complex or cable tunnel (fire systems S05, S06, S08, Z05, Z18, or Z19).	
	HCO/ CO	(Step 11.a RNO) Go to END	
E-0 REACTOR TRIP OR SAFETY INJECTION			
			Examiner following operator NOT performing ATT-27.0 continue **HERE**.

Op Test No.: 2019 Scenario # 2 Event # 6 - 8 Page 42 of 56

Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	(Step 7) Verify Both MDAFW Pumps - RUNNING	
	CO/ HCO	(Step 7 RNO) Manually start both MDAFW pumps.	
		IF less than 2 MDAFW pumps are running, THEN manually open TDAFW pump steam supply valves.	
		• MOV-3505A	
		• MOV-3504A	
		(Step 8) Verify AFW Valve Alignment:	
	CO/ HCO	a. AFW flow – INDICATED TO BOTH S/G(s)	
		b. AFW flow from each MDAFW pump - LESS THAN 230 GPM	
	CO/ HCO	(Step 8 RNO) Manually align valves as necessary.	
		(*Step 9) Monitor Heat Sink:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	CO/ HCO	a. Check S/G narrow range level GREATER THAN 7% [25% adverse CNMT] in any S/G	
		b. Check S/G narrow range level - BOTH S/G LESS THAN 50%	
	CO/ HCO	(Step 9.b RNO) Secure AFW flow to any S/G with level above 50%.	**NOTE:** Steam Generator Level may be greater than 50% due to S/G Tube Rupture
	CO/ HCO	(*Step 9) Monitor Heat Sink:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.

Op Test No.: 2019 Scenario # 2 Event # 6 - 8 Page 43 of 56

Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	CO/ HCO	c. Control feed flow to maintain S/G narrow range level between 7% [25% adverse CNMT] and 50%.	
		(Step 10) Check If TDAFW Pump Can Be Stopped:	
	CO/ HCO	a. Both MDAFW pumps – RUNNING	
	US	(Step 10.a RNO) Go to step 11.	
		(Step 11) Check CCW Flow to RCP thermal Barriers:	
	CO/ HCO	○ Annunciator A-7. RCP 1A CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED	**NOTE:** Crew may opt to secure RCPs due to SW Isolation causing rising RCP bearing temperatures.
		○ Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LO FLOW - EXTINGUISHED	
	CO/ HCO	(*Step 12) Monitor RCS Tavg – STABLE AT OR TRENDING TO 547ºF	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	CO/ HCO	(Step 12 RNO) IF temperature less than 547ºF and lowering, THEN perform the following:	
		a. Stop dumping steam.	
		b. Ensure reheater steam supply valves are closed.	
		c. IF cooldown continues, THEN control total feed flow between 200 gpm to 230 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	CO/ HCO	d. WHEN S/G level greater than 7% [25% adverse CNMT] in one S/G, THEN limit feed flow to that required to maintain level in at least one S/G.	
		e. IF cooldown continues, THEN close both MSIVs.	
		(Step 12 RNO) IF temperature greater than 547ºF and risiing, THEN dump steam to stabilize and slowly lower temperature to 547ºF.	**NOTE:** T_{AVG} will be rising if the crew stopped RCPs.
		(Step 13) Check PRZR PORVS And Spray Valves:	
	CO/ HCO	a. PORVs – CLOSED	
		b. Auxiliary spray valve (AOV-296) - CLOSED	
	CO/ HCO	c. Check PRZR pressure - LESS THAN 2260 PSIG	
		d. Normal PRZR spray valves - CLOSED	
		• PCV-431A	
		• PCV-431B	
		(Step 14) Monitor RCP Trip Criteria:	
	CO/ HCO	a. RCP status – ANY RCP RUNNING	**NOTE:** RCPs may have been stopped earlier.
	US	(Step 14.a RNO) Go to step 15.	
		(Step 14) Monitor RCP Trip Criteria:	
	HCO	b. SI pumps - AT LEAST TWO RUNNING	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	c. RCS pressure minus maximum S/G pressure – LESS THAN 210 psi [240 psi adverse CNMT]	**NOTE:** RCS pressure minus maximum S/G pressure – should be GREATER THAN 210 psi [240 psi adverse CNMT]
	US	(Step 14.c RNO) Go to step 15.	
		(Step 15) Check If S/G Secondary Side Is Intact:	
	CO/ HCO	o Pressure in both S/Gs - STABLE OR RISING	
		o Pressure in both S/Gs – GREATER THAN 110 PSIG	
		(Step 16) Check If S/G Tubes Are Intact:	
	CO/ HCO	o Air Ejector radiation monitors (R-15, R-47, R-48) - NORMAL	
		o S/G blowdown radiation monitor (R-19) - NORMAL	
		o Steamline radiation monitors (R-31 and R-32) - NORMAL	
	US	(Step 16 RNO) Go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.	
			NOTE: Crew may conduct a transition brief.
E-3 STEAM GENERATOR TUBE RUPTURE			
	HCO/ CO	Foldout Page	**NOTE:** The crew will monitor these conditions throughout the performance of E-3.
		LOSS OF SW CRITERIA	
		SI REINITIATION CRITERIA	
		SECONDARY INTEGRITY CRITERIA	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO/ CO	COLD LEG RECIRCULATION SWITCHOVER CRITERION	
		AFW SUPPLY SWITCHOVER CRITERION	
	HCO/ CO	MULTIPLE S/G TUBE RUPTURE CRITERIA	
	US	(Step 1) Dispatch an AO to standby at door 44 in the Turbine Building.	**NOTE:** US will contact EO **SIM DRIVER:** as **EO**, acknowledge
		(*Step 2) Monitor RCP Trip Criteria:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	a. RCP status – ANY RCP RUNNING	**NOTE:** RCPs may have been stopped earlier.
	US	(*Step 2.a RNO) Go to Step 3.	
		(*Step 2) Monitor RCP Trip Criteria:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	b. SI Pumps – AT LEAST TWO RUNNING	
		c. RCS pressure minus maximum S/G pressure – LESS THAN 210 psi [240 psi adverse CNMT]	**NOTE:** RCS pressure minus maximum S/G pressure – should be GREATER THAN 210 psi [240 psi adverse CNMT]
	US	(Step 2.c RNO) Go to Step 3.	
	CO	(Step 3) Identify Ruptured S/G(s):	**NOTE:** Using MCB and Control Room indications the Operators should identify the "**B**" Steam Generator as RUPTURED
	CO	o Unexpected rise in either S/G narrow range level	
		-OR-	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	○ High radiation indication on main steamline radiation monitor	
		• R-31 for S/G A	
		• R-32 for S/G B	
		-OR-	
	US	○ AO reports local indication of high steamline radiation	
		-OR-	
	US	○ RP reports high radiation from S/G activity sample.	
	CO	(Step 4) Isolate Flow From Ruptured S/G(s):	
		a. Adjust ruptured S/G ARV controller to 1050 psig in AUTO	
		b. Check ruptured S/G ARV - CLOSED	
		c. Close ruptured S/G TDAFW pump steam supply valve and place in PULL STOP	
		• S/G A, MOV-3505A	**N/A**
		• S/G B, MOV-3504A	
	HCO	d. Verify ruptured S/G blowdown valve - CLOSED	
		• S/G A, AOV-5738	**N/A**
		• S/G B, AOV-5737	
		(Step 5) Complete Ruptured S/G Isolation:	
	CO	a. Close ruptured S/G MSIV – RUPTURED S/G MSIV CLOSED	**NOTE:** CO will close 'B' MSIV if not already closed.
	US	b. Dispatch AO to complete ruptured S/G isolation (Refer to ATT-16.0, ATTACHMENT RUPTURED S/G part A)	**NOTE:** US will contact EO **SIM DRIVER:** as **EO**, acknowledge and RUN Schedule ATT 16.0 SGBpartA.
		(Step 6) Check Ruptured S/G Level:	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	a. Narrow range level – GREATER THAN 7% [25% adverse CNMT]	
		b. Close MDAFW pump discharge valve to ruptured S/G	
		• S/G A, MOV-4007	**N/A**
		• S/G B, MOV-4008	
		c. Pull stop MDAFW pump for ruptured S/G	
		d. Close TDAFW pump flow control valve to ruptured S/G	
		• S/G A, AOV-4297	**N/A**
		• S/G B, AOV-4298	
	CO	e. Verify MDAFW pump crosstie valves - CLOSED	
		• MOV-4000A	
		• MOV-4000B	
		(Step 7) Verify Ruptured S/G Isolated:	
	CO	a. Check ruptured MSIV - CLOSED	
		b. Check TDAFW pump steam supply from ruptured S/G - ISOLATED	
		c. Ruptured S/G pressure – GREATER THAN 500 PSIG	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
CRITICAL TASK: **Isolate feedwater flow into and steam flow from the ruptured SG (B) so that minimum ΔP between the B SG and A SG is not less than 250 psid once target temperature is reached (Entry into ECA-3.1 at Step 16 RNO). (EOP-Based)** Safety Significance: Failure to isolate the ruptured SG causes a loss of ΔP between the ruptured SG and the intact SG. Upon a loss of ΔP, the crew must transition to a contingency procedure that constitutes an incorrect performance that "necessitates the crew taking compensating action which complicates the event mitigation strategy." If the crew fails to isolate steam from the SG, or feed flow into the SG, the ruptured SG pressure will tend to decrease to the same pressures as the intact SG, requiring a transition to a contingency procedure, and delaying the stopping of RCS leakage into the SG.			
		(Step 8) Establish Condenser Steam Dump Pressure Control:	
	CO	a. Verify condenser available:	
		○ Intact S/G MSIV - OPEN	
		○ Annunciator G-15, STEAM DUMP ARMED - LIT	
	CO	(Step 8.a RNO) Adjust S/G ARV controller to maintain intact S/G pressure in AUTO and go to Step 9.	
	HCO	(Step 9) Reset SI	
NOTE: Following initiation of controlled cooldown or depressurization, RCP trip criteria is no longer applicable.			
		(Step 10) Initiate RCS Cooldown:	
	US	a. Determine required core exit temperature from below table:	
	CO	b. IF ruptured S/G MSIV closed, THEN initiate dumping steam to condenser from intact S/G at maximum rate	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 10.b RNO) Manually or locally initiate steam dump from intact S/G at maximum rate using S/G ARV.	
		(Step 10) Initiate RCS Cooldown:	
	CO	c. Core exit T/Cs – LESS THAN REQUIRED TEMPERATURE	
	US	(Step 10.c RNO) Continue with Step 11. WHEN core exit T/Cs less than required, THEN do Step 10d.	
		(Step 10) Initiate RCS Cooldown:	
	CO	d. Stop RCS cooldown and stabilize core exit T/Cs less than required temperature	
		(*Step 11) Monitor Intact S/G Level:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	CO	a. Narrow range level – GREATER THAN 7% [25% adverse CNMT]	
	CO	b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%	
		(*Step 12) Monitor PRZR PORVs and Block Valves:	**NOTE:** This is a Continuous Action. The US will make one or more board operators aware.
	HCO	a. Power to PORV block valves - AVAILABLE	
		b. PORVs - CLOSED	
		c. Block valves – AT LEAST ONE OPEN	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 13) Reset CI:	
		a. Depress CI reset push button	
		b. Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED	
		(Step 14) Establish IA to CNMT:	
	CO	a. Verify IA Available	
		○ Adequate air compressors Running	**NOTE:** Crew will start Service Air Compressor and stop 'C' Instrument Air Compressor.
		○ IA Pressure GREATER THAN 60 PSIG	
		○ IA Pressure Stable or Rising	
	HCO	b. Reset both trains of XY relays for IA to CNMT AOV-5392	
		c. Verify IA to CNMT AOV-5392 OPEN	
		(Step 15) Check if RCS Cooldown Should Be Stopped:	
	CO	a. Core exit T/Cs - LESS THAN REQUIRED TEMPERATURE	**NOTE:** Cooldown started previously in Step 10
	US	(Step 15.a RNO) Do NOT proceed until core exit T/Cs less than required temperature.	
		(Step 15) Check if RCS Cooldown Should Be Stopped:	
	CO	b. Stop RCS cooldown	
	CO	c. Stabilize core exit T/Cs – LESS THAN REQUIRED TEMPERATURE	
	CO	(Step 16) Check Ruptured S/G Pressure – STABLE OR RISING	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	CO	(Step 17) Check RCS Subcooling Based On Core Exit T/Cs – GREATER THAN 20°F USING FIG-1.0, FIGURE MIN SUBCOOLING	
CRITICAL TASK: **While in EOP-E-3, establish/maintain an RCS temperature so that transition from E-3 does not occur because the RCS temperature is in either (1) Too high to maintain 20°F of RCS Subcooling OR (2) below 284°F (RCS Integrity Red Path Limit) (EOP-Based)** Safety Significance: Failure to establish and maintain the correct RCS temperature during a SGTR leads to a transition from E-3 to a contingency procedure. This failure constitutes an incorrect performance that necessitates the operator taking compensating action that would unnecessarily complicate the event mitigation strategy.			
		(Step 18) Depressurize RCS To Minimize Break Flow And Refill PRZR:	
		a. Check the following:	
	CO	○ Ruptured S/G level - LESS THAN 90% [80% adverse CNMT]	
	HCO	○ Any RCP - RUNNING	**NOTE:** RCPs have been stopped.
	CO	○ IA to CNMT - AVAILABLE	
		(Step 18.a RNO) Go to Step 19	
	HCO	(Step 19) Depressurize RCS Using PRZR PORV To Minimize Break Flow And Refill PRZR:	
		a. Verify IA to CNMT – AVAILABLE	
		b. PRZR PORVs – AT LEAST ONE AVAILABLE	
		c. Open one PRZR PORV until ANY of the following conditions satisfied:	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	o PRZR level – GREATER THAN 75% [65% adverse CNMT]	
		-OR-	
		o RCS pressure – LESS THAN SATURATION USING FIG-1.0, FIGURE MIN SUBCOOLING	
		-OR-	
		o BOTH of the following:	
		1) RCS pressure – LESS THAN RUPTURED S/G PRESSURE	
		2) PRZR level – GREATER THAN 10% [30% adverse CNMT]	
	HCO	d. Close PRZR PORVs	
	HCO	(Step 20) Check RCS Pressure - RISING	
		(Step 21) Check If SI Flow Should Be Terminated:	
	US	a. RCS subcooling based on core exit T/Cs – GREATER THAN 0°F USING FIG-1.0, FIGURE MIN SUBCOOLING	
		b. Secondary heat sink:	
	CO	o Total feed flow to S/G(s) – GREATER THAN 200 GPM AVAILABLE	
		-OR-	
		o Narrow range level in at least one intact S/G – GREATER THAN 7% [25% adverse CNMT]	
	HCO	c. RCS pressure – STABLE OR RISING	
	HCO	d. PRZR level – GREATER THAN 10% [30% adverse CNMT]	

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Event Description: **Steam Generator Tube Rupture / 'A' and 'B' SI Pumps, and 'D' CNMT Recirc Fan Fail to AUTO Start**

Time	Pos.	Expected Actions/Behavior	Comments
	HCO	(Step 22) Stop SI and RHR Pumps And Place In AUTO	
At the discretion of the Lead Examiner terminate the exam			

TURNOVER SHEET for NRC Exam Scenario #2

Core Age: EOL 48% Power, Equilibrium Xe Outside Air Temp = 84°F Water Temp = 70°F	Procedure in Use: O-2.1, Normal Shutdown to Hot Shutdown	ACTIONS/NOTES: • The plant is at 48% power (EOL). • The plant was taken to 48% due to Electrical Grid instabilities. • Station Management has decided to shutdown the Unit due to the extended Circuit 7T outage. • The area has experienced overcast conditions for the past 4 hours, with wind from the Southwest at 5 - 15 mph, and this is expected to continue throughout the shift. • The 'B' MDAFW Pump is OOS for bearing replacement. • Offsite Power Circuit 7T is OOS due to storm damage. • Protected equipment IAW OPG-PROTECTED-EQUIPMENT. ('B' MDAFW Pump and Offsite Power Circuit 7T)
Boron: 535 ppm BAST: 19,000 ppm RCS Activity: Normal	RCS LEAKAGE: (gpm) Total: .021 Identified: .003 Unidentified: .018	

TURNOVER SHEET for NRC Exam Scenario #2

Equipment Problems/OOS:	*Planned Activities for Shift:*	Electrical System Operator Declarations
'B' MDAFW Pump Offsite Power Circuit 7T	O-2.1 shutdown	None in effect

A-52.4					
EQUIPMENT	**DATE/TIME OOS**	**LCO**	**TITLE**	**EXP DATE**	**ECD**
'B' MDAFW Pump	Yesterday, 24hrs ago	3.7.5	Auxiliary Feedwater (AFW) System	7 Days	12 hours
A-52.12					
EQUIPMENT	**DATE/TIME OOS**	**TRM /ODCM**	**TITLE**	**EXP DATE**	**ECD**
Offsite Power CKT 7T	50 hours ago	TR 3.8.1	Offsite Power Sources	72 hours	36 hours