JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title:	Calculate Boron Addition Required to Support EOP 3504, Cooldown Outside Control Room
JPM Number:	2023 NRC RO A.1.1
Revision:	0

Initiated:

W. M. Forrestt – signature on file	6/4/23
Developer	Date

Reviewed:

T. Brown – signature on file	6/8/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/4/23	New JPM developed for the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC RO A.1.1 Revision: 0

Task Title: Calculate Boron Addition Required to Support EOP 3504, Cooldown Outside Control Room

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes): 15 minutes

Applicable To: SRO ______ RO X

K/A Number: 2.1.37 K/A Rating: 4.3

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Given postulated plant conditions, satisfactorily completes step 2.c of EOP 3504 by calculating a required boron concentration of between 11,335 – 11935 gallons of boric acid.

Required Materials: (procedures, equipment, etc.)

1. **EOP 3504,** Cooldown Outside Control Room, **pages 1 – 10 marked up:**

- Mark complete through step 2a
- Record in step 2a: Mode 3: 1618ppm / Mode 4: 2058 ppm / Mode 5: 2081 ppm

2. **OP 3304C, Attachment 2**, Determining Boration or Dilution Volume and Rate

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC RO A.1.1 Revision : 0

Initial Conditions: Due to toxic gases in the control room, the Operations crew has evacuated the control room. The following current conditions exist:

- The plant is in Mode 3, RCS temperature is 557 F & Pressurizer level is 28%.
- Control has been transferred to the Aux Shutdown Panel in accordance with EOP 3503, Shutdown Outside Control Room.
- The latest Chemistry RCS boron concentration is 1020 ppm.
- The crew is currently at step 2c of EOP 3504, Cooldown Outside Control Room.

Initiating Cues: The Unit Supervisor has directed you to perform step 2c of EOP 3504.

The plan is to borate the RCS to Mode 5 conditions. After the boration is completed, the crew will commence a cooldown in accordance with EOP 3504.

See attached procedure(s).

Simulator Requirements: None.

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking “Y”. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.1.1 Revision: 0

Task Title: Calculate Boron Addition Required to Support EOP 3504, Cooldown Outside Control Room

START TIME: ___________

STEP	Performance	Standard	Critical	Grade
STEP #1 3504 2.c	**Performance:** Using OP 3304C Attachment "Determining Boron or Dilution Volume and Rate", and the latest RCS boron concentration, Determine the gallons of 4% boric acid required to obtain the highest RCS concentration recorded in step 2.b.	**Standard:** Examinee goes to step 2.c. of EOP 3504 to note highest RCS required boron concentration	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 3504 2.b	**Performance:** Using OP 3209B, "Shutdown Margin," Record required RCS boron concentration for: • MODE 3 1618 ppm • MODE 4 2058 ppm • MODE 5 2081 ppm	**Standard:** Examinee notes from Initial Conditions that the plant will be cooled down from Mode 3 to Mode 5. Examinee notes 2081 ppm is the highest required boron for this cooldown.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #3 OP 3304C Att. 2 Step 1	**Performance:** 1. Gallons of boric acid required for a boration = $\left(\frac{M}{8.33}\right)\left[\ln\left(\frac{7000 - C_i}{7000 - C_f}\right)\right]K$	**Standard:** Examinee goes to Attachment 2 of OP 3304C and locates the correct calculation for the desired boration.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments: Att. 2 "Determining Boration or Dilution Volume and Rate" of OP 3304C is used for both borations and dilutions. There are 4 separate equations labeled 1 through 4. The appropriate calculation is listed in step 1 (the remaining calculations are not applicable).			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.1.1 Revision: 0

Task Title: Calculate Boron Addition Required to Support EOP 3504, Cooldown Outside Control Room

STEP	Performance:	Standard:	Critical:	Grade:
STEP #5 OP 3304C Att. 2	**Performance:** where: M = RCS Mass = 507,127 lbm C = boron concentration Ci = initial boron concentration Cf = final boron concentration δC / δt = rate of boron concentration change (ppm/hr) K = Correction Factor (from following table) (See Note 1)	**Standard:** Examinee determines required variables: M = 507,127 lbm (mass provided in Att. 2)	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 OP 3304C Att. 2 Step 4	**Performance:** where: Ci = initial boron concentration	**Standard:** Based on initial conditions on cue sheet records: Ci = 1020 ppm	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments:			
STEP #7	**Performance:** where: Cf = final boron concentration	**Standard:** Notes required final boron concentration (from JPM Step 2) Cf = 2081 ppm	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments:			

STEP # 8	Performance:	Critical:	Grade:
	where: K = Correction Factor (from following table) (See Note 1)	Y ☒ N ☐	S ☐ U ☐

Plant Conditions		Correction Factor (K) (See Note 1)
Tave (°F)	Pressurizer Level	
587 (HFP)	64	1.00
557 (HZP)	28	0.98
500	28	1.05
450	28	1.10
400	28	1.14
350	28	1.18
300	28	1.22
300	100 (Solid)	1.35
200	28	1.27
200	100 (Solid)	1.41
100	100 (Solid)	1.44

Note 1: IF borating during cool down of RCS, CALCULATE correction factor K, as follows:
K = K from table at expected final conditions ÷ K from table at initial conditions

Standard: Examinee determines K to be 0.98 (based on current plant conditions). Because the boration will not occur during cooldown, Note 1 is not applicable.

Cue:

Comments:

JPM Number: 2023 NRC RO A.1.1 Revision: 0

Task Title: Calculate Boron Addition Required to Support EOP 3504, Cooldown Outside Control Room

STEP # 9	Performance:	Standard:	Critical:	Grade:
	Using variables provided earlier completes calculation $$\left(\frac{M}{8.33}\right)\left[\ln\left(\frac{7000 - C_i}{7000 - C_f}\right)\right]K$$	Given: M = 507,127 lbm Ci = 1020 ppm Cf = 2081 ppm K = 0.98 Calculates: 60,880 [ln (5980 / 4919)] .98 60,880 [ln (1.22)] .98 60,880 [ln (1.22)] .98 60,880 [0.20)] .98 **11,335 – 11935 gallons *** * allowable band for rounding	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC RO A.1.1 Revision: 0

Task Title: Calculate Boron Addition Required to Support EOP 3504, Cooldown Outside Control Room

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	15 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC RO A.1.1 Revision: 0

Initial Conditions: Due to toxic gases in the control room, the Operations crew has evacuated the control room. The following current conditions exist:

- The plant is in Mode 3, RCS temperature is 557 F & Pressurizer level is 28%.
- Control has been transferred to the Aux Shutdown Panel in accordance with EOP 3503, Shutdown Outside Control Room.
- The latest Chemistry RCS boron concentration is 1020 ppm.
- The crew is currently at step 2c of EOP 3504, Cooldown Outside Control Room.

Initiating Cues: The Unit Supervisor has directed you to perform step 2c of EOP 3504.

The plan is to borate the RCS to Mode 5 conditions. After the boration is completed, the crew will commence a cooldown in accordance with EOP 3504.

See attached procedure(s).

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title:	Determine proper response to Reactor Coolant Pump Seal Alarms		
JPM Number:	2023 NRC RO A.1.2	Revision:	0

Initiated:

W. M. Forrestt – signature on file	6/7/23
Developer	Date

Reviewed:

T. Brown– signature on file	6/12/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/7/23	New JPM developed for the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC RO A.1.2 Revision: 0

Task Title: Determine proper response to Reactor Coolant Pump Seal Alarms

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes): 12 minutes

Applicable To: SRO ______ RO **X**

K/A Number: 2.1.19 K/A Rating: 3.9

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards:	When presented with conditions of a failing No. 1 and No. 2 ‘C’ RCP Seal, correctly determines required actions of tripping the reactor, stopping the ‘C’ RCP, and going to E-0. Also, correctly identifies that both the No.1 and No. 2 seals are failing.
Required Materials: (procedures, equipment, etc.)	MP3 Simulator with PPC operational The following ARP’s are available in the control room (not handed out): 1. MB3B 2-10 2. MB4B 2-6A 3. MB4B 2-6B
General References:	NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC RO A.1.2 Revision : 0

Initial Conditions: The plant is at 100% power when ‘C’ RCP seal alarms came in on MB3 and MB4.

Initiating Cues: Assess ‘C’ RCP seal and report to the Unit Supervisor what, if any, actions are required.

The simulator is in freeze. No control board manipulations will be performed.

Simulator Requirements:

Preferred

1) Reset to IC-103 Password “**Coral7!**”

Optional

1) Reset to IC 13 or any 100% IC
2) INSERT MALFUNCTIONS:
   CV13C, RCP C #1 SEAL FAIL to 100% severity
   CV14C, RCP C #2 SEAL FAIL to 100% severity
3) Acknowledge annunciators and place Simulator in FREEZE

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking “Y”. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate “Cue”.
3. If necessary, question student for details of simulated actions/observations (i.e. “What are you looking at?” or “What are you observing?”).
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.1.2 Revision: 0

Task Title: Determine proper response to Reactor Coolant Pump Seal Alarms

START TIME: __________

EXAMINER NOTE(S):

(1) Three RCP Seal Alarms will be lit. Both MB 2-6A "RCP C UP STG INLET PRES HI" and MB 2-6B "RCP C MID STG INLET PRES HI" direct going to MB 3B 2-10 "RCP HI RANGE LKG FLOW HI". Therefore, MB 3B2-10 direction is given below. It's possible (& acceptable) if the Examinee goes directly to MB 3B 2-10 (bypassing non-critical JPM steps 1 & 2).

(2) Assuming the examinee correctly determines the required actions, there is a follow-up question provided at JPM Step # 8. This should be asked after the examinee provides the correct response 7.

Step	Performance	Standard	Critical	Grade
STEP #1 MB 4B 2-6A & 2-6B	Performance: CAUTION Gross failure of all seal stages could be indicated by: • Seal return (CBO) flow rate exceeding 4 gpm from a pump • Third stage leakage flow indicating zero or near zero, which may be caused by steam formation in the seal water return (CBO) line	Standard: Examinee reads caution. No actions necessary.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 MB 4B 2-6A & 2-6B	Performance: IF "RCP HI RANGE LKG FLOW HI" (MB3B 2---10) is lit, Go To 3353.MB3B Window 2---10, "RCP HI RANGE LKG FLOW HI."	Standard: Examinee notes MB3B 2-10 is lit and proceeds to ARP.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.1.2 Revision: 0

Task Title: Determine proper response to Reactor Coolant Pump Seal Alarms

<table>
<tr><td rowspan="3">STEP #3
MB3B
2-10

STEP
1</td><td>Performance:

CHECK the following to confirm alarm and determine affected RCP(s):
3CHS- FR158 and 3CHS- FR160, high range seal leak flow recorders (MB3)
CHS- F161*, RCP A seal return (CBO) flow computer point
CHS- F160*, RCP B seal return (CBO) flow computer point
CHS- F159*, RCP C seal return (CBO) flow computer point
CHS- F158*, RCP D seal return (CBO) flow computer point</td><td>Standard:

Examinee notes the following readings:
3CHS- FR158 & 3CHS- FR160: notes abnormally high flow of 4.3 gpm for ‘C’ RCP
CHS- F161: 2.4 gpm
CHS- F160: 2.4 gpm
CHS- F159: 4.2 gpm
CHS- F158: 2.4 gpm
Examinee confirms ‘C’ RCP is affected.</td><td>Critical:

Y ☐ N ☒</td><td>Grade:

S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #4

MB3B
2-10

STEP
2</td><td>Performance:

DISPLAY “RCP Status,” RCS_2.dis.</td><td>Standard:

Enters “RCS_2.dis.” on ppc to display status screen OR uses screen in front of MB2 (this screen is normally displayed at this workstation).</td><td>Critical:

Y ☐ N ☒</td><td>Grade:

S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

STEP	Performance	Standard	Critical	Grade
STEP #5 MB3B 2-10 STEP 3	Performance: ASSESS leakage flow high indication by observing the following indications: • Seal injection flow • Affected RCP seal inlet temperatures • VCT level • Charging header flow • Pressurizer level • 3CHS- PI 124, excess L/D Hx outlet pressure	Standard: Examinee notes the following readings: • Seal injection flow: CHSFI143A reads **9 gpm** (on MB3) • Affected RCP seal inlet: temperatures: **115.9 F** (RCP status computer display) • VCT level: **52%** (MB3 or computer) • Charging header flow: **60 gpm** (MB3 CHS-F121 or computer) • Pressurizer level: **63%** (MB4 RCS-LI459A / 460A / 461 or computer) • 3CHS- PI 124, excess L/D Hx outlet pressure: 65 psi (MB3 CHS-PI124)	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 MB3B 2-10 STEP 4	Performance: IF at any time DP across *any* one seal stage exceeds 1,750 psid, Go To step 7.	Standard: On RCP status computer display, observes CPCUPRSTGDP reads 2117 psid. Examinee goes to Step 7	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.1.2 Revision: 0

Task Title: Determine proper response to Reactor Coolant Pump Seal Alarms

STEP	Performance	Standard	Critical	Grade
STEP #7 MB3B 2-10 STEP 7	Performance: 7.1 IF "REACTOR AT POWER P- 10" (MB4D 4- 3) is lit, OR more than one RCP is affected, PERFORM the following: 7.1.1 TRIP reactor. 7.1.2 STOP affected reactor coolant pumps. 7.1.3 Go To E- 0, "Reactor Trip or Safety Injection."	Standard: Examinee determines Reactor is greater than P-10 and verbalizes the following actions are necessary: 7.1.1 TRIP reactor. 7.1.2 STOP the 'C' RCP 7.1.3 Go To E- 0, "Reactor Trip or Safety Injection."	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue: (1) The Examinee could also get to Step 7 by using Step 5 and Table 1 (Greater than 4 gpm CBO flow, and both MID and UP RCP Inlet Pressure Hi Alarms). (2) Assuming the examinee correctly determines the required actions, there is a follow-up question provided below at JPM Step # 8. This should be asked after the examinee provides the correct response here.			
	Comments:			
STEP #8	Performance: Prompted with Cue.	Standard Replies both the No. 1 and No. 2 "C" RCP Seals are failing.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue: What seal(s) are failing?			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC RO A.1.2 Revision: 0

Task Title: Determine proper response to Reactor Coolant Pump Seal Alarms

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	12 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC RO A.1.2 Revision: 0

Initial Conditions: The plant is at 100% power when ‘C’ RCP seal alarms came in on MB3 and MB4.

Initiating Cues: Assess ‘C’ RCP seal and report to the Unit Supervisor what, if any, actions are required.

The simulator is in freeze. No control board manipulations will be performed.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title:	Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance		
JPM Number:	2023 NRC RO A.2	Revision:	0

Initiated:

W. M. Forrestt – signature on file	6/12/23
Developer	Date

Reviewed:

T. Brown – signature on file	6/12/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/12/2023	Converted bank JPM A051-5 into format for 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC RO A.2 Revision: 0

Task Title: Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes) 30

Applicable To: SRO ______ RO X

K/A Number: 2.2.12 K/A Rating: 3.7

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Successfully completes a manual QPTR surveillance in accordance with SP 31012, *Quadrant Power Tilt Ratio*, and determines the QPTR is UNSAT with a value of 1.115 (with allowable band of + / - 0.002). Additionally, examinee determines that Technical Specification 3/4.2.4 must be entered.

Required Materials: (procedures, equipment, etc.)

- SP 31012, *Quadrant Power Tilt Ratio*, Rev. 008
- MP3 Tech Specs
- Calculator

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. With the exception of the questions at the end, you may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC RO A.2 Revision : 0

Initial Conditions: The plant was at 100% power when the following sequence of events occurs:

1. Control Rod L13 drops into the core.
2. The crew is carrying out the actions of AOP 3552, *Malfunction of the Rod Drive System*, Attachment B; “Dropped Rod”.

Current conditions are as follows:

- The crew is at step 2.b of Attachment B “Determine QPTR”.
- The PPC is out of service.
- NI channel recalibration is NOT in progress.

Initiating Cues: The US directs you to determine QPTR using SP 31012, *Quadrant Power Tilt Ratio,* Section 4.2, “QPTR By Measurement”.

Simulator Requirements: None.

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking “Y”. For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the Examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question Examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the Examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.2 Revision: 0

Task Title: Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance

START TIME: ___________

STEP	Performance	Standard	Critical	Grade
STEP #1 SP 31012 Section 2 & 3	Performance: VERIFY Prerequisites & Precautions	Standard: Reviews SP 31012, Section 2 PREREQUISITES and Section 3 PRECAUTIONS. Initials review complete on Attachment 1 Cover Sheet.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 SP 31012 Step 4.2.1	Performance: RECORD average percent reactor power from NI cabinet meters NMP--NM41F through NMP--NM44F or from the Plant Process Computer Calorimetric (CVRXPO) on Attachment 1.	Standard: Averages 4 Power Range drawer readings 99.5%, 97.6%, 100.8% & 68.2% (top of graphics on Examinee Handout pages 2 & 3) and **records 91.5% on top of Attachment 1** (beside “Reactor Power).	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #3 SP 31012 Step 4.2.2 NOTE	Performance: **NOTE:** Attachment 2, “100% NI Currents,” is maintained in the “Reactor Engineering Curve and Data Book.”	Standard: Examinee reviews the NOTE.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.2 — Revision: 0

Task Title: Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance

STEP #4

SP 31012 Step 4.2.2.a

Performance:
RECORD available upper and lower detector readings on Attachment 1.

Standard:
References Examinee Handout and records the following on Attachment 1:

Instru.	Upper Detector Reading	Lower Detector Reading
N41	89.5	91.9
N42	87.3	85.8
N43	93.3	92.6
N44	67.2	60.9

Critical: Y ☐ N ☒

Grade: S ☐ U ☐

Cue:

Comments:

STEP #5

SP 31012 Step 4.2.2.b

Performance:
On Attachment 1, RECORD 100% NI upper and lower currents obtained from Attachment 2.

Standard:
References Examinee Handout and records the following on Attachment 1:

Instru.	Upper 100% Current	Lower 100% Current
N41	78.9	86.1
N42	78.1	82.4
N43	81.4	85.3
N44	83.2	86.8

Critical: Y ☐ N ☒

Grade: S ☐ U ☐

Cue:

Comments:

STEP #6

SP 31012 Step 4.2.2.c

Performance:
RECORD data source and date of Attachment 2 entry in “Remarks” section on Attachment 1.

Standard:
Locates “Remarks” section on Attachment 1 and records data source (RE Curve and Data Book) and date of Attachment 2 entry.

Critical: Y ☐ N ☒

Grade: S ☐ U ☐

Cue:

Comments:

<u>**PERFORMANCE INFORMATION**</u>

JPM Number: 2023 NRC RO A.2 Revision: 0

Task Title: Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance

STEP #7

SP 31012 Step 4.2.2.d

Performance:
CALCULATE the detector ratio for each detector by dividing each detector's reading by that detector's 100% current and RECORD on Attachment 1.

Standard:
Examinee divides each detector's reading by that detectors 100% current to determine the detector ratio for the upper and lower detectors of PRNI channels 41 through 44. Examinee records the detector ratios on Attachment 1.

Instru.	**Upper Detector Ratio**	**Lower Detector Ratio**
N41	1.134	1.067
N42	1.118	1.041
N43	1.146	1.086
N44	0.808	0.702

Critical: Y ☐ N ☒

Grade S ☐ U ☐

Cue:

Comments: Calculations are required to be made to 3 decimal places per Attachment 1 guidance.

STEP #8

SP 31012 Step 4.2.2.e

Performance:
CALCULATE the average upper and lower ratio and RECORD on Attachment 1.

Standard:
Examinee calculates the average upper and lower detector ratios.

Examinee records the average upper and lower detector ratios on Attachment 1.

	Upper Detector Ratio	**Lower Detector Ratio**
AVG	1.052	0.974

Critical: Y ☐ N ☒

Grade S ☐ U ☐

Cue:

Comments: Calculations are required to be made to 3 decimal places per Attachment 1 guidance.

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.2 Revision: 0

Task Title: Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance

<table>
<tr><td>STEP #9

SP 31012
Step 4.2.2.f</td><td>Performance:
Using the following equation, CALCULATE power tilt for each detector and RECORD in “QPTR” section of Attachment 1:

Upper QPTR = (Upper Detector Ratio) ÷ (Average Upper Ratio)

Lower QPTR = (Lower Detector Ratio) ÷ (Average Lower Ratio)</td><td>Standard:
Examinee determines the power tilt (QPTR) for the upper and lower detectors associated with PRNI channel 41 through 44 by dividing each detectors detector ratio by the average ratio.
Examinee records QPTR values on Attachment 1.
<table><tr><th>Instru.</th><th>Upper QPTR</th><th>Lower QPTR</th></tr><tr><td>N41</td><td>1.078</td><td>1.095</td></tr><tr><td>N42</td><td>1.063</td><td>1.069</td></tr><tr><td>N43</td><td>1.089</td><td>1.115</td></tr><tr><td>N44</td><td>0.768</td><td>0.721</td></tr></table></td><td>Critical:
Y ☒ N ☐</td><td>Grade
S ☐ U ☐</td></tr>
<tr><td></td><td colspan="4">Cue:</td></tr>
<tr><td></td><td colspan="4">Comments: An acceptable band is + / - 0.002 to the values shown.</td></tr>
<tr><td>STEP #10

SP 31012
Step
4.2.2.g</td><td>Performance:
RECORD maximum upper and lower QPTR and associated channel on Attachment 1.</td><td>Standard:
Examinee records maximum upper and lower detector QPTR and associated channel on Attachment 1.

1.089 for Upper Detector N43
1.115 for Lower Detector N43</td><td>Critical:
Y ☒ N ☐</td><td>Grade
S ☐ U ☐</td></tr>
<tr><td></td><td colspan="4">Cue:</td></tr>
<tr><td></td><td colspan="4">Comments: An acceptable band is + / - 0.002 to the values shown.</td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.2 Revision: 0

Task Title: Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance

STEP	Performance	Standard	Critical	Grade
STEP #11 SP 31012 Step 4.2.2.h	Performance: RECORD reason for performance in "Comments" section on Attachment 1, page 1.	Standard: Examinee records reason (Control Rod L13 dropped into core bottom) in the Comments section of Attachment 1.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #12 SP 31012 Step 4.2.3.a	Performance: **CHECK the following acceptance criteria are met:** WHEN above 50% of Rated Thermal Power (RTP), CHECK maximum QPTR does *not* exceed 1.02.	Standard: Examinee recognizes from calculated average reactor power (JPM step 2) that reactor power is greater than 50%. Examinee recognizes that QPTR IS greater than 1.02 and **RECORDS on Attachment 1 Acceptance Criteria Section:** **Max QPTR : 1.115** and **UNSAT**.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments: An acceptable band is + / - 0.002 to the values shown.			
STEP #13 SP 31012 Step 4.2.3.b	Performance: IF QPTR is greater than 1.02 and power is above 50% RTP, NOTIFY Shift Manager that Technical Specification 3/4.2.4, "Quadrant Power Tilt Ratio," action statement applies.	Standard: Examinee informs the US that QPTR is greater than 1.02 and that Technical Specification 3/4.2.4, "Quadrant Power Tilt Ratio," action statement applies.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue: Acknowledge the Candidate's report and reply that the US is referring to T/S 3/4.2.4.			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC RO A.2 Revision: 0

Task Title: Perform a Manual Quadrant Power Tilt Ratio (QPTR) Surveillance

Date Performed: ______________

Examinee: ______________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	**30**	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT (Page 1 of 4)

JPM Number: 2023 NRC RO A.2 Revision: 0

Initial Conditions: The plant was at 100% power when the following sequence of events occurs:

1. Control Rod L13 drops into the core.
2. The crew is carrying out the actions of AOP 3552, *Malfunction of the Rod Drive System*, Attachment B; “Dropped Rod”.

Current conditions are as follows:

- The crew is at step 2.b of Attachment B “Determine QPTR”.
- The PPC is out of service.
- NI channel recalibration is NOT in progress.

Initiating Cues: The US directs you to determine QPTR using SP 31012, *Quadrant Power Tilt Ratio,* Section 4.2, “QPTR By Measurement”.

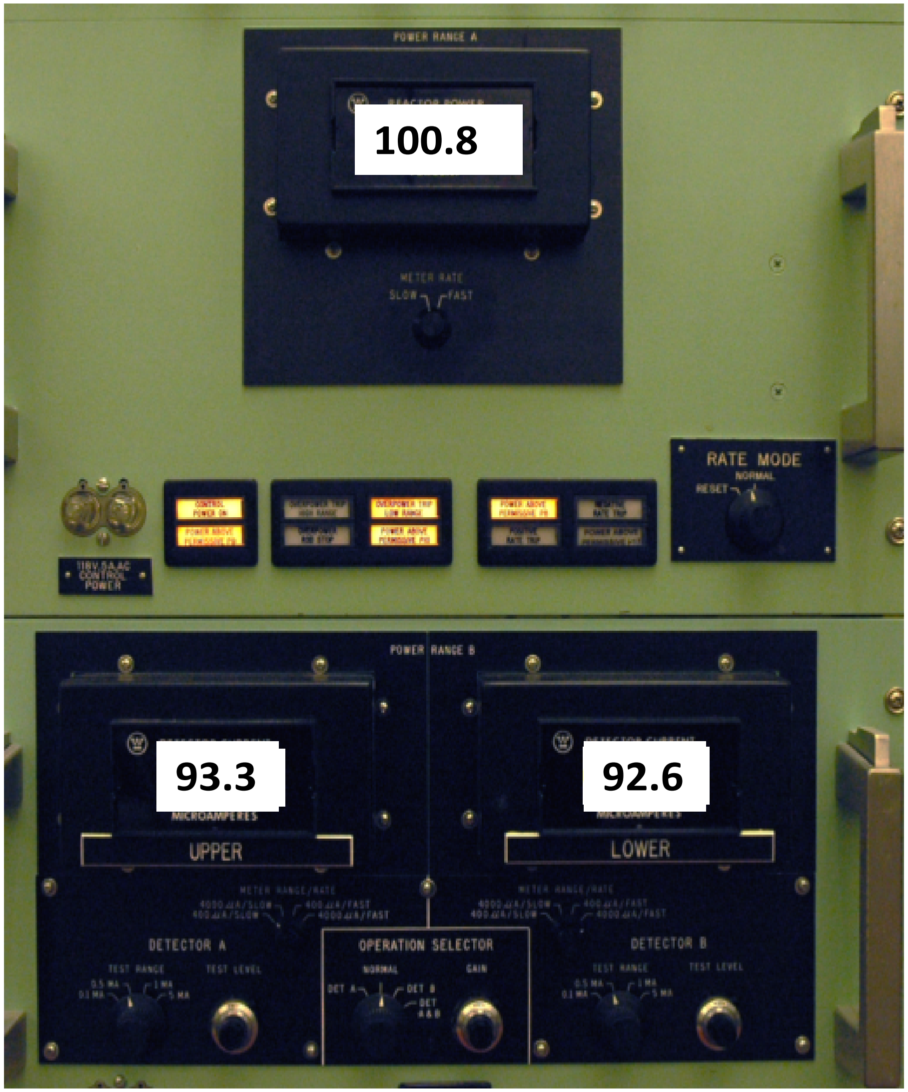
EXAMINEE HANDOUT (Page 2 of 4)

3NMP-NM41F

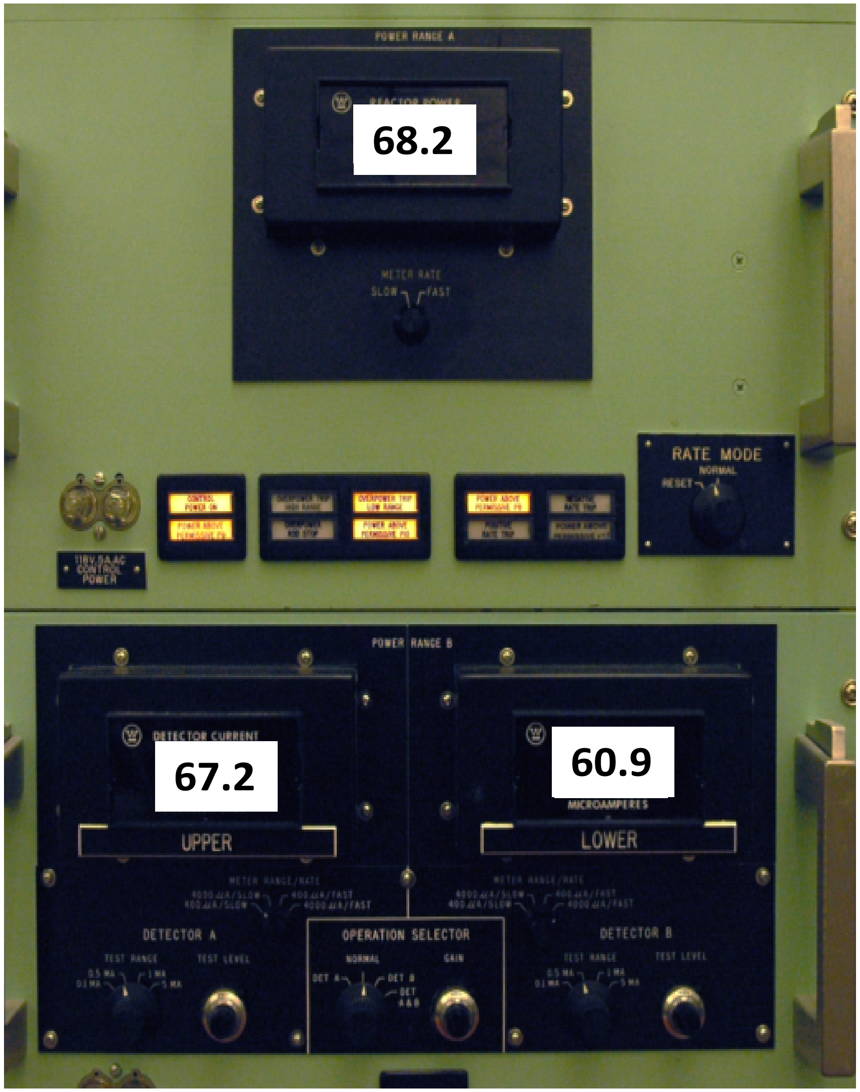
3NMP-NM42F

EXAMINEE HANDOUT (Page 3 of 4)

3NMP-NM43F



3NMP-NM44F



EXAMINEE HANDOUT (Page 4 of 4)

Attachment 2
100% NI Currents
(Sheet 1 of 1)

Step 4.3.4	Channel 1		Channel 2		Channel 3		Channel 4			
DATE	Upper N–41T	Lower N–41B	Upper N–42T	Lower N–42B	Upper N–43T	Lower N–43B	Upper N–44T	Lower N–44B	ENTERED BY	REACTOR ENGINEER
Today	78.9	86.1	78.1	82.4	81.4	85.3	83.2	86.8	RE#1	RE#2

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Assess Emergency Dose Limits

JPM Number: 2023 NRC RO A.3 Revision: 0

Initiated:

W. M. Forrestt – signature on file	6/12/23
Developer	Date

Reviewed:

T. Brown – signature on file	6/13/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/12/23	Modified Bank JPM (A229) for use in the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC RO A.3 Revision: 0

Task Title: Assess Emergency Dose Limits

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes): 15 minutes

Applicable To: SRO ______ RO X

K/A Number: 2.3.12 K/A Rating: 3.2

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Given plant conditions, properly make the following assessment(s):

1) Determine MP3 dose limit & Federal dose limit under normal plant operations
2) Determine Federal dose limit upon declaration of an emergency
3) Determine that the DSEO can authorize an emergency exposure limit exceeding 25 Rem.

Required Materials: (procedures, equipment, etc.)

1) MP-26-EPI-FAP09 (Rev 08), *Radiation Exposure Controls*
2) RP-AA-105 (Rev 03-0), *External Radiation Exposure Control Program*
3) Calculator

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC RO A.3 Revision : 0

Initial Conditions:

You are an extra licensed operator on shift.

Your annual TEDE dose this year is 100 mr, all received at Millstone 3.

The plant is initially at 100% power when the following sequence of events occurs:

08:00	The US directs you to assist in a surveillance run of 'A' Safety Injection Pump.
08:50	The loose parts monitoring system goes into Alarm followed radiation levels in Containment rising.
09:00	'A' Steam Generator becomes ruptured requiring a manual Safety Injection. The Shift Manager declares an ALERT.
09:15	'A' Steam Generator low set safety valve fails open and will not close.
09:30	You are dispatched to the Aux Building.
10:30	In order to protect the surrounding community from the ongoing radiological release, the technical support center has authorized gagging the 'A' SG safety valve.
10:40	You volunteer to help gag the safety valve and are made aware of the risks. Your expectant dose would be 30 Rem.

Initiating Cues:

(1) Determine your available TEDE dose (taking your existing annual dose into consideration, if required) prior to reaching the following limits at the following times. Provide the allowable dose on the following table:

Time	Allowable dose to prevent exceeding the Admin guideline limit at Millstone 3	Allowable dose to prevent exceeding the Federal Dose Limit	Allowable dose to prevent exceeding the Emergency Dose Limit
08:01			N/A
09:31	N/A	N/A	

(2) At time 10:41, are you allowed to receive this dose? If so, who would authorize it?

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking “Y”. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.3 Revision: 0

Task Title: Assess Emergency Dose Limits

START TIME: ___________

STEP #1	Performance: Obtains a copy of RP-AA-105, *External Radiation Exposure Control Program*, Attachment 1, "Federal Limits and Administrative Guidelines for Exposure."	Standard: Obtains copy of RP-AA-105 (Electronic or Hard Copy)	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments: It is acceptable if Examinee finds the correct limit in another reference.			
STEP #2 RP-AA-105 Att. 1	Performance: Determine allowable dose at 08:01 to prevent exceeding the Millstone 3 Admin Guideline.	Standard: Calculates allowable dose at 08:01 by determining the proper column is the Dominion Site Specific admin limit, which is 2000 mr for the year, and subtracts the 100 mr already received at Millstone, and fills in **1900 mr (1.9 Rem)** on the table.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments: It is acceptable if Examinee finds the correct limit in another reference.			
STEP #3 RP-AA-105 Att 1	Performance: Determine allowable dose at 08:01 to prevent exceeding the Federal Dose Limit	Standard: Calculates allowable dose at 08:01 by determining the Federal Limit is 5000 mr for the year, subtracts the 100 mr already received at Millstone, and fills in **4900 mr (4.9 Rem)** on the table.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments: It is acceptable if Examinee finds the correct limit in another reference.			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC RO A.3 Revision: 0

Task Title: Assess Emergency Dose Limits

<table>
<tr><td rowspan="3">STEP
#4</td><td>Performance:
Determine the allowable dose at 09:31 to prevent exceeding the Emergency Dose Limit:
Obtain copy of EPI-FAP09, Radiation Exposure Controls, Attachment 3, "Emergency Exposure Control Guidance."</td><td>Standard:
Obtains copy of EPI-FAP09 (Electronic or Hard Copy)</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: It is acceptable if Examinee finds the correct limit in another reference.</td></tr>
<tr><td rowspan="3">STEP
#5

EPI-FAP09
Att. 3</td><td>Performance:
Determine allowable dose at 09:31 to prevent exceeding the Emergency Dose Limit
At Alert and higher classification levels, dose limits are automatically extended to 4.5 Rem and continue to follow 10 CFR 20 criteria (any emergency dose is added to any accumulated annual dose to establish control limits)… The table below assumes an Alert or higher classification has been declared:</td><td>Standard:
Calculates the allowable dose at 09:31 by determining the proper Emergency Dose Limit is NOT the limit required to protect valuable property or protect large populations, selecting 4500 mr for the year, and determines this dose IS to include the annual exposure to date, so the Examinee subtracts the 100 mr already received at Millstone, and fills in 4400 mr (4.4 Rem) on the table.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue: If asked, inform the Examinee that the activity is NOT required to protect valuable property or protect large populations.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP
#6</td><td>Performance:
Obtain copy of EPI-FAP09, Radiation Exposure Controls, Attachment 3, "Emergency Exposure Control Guidance."</td><td>Standard:
Obtains copy of EPI-FAP09 (Electronic or Hard Copy)</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

JPM Number: 2023 NRC RO A.3 Revision: 0

Task Title: Assess Emergency Dose Limits

STEP	Performance:	Standard	Critical:	Grade:
STEP #7 EPI-FAP09 Att. 3	At time 10:41, are you allowed to receive this dose? If so, who would authorize it?	**Answers: Yes** allowed to receive this dose (no limit for voluntary exposure that is for lifesaving or protects large populations. **DSEO approval is required.**	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC RO A.3 Revision: 0

Task Title: Assess Emergency Dose Limits

Date Performed: ____________

Examinee: ____________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC RO A.3 Revision: 0

Initial Conditions:

You are an extra licensed operator on shift.

Your annual TEDE dose this year is 100 mr, all received at Millstone 3.

The plant is initially at 100% power when the following sequence of events occurs:

08:00	The US directs you to assist in a surveillance run of ‘A’ Safety Injection Pump.
08:50	The loose parts monitoring system goes into Alarm followed radiation levels in Containment rising.
09:00	‘A’ Steam Generator becomes ruptured requiring a manual Safety Injection. The Shift Manager declares an ALERT.
09:15	‘A’ Steam Generator low set safety valve fails open and will not close.
09:30	You are dispatched to the Aux Building.
10:30	In order to protect the surrounding community from the ongoing radiological release, the technical support center has authorized gagging the ‘A’ SG safety valve.
10:40	You volunteer to help gag the safety valve and are made aware of the risks. Your expectant dose would be 30 Rem.

Initiating Cues:

(1) Determine your available TEDE dose (taking your existing annual dose into consideration, if required) prior to reaching the following limits at the following times. Provide the allowable dose on the following table:

Time	Allowable dose to prevent exceeding the Admin guideline limit at Millstone 3	Allowable dose to prevent exceeding the Federal Dose Limit	Allowable dose to prevent exceeding the Emergency Dose Limit
08:01			N/A
09:31	N/A	N/A	

(2) At time 10:41, are you allowed to receive this dose? If so, who would authorize it?

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Respond to Degrading Intake Conditions

JPM Number: 2023 NRC SRO A.1.1 Revision: 0

Initiated:

W.M. Forrestt - signature on file	6/6/23
Developer	Date

Reviewed:

T. Brown - signature on file	6/12/23
Technical Reviewer	Date

Approved:

A. Leone - signature on file	6/13/23
Supervisor, Nuclear Training	Date

JPM Number: 2023 NRC SRO A.1.1 Revision: 0

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/6/23	Developed from SRO Bank JPM A215 for the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Student: ____________________

JPM Number: 2023 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

System: N/A

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes) 15

Applicable To: SRO X STA ____ RO ____ PEO ____

K/A Number: 2.1.20 K/A Rating: 4.6 / 4.6

Method of Testing: Simulated Performance: ____ Actual Performance: X

Location: Classroom: X Simulator: ____ In-Plant: ____

Task Standards: Reviews SP 3665.2-001, Intake Structure Condition Determination with Vacuum in Condenser, and determines: (1) environmental factors are now RED and (2) actions identified in step 4.7 of OP 3215 are now required.

Required Materials: (procedures, equipment, etc.)

1. Completed OPS form SP 3665.2-001Rev 12, Intake Structure Condition Determination with Vacuum in Condenser (part of JPM Examinee Handout)
2. SP 3665.2 Rev 13, Intake Structure Condition Determination (**handout**)
3. OP 3215 Rev 16, Response to Intake Structure Degraded Conditions **(handout full copy, not marked up)**

General References: N/A

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. With the exception of the questions at the end, you may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC SRO A.1.1 Revision : 0

Initial Conditions: You are the Shift Manager. It is April 15th and the unit is experiencing degrading conditions at the intake structure. The Shift Technical Advisor (STA) is maintaining SP 3665.2, Intake Structure Condition Determination current. The last surveillance was done at 0800 and indicated a plant factor condition of YELLOW, and an environmental factor condition of YELLOW. Plant actions for the yellow conditions are already in progress per OP 3215.

Initiating Cues: At 0900 the following conditions changed:

- PEO's have finished raking trash racks
- Trash rack DP's are now stable at 6.5", 6.0", 2.0", 2.5", 2.0", and 1.5".
- Traveling screen DP's are now stable at 5.0", 5.0", 4.0", 3.5", 2.0", 2.0".
- Wind speed, from 33' Met. Tower data, has increased to a steady 27 mph and from a new direction of 250°, which is verified by the marine forecast.

You directed the STA to conduct a new Intake Structure Condition Determination for CURRENT conditions which was just completed. With the exception of the bulleted items above, all other data on the attached SP 3665.2-001 remained unchanged from the 0800 completed surveillance.

Disposition the completed SP 3665.2-001 surveillance and document required actions, if any.

Simulator Requirements: NONE

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2021 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

START TIME ______________

<table>
<tr><td colspan="3">Comments:
(1) A copy of 3665.2-001 is marked up with 2 embedded errors (wind correction should be 10 vice 5 and trash rack DP is 3 points vice 6 points). This surveillance form is part of the examinee handout.
(2) Provide the examinee with the examinee handout AND a copy of (1) SP 3665.2, Intake Structure Condition Determination (2) OP 3215.
(3) Examinee may locate a single error and identify the form is incorrect, requiring correction. If examinee requests STA re-perform Intake Structure Condition Determination, provide the cue: Document your findings and continue with your review.</td></tr>
<tr><td rowspan="6">STEP #1
SP 3665.2
Step 4.3.7

3665.2-001
Pg 2 -3</td><td>Performance:
REQUEST SM review SP 3665.2-001.
Review and assess conditions for current Plant Factors.</td><td>Critical:
Y ☐ N ☒</td></tr>
<tr><td>Standard:
Examinee reviews the correct portion of the surveillance form which is the ‘Per SM/US column’ for the denoted plant conditions for each of the plant factors.</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>Standard:
Examinee reviews the plant factor values for Circulating water Pumps and Screens (P1), Screen Wash Pumps (P2), Trash Racks (P3), Trash Rakes (P4), Traveling Screens (P5) and Debris Conveyor (P6). Determines that P3 “Trash Racks” should be 3 points vice 6 points (based on only 2 racks equal / above 6 in.</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>Standard:
Examinee reviews the Plant Factors Section Total value and determines that a total value of ‘6’ was erroneously entered, instead of the correct value of ‘3’.</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="2">Cue:</td></tr>
<tr><td>Comments:
This change (from 6 to 3 points) will still result in a yellow condition. The examinee missing this step will have no adverse effect. Therefore, this is not a critical step.</td><td></td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2021 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

STEP #2 3665.2-001 Pg 3 - 4	Performance: **Review and assess conditions for current Environmental Plant Factors.**	
	Standard: Examinee reviews the correct portion of the surveillance form which is the 'Per SM/US column' for the denoted environmental conditions for each of the environmental factors.	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
	Standard: Examinee reviews the environmental factor values for Predicted Height of Next High Tide (E1) and Height of Tide in Last 48 Hours (E2), and determines that correct environmental factor values were denoted.	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
	Standard: Examinee reviews the environmental factor value for **Wind Direction (E3)** and determines that a **value of '1' was erroneously circled, instead of the correct value of '2'.**	Critical: **Y** ☒ N ☐ Grade: S ☐ U ☐
	Cue:	
	Comments: The new wind direction, as given in the cue, is from 250°. SP 3665.2-001 specifies a Wind Speed factor value of '2' for directions from 120° to 270°.	

PERFORMANCE INFORMATION

JPM Number: 2021 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

STEP #3 3665.2-001 Pg 3 - 4	Performance: **Review and assess conditions for current Environmental Plant Factors.**	
	Standard: Examinee reviews the correct portion of the surveillance form which is the 'Per SM/US column' for the denoted environmental conditions for each of the environmental factors.	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
	Standard: Examinee reviews the environmental factor values for Wind Speed (E4) and Historical Wind Speed (E5) and determines that correct environmental factor values were denoted.	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
	Standard: Examinee reviews the environmental factor value for **Wind Correction (E6)** and determines that **a value of '5' was erroneously entered, instead of the correct value of '10'.**	Critical: **Y** ☒ N ☐ Grade: S ☐ U ☐
	Cue:	
	Comments: Wind Correction (E6) is equal to Wind Speed (E4) plus Historical Wind Speed (E5) times Wind Direction (E3). E6 = E3 x (E4 + E5). Wind Direction (E3) should actually be a factor of '2' as opposed to '1'.	

PERFORMANCE INFORMATION

JPM Number: 2021 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

STEP #4 3665.2-001 Pg 4 - 5	Performance: **Review and assess conditions for current Environmental Plant Factors.**	
	Standard: Examinee reviews the correct portion of the surveillance form which is the 'Per SM/US column' for the denoted environmental conditions for each of the environmental factors.	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
	Standard: Examinee reviews the environmental factor values for Predicted Wave Height (E7), Historical Wave Height (E8), Wave Height / Seas Factor (E9), Barometric Pressure (E10), Season (E11), Historical Environmental Factor (E12) and Seaweed Loading (E13) and determines that correct environmental factor values were denoted.	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
3665.2-001 Pg 5	Standard: Examinee reviews the **Environmental Factors Section Total** value and determines that a **total value of '21' was erroneously entered, instead of the correct value of '26'.**	Critical: **Y** ☒ N ☐ Grade: S ☐ U ☐
	Cue:	
	Comments:	

PERFORMANCE INFORMATION

JPM Number: 2021 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

STEP #5	Performance: **Review and assess conditions for current Environmental Plant Factors.**	
3665.2-001 Pg 3 - 6	Standard: Examinee reviews the correct portion of the surveillance form which is the 'Per SM/US column' for the denoted environmental conditions for each of the environmental factors.	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
3665.2-001 Pg 6	Standard: Examinee recognizes that the Plant Factors Section Total value is ≥ 3, and therefore Plant Factor Condition remains "YELLOW".	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
3665.2-001 Pg 6	Standard: Examinee recognizes that the **Environmental Factors Section Total** value is **> 23 (specifically 26)**, and therefore is an **Environmental Factor Condition of "RED"** *not "YELLOW".*	Critical: **Y** ☒ N ☐ Grade: S ☐ U ☐
	Comments: This is an Environmental Factor Condition change from "YELLOW" to "RED'.	
3665.2-001 Pg 6	Standard: Examinee recognizes that the **Intake Condition Total is NOT > 29** (specifically 29).	Critical: Y ☐ N ☒ Grade: S ☐ U ☐
	Cue:	
	Comments:	
STEP #6	Performance: **Determine Required Actions**	Critical: Y ☐ N ☒
3665.2-001 Pg 6	Standard: Examinee recognizes that if any action level is exceeded, OP 3215 must be referred to. (SP 3665.2-001 Note 2)	Grade: S ☐ U ☐
	Cue:	
	Comments:	

PERFORMANCE INFORMATION

JPM Number: 2021 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

STEP #7 3665.2-001 Pg 6	Performance: **Determine Required Actions** using SP 3665.2-001 Note 3.	Critical: Y ☐ N ☒
	Standard: Examinee recognizes that if 'RED' action level is exceeded (environmental total or Intake total), a risk review must be performed. Additionally, per step 4.1.3.e (SP 3665.2) an Environmental Factor > 23 requires notification of WWC.	Grade: S ☐ U ☐
	Cue: **The STA will refer to NF-AA-PRA-370, and PERFORM a risk review.**	
	Comments:	
STEP #8 3665.2-001 Pg 6	Performance: **Determine Required Actions** using SP 3665.2-001 Note 4.	Critical: Y ☐ N ☒
	Standard: Examinee determines that the new environmental factor is 26 and this doesn't exceed 30. Therefore, Note 4 (pre-emptive downpower) is not applicable.	Grade: S ☐ U ☐
	Cue:	
	Comments:	
STEP #9 OP 3215	Performance: Obtain proper procedure.	Critical: Y ☐ N ☒
	Standard: Examinee obtains a copy of OP 3215 and reviews the procedure steps to determine which are applicable with the plant factor condition "RED", OR the environmental factor condition "RED".	Grade: S ☐ U ☐
	Cue:	
	Comments:	

JPM Number: 2021 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

STEP #10 OP 3215 Step 4.4 thru 4.6	Performance: OP 3215, Steps 4.3 and 4.5.	Critical: Y ☐ N ☒
	Standard: Examinee should recognize these steps are already in progress per initial condition.	Grade: S ☐ U ☐
	Cue: OP 3215 step 4.3 and 4.5 are already in progress based on the 0800 surveillance results which indicated both a plant factor condition and an environmental factor condition of "YELLOW", as given in the initial conditions. If questioned by the examinee, provide the following cue: **The actions associated with OP 3215, steps 4.3, 4.5 and 4.6 are already in progress.**	
	Comments:	
STEP #11 OP 3215 Step 4.7	Performance: <u>IF</u> environmental factor <u>OR</u> unplanned plant factor condition is "RED," PERFORM the following as appropriate:	Critical: **Y** ☒ N ☐
	Standard: Examinee recognizes that **step 4.7 is applicable for the new environmental conditions.**	Grade: S ☐ U ☐
	Cue:	
	Comments: It is not necessary for the examinee to discuss the specific actions associated with 4.7 steps of OP 3215 – but only identify that these actions apply to an environmental factor condition of "RED." Additional actions in SP 3665.2 or OP 3215 may be identified by the examinee. However, these are actions are not critical.	

TERMINATION CUE: **The evaluation for this JPM is concluded.** **STOP TIME** _______________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC SRO A.1.1 Revision: 0

Task Title: Respond to Degrading Intake Conditions

Date Performed: ____________

Examinee: ____________

For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	**20**	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT (page 1 of 7)

JPM Number: 2023 NRC SRO A.1.1 Revision: 0

Initial Conditions: You are the Shift Manager. It is April 15th and the unit is experiencing degrading conditions at the intake structure. The Shift Technical Advisor (STA) is maintaining SP 3665.2, Intake Structure Condition Determination current. The last surveillance was done at 0800 and indicated a plant factor condition of YELLOW, and an environmental factor condition of YELLOW. Plant actions for the yellow conditions are already in progress per OP 3215.

Initiating Cues: At 0900 the following conditions changed:

- PEO's have finished raking trash racks
- Trash rack DP's are now stable at 6.5", 6.0", 2.0", 2.5", 2.0", and 1.5".
- Traveling screen DP's are now stable at 5.0", 5.0", 4.0", 3.5", 2.0", 2.0".
- Wind speed, from 33' Met. Tower data, has increased to a steady 27 mph and from a new direction of 250°, which is verified by the marine forecast.

You directed the STA to conduct a new Intake Structure Condition Determination for CURRENT conditions which was just completed. With the exception of the bulleted items above, all other data on the attached SP 3665.2-001 remained unchanged from the 0800 completed surveillance.

Disposition the completed SP 3665.2-001 surveillance and document required actions, if any.

Form Approval

Approval Date	Effective Date
7/2/21	7/8/21

Surveillance Form

Generic Information

Form Title			Rev. No.
Intake Structure Condition Determination with Vacuum in Condenser			012
Reference Procedure	Applicable Tech. Spec.	Applicability (Tech. Spec.)	Frequency
SP 3665.2	N/A	N/A	S

Specific Information

Schedule Start Date		AWO Number	Mntc Restoration ☐ Yes ☐ No
Performance MODES With vacuum in Condenser	Prerequisites Completed (Initials) 2	Precautions Noted (Initials) 2	
Test Authorized By John Smith		Date Today	Partial Surveillance ☐ Yes ☐ No
Performed By David Lincoln		Date Today	
Accepted By		Date	Acceptance Criteria Satisfied ☐ Yes ☐ No
Approved By (Department Head or Designee)		Date	

Surveillance Information

Test Equipment Type	QA Number	Cal Due Date
N/A	N/A	N/A

Comments

CR# ______________

SP 3665.2- 001
Rev. 012
Page 1 of 6

Intake Structure Condition Determination with Vacuum in Condenser

	0700- 1000		1900- 2200		Per SM/US	Per SM/US
	Current	Predicted	Current	Predicted	0900 (Time)	(Time)
Plant Factors						
P1 Circulating Water Pumps and Screens						
Circulating pumps, and screens operating properly <u>or</u> available for operation	0	0	0	0	0	0
One circulating pump or screen out of service (C, D, E or F)	3	3	3	3	3	3
One circulating pump or screen out of service (A or B)	6	6	6	6	6	6
Two circulating pumps or screens out of service	9	9	9	9	9	9
Three circulating pumps or screens out of service	25	25	25	25	25	25
P2 Screen Wash Pumps						
Two pumps available	0	0	0	0	0	0
One pump out of service	8	8	8	8	8	8
Two pumps out of service	25	25	25	25	25	25
P3 Trash Racks (If 24 Hr look ahead *not* feasible, use current values)						
< 6 inches dp on all racks	0	0	0	0	0	0
≥ 6 inches dp on one rack	1	1	1	1	1	1
≥ 6 inches dp on two racks	3	3	3	3	3	3
≥ 6 inches dp on three racks	6	6	6	6	6	6
≥ 6 inches dp on four or more racks	12	12	12	12	12	12
≥ 10 inches on two or more racks	20	20	20	20	20	20
P4 Trash Rakes						
Two rakes available	0	0	0	0	0	0
One rake out of service	8	8	8	8	8	8
Two rakes out of service	25	25	25	25	25	25
P5 Traveling Screens (If 24 Hr look ahead *not* feasible, use current values)						
< 6 inches dp, in either automatic, Slow 1, or Slow 2	0	0	0	0	0	0
≥ 6 inches dp, with screens in automatic, Slow 1 or Slow 2	6	6	6	6	6	6
≥ 9 inches dp, with screens frequently shifting to Fast 1, or Fast 2 (once per hour over 3 hours)	12	12	12	12	12	12

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Rev. 012
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Intake Structure Condition Determination with Vacuum in Condenser

	0700- 1000		1900- 2200		Per SM/US	Per SM/US
	Current	Predicted	Current	Predicted	0900 (Time)	(Time)
Plant Factors (cont'd)						
P6 Debris Conveyor						
Debris conveyor available or trough hatch open	0	0	0	0	0	0
Debris conveyor out of service	3	3	3	3	3	3
Plant Factors Section Total						
(P1 + P2 + P3 + P4 + P5 + P6)	3				6	
Environmental Factors						
E1 Predicted Height of Next High Tide (local tide charts including storm surge)						
Next high tide is < 3.0 feet	0	0	0	0	0	0
Next high tide is ≥ 3.0 feet but < 4 feet	2	2	2	2	2	2
Next high tide is ≥ 4 feet	4	4	4	4	4	4
E2 Height of Tide in Last 48 Hours (local tide charts including storm surge)						
All high tides < 4 feet	0	0	0	0	0	0
1 high tide ≥ 4 feet	2	2	2	2	2	2
2 high tides ≥ 4 feet	3	3	3	3	3	3
≥ 3 high tides ≥ 4 feet	4	4	4	4	4	4
E3 Wind Direction (actual from 33′ MET tower Internet, PPC, OFIS or EDAN)						
From 270° to 120° (> 270° or < 120°)	1	1	1	1	1	1
From 120° to 270° (≥ 120° or ≤ 270°)	2	2	2	2	2	2
E4 Wind Speed (actual from 33′ MET tower Internet, PPC, OFIS or EDAN) (CVAVGWS33 Preferred)						
Sustained speed < 10 mph	1	1	1	1	1	1
Sustained speed ≥ 10 mph but < 20 mph	2	2	2	2	2	2
Sustained speed ≥ 20 mph but < 25 mph	3	3	3	3	3	3
Sustained speed ≥ 25 mph but < 30 mph	5	5	5	5	5	5
Sustained speed ≥ 30 mph or gusts ≥ 45 mph	7	7	7	7	7	7

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Intake Structure Condition Determination with Vacuum in Condenser

	0700- 1000		1900- 2200		Per SM/US	Per SM/US
	Current	Predicted	Current	Predicted	0900 (Time)	(Time)
Environmental Factors (cont'd)						
E5 Historical Wind Speed (Internet, PPC, OFIS or EDAN) (CVAVGWS33 Preferred)						
Sustained wind < 20 mph in last 24 hours <u>or</u> Sustained wind speed has *not* been greater than or equal to 20 mph for 4 cumulative hours in last 24 hours	0	0	0	0	0	0
Sustained wind ≥ 20 mph for 4 cumulative hours in last 24 hours	2	2	2	2	2	2
Sustained wind ≥ 20 mph for 8 cumulative hours in last 24 hours	3	3	3	3	3	3
Sustained wind ≥ 20 mph for 12 cumulative hours in last 24 hours	4	4	4	4	4	4
E6 Wind Correction:						
E3 × (E4+ E5)	3				5	
E7 Predicted Wave Height/Seas next 12 hrs (from internet)						
Wave height ≤ 1 foot	1	1	1	1	1	1
Wave height > 1 foot but < 3 feet	2	2	2	2	2	2
Wave height ≥ 3 feet but < 5 feet	4	4	4	4	4	4
Wave height ≥ 5 feet	6	6	6	6	6	6
E8 Historical Wave Height/Seas (Past 48 Hrs) (Worst of previous surveillances or current conditions)						
Wave height < 3 1/2 feet in last 48 hours	1	1	1	1	1	1
Wave height ≥ 3 1/2 feet in last 48 hours	2	2	2	2	2	2
E9 Wave Height/Seas Factor						
E7 x E8	2				2	
E10 Barometric Pressure (internet or local on site if available)						
Pressure > 29.5″ (> 999 mb), steady/rising	1	1	1	1	1	1
Pressure > 29.5″ (> 999 mb), falling	2	2	2	2	2	2
Pressure ≤ 29.5″ (≤ 999 mb), steady/rising	2	2	2	2	2	2
Pressure ≤ 29.5″ (≤ 999 mb), falling	4	4	4	4	4	4
E11 Season						
January, February, November, December	2	2	2	2	2	2
August, September, October	4	4	4	4	4	4
March, April, May, June, July	6	6	6	6	6	6

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Rev. 012
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Intake Structure Condition Determination with Vacuum in Condenser

	0700- 1000		1900- 2200		Per SM/US	Per SM/US
	Current	Predicted	Current	Predicted	0900 (Time)	(Time)
Environmental Factors (cont'd)						
E12 Historical Environmental Factor						
Last environmental factor < 25	0	0	0	0	0	0
Last environmental factor ≥ 25	4	4	4	4	4	4
E13 Seaweed Loading Carts of Seaweed from trash racks in previous 2 shifts (logs)						
< 10	0	0	0	0	0	0
≥ 10 but ≤ 20	4	4	4	4	4	4
> 20	6	6	6	6	6	6
Environmental Factors Section Total						
(E1 + E2 + E6 + E9 + E10 + E11+ E12 + E13)	19				21	

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Rev. 012
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Intake Structure Condition Determination with Vacuum in Condenser

Parameter	Action Level	0700- 1000 Current	0700- 1000 Predicted	1900- 2200 Current	1900- 2200 Predicted	Per SM/US 0900 (Time)	Per SM/US (Time)
Determination of Factors							
Sustained wind speed from 72 hour weather forecast	Predicted sustained speed > 20 mph (Note 1)	YES				YES	
Plant Factors Section Total (from page 3)	≥ 3 points (Note 2) / > 9 points	3				6	
Environmental Factors Section Total (from page 5)	≥ 17 points (Note 2) / > 23 points (Note 3 and 4)	19				21	
Intake Condition Total (Plant + Environmental)	> 29 points (Note 2 and 3)	22				27	
SM/US Review		OI					

Note 1: IF sustained wind speed over the next 72 hours is predicted to be greater than 20 MPH, Refer To OP 3215, "Response to Intake Structure Degraded Conditions."

Note 2: IF any Action Level is exceeded, Refer To OP 3215, "Response to Intake Structure Degraded Conditions."

Note 3: IF action level is exceeded, Refer To NF- AA- PRA- 370, "Probabilistic Risk Assessment Procedures and Methods: PRA Guidance for MRule (a)(4)" and PERFORM a risk review.

Note 4: IF current or predicted environmental factors total is greater than 30, CONSIDER pre- emptive power reduction ahead of storm arrival.

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JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Determine time to core boil for venting the RCS

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Initiated:

W. M. Forrestt – signature on file	6/8/23
Developer	Date

Reviewed:

T. Brown – signature on file	6/8/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/8/23	Modified JPM developed for the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes): 20 minutes

Applicable To: SRO **X** RO ______

K/A Number: 2.1.25 K/A Rating: 4.2

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Given bounding conditions, correctly determines time for core boil in accordance with included answer key.

Required Materials: (procedures, equipment, etc.)
1. OU-M3-201
   - Pages 1 -7
   - Attachment 8, pages 61 - 71

General References: NA

*** **READ TO THE EXAMINEE** ***
I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC SRO A.1.2 Revision : 0

Initial Conditions:

You are an extra on-shift licensed SRO.
Today is April 21, 2023 and the plant was shutdown yesterday to begin a scheduled refueling outage.
Presently, the following plant conditions exist at time 1400:
Mode 5
RCS Temperature: 105 F
RCS Pressure: 125 psia
RCS Level: 100% PZR Cold Cal lvl

Narrative Log entries identify the following conditions:

4/20, 1545	Entered Mode 2
4/20, 1600	Opened Reactor Trip breakers, entered Mode 3
4/20, 1900	Commenced RCS depressurization
4/20, 1915	Stopped A, C & D RCP's per OP 3208
4/21, 0200	AFW stopped. All SG NR Levels 50%.
4/21, 0300	'B' RHR started in cooldown mode per OP 3310A
4/21, 0600	Commenced raising pressurizer level to solid conditions per OP 3208
4/21, 0830	Stopped all pressurizer heaters
4/21, 1200	Stopped 'B' RCP in prep for RCS depressurization
4/21, 1400	RCS depressurized to 125 psia

Initiating Cues:

The Outage Control Center wants to pull up venting the RCS to Containment via the pressurizer vent valve 3RCS*V187. They want this to be done for today, April 21st at 1600. The STA has calculated the revised time for time to core boil for these conditions to be 31 minutes.

The Shift Manager has asked that you perform an independent calculation for time to core boil at 1600 today. Use attached copy of OU-M3-201, including Attachment 8.

For the calculation, the only changes to provided plant parameters are:

- RCS pressure will be 37 psia (when vented) and
- Pressurizer level will be lowered and maintained at 93%.

No other calculations are required, other than time to core boil. Record work in Table 4 of Attachment 8. When done, provide completed Table 4 to examiner. You will sign the STA's copy of Table 4.

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

START TIME: __________

EXAMINER NOTE(S):

Attachment 8, Millstone Unit 3 RCS Heatup Calculations, is 11 pages and has numerous notes and tabular information to calculate time to core boil, time to 200 F, time to EAL classification CA3.1. This JPM only contains pertinent notes and direction related to time to core boil.

STEP #1 OU-M3-201 Step 3.2.1b	Performance: 1. **IF** in MODE 0, **THEN CHECK** “NA (MODE 0)” and **GO TO** step 3.2.1.e.	Standard: Plant is in Mode 5. Step is NA. Proceeds to step 2.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 OU-M3-201 Step 3.2.1b	Performance: **2. REFER** to applicable attachments in OP 3216, Reactor Coolant System Drain (ICCE), and OP 3260I, RCS Inventory Tracking, and **DETERMINE** RCS Pressure, RCS Temp, and RCS Level.	Standard: These parameters were given in the initial conditions.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: If asked for the referenced documents, inform examinee “These parameters were given in your initial conditions”.			
	Comments:			
STEP #3 OU-M3-201 Step 3.2.1b	Performance: **3. REFER** to ATTACHMENT 8 and determine RCS Time to Boil.	Standard: Refers to Attachment 8.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

STEP #4 Att. 8 NOTES	Performance: Pertinent Notes: • If RCS is vented to containment or the PRT, the "Time To Core Boiling" given is the time required to raise primary side water to Tsat. No credit is taken for heat transfer to the secondary side, however, heat transfer to the primary side is accounted for in number of RCS loops available. • Shutdown Time should be calculated from time when all Control Banks were fully inserted. • With RCS vented, a cold cal pressurizer level greater than 40.3% provides at least 30 psia at the top of the reactor core.	Standard: Acknowledges Notes. Will be used later for calculation.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #5 Att. 8 Step 1	Performance: **1. RECORD** time after reactor shutdown (in days),	Standard: All of these values will be recorded on Table 4. 24 hrs since Control Rods inserted. Referencing Table 1: Decay Heat versus Time, this is recorded as **1.00 day**	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Current RCS temperature (°F)	**105 F**	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	RCS pressure (psia),	**37 psia** (provided with initial conditions)	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	RCS level.	**93%** PZR Cold Cal lvl	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

<u>**PERFORMANCE INFORMATION**</u>

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

<table>
<tr><td rowspan="3">STEP #6
Att. 8
Step
2</td><td>Performance:
2. RECORD Decay Heat from Table 1.</td><td>Standard:
On table 1, uses 1.0 Day (derived in JPM Step 5) and records 1.322E6 on Table 4.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #7
Att. 8
Step
3</td><td>Performance:
3. RECORD Core Condition Multiplier (MULT1) using one of the following:
• MULT1 = 1.0 for Before Core Offload (BCO) is complete
• MULT1 = 0.752 for After Core Reload (ACR) is started</td><td>Standard:
Based on initial conditions, determines MULT1 = 1.0</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="4">STEP #8
Att. 8
Step
4</td><td>Performance:
4. RECORD Mass Multipliers (MULT2 and MULTSG) from Table 2.
• MULT2 = RCS Mass Multiplier for different plant configurations</td><td>Standard:
Refers to Table 2 (applying notes) and records 246246</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>Performance:
• MULTSG = SG Secondary Mass Multiplier for number of SGs available (N/A if RCS pressure<170 psia)</td><td>Standard:
Based on RCS pressure, determines MULTSG will not be used in calculation and marks N/A.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

<table>
<tr><td rowspan="3">STEP #9

Att. 8 Step</td><td>Performance:
NOTE:
• NOTE: If plant is in Mode 5 with RCS pressure < 30 psia, pressurizer level < 50%, or in Mode 6: Tsat = 212°F
• The lowest reading from the in-service RCS Wide Range Hot leg Pressure indicators, RCS*P403 and RCS*P405, is used with Table 3 to determine Tsat.</td><td>Standard:
Reads and acknowledges notes.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #10

Att. 8 Step</td><td>Performance:
5. RECORD Tsat for the RCS from Table 3.</td><td>Standard:
Based on expected RCS pressure of 37 psia (vented pressurizer, static head pressure only), refers to Table 3 and records 260.92 F for Tsat.
(band: 260 – 261F)</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: (1) The value recorded reflects applying table instruction of not interpolating (using next lowest pressure, 36 psia). (2) Band is allowed for rounding.</td></tr>
<tr><td rowspan="2">STEP #11

Att. 8 Step</td><td>Performance:
6. CALCULATE and RECORD RCS Time to Boil.
MULT2 x (Tsat - RCS Temp) / [MULT1*Decay Heat]</td><td>Standard:
246246 x (155.92) / 1.322E6
29 min.
(band 28.5 – 29.5 min.)</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

	Comments: Band is allowed for rounding.			
STEP #12 Att. 8 Step	Performance: 7. **SIGN** "Perform By¨ (STA or Licensed Operator).	Standard: Cue says STA has completed calculation separately. No action needed.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #13 Att. 8 Step	Performance: 8. **OBTAIN** Independent Check (SRO).	Standard: Cue informs examinee "You will sign the STA's copy of Table 4." No action needed.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

ANSWER KEY

Days Shutdown	RCS Temp (F)	RCS Level (% or ft above flange)	RCS Pressure (psia)	Decay Heat (Btu/min)	MULT1	MULT2	MULTSG	Tsat (F)	RCS Time to Boil (Min)
				1.322E6	**1.0**	**246246**		**260.92** (260 – 261)	**29** (28.5 – 29.5)

NOTE(S): 1. If a value is not given, the answer is not considered critical. **2.** Allowable bands (for rounding) are given in parenthesis.

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Task Title: Determine time to core boil for venting the RCS

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	20 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC SRO A.1.2 Revision: 0

Initial Conditions: You are an extra on-shift licensed SRO.
Today is April 21, 2023 and the plant was shutdown yesterday to begin a scheduled refueling outage.
Presently, the following plant conditions exist at time 1400:
Mode 5
RCS Temperature: 105 F
RCS Pressure: 125 psia
RCS Level: 100% PZR Cold Cal lvl

Narrative Log entries identify the following conditions:

4/20, 1545	Entered Mode 2
4/20, 1600	Opened Reactor Trip breakers, entered Mode 3
4/20, 1900	Commenced RCS depressurization
4/20, 1915	Stopped A, C & D RCP's per OP 3208
4/21, 0200	AFW stopped. All SG NR Levels 50%.
4/21, 0300	'B' RHR started in cooldown mode per OP 3310A
4/21, 0600	Commenced raising pressurizer level to solid conditions per OP 3208
4/21, 0830	Stopped all pressurizer heaters
4/21, 1200	Stopped 'B' RCP in prep for RCS depressurization
4/21, 1400	RCS depressurized to 125 psia

Initiating Cues: The Outage Control Center wants to pull up venting the RCS to Containment via the pressurizer vent valve 3RCS*V187. They want this to be done for today, April 21st at 1600. The STA has calculated the revised time for time to core boil for these conditions to be 31 minutes.

The Shift Manager has asked that you perform an independent calculation for time to core boil at 1600 today. Use attached copy of OU-M3-201, including Attachment 8.

For the calculation, the only changes to provided plant parameters are:

- RCS pressure will be 37 psia (when vented) and
- Pressurizer level will be lowered and maintained at 93%.

No other calculations are required, other than time to core boil. Record work in Table 4 of Attachment 8. When done, provide completed Table 4 to examiner. You will sign the STA's copy of Table 4.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title:	Determine response for blocking open a Cable Spreading Room Door		
JPM Number:	2023 NRC SRO A.2	Revision:	0

Initiated:

W. M. Forrestt – signature on file	6/9/23
Developer	Date

Reviewed:

T. Brown – signature on file	6/12/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/9/23	Modified JPM developed for the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC SRO A.2 Revision: 0

Task Title: Determine response for blocking open a Cable Spreading Room Door

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes): 20 minutes

Applicable To: SRO X RO ______

K/A Number: 2.2.21 K/A Rating: 4.1

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Given pending inoperability of door C-24-3, properly identifies necessary compensatory actions to perform work. Actions include (1) Fire Rove (continuous watch is most restrictive) (2) Enters TRM 3.7.12.3.e Action a and TRM 3.7.13 Action a (3) Notifies Site Fire Marshal and Security.

Required Materials: (procedures, equipment, etc.)

1. OP 3261 Rev. 015-00, Response to Door Inoperability (handout)
2. Unit 3 Technical Specifications (Rev. 311)
3. Unit 3 Technical Requirements Manual (Rev. 210)
4. OP 3341E, Access to CO2 Protected Areas (Rev. 8 Ch.3)

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC SRO A.2 Revision : 0

Initial Conditions: The plant is at 100% power and you are the Work Control SRO on shift. Door C-24-3, Stairwell to Cable Spreading Room, no longer seals and requires an emergent repair. The door will have to be removed from its frame to make the repairs. It is estimated that the repair will take 1.5 hours.

Initiating Cues: On a rough log, identify any compensatory actions (including notifications) necessary before blocking open door C-24-3.

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking “Y”. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.2 Revision: 0

Task Title: Determine response for blocking open a Cable Spreading Room Door

START TIME: ___________

STEP	Performance:	Standard:	Critical:	Grade:
STEP #1 OP 3261 Step Notes	1. This Section lists categories of different types of doors and necessary action to be taken when the type of door is *not* capable of performing its intended function. 4. In general, the door needs to be physically intact (i.e., latch, hinge, frame, sweep, keeper, seals, etc.) and in working order to perform its safety function. However, a door may not need all door components to satisfy a specific safety function. For example, a SLCRS door with a latch that does not latch but which closes in the SLCRS direction would not necessarily fail to fulfill the SLCRS safety function only because of the latch. Each door attribute must be evaluated against the identified deficiency.	Examinee reads notes and proceeds to next step.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments: Only pertinent notes listed here.			
STEP #2 OP 3261 Step 1.1	Obtain the following information for each affected door: • Door ID number and location • Nature of inoperability (blocked open, doesn't latch, etc.) • If door is being blocked open, AWO/clearance number/activity. • If known, expected duration of inoperability.	Reviews initial conditions for required information.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.2 Revision: 0

Task Title: Determine response for blocking open a Cable Spreading Room Door

STEP	Performance:	Standard:	Critical:	Grade:
STEP #3 OP 3261 Step 1.2	Refer To Attachment 2, “Unit 3 Door Attributes," and DETERMINE applicable attributes to door in question.	Examinee refers to Attachment 2 and determines and logs that for door C-24-3, the following attributes apply: • Security Door **(#349)** • TRM Fire Door • Locked TRM Fire Door • CO2 Door	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments:			
STEP #4 OP 3261 Step 1.3	Performance: If door is a Dual Train door PERFORM the following:	Standard: Examinee recognizes that door C-24-3 is **<u>NOT</u>** a Dual Train Protection Door, and proceeds to next step.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #5 OP 3261 Step 1.4.1	Performance: IF one of the following types of doors is *not* capable of performing its intended function, PERFORM the specified actions: IF door is a security door, PERFORM the following:	Standard: Identifies security door is an attribute, continues with step 1.4.1.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: a. Refer To Attachment 1 for list of security door number cross references.	Standard: Cross reference confirms door C-24-3 is security door 349 (which was listed in Att. 2 as such).	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: b. NOTIFY Security Department of problems with doors or expected maintenance.	Standard: Identifies security notification on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.2 Revision: 0

Task Title: Determine response for blocking open a Cable Spreading Room Door

	Comments: Step 1.4 addresses many possible door attributes and resultant actions required. This JPM lists only the sub-steps that are applicable to door C-24-3.			
STEP #6 OP 3261 Step 1.4.2	Performance: IF door is a "**TRM** Related Fire Door," PERFORM the following:	Standard: Identifies the door is a TRM Fire Door, continues to sub-steps	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: a. Refer To TRM 3.7.13, "Plant Systems, Fire Rated Assemblies," and PERFORM applicable actions.	Standard: Enters LCO 3.7.13, ACTION a. (1 hour allowed outage time to establish fire rove) on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Performance: b. NOTIFY Site Fire Marshal	Standard: Identifies Site Fire Marshal notification on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #7 OP 3261 Step 1.4.3	Performance: IF door is a "**Locked TRM** Related Fire Door," PERFORM the following:	Standard: Identifies the door is a Locked TRM Fire Door, continues to sub-steps	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: a. Refer To TRM 3.7.13, "Plant Systems, Fire Rated Assemblies," and PERFORM applicable actions.	Standard: Enters LCO 3.7.13, ACTION a. (1 hour allowed outage time to establish fire rove) on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Performance: b. IF the only action performed is to unlock door to provide temporary access, Refer To SP 3670.3, "Control of Temporary Logs," and INITIATE approved temporary log requiring verification that door is closed every 24 hours.	Standard: Determines this step is not applicable. Proceeds to the next step.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐

	c. NOTIFY Site Fire Marshal.	Standard: Identifies Site Fire Marshal notification on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #8 OP 3261 Step 1.4.7	Performance: IF door is a CO2 boundary door, PERFORM the following:	Standard: Identifies the door is a CO2 boundary door, continues to sub-steps	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: a. Refer To TRM 3.7.12.3, “Plant Systems, Fire Protection Systems, CO2 Systems,” and PERFORM applicable actions.	Standard: TRM 3.7.12.3.e Action a on rough log (1 hour to establish continuous fire watch)	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Performance: b. NOTIFY Site Fire Marshal.	Standard: Identifies Site Fire Marshal notification on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Performance: c. Refer To OP 3341E, “Access to CO2 Protected Areas,” for work on door except for doors A- 24- 6 and C- 47- 1, [ATD].	Standard: Reviews OP 3341E and determines no actions are necessary for this area as the Cable Spreading CO2 system is manual actuation.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC SRO A.2 Revision: 0

Task Title: Determine response for blocking open a Cable Spreading Room Door

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	20 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC SRO A.2 Revision: 0

Initial Conditions: The plant is at 100% power and you are the Work Control SRO on shift. Door C-24-3, Stairwell to Cable Spreading Room, no longer seals and requires an emergent repair. The door will have to be removed from its frame to make the repairs. It is estimated that the repair will take 1.5 hours.

Initiating Cues: On a rough log, identify any compensatory actions (including notifications) necessary before blocking open door C-24-3.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Respond to a Radiation Monitoring System Trouble Alarm

JPM Number: 2023 NRC SRO A.3 Revision: 0

Initiated:

W. M. Forrestt – signature on file	6/12/23
Developer	Date

Reviewed:

T. Brown – signature on file	6/12/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/12/23	New JPM developed for the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

Time Critical Task: ☐ YES ☒ NO

Validated Time (minutes): 20 minutes

Applicable To: SRO **X** RO ______

K/A Number: 2.3.12 K/A Rating: 3.7

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Given conditions where 3CMS*RE22 becomes inoperable, Examinee makes rough log entries for ALL of the following:

(1) Notification of I&C, HP, and Chemistry

(2) Enters Tech Specs:

- TS 3.3.3.1 Action b -- FU1.b Action 29
- TS 3.4.6.1.a Action a

(3) Identifies that 3CMS*RE22 are detectors credited as "Equipment Important to Emergency Response" (in EP-AA-303) and writes a Condition Report (as directed by EP-AA-303).

Required Materials: (procedures, equipment, etc.)

1) OP 3353.MB2B-002-09 "RMS TROUBLE" (Rev. 1) **(handout)**

2) OP 3362 Radiation Monitor System Display and Control (Rev. 23)

3) EP-AA-303 Equipment Important to Emergency Response (Rev. 28)

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC SRO A.3 Revision : 0

Initial Conditions:

The plant is at 100% power, ‘A’ train protected, with no equipment out of service.

You are the Unit Supervisor.

The Reactor Operator has just reported MB2B-2-9 “RMS Trouble” is in alarm for 3CMS*RE22. The DRMS screen indicates the following for 3CMS*RE22:

- OFFLINE,,
- REACHABLE,
- EQUIPMENT FAILURE ALARM based on AUX EQUIPMENT FAILURE

There are no other alarms on 3CMS*RE22. The Radiation Monitoring System (RMS) is functioning properly.

Initiating Cues:

In a rough log, IDENTIFY any actions (including notifications) necessary due to the RMS Trouble alarm (see attached ARP).

The Shift Manager is evaluating any possible REMODCM actions.

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking “Y”. For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

START TIME: ________

Step	Performance	Standard	Critical	Grade
STEP #1 MB2B 2-9 ARP	Performance: 1. DETERMINE the cause of RMS trouble indication at RMS Control Room Operator Console or Control Room DRMS Work Station.	Standard: From initiating cue, examinee determines cause for RMS trouble is 3CMS*RE22.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 MB2B 2-9 ARP	Performance: NOTE: Due to weak check sources, DRMS may alarm “check source fail” or RIC may flash “EQUIP FAIL” if instantaneous monitor reading is less than “expected check source” value.	Standard: Examinee reads note, recognizes from cue it’s not applicable, and proceeds to next step.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: If asked about these alarms: Report “’CHECK SOURCE FAIL’ is not lit and the RIC is not flashing “EQUIP FAIL”.			
	Comments:			
STEP #3 MB2B 2-9 ARP	Performance: 2. IF alarm is due to check source failure, PERFORM the following:	Standard: Examinee recognizes from cue that the RMS Trouble alarm is not due to a check source failure. Marks step N/A and proceeds to next step.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: If asked about this alarm: Report: “CHECK SOURCE FAILURE” is not lit.			
	Comments:			
STEP #4 MB2B 2-9 ARP	Performance: 3. IF alarm is due to equipment failure, Refer To OP 3362, “Radiation Monitor System Display and Control,” and PERFORM required actions for equipment failure alarms.	Standard: From the initiating cue, recognizes alarm is due to equipment failure. Proceeds to OP 3362 section 4.13 “Equipment Failure Alarms”.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

	Comments: JPM is written that Examinee performs OP 3362 at this time. There are remaining ARP steps required to complete. These are located in JPM Steps 13 and 14.			
STEP #5 OP 3362 4.13.1	Performance: Refer To Attachment 1 and PERFORM the following: a. CHECK monitor number is listed. b. IF monitor is listed, DETERMINE applicable Trouble Response(s).” c. PERFORM applicable “Trouble Response(s)” listed.	Standard: Examinee refers to Attachment 1, identifies 3CMS*RE22 is listed, and proceeds to address listed ‘Trouble Responses’ 1, 2, 3, 6, 7, 10, 12.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 OP 3362 Att. 1	Performance: Trouble Response 1: NOTIFY Instrument and Control Department to check monitor.	Standard: Identifies Instrument and Control Department on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #7 OP 3362 Att. 1	Performance: Trouble Response 2: NOTIFY Health Physics Department for area monitoring and sampling as required.	Standard: Identifies Health Physics Department communication (monitoring & sampling) on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

Step	Performance	Standard	Critical	Grade
STEP #8 OP 3362 Att. 1	Performance: Trouble Response 3: NOTIFY Chemistry Department for sampling medium.	Standard: Identifies Chemistry communication for sampling medium on rough log.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #9 OP 3362 Att. 1	Performance: Trouble Response 6: IF a filter step alarm is recorded, ATTEMPT to step the filter as follows:	Standard: From initiating cue, identifies filter step alarm didn't occur. Proceeds to next Trouble Response.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: If asked about status of a 'FILTER STEP' alarm, Report "A 'FILTER STEP' alarm is not recorded.			
	Comments:			
STEP #10 OP 3362 Att. 1	Performance: Trouble Response 7: IF a radiation monitor indicates "OFF---LINE," DECLARE the radiation monitor inoperable/nonfunctional and LOG into all applicable LCOs.	Standard: From initiating cue, recognizes 3CMS*RE22 indicates 'OFF – LINE' and declares radmonitor inoperable. Examinee enters Tech Specs: • TS 3.3.3.1 Action b -- FU1.b Action 29 • TS 3.4.6.1.a Action a	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments: Trouble Step 7 is redundant to Trouble Steps 10 & 12 for Tech Spec entries.			

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

Step	Performance	Standard	Critical	Grade
STEP #11 OP 3362 Att. 1	Performance: Trouble Response 10: Refer To T/S 3.3.3.1 and Table 3.3---6, "Radiation Monitoring Instrumentation for Plant Operations," and PERFORM applicable actions.	Standard: Examinee enters Tech Spec: • TS 3.3.3.1 Action b -- FU1.b Action 29	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #12 OP 3362 Att. 1	Performance: Trouble Response 12: Refer To T/S 3.4.6.1, "Reactor Coolant System Leakage Detection Systems," and PERFORM applicable actions.	Standard: Examinee enters Tech Spec: • TS 3.4.6.1.a Action a	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #13 MB2B 2-9 ARP	Performance: 4. IF alarm is due to a computer (CPU) failure, Refer To OP 3362, "Radiation Monitor System Display and Control," and PERFORM required actions for computer failure.	Standard: From initiating cue, identifies step is N/A as a computer failure hasn't occurred.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

STEP #14 MB2B 2-9 ARP	Performance: 5. ENSURE Technical Specifications, REMODCM and EP---AA---303 ACTIONS are in place.	Standard: Identifies all Tech Specs have been addressed. Per initiating cue, the Shift Manager is evaluating REMODCM impact. Proceeds to EP-AA-303 for possible actions.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #15 EP-AA-303 3.2.1	Performance: **REFER** to appropriate attachment to identify Emergency Response Equipment.	Standard: Identifies radmonitors are listed on Attachment 2 (MP3 Equipment Important to Emergency Response) page 4. Detectors are category B.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments: Critical nature of step is that Examinee identifies (on rough log) that 3CMS*RE22 are detectors are credited in EP-AA-303.			
STEP #16 EP-AA-303 3.2.2	Performance: **DOCUMENT** degraded or non-functional Emergency Response Equipment in the corrective action process.	Standard: On rough log, documents writing a Condition Report for 3CMS*RE22.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

STEP	Performance:	Standard:	Critical:	Grade:
STEP #17 EP-AA-303 3.2.3	**IMPLEMENT** compensatory measures as described in appropriate attachments. a. **IF** compensatory measures are **NOT** available, **THEN REFER** to WM-AA-100, Work Management, for prioritization of work activities.	Compensatory Measures are to verify a redundant Area Radiation Monitor is available in Containment (RMS01, RMS41/42). These compensatory measures are met based on the redundant radiation monitors being available (initial conditions reported "no equipment oos").	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments:			
STEP #18 EP-AA-303 3.2.3	**DOCUMENT** in Corrective Action Process and **INITIATE** ATTACHMENT 10.	Attachment 10, Adequacy of Compensatory Measure, yields a flow chart outcome of "IMPLEMENT PRIORITY 2 WORK ORDER per WM-AA-100". Flowchart: Non functional equipment / Issue CR (done above) / Category A or B / Backup Equip Avail (Yes) / PRIORITY 2 Work Order	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments: (1) Remaining steps in section 3.2 of EP-AA-303 are not listed as they are steps implemented by other organizations, relate to Category A equip, or are Shift Manager reporting requirements.			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC SRO A.3 Revision: 0

Task Title: Respond to a Radiation Monitoring System Trouble Alarm

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	20 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC SRO A.3 Revision: 0

Initial Conditions: The plant is at 100% power, 'A' train protected, with no equipment out of service.

You are the Unit Supervisor.

The Reactor Operator has just reported MB2B-2-9 "RMS Trouble" is in alarm for 3CMS*RE22. The DRMS screen indicates the following for 3CMS*RE22:

- OFFLINE,,
- REACHABLE,
- EQUIPMENT FAILURE ALARM based on AUX EQUIPMENT FAILURE

There are no other alarms on 3CMS*RE22. The Radiation Monitoring System (RMS) is functioning properly.

Initiating Cues: In a rough log, IDENTIFY any actions (including notifications) necessary due to the RMS Trouble alarm (see attached ARP).

The Shift Manager is evaluating any possible REMODCM actions.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Evaluate Possible Change to Protective Action Recommendations

JPM Number: 2023 NRC SRO A.4 Revision: 0

Initiated:

W. M. Forrestt – signature on file	6/9/23
Developer	Date

Reviewed:

T. Brown – signature on file	6/12/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/9/23	New JPM developed for the 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC SRO A.4 Revision: 0

Task Title: Evaluate Possible Change to Protective Action Recommendations

Time Critical Task: ☒ YES ☐ NO

Validated Time (minutes): 13 minutes

Applicable To: SRO **X** RO ______

K/A Number: 2.4.44 K/A Rating: 4.4

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: X Simulator: ______ In-Plant: ______

Task Standards: Given postulated conditions, determines a change to the PAR is warranted. Completes Section D: State DEEP PAR Transmittal Form (MP-26-EPI-FAP06-006) that matches requirements of attached answer key. PAR is completed with 15 minutes of JPM start.

Required Materials: (procedures, equipment, etc.)

1. "CR DSEO" Book – containing all of the following references **(Handout)**

1. MP-26-EPI-FAP06-003 Rev. 012, Millstone Unit 3 Emergency Action Levels
2. MP-26-EPI-FAP06 Rev 13, Classification and PARs
3. MP-26-EPI-FAP06-006 Rev. 009, Protective Action Recommendations

2. EAL BASIS Book – containing MP-26-EPA-REF03 Rev. 27, Millstone Unit 3 Emergency Action Level (EAL) Technical Basis Document

3. Blank PAR Form (Handout: MP-26-EPI-FAP06-006)

General References: **1. Status Tree Book**

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC SRO A.4 Revision : 0

Initial Conditions:

You are the Shift Manager with Unit 3 at 100% power. The wind is from 110° at 12 mph. A large seismic event results in the following summary of major events.

Time	Event
07:10	The reactor trips and Small Break LOCA develops in the ESF building. Multiple ECCS pumps are inoperable.
07:20	The Core Cooling Status Tree turns orange based on CET's reading 720 F.
07:25	A General Emergency is declared based upon a Loss of the RCS and CTMT Barriers and a potential Loss of the Fuel Clad Barrier.
07:35	A 2-Mile PAR is issued (Evacuating 2 mile Radius – Zones A & G. All OTHER ZONES are Monitor & Prepare). You have directed offsite dose assessments to be performed but none are available yet. There are no reports of hostile action.

Initiating Cues:

The EOF is not activated. You are the DSEO. Evaluate the following changes to plant conditions and determine if a change to the PAR is warranted. If necessary, complete Section D: State DEEP PAR Transmittal Form (MP-26-EPI-FAP06-006) and notify the examiner when ready to verbally transmit the form to DEEP.

Time	Event
07:37	The wind shifts 90° at 15 mph.
07:39	CET's are 1205 F and rising. The RO reports 505 F of superheat. FR-C.1 is entered.
07:40	The STA reports the remaining barrier, Fuel Clad, is lost based on Core Cooling Status Trees.

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.4 Revision: 0

Task Title: Evaluate Possible Change to Protective Action Recommendations

START TIME: __________

EXAMINER NOTE:

For Protective Action Recommendations (PAR) timing, there is a 15 minute requirement to complete the PAR. The timing will start immediately AFTER both of the following:

(1) EXAMINEE HANDOUT is read and understand AND

(2) Examinee has all required handouts and is ready to begin evaluating the change of conditions.

STEP	Performance:	Standard:	Critical:	Grade:
STEP #1 FAP06-006 Section A	NOTE 1. The State must be notified of the PAR within 15 minutes of a GE declaration or conditions for a revised PAR are identified. 2. Prior to EOF activation, PARs are verbally transmitted to the 24-hour DEEP Dispatcher in Hartford.	Examinee acknowledges notes.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments: Because a PAR has already been issued, not all steps in EPI-FAP06-006 have to be re-performed. Only the applicable steps are listed in subsequent JPM steps.			

Step	Performance	Standard	Critical	Grade
STEP #2 FAP06-006 Section A Step 4	Performance: IF there is a wind shift (change in direction potentially affecting new zones), perform the following:	Standard: Examinee identifies wind shift and continues in step 4.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: **a)** Determine if one of the following conditions is met: • Potential for significant release as indicated by: ○ Any Fuel Clad Barrier Loss AND ○ Any Containment Barrier Loss or Potential Loss OR • Dose Assessment or Field Readings indicates a Projected Dose of 1 Rem TEDE in new zone.	Standard: Examinee recognizes fuel clad barrier has just been lost and the Containment barrier was previously lost (provided in initial conditions). Proceeds to next step.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Performance: **b)** IF one of the above conditions is met, issue a new PAR including new affected zone.	Standard: Examinee recognizes a new PAR is warranted. Proceeds to Section B: PAR Notification.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #3 FAP06-006 Section B	Performance: Section B: PAR Notification 1a. Complete Section D, “State DEEP PAR Transmittal Form,” as follows: Using the information from the Section C, “PAR Process Flowchart,” circle “E” for communities that will be evacuated, “S” for communities that will be sheltered and “MP” for communities recommended to Monitor and Prepare.	Standard: Refers to Section C, “PAR Process Flowchart,” to determine evacuation zones. See following steps.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐

JPM Number: 2023 NRC SRO A.4 Revision: 0

Task Title: Evaluate Possible Change to Protective Action Recommendations

	Cue:			
	Comments:			
STEP #4 FAP06-006 Section C Flowchart	Performance: **“GE Declared?”** Decision Box	Standard: Examinee determines **YES** a General Emergency has been declared and proceeds to the "Hostile Action" decision box.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #5 FAP06-006 Section C Flowchart	Performance: “**Hostile Action?”** Decision Box	Standard: Examinee determines **NO** "Hostile Action" is in progress and proceeds to the "Rapidly Progressing Severe Incident" decision box.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 FAP06-006 Section C Flowchart	Performance: **"Rapidly Progressing Severe Incident?"** (Table 1) Decision Box Table 1: Core Exit Thermocouple Readings > 1200°F <u>AND</u> For Unit 3 RCS Subcooling < 32°F Due to RCS Leak (115 ° Adverse CTMT) <u>AND</u> Any Containment Loss Fission Product Barrier threshold met.	Standard: Examinee recognizes CET’s are now above 1200F, the core is superheated and the Containment barrier is reported lost in initial conditions. Examinee answers **YES** to decision box and proceeds downward to the “10-Mile PAR” flowchart box	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			

	Comments:
STEP #7 FAP06-006 Section C Table 3	Performance: Table 3: 5-Mile Radius 10 Miles Downwind Wind: 089º - 093º; Zones to Evacuate: **A** and **B** and **D**, **G**, **H** Standard: Using Table 3 and a wind direction of 90º identifies Zones **A** and **B** and **D**, **G**, **H** should be evacuated. Proceeds to step 3 of Table 3 (found under Table 3). Critical: Y ☒ N ☐ Grade: S ☐ U ☐
	Cue:
	Comments: This information will be used to correctly fill out Section D: State DEEP PAR Transmittal Form.
STEP #8 FAP06-006 Section C Table 3 Step 3	Performance: Shelter in Place all other Land zones; monitor and prepare all other over water zones. Standard: Identifies requirements of sheltering land zones that are not to be evacuated and prepare water zones. Critical: Y ☒ N ☐ Grade: S ☐ U ☐
	Cue:
	Comments: This information will be used to correctly fill out Section D: State DEEP PAR Transmittal Form.
STEP #9 FAP06-006 Section C Table 3 Step 4	Performance: If dose projections or actual dose is equal to or greater than 5 REM child thyroid (CDE) at or beyond Site Boundary, recommend state officials implement potassium iodide (KI) strategy for general public. Standard: Reads step 4 of Table 3 and determines condition is not applicable as dose assessments are not yet available. Critical: Y ☐ N ☒ Grade: S ☐ U ☐
	Cue:
	Comments:
STEP #10 FAP06-006 Section B	Performance: b) Check recommendation that the State implement/not implement their KI strategy for the general public (provide any other actions as appropriate). Standard: Checks box “Recommends State DO NOT implement KI strategy for general public”. Critical: Y ☒ N ☐ Grade: S ☐ U ☐

PERFORMANCE INFORMATION

JPM Number: 2023 NRC SRO A.4 Revision: 0

Task Title: Evaluate Possible Change to Protective Action Recommendations

	Performance	Standard	Critical	Grade
	Performance: c) Check one or more of the blocks in the 'Technical Bases' section as applicable (provide any comments as appropriate).	Standard: Checks boxes "GE, Plant Conditions, Wind shift".	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: d) Record approval date and time in 'Authorization and Notification' section.	Standard: Signs Approved by / Date / Time at bottom of form.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	e) Verbally transmit "State DEEP PAR Transmittal Form" using one of the following: • From Control Room, calling DEEP dispatcher at 860-424-3333.	Standard: Recognizes from cue that the examiner requires notification to simulate DEEP transmittal. See Comment 1.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments: 1) Critical nature of notification is that "State DEEP PAR Transmittal Form" is given to the examiner within 15 minutes of JPM start time.			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC SRO A.4 Revision: 0

Task Title: Evaluate Possible Change to Protective Action Recommendations

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	13 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC SRO A.4 Revision: 0

Initial Conditions: You are the Shift Manager with Unit 3 at 100% power. The wind is from 110º at 12 mph. A large seismic event results in the following summary of major events.

Time	Event
07:10	The reactor trips and Small Break LOCA develops in the ESF building. Multiple ECCS pumps are inoperable.
07:20	The Core Cooling Status Tree turns orange based on CET's reading 720 F.
07:25	A General Emergency is declared based upon a Loss of the RCS and CTMT Barriers and a potential Loss of the Fuel Clad Barrier.
07:35	A 2-Mile PAR is issued (Evacuating 2 mile Radius – Zones A & G. All OTHER ZONES are Monitor & Prepare). You have directed offsite dose assessments to be performed but none are available yet. There are no reports of hostile action.

Initiating Cues: The EOF is not activated. You are the DSEO. Evaluate the following changes to plant conditions and determine if a change to the PAR is warranted.

If necessary, complete Section D: State DEEP PAR Transmittal Form (MP-26-EPI-FAP06-006) and notify the examiner when ready to verbally transmit the form to DEEP

Time	Event
07:37	The wind shifts 90º at 15 mph.
07:39	CET's are 1205 F and rising. The RO reports 505 F of superheat. FR-C.1 is entered.
07:40	The STA reports the remaining barrier, Fuel Clad, is lost based on Core Cooling Status Trees.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Second control rod drops during rod recovery

JPM Number: 2023 NRC S.1 Revision: 0

Initiated:

W. M. Forrestt – signature on file	6/1/2023
Developer	Date

Reviewed:

J. Keith – signature on file	6/5/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/1/2023	Modified bank JPM S228 to allow recovery of Control Bank D Rod H-8, initially. Changed task standard and added critical steps to reflect this change. Added subsequent steps to drop rod H-8 and another later in the rod recovery.	0

JPM WORKSHEET

Facility: MP3 Examinee: ____________

JPM Number: 2023 NRC S.1 Revision: 0

Task Title: Second control rod drops during rod recovery

Time Critical Task: ☐ YES ☒ NO

Alternate Path ☒ YES ☐ NO

Validated Time (minutes): 12 minutes

Applicable To: SRO **X** RO **X**

K/A Number: 001-A2.24 K/A Rating: 3.5 / 4.1

Method of Testing: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Using Attachment B of AOP 3552, the examinee will perform BOTH of the following: (1) Recover Control Bank D Rod H-8 to the point of clearing annunciator MB4C 5-10 ONE ROD BOTTOM and subsequently (2) Manually trips the Reactor and performs E-0 Immediate Actions in response to two Control Bank D rods dropping to core bottom.

Required Materials: (procedures, equipment, etc.) **AOP 3552, Rev. 018 *Marked Up Copy provided to examinee**
* Mark the follow steps complete (1) Steps 1 through 3 (2) Attachment B steps B.1 – B.4.a.

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.1 Revision : 0

Initial Conditions:

While operating at 100% power, one of the control rods dropped because of a blown gripper coil fuse. I&C has replaced the fuse. The plant is stable.

Another operator determined QPTR to be 1.00 in a previous step.

It has been approximately 25 minutes since the rod dropped.

Reactor power is approximately 97.5%.

In AOP 3552, steps 1 through 3 and Attachment B steps B.1 – B.4.a. have been completed. See attached marked up copy.

Initiating Cues:

The US has directed you to recover dropped rod H-8 using AOP 3552, Attachment B, steps B.4.b – B.6.i.

Simulator Requirements:

Preferred

1) Reset to **IC-95** (PASSWORD: "**Coral7!")**
2) Ensure calorimetric is on LEFM
3) Be prepared to insert TRIGGER 1 after ONE ROD BOTTOM annunciator clears.

Setup time approximately 2 minutes

Optional

1) Reset to IC 13 or any 100% IC
   - Ensure step counters will display the correct rod position.
   - Place the turbine on the load limiter.

2) Place the simulator in "RUN."
   - Insert malfunction **RD0361 @ 0%**, Rod H-8 in CB D drops.
   - Acknowledge annunciators.
   - Rotate the Control Rod "SEL" switch to the "MAN" position.

3) Check T_{AVE}-T_{REF} mismatch.
   - If mismatch is ≤ -1.5°F (neg.), no further setup action is required.
   - If mismatch is > -1.5°F (neg.), adjust turbine load as necessary to reduce the mismatch to <-1.5°F

4) Remove malfunction **RD0361**.
   - Place the simulator in "FREEZE."

- After the examinee has received the initial conditions and initiating cues, place the simulator in “RUN.”

5) Create TRIGGER 1 to drop two Control Rods (MALFUNCTIONS (1) RD0361 @ 0% AND (2) RD0359 @ 0%)

6) Be prepared to insert TRIGGER 1 after ONE ROD BOTTOM annunciator clears.

*** * * * <u>NOTES TO TASK PERFORMANCE EVALUATOR</u> * * * ***

1. Critical steps for this JPM are indicated by checking “Y”. For the student to achieve a satisfactory grade, **<u>ALL</u>** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **<u>NO</u>** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.1 Revision: 0

Task Title: Second control rod drops during rod recovery

START TIME: ___________

<table>
<tr><td rowspan="3">STEP #1
AOP 3552 Step B.4.b</td><td>Performance:
b. RECORD affected Group Step Counter position ________________</td><td>Standard:
Determines that the dropped rod (H-8) is in Control Bank D, Group 2.
Observes that the group step counter for this group and records value.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #2
AOP 3552 Step B.4.c</td><td>Performance:
c. RESET affected Group Step Counter to zero</td><td>Standard:
Depresses the bottom pushbutton located on the right side of the affected group step counter.
Observes the step counter indication changes to “0” (zero).</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #3
AOP 3552 Step B.4.d</td><td>Performance:
d. RECORD affected rod____________</td><td>Standard:
Records rod H-8.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #4
AOP 3552 Step B.4.e</td><td>Performance:
e. RECORD affected Rod Bank______</td><td>Standard:
Records Control Bank D</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.1 Revision: 0

Task Title: Second control rod drops during rod recovery

<table>
<tr><td rowspan="3">STEP #5
AOP 3552 Step B.4.f</td><td>Performance:
f. ALIGN Control Rod Disconnect switches:
1. UNLOCK and OPEN Control Rod Disconnect Switch Box (3RDS-HDSBOX1) using CAT 60, Key #18 in CO key locker
2. With the exception of the misaligned Rod, PLACE each Rod Disconnect Switch for the affected bank to the ROD DISCONNECTED position</td><td>Standard:
Locates, unlocks and opens rod disconnect switch box.
Places the toggle switches for each Control Bank D Group 1 and 2 rod, except H-8, in the “ROD DISCONNECTED” position.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #6
AOP 3552 Step B.4.g</td><td>Performance:
g. PERFORM Independent Verification of disconnect switch alignment

____
Name/Signature</td><td>Standard:
Requests IV. Documents completion.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:
“IV is complete”</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #7
AOP 3552 Step B.4.h</td><td>Performance:
h. PLACE Control Rod Bank SEL Switch to the affected bank position</td><td>Standard:
Rotates control rod bank SEL switch to the “CBD” position.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

JPM Number: 2023 NRC S.1 Revision: 0

Task Title: Second control rod drops during rod recovery

<table>
<tr><td rowspan="3">STEP #8
AOP 3552 Step B.5 Note</td><td>Performance:
NOTE: A ROD CONTROL URGENT FAILURE (MB4C 4-8) alarm will occur during recovery, unless the affected rod is in Shutdown Bank C, D, or E.
NOTE: Bank D Full Rod Withdrawal (MB4C 5-8) alarm will occur during rod recovery if the affected rod is in Control Bank D.</td><td>Standard
Reads Notes.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #9
AOP 3552 Step B.5.a</td><td>Performance:
B.5 ___ Recover Dropped Rod
a. CHECK time since rod dropped - LESS THAN 1 HOUR</td><td>Standard
Determines that less than one hour has elapsed since the rod dropped.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:
Initial conditions stated it has been less than 1 hour since rod H-8 dropped.</td></tr>
<tr><td rowspan="3">STEP #10
AOP 3552 Step B.5.b</td><td>Performance:
b. CHECK power - LESS THAN OR EQUAL TO 50%</td><td>Standard
Determines reactor power from available indications.
Goes to RNO</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:
Initial conditions stated power > 50%.</td></tr>
</table>

<table>
<tr><td>STEP #11
AOP 3552 Step B.5.b RNO</td><td>Performance:
b. PERFORM the following:
1. IF QPTR is less than or equal to 1.02, THEN PROCEED TO step B.5.c.</td><td>Standard
Initiating cue was the QPTR is 1.00. Proceeds to step B.5.c</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td></td><td colspan="4">Cue:</td></tr>
<tr><td></td><td colspan="4">Comments:
Initiating cue was the QPTR is 1.00.</td></tr>
<tr><td>STEP #12
AOP 3552 Step B.5.c</td><td>Performance:
c. ADJUST Turbine Load while withdrawing the dropped rod to minimize Tavg-Tref deviation</td><td>Standard
Reads Step B.5.c - Adjust turbine load as necessary while withdrawing the dropped rod to minimize Tavg - Tref deviation</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td></td><td colspan="4">Cue:
If Reactor Engineering is called, report “We have calculated that withdrawing rod H-8 will cause T_{AVG} to increase by ~ 0.5°F.”</td></tr>
<tr><td></td><td colspan="4">Comments:
Comments: It not expected that turbine load adjustment will be necessary.</td></tr>
<tr><td>STEP #13
AOP 3552 Step B.5.d</td><td>Performance:
d. PROCEED TO step B.5.g</td><td>Standard
Proceeds to step B.5.g.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td></td><td colspan="4">Cue:</td></tr>
<tr><td></td><td colspan="4">Comments:</td></tr>
<tr><td colspan="5">Instructors Note
AFTER MB4C 5-10 ONE ROD BOTTOM clears, INSERT TRIGGER 1 (causing two control rods to drop to core bottom).</td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.1 Revision: 0

Task Title: Second control rod drops during rod recovery

<table>
<tr><td rowspan="3">STEP #14
AOP 3552 Step B.5.g</td><td>Performance:
g. WITHDRAW dropped rod until affected Group Step Counter indicates value recorded in step B.4.b.</td><td>Standard
Positions and hold the “Control Rod Motion” switch in the “OUT” position. Stops rod motion when MB4C 6-10 Two Rods Bottom is LIT.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: When TRIGGER 1 is inserted MB4C 6-10 Two Rods Bottom will annunciate. This commences the alternate path portion of the JPM.</td></tr>
<tr><td rowspan="4">STEP #15
AOP 3552 Step 3</td><td rowspan="2">Performance:
<u>IF</u> two or more rod bottom lights are lit, <u>THEN</u> TRIP Reactor <u>AND</u> <u>GO</u> <u>TO</u> E-0, Reactor Trip or Safety Injection.</td><td>Standard:
Takes Reactor Trip switch on MB4 to trip position. Observes Reactor Trip breakers open, flux decreasing, and all rods on the bottom.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>Standard:
Transitions to E-0, Reactor Trip or Safety Injection.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: The critical nature of this step is that the reactor is tripped and the examinee goes to E-0.
1. Take the shift after the examinee trips the reactor and completes step 1 of E-0, from memory.
2. There are three acceptable methods for determining the requirement to trip the reactor:
A. Using the continuous action Step 2 of AOP 3552, return to step 3. Step 3 is the Dropped Rod check. The RNO for 3.b checks for multiple dropped rods and provides the guidance to trip the reactor.
B. MB4C 6-10 Two Rods Bottom annunciator provides the guidance to trip the reactor.
C. Memory.</td></tr>
</table>

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.1 Revision: 0

Task Title: Second control rod drops during rod recovery

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	12 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC S.1 Revision: 0

Initial Conditions:	While operating at 100% power, one of the control rods dropped because of a blown gripper coil fuse. I&C has replaced the fuse. The plant is stable. Another operator determined QPTR to be 1.00 in a previous step. It has been approximately 25 minutes since the rod dropped. Reactor power is approximately 97.5%. In AOP 3552, steps 1 through 3 and Attachment B steps B.1 – B.4.a. have been completed. See attached marked up copy.
Initiating Cues:	The US has directed you to recover dropped rod H-8 using AOP 3552, Attachment B, steps B.4.b – B.6.i.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Establish Normal Charging and Letdown using GA-13

JPM Number: 2023 NRC S.2 Revision: 0

Initiated:

W. M. Forrestt – signature on file	6/6/23
Developer	Date

Reviewed:

J. Keith – signature on file	6/7/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHG
6/6/23	Modified Bank JPM S127 for 2023 ILT NRC Exam. Change included using different initial conditions (not a post SI recovery) such that candidate uses new RNO actions to restore charging and letdown.	0

JPM WORKSHEET

Facility: Millstone 3 Examinee: ____________________

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

Time Critical Task: ☐ YES ☒ NO

Alternate Path: ☐ YES ☒ NO

Validated Time (minutes): 12

Applicable To: SRO **X** RO **X**

K/A Number: 004-A2.07 K/A Rating: 3.8 / 3.8

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Satisfactorily simultaneously restores charging and letdown, restores letdown temperature and pressure controllers to auto, and begins restoring pressurizer level towards program level.

Required Materials: (procedures, equipment, etc.) GA-13, "Establish Normal Charging and Letdown", Rev 003-00

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. With the exception of the questions at the end, you may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.2 Revision : 0

Initial Conditions: 3RCS*LT459, Pressurizer Level Channel I, has failed low. The Control Room Team has progressed through AOP 3581, *Immediate Operator Actions*, and transitioned to AOP 3571, *Instrument Failure Response*.

The crew is currently at AOP 3571 Attachment C, step C.4 RNO b. "Using GA-13, ESTABLISH normal letdown".

Initiating Cues: The US has directed you to establish Normal Charging and Letdown in accordance with GA-13.

Simulator Requirements:

1. Reset to **IC-96** password '**Coral7!**'

or any 100% IC and:

1. Enter the malfunction: RX10A to '0'
2. Carry out actions of AOP 3581 Attachment F
3. Carry out actions of AOP 3571 Attachment C (up to GA-13 transition in C.4 RNO)
4. Acknowledge/clear annunciators and place the simulator in "FREEZE."
5. After the examinee has received the initial conditions and initiating cues, place the simulator in "RUN."

Approximate simulator setup time is 10 minutes.

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

START TIME: ___________

	Performance:	Standard:	Critical:	Grade
STEP #1 **GA-13 Step 1.a**	Performance: **1 ___ Prepare For Restoration** a. **CHECK** Letdown Orifice Isolation Valves - CLOSED • 3CHS*AV8149A • 3CHS*AV8149B • 3CHS*AV8149C	Standard: Examinee observes green ON, red OFF position indicating lights and determines all valves are closed.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 **GA-13 Step 1.b**	Performance: b. **CHECK** Letdown Containment Isolation Valves - OPEN • 3CHS*CV8160 **AND** • 3CHS*CV8152	Standard: Examinee observes red ON, green OFF position indicating lights and determines both valves are open.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

STEP	Performance	Standard	Critical	Grade
STEP #3 GA-13 Step 1.c	Performance: c. **CHECK** the Letdown Isolation Valves - OPEN • 3RCS*LCV459 **AND** • 3RCS*LCV460	Standard: 3RCS*LCV 459: Examinee observes green ON, red OFF position indicating lights and determines valve is closed. Transitions to RNO column. Standard: 3RCS*LCV 460: Examinee observes red ON, green OFF position indicating lights and determines valve is open.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #4 GA-13 Step 1.c RNO	Performance: c. **OPEN** valves.	Standard: Examinee rotates the 3RCS*LCV459 control switch to "OPEN" and observes that the indicating lights shift to green OFF, red ON.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

STEP #5 GA-13 Step 1.d	Performance: d. **CHECK** steps 1.a, 1.b and 1.c - COMPLETED SUCCESSFULLY	Standard: Examinee checks orifice isolation valves closed, Letdown Containment isolation valves open, and Letdown isolation valves open.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 GA-13 Step 1.e	Performance: e. **PLACE** the Letdown Pressure Controller (3CHS-PK131) in MANUAL **AND ADJUST** to 50% output	Standard: Examinee depresses either the raise or lower pushbutton for 3CHS-PK131 and observes that the manual light comes ON and the auto light goes OFF. Then adjusts to 50% output.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #7 GA-13 Step 1.f	Performance: f. **PLACE** the Letdown Heat Exchanger Outlet Temperature Controller (3CHS-TK130) in MANUAL **<u>AND</u> ADJUST** to 60% output.	Standard: Examinee depresses either the raise or lower pushbutton for 3CHS-TK130 and observes that the manual light comes ON and the auto light goes OFF and obtains 60% controller output setting.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #8 GA-13 Step 2.a note	Performance: **NOTE**: System Engineering should be notified when charging flow is established with NO letdown flow.	Standard: Examinee reads note and determines it is not applicable for expectant recovery method.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

<table>
<tr><td rowspan="4">STEP #9

GA-13 Step 2.a</td><td rowspan="2">Performance:
2 ___ Align For Letdown
a. CHECK valves for normal charging header - OPEN:
• 3CHS*MV8105
<u>AND</u>
• 3CHS*MV8106</td><td>Standard:
3CHS*MV8105: Examinee observes red ON, green OFF position indicating lights and determines valve is open.</td><td rowspan="2">Critical:
Y ☐ N ☒</td><td rowspan="2">Grade
S ☐ U ☐</td></tr>
<tr><td>Standard:
3CHS*MV8106: Examinee observes green ON, red OFF position indicating lights and determines valve is closed. Transitions to RNO column.</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #10

GA-13 Step 2.a RNO</td><td>Performance:
a. PERFORM the applicable action:
• <u>IF</u> aligning Charging <u>AND</u> Letdown desired, <u>THEN</u>:
1. CLOSE Charging Flow Controller Isolation (3CHS*MV8106).</td><td>Standard:
Examinee depresses the close button for 3CHS*MV8106 and observes that the indicating lights shift to green ON, red OFF.</td><td>Critical:
Y ☒ N ☐</td><td>Grade
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

STEP	Performance	Standard	Critical	Grade
STEP #11 GA-13 Step 2.a RNO	Performance: 2. **OPEN** Charging Header Isolation (3CHS*MV8105).	Standard: Observes 3CHS*MV8105 is already open (red ON, green indicating light OFF).	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #12 GA-13 Step 2.a RNO	Performance: 3. **PLACE** Charging Flow Controller (3CHS-FK121) in MANUAL **AND** **ADJUST** to 33% demand position.	Standard: Examinee depresses either the raise or lower pushbutton for 3CHS-FK121 and observes that the manual light comes ON and the auto light goes OFF. Then adjusts to 33% demand position.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #13 GA-13 Step 2.a RNO	Performance: 4. **PROCEED TO** step 3.	Standard:	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #14 GA-13 Step 3.a	Performance: **3 ___ Establish Letdown** a. **CHECK** normal charging flow - ESTABLISHED	Standard: Examinee checks charging flow and determines no charging flow is established. Transitions to RNO column.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

<table>
<tr><td rowspan="3">STEP #15

GA-13 Step 3.a RNO</td><td>Performance:
a. PERFORM the following:
1. Simultaneously OPEN the following:
• Charging Flow Controller Isolation Valve (3CHS*MV8106)
• One Letdown Orifice Isolation Valve:
• 3CHS*AV8149B
<u>OR</u>
• 3CHS*AV8149C</td><td>Standard:
Examinee simultaneously (two handed operation) opens the following valves:

3CHS*MV8106: depresses the OPEN pushbutton and observes that the indicating lights shift to red ON, green OFF

3CHS*AV8149B or 3CHS*AV8149C: depresses the OPEN pushbutton for either valve and observes that the indicating lights shift to red ON, green OFF then releases the pushbutton.</td><td>Critical:
Y ☒ N ☐</td><td>Grade
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue: <u>If</u> the examinee asks which valve to open provide the following cue: “Open 3CHS*AV8149B”.</td></tr>
<tr><td colspan="4">Comments: If the examinee did not ask which valve to open and opens either 3CHS*AV8149B or C, this critical step will be satisfied.</td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

STEP	Performance	Standard	Critical	Grade
STEP #16 GA-13 Step 3.a RNO	Performance: 2. **PROCEED TO** step 3.c.	Standard: Examinee proceeds to step 3.c.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #17 GA-13 Step 3.c	c. **ADJUST** Letdown Pressure Controller (3CHS-PK131) to maintain 350 psig **<u>AND</u> PLACE** in AUTO	Standard: Examinee uses the raise and / or lower pushbuttons as necessary to obtain 350 psig. Examinee adjusts controller setting (if necessary) to obtain controller auto setpoint of 350 psig, then depresses the 3CHS-PK131 "AUTO" pushbutton and observes that the auto light comes ON and the manual light goes OFF.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #18 GA-13 Step 3.d	Performance: d. **ADJUST** the Letdown Heat Exchanger Outlet Temperature Controller (3CHS-TK130) to maintain between 70°F and 115°F **AND PLACE** in AUTO	Standard: Examinee depresses the 3CHS- TK130 pushbuttons and controls temperature. Examinee depresses 3CHS-TK130 AUTO pushbutton and observes that the auto light comes ON and the manual light goes OFF.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments:			

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

STEP #19 GA-13 Step 3.e	Performance: ☐ e. **ADJUST** charging flow to obtain desired PZR level	Standard: Examinee adjusts CHS*FK121 to trend Pressurizer level to set point.	Critical: Y ☒ N ☐	Grade S ☐ U ☐
	Cue:			
	Comments: Critical nature of this step is that the Examinee adjusts charging flow downwards to start lowering PZR level to set point (64%). JPM can be terminated once the PZR level trend is towards set point. Otherwise, allow JPM to run (auto reactor trip will occur if PZR level reaches 89%).			
STEP #20 GA-13 Step 4.a	Performance: **4 ___ Check Pressurizer Level** ☐ a. **CHECK** PZR Level - AT DESIRED LEVEL	Standard: Examinee observes Pzr level MB meters or recorder or computer points and determines level is high. Transitions to RNO column	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue:			
	Comments:			
STEP #21 GA-13 Step 4.a RNO	Performance: a. **PERFORM** the following: ☐ 1. **IF** desired, **THEN PLACE** an additional Letdown Orifice in service. ☐ 2. **RETURN TO** step 3.d.	Standard: Examinee inquires if US desires placing additional orifice in service and upon hearing the cue goes to back to step 3.d.	Critical: Y ☐ N ☒	Grade S ☐ U ☐
	Cue: If asked as Unit Supervisor provide the following cue: “Use of an additional orifice is <u>not</u> desired”.			
	Comments: Pressurizer level will still be high (above desired value). Procedure cannot be exited until level is restored. Examinee is sent back to step 3.d., waiting for pressurizer level to be restored to set point.			

TERMINATION CUE: The evaluation for this JPM is concluded. **STOP TIME**: _________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.2 Revision: 0

Task Title: Establish Normal Charging and Letdown using GA-13

Date Performed: ____________

Examinee: ____________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	12 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

STUDENT HANDOUT

JPM Number: 2023 NRC S.2 Revision: 0

Initial Conditions: 3RCS*LT459, Pressurizer Level Channel I, has failed low. The Control Room Team has progressed through AOP 3581, *Immediate Operator Actions*, and transitioned to AOP 3571, *Instrument Failure Response*.

The crew is currently at AOP 3571 Attachment C, step C.4 RNO b. “Using GA-13, ESTABLISH normal letdown”.

Initiating Cues: The US has directed you to establish Normal Charging and Letdown in accordance with GA-13.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title:	Perform RCS Bleed and Feed in FR-H.1
JPM Number:	2023 NRC S.3 — Revision: 0

Initiated:

W. M. Forrestt - *Signature on File*	6/1/23
Developer	Date

Reviewed:

J. Keith - *Signature on File*	6/5/23
Technical Reviewer	Date

Approved:

A. Leone - *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
06/1/23	Converted bank JPM S039A-2 into format for 2023 Initial License Training NRC Exam. Changed IC number and added password for IC.	0 / 0

JPM WORKSHEET

Facility: MP3 Examinee: ______________________

JPM Number: 2023 NRC S.3 Revision: 0

Task Title: Perform RCS Bleed and Feed in FR-H.1

Time Critical Task: ( ) YES (X) NO

Alternate Path: (X) YES ( ) NO

Validated Time (minutes): 7

Applicable To: SRO **X** RO **X** ______

K/A Number: 010-A2.03 K/A Rating: 4.3 / 4.0

Method of Testing: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Satisfactorily completes establishment of RCS bleed and feed using FR-H.1. This includes establishing a bleed flowpath from BOTH: (1) 3RCS*PCV456 ‘B’ PORV and (2) Head Vent letdown to the PRT.

Required Materials: (Procedures, equipment, etc.) EOP 35 FR-H.1, Rev. 028

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.3 Revision : 0

Simulator Requirements:

Preferred

1) Reset to **IC-97** (PASSWORD: "**Coral7!")**

2) Ensure alarms are in 'Master Silence'

3) After the candidate has received the initiating cues and initial conditions, place the simulator in "RUN."

Approximate setup time is 5 minutes.

OR

Optional

1) Reset to any 100% Power IC.

2) Insert the following malfunctions (or run schedule JPM039A):
FW18A - "A" MDAFW pump trip
FW18B - "B" MDAFW pump trip
FW19 – TDAFW pump trip

3) Place simulator in "RUN" and Insert malfunction ED01, Loss of Offsite Power. Carry out EOP E-0 and FR-H.1 actions through step 11. Allow the simulator to run until wide range level is < 21% in 3 of 4 SGs.

4) If desired, temporarily drain SG using remotes SGR01, 02, 03, 04 to help achieve desired SG levels

5) Insert malfunction: RC08A – Pzr PORV PCV455 FC

6) Ensure alarms are in 'Master Silence'

7) After the candidate has received the initiating cues and initial conditions, place the simulator in "RUN."

Approximate setup time is 25 minutes.

Initial Conditions: A Reactor trip occurred due to a loss of offsite power. The turbine failed to trip resulting in SI. A red path condition on heat sink is present due to no AFW pumps running. While carrying out the actions of FR-H.1, wide range level in 3 S/Gs fell to less than 21%.

Initiating Cues: The US has directed you to establish an RCS bleed and feed using FR-H.1 steps 12 thru 16.

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.3 Revision: 0

Task Title: Perform RCS Bleed and Feed in FR-H.1

START TIME: __________

	PERFORMANCE STEP	STANDARD		
STEP 1 FR-H.1, Step 12 CAUTION	• Steps 12 through 16 must be performed quickly in order to establish RCS heat removal by RCS bleed and feed. • During the remainder of the procedure, feed flow to the SGs must be established as specified by step 21.	Examinee reviews the CAUTIONS.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			
STEP 2 FR-H.1, Step 12	**12. CHECK All Reactor Coolant Pumps - STOPPED**	At MB4, Examinee determines that all RCPs are stopped by observation of green and amber indicating lights ‘ON’ and/or no flow, and amps.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			

STEP 3 FR-H.1, Step13	**13. INITIATE SI**	Recognizes that SI has already actuated by observation of MB Annunciators "SAFETY INJECTION" (MB2 or MB4).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			
STEP 4 FR-H.1, Step 14.a	**14. Check RCS Feed Path** **a. CHECK** Charging Pumps --- AT LEAST ONE RUNNING	Determines that the 'A' and 'B' Charging Pumps are already running by observation of RED indicating lights, amps or flow.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			
STEP 5 FR-H.1, step 14.b	**b. OPEN** Charging Pump Cold Leg Injection Valves: • 3SIH*MV8801A • 3SIH*MV8801B	Observes RED lights for the charging pump cold leg injection valves and determines valves are already open.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			
STEP 6 FR-H.1, step 14.c	**c. CHECK** SI pumps --- BOTH RUNNING	Determines that that the 'A' and 'B' SI pumps are already running by observation of RED indicating lights, amps or flow.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			

STEP 7 FR-H.1, Step 14.d	**d. CHECK** ECCS Valve Alignment -- PROPER EMERGENCY ALIGNMENT	Examinee checks the valve lineup by observing appropriate indicating lights, and/or observing the appropriate lights lit on the Group 2 ESF Status Panel.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			
STEP 8 FR-H.1, Step 15.a	**15. Establish RCS Bleed Path** **a. CHECK** PZR PORV block valves - BOTH OPEN.	Determines PORV block valves 3RCS*MV8000A and 3RCS*MV8000B are already open by valve indications red lights ON/green OFF.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			
STEP 9 FR-H.1, Step 15.b	**b. OPEN** both PZR PORVs.	Rotates the control switches for the PZR PORVs (3RCS*PCV455A and 3RCS*PCV456) to the "OPEN" position.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
	Comments: 3RCS*PCV455A will remain closed. Opening 3RCS*PCV456 is the critical nature of the step.			
	Cue: If examinee reports that A PORV did not open, provide following: "US acknowledges 'A' PORV did not open."			

STEP 10 FR-H.1, Step 16	**16. CHECK Adequate RCS Bleed Path** • **CHECK** PZR PORVs - BOTH OPEN. • **CHECK** PZR PORV block valves - BOTH OPEN.	Observes the indicating lights shift to red ON, green OFF for 3RCS*PCV456 only. Recognizes that 3RCS*PCV*455A has remained closed. Transitions to the RNO column.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Comments:			
	Cue:			
STEP 11 FR-H.1, Step 16.a.1 RNO	**PERFORM** the following: a. **ESTABLISH** head vent to PRT: 1. **OPEN** Reactor Vessel Head Vent Isolation Valves: • 3RCS*SV8095A • 3RCS*SV8095B • 3RCS*SV8096A • 3RCS*SV8096B	Depresses OPEN pushbutton for 3RCS*SV8095A, *SV8095B, *SV8096A, and *SV8096B observes position indicating lights shift to green OFF and red ON.	Critical: Y **[X]** N [ ]	Grade S [ ] U [ ]
	Comments: This commences the alternate path portion of the JPM.			
	Cue:			

STEP 12 FR-H.1, step 16.a.2 RNO	**2. OPEN** Reactor Vessel Head Vents: • 3RCS*HC442A • 3RCS*HC442B	Examinee depresses OPEN (▲) pushbuttons for 3RCS*HC442A and 3RCS*HC442B and observes (▲) open light ON, (▼) close lights off.	Critical: Y **[X]** N[ ]	Grade S[ ] U[ ]
	Comments:			
	Cue:			
STEP 13 FR-H.1, step 16.b RNO	**b. <u>IF</u>** Core Exit TCs are RISING **<u>THEN</u>** Consult ADTS for recommendations on Using ATTACHMENT B to align low pressure water source to the SGs.	Examinee checks Core Exit TCs lowering. Execution of Attachment B is not required.	Critical: Y[ ] N[X]	Grade S[ ] U[ ]
	Comments: Core Exit TCs will be lowering, no call from SM/US is required.			
	Cue: If Examinee requests, SM/US will consult with the ADTS, no low pressure source is immediately available, proceed with the procedure.			
STEP 14 FR-H.1, step 16.c RNO	**c. <u>PROCEED</u> <u>TO</u>** step 17	Examinee proceeds to step 17 and determines that task (Steps 12-16) has been completed.	Critical: Y[ ] N[X]	Grade S[ ] U[ ]
	Comments:			
	Cue:			
STEP #15	Notify the US that an RCS bleed and feed is established.	Reports to the US that an RCS bleed and feed has been established using steps 12 - 16 of FR-H.1.	Critical: Y[ ] N[X]	Grade S[ ] U[ ]
	Comments:			
	Cue:			

TERMINATION CUE: The evaluation for this JPM is concluded. **STOP TIME: _________**

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.3 Revision: 0

Date Performed: ____________________

Examinee: ____

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	**7**	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number:	2023 NRC S.3	Revision:	0

Initial Conditions: A Reactor trip occurred due to a loss of offsite power. The turbine failed to trip resulting in SI. A red path condition on heat sink is present due to no AFW pumps running. While carrying out the actions of FR-H.1, wide range level in 3 S/Gs fell to less than 21%.

Initiating Cues: The US has directed you to establish an RCS bleed and feed using FR-H.1 steps 12 thru 16.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Sweep air from RHR Train ‘A’

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Initiated:

W. M. Forrestt – signature on file	6/5/23
Developer	Date

Reviewed:

J. Keith – signature on file	6/7/23
Technical Reviewer	Date

Approved:

A. Leone – signature on file	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/5/23	New JPM developed for 2023 Initial License Training NRC Exam.	0 / 0

JPM WORKSHEET

Facility: MP3 Examinee: ______________________

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train 'A'

Time Critical Task: ☐ YES ☒ NO

Alternate Path ☒ YES ☐ NO

Validated Time (minutes): 15 minutes

Applicable To: SRO **X** RO **X**

K/A Number: 005-A4.01 K/A Rating: 4.0

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Successfully aligns and starts 'A' RHR Pp for venting in accordance with OP 3310A section 4.15. Additionally, identifies pump cavitation and stops 'A' RHR pump.

Required Materials: (procedures, equipment, etc.) OP 3310A

- Prerequisites / Precautions
- Section 4.15 (Mark steps 4.15.1 & 4.15.2 Complete)

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.4 Revision : 0 / 0

Initial Conditions: The plant is in Mode 5 coming out of a refueling outage. Conditions are as follows:

- The 'A' RHR system is being returned to service.
- The Primary Outage Group has just completed filling RHR Train 'A' using OP 3250.10A, "Removing RHR From Service for LLRT or Maintenance".
- The RHR Train A suction relief valve is *not* being credited for cold overpressure protection.
- A PEO is standing by with a tagging clearance to open 3RHS*V43, RHR to RWST Recirculation Isolation Valve.

Initiating Cues: The US directs you to perform OP 3310A, Section 4.15, "Sweeping Air From RHR Train A", starting at step 4.15.4.

Simulator Requirements: **Preferred**

1) Reset to IC-98 (PASSWORD: "**Coral7!")**
2) ENSURE the following are inserted in IC:
   - MB2B-D08 to 'OFF'
   - RHLO0010 Red Light to 'ON'
   - RHLO0109 Green Light to 'OFF'
3) Ensure MODE 5 MCB Tags are hung

Optional

1) Reset to IC 3 AND position "A" RHR components in accordance with OP 3250.10A
2) INSERT the following malfunctions:
   - MB2B-D08 to 'OFF'
   - RHLO0010 Red Light to 'ON'
   - RHLO0109 Green Light to 'OFF'
3) Ensure MODE 5 MCB Tags are hung

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train 'A'

START TIME: ___________

STEP	Performance	Standard	Critical	Grade
STEP #1 OP 3310A 4.15.4	Performance: PLACE 3RHS*P1A, "RHR PP A," in "PULL---TO---LOCK" (MB2).	Standard: On MB2, places 3RHS*P1A in pull to lock.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 OP 3310A 4.15.5	Performance: ENSURE the RHR Train A suction relief valve is *not* being credited for cold overpressure protection.	Standard: Based on provided initial conditions, determines that the RHR Train A suction relief valve is *not* being credited for cold overpressure protection.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: If called as Primary Outage Group, report "The RHR Train A suction relief valve is *not* being credited for cold overpressure protection".			
	Comments:			
STEP #3 OP 3310A 4.15.6	Performance: Using keylock switch, CLOSE the following RHR/RCS loop isolation valves (MB2): • 3RHS*MV8701B, "A ISOL (OUT)"	Standard: Observes that 3RHS*MV8701B, "A ISOL (OUT)" is Open. Obtains key from locker, inserts into 3RHS*MV8701B, holds in close direction until valve closes (Green ON / Red OFF).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	• 3RHS*MV8701A, "A ISOL (IN)"	Observes that 3RHS*MV8701A, "A ISOL (IN)" is Open. Obtains key from locker, inserts into 3RHS*MV8701A, holds in close direction until valve closes (Green ON / Red OFF).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train 'A'

	• 3RHS*MV8701C, "RCS/PP A SUCT ISOL"	Observes that 3RHS*MV8701C is already closed ((Green ON / Red OFF).	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #4 OP 3310A 4.15.7	Performance: ENSURE the "HX A FLOW CONT" switch in the "COOLDOWN" position (MB2).	Standard: Observes "HX A FLOW CONT" switch is already positioned in the "COOLDOWN" position (MB2).	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #5 OP 3310A 4.15.8	Performance: ENSURE 3RHS---HC606, "HX A FLOW," closed (MB2).	Standard: Observes 3RHS---HC606, "HX A FLOW," is in the closed position.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 OP 3310A 4.15.9	Performance: CLOSE 3RHS---FK618, "RHR HDR FLOW," (100% output) (MB2).	Standard: On MB2, depresses the down arrow (↓) pushbutton on 3RHS-FK618. Releases the pushbutton after 100% output is indicated on controller.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train 'A'

	Comments:			
STEP #7 OP 3310A 4.15.10	Performance: ENSURE 3SIL*MV8809A, "PP A COLD LEG INJ," closed (MB2).	Standard: Observes 3SIL*MV8809A is already in the closed position. (Green ON / Red OFF).	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #8 OP 3310A 4.15.11	Performance: ENSURE 3SIL*MV8840, "RHR HOT LEG INJ," closed (MB2).	Standard Observes 3SIL*MV8840 is closed (Green ON / Red OFF).	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #9 OP 3310A 4.15.12	Performance: ENSURE 3RHS*MV8716B, "PP B HOT LEG INJ," closed (MB2).	Standard Observes 3RHS*MV8716B is closed (Green ON / Red OFF).	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #10 OP 3310A 4.15.13	Performance: OPEN 3SIL*MV8812A, "RWST/PP A SUCT ISOL" (MB2).	Standard Depresses open pushbutton on 3SIL*MV8812A and observes valve opens (Red ON / Green OFF).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train 'A'

	Comments:			
STEP #11 OP 3310A 4.15.14	Performance: PERFORM the following to open 3RHS*MV8716A: a. PLACE 3RHS*MV8716A, "POWER LOCKOUT," to "ON" and ENSURE white indicating light, lit (MB2R).	Standard: On MB2R, places power lockout for 3RHS*MV8716A to ON and observes white light is lit.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Performance: b. OPEN 3RHS*MV8716A, "PP A HOT LEG INJ" (MB2).	Standard: Depresses open pushbutton on 3RHS*MV8716A and observes valve opens (Red ON / Green OFF).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #12 OP 3310A 4.15.15	Performance: PLACE the refueling water recirculation pumps in "PULL---TO---LOCK" (MB2): • 3QSS-P1A, "RWST RECIRC PPS" "1A" • 3QSS-P1B, "RWST RECIRC PPS" "1B"	Standard: Observes that 3QSS-P1A is already in pull to lock. Places 3QSS-P1B in pull to lock.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train ‘A’

	Comments:			
STEP #13 OP 3310A 4.15.16	Performance: REMOVE red tag on 3RHS*V43, RHR to RWST recirculation isolation valve.	Standard: Calls PEO and requests red tag be removed from 3RHS*V43.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: Acknowledge request and report “The red tag has been removed from 3RHS*V43.”			
	Comments:			
STEP #14 OP 3310A 4.15.17	Performance: UNLOCK and OPEN 3RHS*V43, RHR to RWST recirculation isolation valve.	Standard: Requests PEO to UNLOCK and OPEN 3RHS*V43.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue: After RHR03 to 100% is inserted, Acknowledge request and report “3RHS*V43 has been unlocked and opened”.			
	Comments: **SIM BOOTH OPERATOR:** After request, place RHR03 to 100%.			
STEP #15 OP 3310A 4.15.18	Performance: ADJUST 3RHS---HC606, “HX A FLOW,” to between 30 and 40% (MB2).	Standard: On MB2, rotates the potentiometer for HCV606 to between 30 and 40%.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train 'A'

Step	Performance	Standard	Critical	Grade
STEP #16 OP 3310A	Performance: ▼ **CAUTION** ▼ Due to system design and piping layout, complete venting of the RHR system is *not* possible, and pump cavitation may occur.	Standard: Reads Caution.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #17 OP 3310A 4.15.19	Performance: STATION an operator locally at 3RHS*P1A, to monitor for cavitation.	Standard: Calls PEO to monitor for cavitation.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #18 OP 3310A 4.15.20	Performance: START 3RHS*P1A, "RHR PP A" (MB2).	Standard: Places control switch for 3RHS*P1A to Start and observes pump starts (Red ON / Green OFF, amps, discharge pressure).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			

	Comments: (1) **SIM BOOTH OPERATOR:** Immediately after pump start & while monitoring 'A' RHR pp amps and discharge pressure, insert and remove "RHDI0056" to simulate pump cavitation by cycling the pump suction valve. Continue to do this as long as the 'A' RHR pp is running. (2) When pump is started, cavitation immediately occurs as evidenced by fluctuating discharge pressure, amps and flow. A field report will not be made and it will be up to the examinee to determine that cavitation is occurring. This begins the alternate path portion of the JPM.			
STEP #19 OP 3310A 4.15.21	Performance: IF cavitation is observed, PERFORM the following: a. STOP 3RHS*P1A, "RHR PP A," and PLACE in "PULL---TO---LOCK" (MB2).	Standard: Places 3RHS*P1A in stop and then pull to lock.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Performance: b. Go To step 4.15.30.	Standard: Goes to step 4.15.30.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments: Terminate the JPM at this time.			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Task Title: Sweep air from RHR Train 'A'

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	15 minutes	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC S.4 Revision: 0 / 0

Initial Conditions: The plant is in Mode 5 coming out of a refueling outage. Conditions are as follows:

- The ‘A’ RHR system is being returned to service.
- The Primary Outage Group has just completed filling RHR Train ‘A’ using OP 3250.10A, “Removing RHR From Service for LLRT or Maintenance”.
- The RHR Train A suction relief valve is *not* being credited for cold overpressure protection.
- A PEO is standing by with a tagging clearance to open 3RHS*V43, RHR to RWST Recirculation Isolation Valve.

Initiating Cues: The US directs you to perform OP 3310A, Section 4.15, “Sweeping Air From RHR Train A”, starting at step 4.15.4.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Shift to SG Feedwater Flow Control Valves

JPM Number: 2023 NRC S.5 Revision: 0

Initiated:

W. M. Forrestt - *Signature on File*	6/1/23
Developer	Date

Reviewed:

J. Keith - *Signature on File*	6/5/23
Technical Reviewer	Date

Approved:

A. Leone - *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

JPM Number: 2023 NRC S.5 Revision: 0

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/1/23	Converted bank JPM to NRC format.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______________

JPM Number: 2023 NRC S.5 Revision: 0

Task Title: Shift to SG Feedwater Flow Control Valves

Time Critical Task: ( ) YES (X) NO

Alternate Path: ( ) YES (X) NO

Validated Time (minutes): 12

Applicable To: SRO X RO X

K/A Number: 059.A4.08 K/A Rating: 3.6

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Using OP 3203, swap feedwater control to Feed Regulating Valves while not generating EITHER of the following ESF actuations:

(1) Feed Water Isolation signal (80% SG NR level)

(2) Reactor Trip (18% SG NR level)

Required Materials: (procedures, equipment, etc.) OP 3203, Rev 036

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. With the exception of the questions at the end, you may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.5 Revision : 0

Initial Conditions: The plant is at 25% power, and the following conditions exist:

- The crew is performing a plant startup using OP 3203, *Plant Startup*.
- OP 3203, Step 4.3.59, "INCREASE reactor power to approximately 25%" has just been completed.

Initiating Cues: The US directs you to SHIFT to SG feedwater flow control valves using OP 3203, Step 4.3.60, "Shift to SG Feedwater Flow Control Valves".

Simulator Requirements:

Preferred

1. Reset to Standard IC 99 (PASSWORD: "**Coral7!")** (**on Feed Control Bypass Valves at 25% power)**

2. Set up MB4 computer display for "Wide Range Level" on a narrow band (approximately 60 to 70%).

3. Acknowledge/clear annunciators. Place the **simulator in "freeze".** Place the simulator in **"run" after the examinee** has read the initial conditions and initiating cues.

Optional

1) Reset to IC10 and complete items 2 & 3 above.

Approximate simulator setup time is 5 minutes.

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking "Y". For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the Examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question Examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the Examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.5 Revision: 0

Task Title: Shift to SG Feedwater Flow Control Valves

START TIME: ____________

STEP	Performance	Standard	Critical	Grade
STEP # 1 OP 3203, Note prior to step 4.3.60	Performance: **NOTE** 1. Computer display for "Wide Range Level" on a narrow band (approximately 60 to 70%) may be used as an aid in maintaining steam generator inventory constant. 2. Shifting to SG feedwater flow control valves may be shifted in any order, one SG at a time.	Standard: Reads Note	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP # 2 OP 3203 Step 4.3.60.a	Performance: SHIFT to SG feedwater flow control valves as follows: a. STATION an additional Operator at the feedwater control station.	Standard: Requests an additional operator at the feed station.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: An additional operator has been stationed.			
	Comments:			

STEP #3 OP 3203 Step 4.3.60.b	Performance: OPEN the following valves: • OPEN 3FWS-MOV35A, "SG FEEDWATER" "SG 1" "CNTL ISOL." • OPEN 3FWS-MOV35B, "SG FEEDWATER" "SG 2" "CNTL ISOL." • OPEN 3FWS-MOV35C, "SG FEEDWATER" "SG 3" "CNTL ISOL." • OPEN 3FWS-MOV35D, "SG FEEDWATER" "SG 4" "CNTL ISOL."	Standard: Depresses the OPEN pushbutton for 3FWS-MOV35A, B, C, and D. Observes each of the valves' Green lights go off, and Red lights illuminate.	Critical: **Y** ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #4 OP 3203, Step 4.3.60.c.1)	Performance: SHIFT SG1 flow control as follows (MB5): 1) While maintaining feedwater flow as constant as possible, simultaneously PERFORM the following: • OPEN 3FWS-FK510, "SG FEEDWATER" "SG 1" "CONTROL" "FLOW" • CLOSE 3FWS-LK550, "SG FEEDWATER" "SG1" "CONTROL" "BYP"	Standard: Throttles open on controller 3FWS-FK510 while throttling down on 3FWS-LK550 at MB5 until the Feed Control Bypass valve is fully closed. Observes Feed Reg Valve throttles open (red light illuminates), and the Bypass Valve is closed (Green light lit, Red light off) on MB5.	Critical: **Y** ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments: Per the note prior to this step, the operator can swap the four feed valves in any order.			
STEP #5 OP 3203, Step 4.3.60.c.2)	Performance: 2) WHEN SG 1 NR level is stable at approximately 50%, PLACE 3FWS- K510, "SG FEEDWATER" "SG1" "CONTROL" FLOW," in "AUTO."	Standard: Depresses the "AUTO" pushbutton for 3FWS-FK510 on MB5. Observes the AUTO light illuminates.	Critical: **Y** ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			

<table>
<tr><td rowspan="3">STEP
#6
OP 3203,
Step
4.3.60.d.1)</td><td>Performance:
SHIFT SG2 flow control as follows (MB5):
1) While maintaining feedwater flow as constant as possible, simultaneously PERFORM the following:
• OPEN 3FWS-FK520, “SG FEEDWATER” “SG 2” “CONTROL” “FLOW”
• CLOSE 3FWS-LK560, “SG FEEDWATER” “SG2” “CONTROL” “BYP”</td><td>Standard:
Throttles open on controller 3FWS-FK520 while throttling down on 3FWS-LK560 at MB5 until the Feed Control Bypass valve is fully closed.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: Per the note prior to this step, the operator can swap the four feed valves in any order.</td></tr>
<tr><td rowspan="3">STEP
#7
OP 3203,
Step
4.3.60.d.2)</td><td>Performance:
2) WHEN SG 2 NR level is stable at approximately 50%, PLACE 3FWS-FK520, “SG FEEDWATER” “SG2” “CONTROL” “FLOW,” in “AUTO.”</td><td>Standard:
Depresses the “AUTO” pushbutton for 3FWS-FK520 on MB5.
Observes the AUTO light illuminates.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

<table>
<tr><td rowspan="3">STEP #8
OP 3203, Step 4.3.60.e.1)</td><td>Performance:
SHIFT SG3 flow control as follows (MB5):
1) While maintaining feedwater flow as constant as possible, simultaneously PERFORM the following:
• OPEN 3FWS-FK530, “SG FEEDWATER” “SG 3” “CONTROL” “FLOW”
• CLOSE 3FWS-LK570, “SG FEEDWATER” “SG 3” “CONTROL” “BYP”</td><td>Standard:
Throttles open on controller 3FWS-FK530 while throttling down on 3FWS-LK570 at MB5 until the Feed Control Bypass valve is fully closed.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: Per the note prior to this step, the operator can swap the four feed valves in any order.</td></tr>
<tr><td rowspan="3">STEP #9
OP 3203, Step 4.3.60.e.2)</td><td>Performance:
2) WHEN SG 3 NR level is stable at approximately 50%, PLACE 3FWS-FK530, “SG FEEDWATER” “SG 3” “CONTROL” “FLOW,” in “AUTO.”</td><td>Standard:
Depresses the “AUTO” pushbutton for 3FWS-FK530 on MB5.
Observes the AUTO light illuminates.</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

STEP #10 OP 3203, Step 4.3.60.f.1)	Performance: SHIFT SG4 flow control as follows (MB5): 1) While maintaining feedwater flow as constant as possible, simultaneously PERFORM the following: • OPEN 3FWS-FK540, "SG FEEDWATER" "SG 4" "CONTROL" "FLOW" • CLOSE 3FWS-LK580, "SG FEEDWATER" "SG 4" "CONTROL" "BYP"	Standard: Throttles open on controller 3FWS-FK540 while throttling down on 3FWS-LK580 at MB5 until the Feed Control Bypass valve is fully closed.	Critical: **Y** ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments: Per the note prior to this step, the operator can swap the four feed valves in any order.			
STEP #11 OP 3203, Step 4.3.60.f.2)	Performance: 2) WHEN SG 4 NR level is stable at approximately 50%, PLACE 3FWS-FK540, "SG FEEDWATER" "SG 4" "CONTROL" "FLOW," in "AUTO."	Standard: Depresses the "AUTO" pushbutton for 3FWS-FK540 on MB5. Observes the AUTO light illuminates.	Critical: **Y** ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #12	Performance: Notify US that feedwater has been shifted from the Feed Control Bypass Valves to the Feed Control Valves.	Standard: Report to the US that that feedwater has been shifted from the Feed Control Bypass Valves to the Feed Control Valves.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue: The US acknowledges that feedwater has been shifted from the Feed Control Bypass Valves to the Feed Control Valves.			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: ____________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.5 Revision: 0

Task Title: Shift to SG Feedwater Flow Control Valves

Date Performed: ____________

Examinee: ____________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	**12**	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC S.5 Revision: 0

Initial Conditions: The plant is at 25% power, and the following conditions exist:

- The crew is performing a plant startup using OP 3203, *Plant Startup*.
- OP 3203, Step 4.3.59, “INCREASE reactor power to approximately 25%” has just been completed.

Initiating Cues: The US directs you to SHIFT to SG feedwater flow control valves using OP 3203, Step 4.3.60, “Shift to SG Feedwater Flow Control Valves”.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Respond to RMS-41/42 Alarm

JPM Number: 2023 NRC S.6 Revision: 0

Initiated:

W.M. Forrestt – *Signature on File*	6/6/23
Developer	Date

Reviewed:

J. Keith – *Signature on File*	6/7/23
Technical Reviewer	Date

Approved:

A. Leone – *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

JPM Number: 2023 NRC S.6 Revision: 0

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/6/23	Converted bank JPM to NRC format.	0

JPM WORKSHEET

Facility: MP3 Examinee: ______

JPM Number: 2023 NRC S.6 Revision: 0

Task Title: Respond to RMS-41/42 Alarm

Time Critical Task: ☐ YES ☒ NO

Alternate Path ☐ YES ☒ NO

Validated Time (minutes): 12

Applicable To: SRO X RO X

K/A Number: 072 A3.01 K/A Rating: 3.3

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Respond to Area Rad Monitor RMS-41/42 alarm in accordance with AOP 3573, Radiation Alarm Monitor Response and OP 3313, Containment Purge.

Required Materials: (procedures, equipment, etc.)

- Marked up copy of AOP 3573 (Rev 028), step 2 and Attachment B, page 5 (RMS-41/42 response). **(Handout)**
- OP 3313F (Rev 013-00), Containment Purge

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. With the exception of the questions at the end, you may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.6 Revision: 0

Initial Conditions:	The Plant is in MODE 6 performing fuel movement, and the following conditions exist: • Both trains of Containment Purge are in service. • Radiation monitors RMS-41 and 42, Fuel Drop Monitors, have come into ALARM.
Initiating Cues:	The Unit Supervisor directs you to take action in accordance with AOP 3573, Radiation Alarm Monitor Response. You are to perform steps 2.b and 2.c of AOP 3573 for RMS41 and 42.
Simulator Requirements:	**OPTION 1 (Run as standalone):** **1.) Reset to IC 100** (PASSWORD: "**Coral7!")** **2.) Ensure both Trains of Containment Purge are in-service with a Key (Key Tag #33) in 3HVU*CTV32A (key is normally left in these valves – when open)** (Note: This IC was created using a Mode 6 IC with the MB2 Radiation High and Alert Annunciators lit (using malfunctions). **IC 100 purposely omits RMS-41 and RMS-42 alarms.** This allows the Containment Purge valves to remain open for the JPM without inserting and deleting I/O overrides. **OR** **OPTION 2 (if desired to run in parallel with another simulator JPM)** **1.) Reset to desire IC (doesn't have to be Mode 6)** **2.) Install the curtains by VP1** **3.) Place both trains of CTMT Purge in service - unfiltered (iaw Section 4.1 of OP 3313F) and run in parallel with desired JPM (See Note 1 below)** **4.) Ensure both Trains of Containment Purge are in-service with a Key in 3HVU*CTV32A (key is normally left in these valves – when open)**

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the Examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question Examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the Examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.6 Revision: 0

Task Title: Respond to RMS-41/42 Alarm

START TIME: ____________

<table>
<tr><td colspan="5">Provide copy of AOP 3573, step 2 and Attachment B, page 5 (RMS-41/42 response).</td></tr>
<tr><td rowspan="5">STEP #1
AOP 3573
Step 2.b</td><td rowspan="3">Performance:
b. CHECK automatic actuations specified in ATTACHMENT B – OCCURRED

RNO: PERFORM actions specified in ATTACHMENT B.</td><td>Standard:
Using Attachment B, determines that RMS-41/42 should automatically isolate Ctmt Purge and Exhaust, but action has not occurred.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>At VP1A, turns and holds key in closed position for 3HVU*CTV32A and 32B until valves indicate closed (Green Light – LIT).</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>At VP1C, turns and holds key in closed position for 3HVU*CTV33A and 33B until valves indicate closed (Green Light – LIT).</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:
Closing Purge valves is a critical task, but failure of JPM will not occur unless also missed at JPM step 16.</td></tr>
<tr><td rowspan="3">STEP #2
AOP 3573
Step 2.c</td><td>Performance:
c. Using ATTACHMENT B, PERFORM subsequent actions</td><td>Standard:
Refers to ATTACHMENT B and notes subsequent actions are applicable.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.6 Revision: 0

Task Title: Respond to RMS-41/42 Alarm

STEP	Performance:	Standard:	Critical:	Grade:
STEP #3 AOP 3573 Att B	1. IF the Ctmt Purge and Exhaust fans AND Air Handling Units are in operation, THEN STOP 3HVR-FN4A and 3HVR-FN4B, EXH FANS **AND** Using OP 3313F, Containment Purge, SHUTDOWN Containment Purge System.	At VP1B, stops 3HVR-FN4A and 3HVR-FN4B. (Switch handle to stop. Green light-LIT, Red light-NOT LIT.)	Y ☒ N ☐	S ☐ U ☐
		Goes to OP 3313F, Containment Purge, to shutdown Containment Purge System.	Y ☒ N ☐	S ☐ U ☐
	Cue: If asked, **"US directs you to perform OP 3313F to shutdown Containment Purge System."**			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.6 Revision: 0

Task Title: Respond to RMS-41/42 Alarm

STEP	Performance:	Standard:	Critical:	Grade:
STEP #4 AOP 3573 Att B	2. If a fuel handling accident has occurred, then go to EOP 3502, Fuel Handling Accident, **AND** Continue actions of this procedure.	Asks US if there is a Fuel Handling Accident in progress.	Y ☐ N ☒	S ☐ U ☐
	Cue: **If asked if a fuel handling accident has occurred (Att B step 2) provide the following: "Unit Supervisor will continue with AOP 3573. You are to continue with OP 3313F".**			
	Comments: Because the steps are numbered the candidate may go to OP 3313F without asking about Fuel Handling Accident.			
STEP #5 OP 3313F Step 4.3.1	If it is desired to remove containment purge Train A from service, PERFORM the following (VP1):	Identifies that Train A is in-service and needs to be addressed.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 3313F Step 4.3.1a	a. STOP 3HVR- HVU 1A, "CTMT PURGE" "SPLY HVU'S.	Observes 3HVR- HVU 1A, "CTMT PURGE" "SPLY HVU" (Green light-LIT, Red light-NOT LIT.) is stopped.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments: 3HVR-HVU1A auto stopped when 3HVR-FN4A was stopped. The examinee will likely green flag the control switch for 3HVR-HVU1A.			

<table>
<tr><td rowspan="3">STEP
#7
3313F
Step
4.3.1b</td><td>Performance:
b. STOP 3HVR- FN4A, “CTMT PURGE” “EXH FANS.”</td><td>Standard:
Stops 3HVR- FN4A, “CTMT PURGE” “EXH FANS.”
(Switch to stop. Green light-LIT, Red light-NOT LIT.)</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: may have been already performed at JPM step 3</td></tr>
<tr><td rowspan="3">STEP
#8
3313F
Step
4.3.1c</td><td>Performance:
c. CLOSE the following supply dampers:
• 3HVR*AOD55A, “CTMT PURGE” “SPLY DMPRS” “HVU 1A”
• 3HVR*AOD174A, “CTMT PURGE” “SPLY DMPRS” “HVU 1A”</td><td>Standard:
At VP1B Closes supply dampers 3HVR*AOD55A, AND 3HVR*AOD174A.
(Presses CLOSE button. Green light-LIT, Red light-NOT LIT.)</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP
#9
OP
3313F
Step
4.3.2</td><td>Performance:
If it is desired to remove containment purge Train B from service, PERFORM the following (VP1):</td><td>Standard:
Identifies that Train B is in-service and needs to be addressed.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP
#10
3313F
Step
4.3.2a</td><td>Performance:
a. STOP 3HVR- HVU 1B, “CTMT PURGE” “SPLY HVU’S.</td><td>Standard:
Observes 3HVR- HVU 1B, “CTMT PURGE” “SPLY HVU” (Green light-LIT, Red light-NOT LIT.) is stopped.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments: 3HVR-HVU1B auto stopped when 3HVR-FN4B was stopped. The examinee will likely green flag the control switch for 3HVR-HVU1B.</td></tr>
</table>

STEP	Performance:	Standard:	Critical:	Grade:
STEP #11 3313F Step 4.3.2b	b. STOP 3HVR- FN4B, “CTMT PURGE” “EXH FANS.”	Stops 3HVR- FN4B, “CTMT PURGE” “EXH FANS.” (Switch handle to stop. Green light-LIT, Red light-NOT LIT.)	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments: may have been already performed at JPM step 3			
STEP #12 3313F Step 4.3.2c	c. CLOSE the following supply dampers: • 3HVR*AOD55B, “CTMT PURGE” “SPLY DMPRS” “HVU 1B” • 3HVR*AOD174B, “CTMT PURGE” “SPLY DMPRS” “HVU 1B”	At VP1B Closes supply dampers 3HVR*AOD55B, AND 3HVR*AOD174B. (Presses CLOSE button. Green light-LIT, Red light-NOT LIT.)	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments:			
STEP #13 OP 3313F Step 4.3.3	IF restoring a Containment penetration opening (exception), REMOVE the penetration from the “Status Board” or OP 3260A- 005, “Containment Boundary or RCS Integrity Work Log.”	Candidate should enquire about status of Containment penetration opening exceptions.	Y ☐ N ☒	S ☐ U ☐
	Cue: When asked, inform candidate that the Unit Supervisor will perform step 4.3.3.			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.6 Revision: 0

Task Title: Respond to RMS-41/42 Alarm

STEP	Performance:	Standard:	Critical:	Grade:
STEP #14 3313F Step 4.3.4	If both containment purge air trains are shutdown, PERFORM the following to close the following exhaust dampers (VP1):	Determines both containment purge air trains are shut down and step applies.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments:			
STEP #15 3313F Step 4.3.4a	a. PRESS both of the “CTMT PURGE” “EXH DMPRS” “CLOSE” pushbutton: • 3HVR*AOD32A “CTMT PURGE” “EXH DMPRS,” (unfiltered) • 3HVR*AOD29A “CTMT PURGE” “EXH DMPRS,” (filtered) • 3HVR*AOD32B “CTMT PURGE” “EXH DMPRS,” (unfiltered) • 3HVR*AOD29B “CTMT PURGE” “EXH DMPRS,” (filtered)	At VP1B Presses both of the “CTMT PURGE” “EXH DMPRS” “CLOSE” pushbuttons (Green light-LIT, Red light-NOT LIT.)	Y ☒ N ☐	S ☐ U ☐
	Cue:			
	Comments: Initially the unfiltered dampers are open, and the filtered dampers are shut. Each pushbutton affects a pair of valves.			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.6 Revision: 0

Task Title: Respond to RMS-41/42 Alarm

STEP	Performance:	Standard:		Grade:
STEP #16 3313F Step 4.3.4b	b. PERFORM the following to close the containment purge air containment isolation valves:	If these actions were performed earlier (JPM Step 1), the examinee will verify conditions are still met and mark these steps complete.		S ☐ U ☐
	1) PLACE keyswitch for 3HVU*CTV32A and 3HVU*CTV32B, "CTMT" "PURGE VVS," to "CLOSE."	Standard: Places keyswitch for 3HVU*CTV32A and 3HVU*CTV32B, "CTMT" "PURGE VVS," to "CLOSE." (Rotates key to left until valves indicate closed – Green Light – LIT).	Critical: Y ☒ N ☐	
	2) WHEN 3HVU*CTV32A and 3HVU*CTV32B, "CTMT" "PURGE VVS," are closed, RETURN keyswitch to "AUTO."	Standard: Returns keyswitch to "AUTO". (spring returns to auto.)	Critical: Y ☐ N ☒	
	3) PLACE keyswitch for 3HVU*CTV33A and 3HVU*CTV33B, "CTMT" "PURGE VVS," to "CLOSE."	Standard: Places keyswitch for 3HVU*CTV33A and 3HVU*CTV33B, "CTMT" "PURGE VVS," to "CLOSE." (Rotates key to left until valves indicate closed – Green Light – LIT).	Critical: Y ☒ N ☐	
	4) WHEN 3HVU*CTV33A and 3HVU*CTV33B, "CTMT" "PURGE VVS," are closed, RETURN keyswitch to "AUTO."	Standard: Returns keyswitch to "AUTO". (spring returns to auto.)	Critical: Y ☐ N ☒	
	Cue:			
	Comments: (1) Step is critical ONLY if not previously performed at JPM step 1.			

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: ______________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.6 Revision: 0

Task Title: Respond to RMS-41/42 Alarm

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	12	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC S.6 Revision: 0

Initial Conditions: The Plant is in MODE 6 performing fuel movement, and the following conditions exist:

- Both trains of Containment Purge are in service.
- Radiation monitors RMS-41 and 42, Fuel Drop Monitors, have come into ALARM.

Initiating Cues: The Unit Supervisor directs you to take action in accordance with AOP 3573, Radiation Alarm Monitor Response. You are to perform steps 2.b and 2.c of AOP 3573 for RMS41 and 42.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

JPM Number: 2023 NRC S.7 Revision: 0

Initiated:

W.M. Forrestt – *Signature on File*	6/6/23
Developer	Date

Reviewed:

J. Keith – *Signature on File*	6/7/23
Technical Reviewer	Date

Approved:

A. Leone – *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

JPM Number: 2023 NRC S.7 Revision: 0

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/6/23	Converted bank JPM to NRC format.	0

JPM WORKSHEET

Facility: MP3 Student: ____________________

JPM Number: 2023 NRC S.7 Revision: 0

Task Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

Time Critical Task: ☐ YES ☒ NO
Alternate Path ☒ YES ☐ NO

Validated Time (minutes) 6

Applicable To: SRO X RO X

K/A Number: 008 A4.01 K/A Rating: 3.7

Method of Testing: Simulated Performance: ______ Actual Performance: X

Location: Classroom: ______ Simulator: X In-Plant: ______

Task Standards: Given post accident plant conditions, successfully aligns RPCCW to the sample cooler and establishes a SG sample flow path in accordance with GA-30.

Required Materials: (procedures, equipment, etc.) GA-30, *Aligning RPCCW for RCS and SG sampling* (Rev. 0)

General References: None

*** READ TO THE EXAMINEE ***
I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. With the exception of the questions at the end, you may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.7 Revision : 0

Initial Conditions: The following events have occurred:

- With the plant at 100% power, a steam line rupture occurred in the Turbine Building.
- The crew mitigated the event and is presently at step 8 of E-2, Faulted SG Isolation.

Initiating Cues: The Unit Supervisor directs you to implement GA-30, *Aligning RPCCW for RCS and SG Sampling*, to obtain RCS and SG samples.

The alarms are in Master Silence.

Simulator Requirements: **Reset to IC 101** (PASSWORD: "**Coral7!")** and **Hang a YCT on 3IAS-C1C** "Diesel Inst. Air Comp" indicating lights (MB1).

-- OR –

1. Reset to any 100% percent power IC
2. Insert the following:
- Malfunction: **IA02A** "Instru Air Comp Trip C1A"
- Malfunction: **MS02A** "MS LN A RUP O.S. CTMT UP MSIV to **3.75E06**
- Remote: **IAR08** "Diesel Inst Air Comp control switch.." to **OFF**
- Override: **IALO0028** "3IAS-C1C … green light" to **OFF**
3. Trip Rx, initiate MSI, perform actions of E-0 and E-2 up to step 8 of E-2

Approximate Simulator setup time is 20 minutes

*** * * * <u>NOTES TO TASK PERFORMANCE EVALUATOR</u> * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the student to achieve a satisfactory grade, **<u>ALL</u>** critical steps must be completed correctly.
2. When the student states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question student for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **<u>NO</u>** circumstances must the student be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.7 Revision: 0

Task Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

START TIME: ______________

STEP	Performance	Standard	Critical	Grade
STEP #1 GA-30 Step 1a	Performance: Check annunciator "CONTAINMENT DEPRES ACTUATION" (MB2B 5---5) --- NOT LIT	Standard: Observes MB2B 5-5, CDA, and determines annunciator is not lit.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments:			
STEP #2 GA-30 Step 1b	Performance: Check any RPCCW pumps --- RUNNING	Standard: Determines both 3CCP*P1A and 3CCP*P1B are running (red light on, green light off).	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments:			
STEP #3 GA-30 Caution	Performance: CAUTION After SI reset, manual operator action is required to: • Open the charging pump cold leg injection valves when RCS pressure decreases to LESS THAN 1900 psia. • Restart safeguards equipment if offsite power is lost.	Standard: Acknowledges Caution.	Y ☐ N ☒	S ☐ U ☐
	Cue:			
	Comments: Caution will not apply to JPM.			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.7 Revision: 0

Task Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

STEP	Performance	Standard	Critical	Grade
STEP #4 GA-30 Step2a	Performance: RESET SI	Standard: On MB2 (under “ESF Reset Block”), depresses BOTH ‘A’ & ‘B’ Train SI RESET pushbuttons and clears annunciator MB2B 5-9.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #5 GA-30 Step2b	Performance: RESET CIA	Standard: On MB2 (under “ESF Reset Block”), depresses BOTH ‘A’ & ‘B’ CIA RESET pushbuttons and clears annunciator MB2B 5-8.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #6 GA-30 NOTE	Performance: NOTE: Instrument air compressor B is tripped by SI, CDA and LOP.	Standard: Acknowledges Note.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.7 Revision: 0

Task Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

STEP #7 GA-30 Step3a	Performance: Check instrument air compressors --- AT LEAST ONE RUNNING	Standard: On MB1, determines that NO instrument air compressors are running: • 3IAS-C1A ('A' Instrument Air Compressor) is off (green light on, red light off) • 3IAS-C1B ('B' Instrument Air Compressor) is off (green light on, red light off) • 3IAS-C1C (Diesel instrument air compressor) is tagged with no indicating lights	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	RNO 3.a.1: RESET LOP if required.	Determines LOP RESET is not required (based on original cue and current conditions have offsite power supplying station transformers)..	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	RNO 3.a.2: START one instrument air compressor.	Rotates control switch for 3IAS-C1B to Start and observes compressor starts.	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	IF instrument air can NOT be restored, THEN Perform the following: 1) Inform SM/US that RPCCW cannot be aligned and that PASS samples may be required. 2) Proceed to step 6.	3IAS-C1B was started successfully. Marks this step N/A.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments: (1) As part of the simulator set-up, the 'A' IAS compressor is failed and 3IAS-C1C is tagged out. The intent is to have the examinee use the RNO and start the 'B' IAS compressor. (2) This begins the Alternate Path portion of the JPM.			
STEP #8 GA-30 Step4a	Performance: Check RPCCW pumps --- TRAIN A PUMP RUNNING	Standard: Determines 3CCP*P1A is running (red light on, green light off).	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
	Cue:			
	Comments:			

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.7 Revision: 0

Task Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

Step	Performance	Standard	Critical	Grade
STEP #9 GA-30 Step 4b	Performance: OPEN RPCCW non---safety related header Train A isolation valves • 3CCP*AOV197A/194A • 3CCP*AOV10A/19A	Standard: Depresses open pushbuttons for the following valve pairs and observes valve(s) open (red light on / green light off): • 3CCP*AOV197A/194A • 3CCP*AOV10A/19A	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #10 GA-30 Step 5a	Performance: RESET SG blowdown sample isolation	Standard: On MB1, depresses pushbutton labeled "SG BLDN SAMPLE".	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			
STEP #11 GA-30 Step 5b	Performance: OPEN SG blowdown sample isolation valves	Standard: Depresses open pushbutton(s) for the following valves and observes valves open (red light on / green light off): • 3SSR*CTV19A • 3SSR*CTV19B • 3SSR*CTV19C • 3SSR*CTV19D	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Cue:			
	Comments:			

JPM Number: 2023 NRC S.7 Revision: 0

Task Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

STEP	Performance:	Standard:	Critical:	Grade:
STEP #12 GA-30 Step5c	Request Chemistry obtain RCS and SG samples using HP coverage	Calls Chemistry and requests they obtain RCS and SG samples using HP coverage.	Y ☐ N ☒	S ☐ U ☐
	Cue: As chemistry, acknowledge sample request and end JPM.			
	Comments:			

TERMINATION CUE: **The evaluation for this JPM is concluded.**

STOP TIME: ______________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.7 Revision: 0

Task Title: Implement GA-30, Aligning RPCCW for RCS and SG Sampling

Date Performed: ____________

Examinee: ____________

For the student to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.

If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	6	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

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EXAMINEE HANDOUT

JPM Number: 2023 NRC S.7 Revision: 0

Initial Conditions: The following events have occurred:

- With the plant at 100% power, a steam line rupture occurred in the Turbine Building.
- The crew mitigated the event and is presently at step 8 of E-2, Faulted SG Isolation.

Initiating Cues: The Unit Supervisor directs you to implement GA-30, *Aligning RPCCW for RCS and SG Sampling*, to obtain RCS and SG samples.

The alarms are in Master Silence.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Respond to smoke in the Control Room by operating the Control Room Emergency Ventilation System

JPM Number: 2023 NRC S.8 Revision: 0

Initiated:

W. M. Forrestt – *Signature on File*	6/2/23
Developer	Date

Reviewed:

J. Keith – *Signature on File*	6/5/23
Technical Reviewer	Date

Approved:

A. Leone – *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/2/23	New JPM developed for 2023 Initial License Training NRC Exam.	0

JPM WORKSHEET

Facility: MP 3 Examinee: ____

JPM Number: 2023 NRC S.8 Revision: 0

Task Title: Respond to smoke in the Control Room by operating the Control Room Emergency Ventilation System

Time Critical Task: ( ) YES (X) NO

Alternate Path: ( ) YES (X) NO

Validated Time (minutes): 10

Applicable To: SRO **X** RO **X**

K/A Number: 050-A2.02 K/A Rating: 3.5 / 3.7

Method of Testing: Simulated Performance: ____ Actual Performance: X

Location: Classroom: ____ Simulator: X In-Plant: ____

Task Standards: Satisfactorily complete starting Control Building Ventilation with full recirculated filtered air using Train A in accordance with OP 3314F, *Control Building Heating, Ventilation, Air Conditioning and Chill Water*

Required Materials: OP 3314F*, Rev 041-00
(procedures, equipment, etc.) * With Examinee Handout, provide a copy of OP 3314F step 4.10.3

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC S.8 Revision: 0

Initial Conditions: The plant is in Mode 5 for a refueling outage when the following occurs:

- There is faint smell of smoke in the Control Room.
- Annunciator VP1C 2-1A, CB Inlet Vent Smoke, has alarmed.
- PEO's are dispatched to investigate.

Initiating Cues: Per annunciator response procedure direction, the US directs you to perform OP 3314F Step 4.10.3 "Using Train 'A' Control Room Emergency Ventilation System, PLACE control room ventilation on full filtered recirculation using filter 1A".

See attached procedure copy.

Simulator Requirements: **Preferred** (If running in parallel with 2023 NRC S.4)

1) Reset to IC-98 (PASSWORD: "**Coral7!")**
2) Ensure annunciator VP1C 2-1A is lit

Optional

1) Reset to IC-27
2) Insert malfunction VP1C-B01T "CB Inlet Vent Smoke" and acknowledge annunciator VP1C 2-1A
3) Place the simulator in "RUN".

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking "Y". For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the Examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question Examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the Examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC S.8 Revision: 0

Task Title: Respond to smoke in the Control Room by operating the Control Room Emergency Ventilation System

START TIME: ______________

STEP #1 OP 3314F Note prior to Step 4.10.3	Performance: **Caution** The Control Room Emergency Ventilation System must be operated with recirculated outside filtered air (step 4.10.2) during post accident conditions.	Standard: Reads the Caution.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:				
Comments:				
STEP #2 OP 3314F, Step 4.10.3	Performance: IF it is necessary to operate Train A Control Room Emergency Ventilation System with full recirculated filtered air using filter 1A, PERFORM the following:	Standard: Uses this section of OP 3314F	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:				
Comments:				

STEP #3 OP 3314F NOTE	Performance: NOTE: 1. The Control Room will not be pressurized in this MODE. 2. The full recirculated filtered air MODE of operation should only be used when directed by the Alarm Response Procedure for smoke in the Control Room inlet duct. 3. 3HVC*AOV25 and 3HVC*AOV26, control building outside air isolations, are maintained open with air isolated to ensure the ability to establish the Control Room Emergency Ventilation System in recirculated outside filtered air mode for Design Basis Accident mitigation.	Standard: Reads the 3 notes.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:				
Comments:				
STEP #4 OP 3314F, Step 4.10.3.a	Performance: Refer To T/S 3.7.7, "Control Room Emergency Ventilation System," for appropriate ACTIONS.	Standard: Notifies Unit Supervisor of possible TS 3.7.7 entry.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:	As Unit Supervisor, acknowledge request.			
Comments:				

STEP #5 OP 3314F, Step 4.10.3.b.	Performance: PERFORM the following to stop Kitchen Exhaust Fan Ventilation System (VP1): 1) PLACE 3HVC-FN6, "KITCHEN EXH FAN," to "OFF."	Standard: Places 3HVC-FN6, "KITCHEN EXH FAN" control switch to OFF at VP1. Verifies Red light goes off, and Green light lights at VP1.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:				
Comments:				
STEP #6 OP 3314F Step 4.10.3.b.	Performance: 2) CLOSE the following: • 3HVC*AOV20, "KITCHEN EXH AIR ISOL"	Standard: Presses "CLOSE" pushbutton for 3HVC*AOV20. Observes AOV closes (Green ON / Red OFF).	Critical: **Y** ☒ N ☐	Grade: S ☐ U ☐
	• 3HVC*AOV21, "KITCHEN EXH AIR ISOL"	Presses "CLOSE" pushbutton for 3HVC*AOV21. Observes AOV closes (Green ON / Red OFF).	Critical: **Y** ☒ N ☐	Grade: S ☐ U ☐
Cue:				
Comments:				
STEP #7 OP 3314F Step 4.10.3.b.	Performance: 2) CLOSE the following: • 3HVC*AOD27A, "NORM SPLY DMPR"	Standard: Presses "CLOSE" pushbutton for 3HVC*AOD27A. Observes damper closes (Green ON / Red OFF).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
	Performance: 2) CLOSE the following: • 3HVC*AOD27B, "NORM SPLY DMPR"	Standard: Presses "CLOSE" pushbutton for 3HVC*AOD27B. Observes damper closes (Green ON / Red OFF).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
Cue:				
Comments:				

STEP #8 OP 3314F, Step 4.10.3.c	Performance: OPEN instrument air supply to 3HVC*AOV25, “CNTRL Room Ventilation Inlet Isol VV” (locally).	Standard: Dispatches PEO to open instrument air supply to HVC*AOV25.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:	Acknowledge request and using time compression, REPORT “The instrument air supply to HVC*AOV25 is Open.”			
Comments:	This instrument air supply valve is <u>not</u> modeled in the simulator.			
STEP #9 OP 3314F, Step 4.10.3.d	Performance: CLOSE 3HVC*AOV25, “OUTSIDE AIR ISOL” (VP1).	Standard: Presses “CLOSE” pushbutton for 3HVC*AOV25. Observes AOV closes (Green ON / Red OFF).	Critical: Y ☒ N ☐	Grade: S ☐ U ☐
Cue:				
Comments:				
STEP #10 OP 3314F, Step 4.10.3.e	Performance: ENSURE <u>one</u> of the following, running (VP1): • 3HVC*ACU1A, “CNTL RM ACU” • 3HVC*ACU1B, “CNTL RM ACU”	Standard: Observes indicating lights at VP1: 3HVC***ACU1A** green OFF red ON. 3HVC***ACU1B** green ON red OFF.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:				
Comments:				

<table>
<tr><td>STEP #11
OP 3314F Step 4.10.3.f</td><td colspan="2">Performance:
<u>IF</u> Purge System is in service, Refer To step 4.12.2 and SHUTDOWN Control Building Purge System.</td><td>Standard:
Verifies Purge System is not in service, by observing Purge Off (Red light OFF, Green lights ON) on VP1. May also check Purge Dampers. Marks step N/A.</td><td>Critical:
Y ☐ N ☒</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>Cue:</td><td colspan="5"></td></tr>
<tr><td>Comments:</td><td colspan="5">This step is N/A. Purge system is not in service.</td></tr>
<tr><td>STEP #12
OP 3314F Step 4.10.3.g</td><td>Performance:
PLACE 3HVC*FN1A, “FLTR UNIT FAN/DMPRS,” to “ON” and OBSERVE the following (VP1):
1) 3HVC*MOD33A, “FLTR UNIT FAN/DMPRS,” opens.
2) 3HVC*FN1A, “FLTR UNIT FAN/DMPRS,” starts.
3) 3HVC*FLT1A, “FLTR BANK HTR,” on.
4) 3HVC*AOD119A. “RECIRC DMPR,” in “EMERGENCY.”</td><td colspan="2">Standard:
Places 3HVC*FN1A to “ON” and observes the following (VP1):
1) 3HVC*MOD33A, “FLTR UNIT FAN/DMPRS,” opens (Red light ON, Green light OFF).
2) 3HVC*FN1A, “FLTR UNIT FAN/DMPRS,” starts (Red light ON, Green light OFF).
3) 3HVC*FLT1A, “FLTR BANK HTR,” on (Red light ON, Green light OFF).
4) 3HVC*AOD119A. “RECIRC DMPR,” in “EMERGENCY.”</td><td>Critical:
Y ☒ N ☐</td><td>Grade:
S ☐ U ☐</td></tr>
<tr><td>Cue:</td><td colspan="5"></td></tr>
<tr><td>Comments:</td><td colspan="5">Critical nature of the step is to start 3HVC*FN1A</td></tr>
</table>

STEP #13 OP 3314F Step 4.10.3.h	Performance: ENSURE VP1A 4-1, "CONTROL BLDG EMER VENT FAN SYS A TROUBLE" is clear.	Standard: Observes annunciator is clear.	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:				
Comments:				
STEP #14	Performance: Notifies the US that Train A Control Building Ventilation has been started on full filtered recirculation using step 4.10.3 of OP 3314F	Standard: Makes report to US	Critical: Y ☐ N ☒	Grade: S ☐ U ☐
Cue:	Acknowledge report and terminate the JPM.			
Comments:				

TERMINATION CUE: **"The evaluation for this JPM is completed".**

Stop Time:_________________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC S.8 Revision: 0

Task Title: Respond to smoke in the Control Room by operating the Control Room Emergency Ventilation System

Date Performed: ____________

Examinee: ____________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	10	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

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EXAMINEE HANDOUT

JPM Number: 2023 NRC S.8 Revision: 0

Initial Conditions: The plant is in Mode 5 for a refueling outage when the following occurs:

- There is faint smell of smoke in the Control Room.
- Annunciator VP1C 2-1A, CB Inlet Vent Smoke, has alarmed.
- PEO's are dispatched to investigate.

Initiating Cues: Per annunciator response procedure direction, the US directs you to perform OP 3314F Step 4.10.3 "Using Train 'A' Control Room Emergency Ventilation System, PLACE control room ventilation on full filtered recirculation using filter 1A".

See attached procedure copy.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Reset 3MSS*MSV5, Terry Turbine Trip Throttle Valve

JPM Number: 2023 NRC P.1 Revision: 0

Initiated:

W. M. Forrestt – *Signature on File*	6/6/23
Developer	Date

Reviewed:

J. Keith – *Signature on File*	6/7/23
Technical Reviewer	Date

Approved:

A. Leone – *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/6/23	Converted bank JPM to NRC format.	0

JPM WORKSHEET

Facility: **Millstone** Examinee: ______

JPM Number: 2023 NRC P.1 Revision: 0

Task Title: Reset 3MSS*MSV5, Terry Turbine Trip Throttle Valve

Time Critical Task: ( ) YES (X) NO
Alternate Path: ( ) YES (X) NO

Validated Time (minutes) 15

Applicable To: SRO X RO X

K/A Number: EPE-E05-EA 1.19 K/A Rating: 4.3

Method of Testing: Simulated Performance: X Actual Performance: ______

Location: Classroom: ______ Simulator: ______ In-Plant: X

Task Standards: Given a tripped closed condition for 3MSS*MSV5, Terry Turbine Trip Throttle Valve, implements GA-31 and is able to demonstrate BOTH of the following:

(1) Reset the linkage for 3MSS*MSV5

(2) Open 3MSS*MSV5

Required Materials: (procedures, equipment, etc.) NA

General References: EOP 35 GA-31 Rev 005-00

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. With the exception of the questions at the end, you may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC P.1 Revision : 0

Initial Conditions:	A Loss of Secondary Heat Sink event is in progress and the control room team is carrying out the actions of EOP 35 FR-H.1. AFW flow could not be established from the control room.
Initiating Cues:	The US directs you to locally verify the position of 3MSS*MSV5, Terry Turbine Trip Throttle Valve starting at step 2 of GA-31. If 3MSS*MSV5 is out of position, you have been directed to reposition the valve per GA-31.
Simulator Requirements:	NA

* * * * **NOTES TO TASK PERFORMANCE EVALUATOR** * * * *

1. Critical steps for this JPM are indicated by checking “Y”. For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC P.1 Revision: 0

Task Title: Reset 3MSS*MSV5, Terry Turbine Trip Throttle Valve

START TIME: __________

<table>
<tr><td>Examiner Note:</td><td colspan="4">Prior to performance of the JPM discuss bump hazards while in the area of 3MSS*MSV5. Performance of the JPM may be done at a distance from the valve, using Figures 1 and 2 of GA-31 (page 9 of 9) to explain actions.</td></tr>
<tr><td rowspan="3">STEP #1
GA-31 Step 2a</td><td>Performance:
2. Check TDAFW Pump Operation
a. TDAFW Pump Trip Throttle Valve (3MSS*MSV5) – OPEN</td><td>Standard:
Operator determines that 3MSS*MSV5 is closed by observing Trip Hook and Latch Up Lever are disengaged and the valve slide nut is in the downward position.
Operator proceeds to the RNO.</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
As the operator requests information on the status of the valve provide the applicable cue:
• The Latch-up lever is disengaged from the Trip Hook and pointed downward towards the 4 o'clock position.
• The valve stem slide nut on 3MSS*MSV5 is in the downward position.
• The overspeed tappet is raised approximately 3/4"
• The connecting rod has moved towards the pump shaft, with the base of the rod fulcrum under the trip tappet.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #2
GA-31 Step 2a RNO</td><td>Performance:
PROCEED TO step 2.d.</td><td>Standard:
Operator proceeds to step 2.d.</td><td>Critical:
Y [ ] N [X]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #3
GA-31 Step 2d</td><td>Performance:
MOVE connecting rod toward 3MSS*MSV5 until the trip tappet is free to move down (Ref. Figure - 1)</td><td>Standard:
Moves connecting rod toward 3MSS*MSV5 until the trip tappet is free to move down.</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue: Connecting rod moves towards 3MSS*MSV5 approximately 2 inches. The trip tappet is free to move down.</td></tr>
<tr><td colspan="4">Comments:
Operator should be referencing Figure 1 prior to performance of the reset (reference to figure is not critical).</td></tr>
</table>

<table>
<tr><td rowspan="3">STEP #4

GA-31 Step 2e</td><td>Performance:
ADJUST the trip tappet – FULLY DOWN (Ref. Figure 1)</td><td>Standard:
Adjusts the trip tappet fully down.</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
The trip tappet lowers until the bottom of the tappet is flush with the overspeed housing.
There is no additional movement when the trip tappet is pushed down.</td></tr>
<tr><td colspan="4">Comments:
Pressing down on the trip tappet is a good operation practice.</td></tr>
<tr><td rowspan="3">STEP #5

GA-31 Step 2f</td><td>Performance:
RELEASE connecting rod (Ref. Figure – 1)</td><td>Standard:
Releases connecting rod.</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
Connecting rod moves toward the pump.
The base of the connecting rod fulcrum is resting on the side of the trip tappet
OR
Trip Tappet and connecting rod are as shown (if Terry Turbine is reset).</td></tr>
<tr><td colspan="4">Comments:
As a good practice the operator should slowly release the connecting rod.</td></tr>
<tr><td rowspan="3">STEP #6

GA-31 Step 2g</td><td>Performance:
TURN 3MSS*MSV5, TDAFW pump trip throttle valve, handwheel CW until trip hook engages with latch-up lever (Ref. Figure 1)</td><td>Standard:
Turns handwheel for 3MSS*MSV5 clockwise until the trip hook engages with the latch-up lever.</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
• Handwheel moves in the clockwise direction.
• As the handwheel is rotated the latch-up lever rises.
• As the latch-up lever reaches its top position (2 o’clock) the trip hook rotates in and engages the latch up lever.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #7

GA-31 Step 2h</td><td>Performance:
PRESS trip hook <u>AND</u> REMOVE any gap between latch-up lever and trip hook (Ref. Figure - 1)</td><td>Standard:
Presses trip hook toward latch-up lever and removes any gap between latch-up lever and trip hook.</td><td>Critical:
Y [ ] N [X]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
There is no movement of the trip hook and no gap seen between the latch-up lever and trip hook.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

Step	Performance	Standard	Critical	Grade
STEP #8 GA-31	Performance: CAUTION: When throttling open 3MSS*MSV5, adjustments should be made slowly to allow the TDAFW pump governor to control speed.	Standard: Operator reads caution	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #9 GA-31 Step 2i	Performance: **OPEN** 3MSS*MSV5, TDAFW pump trip throttle valve handwheel in CCW direction (Ref. Figure - 1)	Standard: Opens 3MSS*MSV5, trip throttle valve, by turning handwheel in counter-clockwise direction (open direction).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: **The valve stem coupling nut on 3MSS*MSV5 moves toward the upward position. Handwheel moves freely until resistance is met and comes to a hard stop.**			
	Comments:			
STEP #10 GA-31 Step 2j	Performance: j. **CHECK** both of the following: • TDAFW pump - ROTATING • Governor controlling TDAFW Pump speed - 4375 - 4425 rpm	Standard: Checks Terry Turbine for rotation and observes no rotation. Operator proceeds to the RNO.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: **Terry Turbine is not rotating**			
STEP #11 GA-31 Step 2j RNO	Performance: RNO **PROCEED TO** step 2.m.	Standard: Operator proceeds to step 2.m.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			

STEP #12 GA-31 Step 2m	Performance: **CLOSE** 3MSS*MSV5, TDAFW pump trip throttle valve handwheel in CW direction (Ref. Figure - 1)	Standard: Rotates 3MSS*MSV5, TDAFW pump trip throttle valve handwheel in CW (closed) direction.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: **The valve stem coupling nut on 3MSS*MSV5 moves toward the downward position. Handwheel moves freely until resistance is met and comes to a hard stop.**			
	Comments:			
STEP #13 GA-31	Performance: CAUTION: When throttling open 3MSS*MSV5, adjustments should be made slowly to allow the TDAFW pump governor to control speed.	Standard: Operator reads caution	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #14 GA-31 Step 2n	Performance: **ROTATE** 3MSS*MSV5, TDAFW pump trip throttle valve handwheel up to 2 turns in CCW direction to slowly roll TDAFW pump.	Standard: Rotates 3MSS*MSV5, TDAFW pump trip throttle valve handwheel up to 2 turns in CCW (open) direction to slowly roll TDAFW pump.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: • **Handwheel has been moved two full turns in the CCW direction.** • When asked, **"There is no shaft rotation".**			
	Comments:			
STEP #15 GA-31 Step 2o	Performance: Check both of the following: • TDAFW pump - ROTATING • TDAFW rack position - GREATER THAN 0	Standard: Checks Terry Turbine for rotation and observes no rotation. Checks rack position on Terry Turbine Governor at 0. Operator proceeds to the RNO.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: **Terry Turbine is not rotating** **Governor Rack position is at 0.**			
	Comments: Operator should recognize that the RNO for step 2.o applies.			

STEP #16 GA-31 Step 2o RNO	Performance: RNO **PROCEED TO** the note prior to step 2.q.	Standard: Operator proceeds to note prior to step 2.q.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #17 GA-31	Performance: Note: If the TDAFW pump tripped on mechanical overspeed, the linkage will resist movement for approximately 10 minutes due to hydraulic lock on the governor.	Standard: Operator reads note	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: If operator asks, it has been 14 minutes since the crew noticed no flow from the TDAFW pump.			
	Comments: The time between the TDAFW pump trip and the operators attempt to reset the TDAFW pump has been more than the 10 minutes, to allow manual movement of the governor rack position.			
STEP #18 GA-31	Performance: Caution: As linkage is lifted, TDAFW pump will begin to roll and linkage will move.	Standard: Operator reads caution	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #19 GA-31 Step 2q	Performance: Lift up on governor rack linkage on TDAFW pump until TDAFW pump begins to roll (Ref. Figure - 2).	Standard: Operator lifts up on governor rack linkage.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: If operator asks, **"It has been 14 minutes since the TDAFW pump did not start".** As operator lifts up on governor rack linkage**:** • **Governor Rack Linkage rises approximately 1 inch.** • **The TDAFW pump starts to slowly rotate** • **Governor rack position increases to 10 (or Rack position is "As Shown").**			
	Comments:			

STEP #20 GA-31	Performance: CAUTION: When throttling open 3MSS*MSV5, adjustments should be made slowly to allow the TDAFW pump governor to control speed.	Standard: Operator reads caution	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #21 GA-31 Step 2r	Performance: **OPEN** 3MSS*MSV5, TDAFW pump trip throttle valve handwheel in CCW direction (Figure - 1)	Standard: Opens 3MSS*MSV5, trip throttle valve, by turning handwheel in counter-clockwise direction (open direction).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: **The valve stem coupling nut on 3MSS*MSV5 moves toward the upward position. Handwheel moves freely until resist is met and comes to a hard stop. Turbine speed and sound are increasing as the throttle valve is opened.**			
	Comments:			
STEP #22 GA-31 Step 2s	Performance: **CHECK** both of the following: • TDAFW pump - ROTATING • Governor controlling TDAFW Pump speed - 4375 - 4425 rpm	Standard: Observes Terry Turbine for rotation. Checks TDAFW Pump speed - 4375 - 4425 rpm.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: **Terry Turbine is rotating at 4400 rpm.**			
	Comments:			
STEP #23 GA-31 Step 2t	Performance: **ROTATE** 3MSS*MSV5, TDAFW pump trip throttle valve handwheel 1/4 turn in CW direction.	Standard: Rotates 3MSS*MSV5, TDAFW pump trip throttle valve handwheel 1/4 turn in CW (closed) direction.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: **Handwheel moves clockwise ¼ handturn.**			
	Comments:			

<table>
<tr><td></td><td colspan="4"></td></tr>
<tr><td rowspan="3">STEP #24
GA-31 Step 3</td><td>Performance:
Notify Control Room Of AFW System Alignment And Status</td><td>Standard:
Notifies Control Room that 3MSS*MSV5 has been reset and that the governor rack position had to be assisted.</td><td>Critical:
Y [ ] N [X]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
Control Room acknowledges completion of GA-31 step 2.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

TERMINATION CUE: The evaluation for this JPM is concluded.

STOP TIME: __________

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC P.1 Revision: 0

Task Title: Reset 3MSS*MSV5, Terry Turbine Trip Throttle Valve

Date Performed: ____________________

Examinee: ____________________

For the Examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	**15***	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC P.1 Revision: 0

Initial Conditions:

A Loss of Secondary Heat Sink event is in progress and the control room team is carrying out the actions of EOP 35 FR-H.1. AFW flow could not be established from the control room.

Initiating Cue:

The US directs you to locally verify the position of 3MSS*MSV5, Terry Turbine Trip Throttle Valve starting at step 2 of GA-31.

If 3MSS*MSV5 is out of position, you have been directed to reposition the valve per GA-31.

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title: Establish Alternate Charging Pump Cooling Using Fire Water

JPM Number: 2023 NRC P.2 Revision: 0

Initiated:

W. M. Forrestt – *Signature on File*	6/6/23
Developer	Date

Reviewed:

J. Keith – *Signature on File*	6/6/23
Technical Reviewer	Date

Approved:

A. Leone – *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/6/23	Converted 2 bank JPMs to NRC format (will perform JPM on the non-protected train).	0

JPM WORKSHEET

Facility: MP3 Examinee:

JPM Number: 2023 NRC P.2 Revision: 0

Task Title: Establish Alternate Charging Pump Cooling Using Fire Water

Time Critical Task: ( ) YES (X) NO

Alternate-Path JPM: ( ) YES (X) NO

Validated Time (minutes): 15

Applicable To: SRO X RO X

K/A Number: 086-K1.01 K/A Rating: 3.0

Method of Testing: Simulated Performance: X Actual Performance: ____

Location: Classroom: ____ Simulator: ____ In-Plant: X

Task Standards: Using Attachment K of EOP 3501, isolates Service Water and establishes Fire Protection Water cooling to the designated Charging Pump.

Required Materials: (procedures, equipment, etc.) EOP 3501 Rev. 025, Attachment K

PEO Rounds key (Ops key)

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC P.2 Revision : 0

Initial Conditions:	The plant is in Mode 5. A loss of all AC power has occurred. The control room team has progressed through EOP 3501. Attempts are being made to establish injection flow using the charging pumps. Attempts to restore cooling to CCE have failed.
Initiating Cues:	The US has directed you to establish alternate charging pump cooling using EOP 3501 Attachment K. You are to perform this task on (select Non Protected Train): ☐ TRAIN A ☐ TRAIN B
Simulator Requirements:	N/A

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC P.2 Revision: 0

Task Title: Establish Alternate Charging Pump Cooling Using Fire Water

START TIME: __________

STEP	Performance:	Standard:	Critical:	Grade
STEP #1 3501 step K.1 NOTE	**NOTE:** The High Radiation Area key and Locked Valve key are required for performance of some of the local operations. **NOTE:** The temporary hose, associated connections, and tools are maintained in the operation's EOP/AOP equipment box (Aux. Bldg. El.43').	Reads notes.	Y [ ] N [X]	S [ ] U [ ]
	Cue:			
	Comments:			
STEP #2 3501 step K.1	Performance: **Determine Affected Charging Pump**	Standard:	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: If Train A is the Non Protected Train, then provide the following, **"Train A Charging pump is the affected pump."** If Train B is the Non Protected Train, then provide the following, **"Train B Charging pump is the affected pump."**			
	Comments: **If Train A is Non Protected, then continue JPM at JPM Step 3.** **If Train B is Non Protected, then continue JPM at JPM Step12.**			

STEP #3 *3501* *prior to Step K.2 NOTE*	Performance: **NOTE:** Fire Water System pressure is higher than the CCE Heat Exchanger Service Water Outlet Relief Valve (3SWP*RV96A) setpoint pressure.	Standard: Student reads the **NOTE**.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #4 *3501* *Step K.2.a*	Performance: **K.2 Locally Align Fire Water Supply To CCE Heat Exchanger A** a. **CONNECT** a hose from Fire Header Hose Station 46 Supply Valve (3FPW-V806) to Charging Pump Cooler E1A Drain Valve (3SWP*V642)	Standard: Student locates OPS EOP locker Aux Bldg. (AB) 43' outside Boron Evaporator Cubicle. Simulates obtaining hoses fittings and tools. Simulates removal of any pipe caps and connects hose from 3FPW-V806 (located outside CCE cubicle Aux Bldg. 4' on Hose Station 46) to 3SWP*V642 (located in CCE HX cubicle).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Pipe caps are removed (if required), fittings are installed and the hose is connected.			
	Comments:			

STEP #5 *3501* *Step K.2.b*	Performance: **K.2 Locally Align Fire Water Supply To CCE Heat Exchanger A** b. **CLOSE** Charging Pump Cooler E1A Supply Isolation valve (3SWP*V638).	Standard: Student locates 3SWP*V638, (AB 4' CCE HX cubicle) rotates operating handle clockwise until the valve is closed and the handle is perpendicular to the pipe.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: The operating handle rotates in the clockwise direction until hard stop is met.			
	Comments:			
STEP #6 *3501* *Step K.2.c*	Performance: **K.2 Locally Align Fire Water Supply To CCE Heat Exchanger A** c. **THROTTLE** Open Fire Header Hose Station 46 Supply Valve (3FPW-V806) **One** turn**.**	Standard: Locates 3FPW-V806 (AB 4' outside Degasifier cubicle on Hose Station 46), rotates hand wheel one (1) turn in the counterclockwise direction.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: The hand wheel rotates counterclockwise one turn and the hose moves indicating that it is pressurized.			
	Comments:			

STEP #7 *3501* *Step K.2.d*	Performance: **K.2 Locally Align Fire Water Supply To CCE Heat Exchanger A** d. **THROTTLE** Open Charging Pump Cooler E1A Drain Valve (3SWP*V642) to establish between 30 to 40 gpm flow (3SWP*FI160A).	Standard: Rotates 3SWP*V642 operating handle in the counterclockwise direction in small increments while observing flow indication on 3SWP*FI160A, until the indicated flow is between 30 and 40 gpm.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Handle rotates counterclockwise. When flow is checked provide cue that indicated flow is 25 gpm. When 3SWP*V642 is throttled further open and flow is checked, provide cue that flow is 35 gpm.			
	Comments:			
STEP #8 *3501* *Att. K, Step K.2.e*	Performance: **K.2 Locally Align Fire Water Supply To CCE Heat Exchanger A** e. **CHECK** CCE HX SW Outlet Relief (3SWP*RV96A) - NOT LIFTING.	Standard: Observes 3SWP*RV96A tailpiece for evidence of flow (AB 4' Degasifier pump cubicle).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: 3SWP*RV96A indicates as shown (no flow visible). Tailpiece is on platform at top of ladder in Degasifier pump cubical. Both Service Water relief valves flow to a scupper, then to larger pipe to floor drain.			
	Comments: **No Contaminated Areas are to be entered for this JPM.**			

STEP #9 *3501* *Step K.2.f*	Performance: **K.2 Locally Align Fire Water Supply To CCE Heat Exchanger A** f. **PROCEED TO** step K.4.	Standard: Student proceeds to Step K.4.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #10 3501 Step K.4 a	Performance: **Locally Monitor CCE System** **CHECK** operating Charging pump oil temperature - BETWEEN 55 to 131°F • For pump A 3CHS-TI1022A	Standard: Checks temperature indicated on 3CHS-TI1022A (located in "A" Charging pump cubicle)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: 3CHS-TI1022A indicates 110°F (using a pen as a pointer).			
	Comments:			
STEP #11	Performance: Notify Control Room that Alternate Charging pump cooling has been established for "A" Charging pump	Standard: Informs Control Room that alternate Charging pump cooling for "A" Charging pump has been established using EOP 3501, Attachment K.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments: **This terminates the JPM when addressing the A Train.**			
STEP #12 3501 Step K.3 NOTE	Performance: **NOTE:** Fire Water System pressure is higher than the CCE Heat Exchanger Service Water Outlet Relief Valve (3SWP*RV96B) pressure setpoint.	Standard: Reads note.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			

	Comments:			
STEP #13 3501 Step K.3.a	Performance: **Locally Align Fire Water Supply To CCE Heat Exchanger B** **CONNECT** a hose from Fire Header Hose Station 46 Fire Department Connection Valve (3FPW-V806) to Charging Pump Cooler E1B Drain Valve (3SWP*V649)	Standard: Examinee locates OPS EOP locker Aux Bldg. (AB) 43' outside Boron Evaporator Cubicle. Simulates obtaining hoses fittings and tools. Simulates removal of any pipe caps and connects hose from 3FPW-V806 (located outside CCE cubicle Aux Bldg. 4' on Hose Station 46) to 3SWP*V649 (located in CCE HX cubicle).	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Pipe caps are removed (if required), fittings are installed and the hose is connected.			
	Comments:			
STEP #14 3501 Step K.3 b	Performance: **CLOSE** Charging Pump Cooler E1B Supply Isolation Valve (3SWP*V645)	Standard: Locates 3SWP*V645, (AB 4' CCE HX cubicle) rotates operating handle clockwise until the valve is closed and the handle is perpendicular to the pipe.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: The operating handle rotates in the clockwise direction until hard stop is met.			
	Comments:			
STEP #15 3501 Step K.3 c	Performance: **THROTTLE** OPEN Fire Header Hose Station 46 Fire Department Connection Valve (3FPW-V806) one turn	Standard: Locates 3FPW-V806 (AB 4' outside Degasifier cubicle on Hose Station 46), rotates hand wheel one (1) turn in the counterclockwise direction	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: The hand wheel rotates counterclockwise one turn and the hose moves indicating that it is pressurized.			
	Comments:			

STEP #16 3501, Step K.3 d	Performance: **THROTTLE** OPEN Charging Pump Cooler E1B Drain Valve (3SWP*V649) to establish between 30 to 40 gpm flow (3SWP*FI160B)	Standard: Rotates 3SWP*V649 operating handle in the counterclockwise direction in small increments while observing flow indication on 3SWP*FI160B, until the indicated flow is between 30 and 40 gpm.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Handle rotates counterclockwise. When flow is checked provide cue that indicated flow is 25 gpm. When 3SWP*V649 is throttled further open and flow is checked, provide cue that flow is 35 gpm.			
	Comments:			
STEP #17 3501 Step K.3 e	Performance: **CHECK** CCE HX SW Outlet Relief (3SWP*RV96B) - **<u>NOT</u>** LIFTING	Standard: Observes 3SWP*RV96B tailpiece for evidence of flow (AB 4' Degasifier pump cubicle).	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: 3SWP*RV96B indicates as shown (no flow visible). Tailpiece is on platform at top of ladder in Degasifier pump cubical. Both Service Water relief valves flow to a scupper, then to larger pipe to floor drain.			
	Comments:			
STEP #18 3501 Step K.4 a	Performance: **Locally Monitor CCE System** **CHECK** operating Charging pump oil temperature - BETWEEN 55 to 131°F • For pump B 3CHS-TI1022B	Standard: Checks temperature indicated on 3CHS-TI1022B (located in "B" Charging pump cubicle)	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: 3CHS-TI1022B indicates 110°F (using a pen as a pointer)			
	Comments:			

STEP #19	Performance: Notify Control Room that Alternate Charging pump cooling has been established for "B" Charging pump	Standard: Informs Control Room that alternate Charging pump cooling for "B" Charging pump has been established using EOP 3501, Attachment K.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: Control Room acknowledges report and will complete remaining steps.			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded. **STOP TIME: ________**

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC P.2 Revision: 0

Task Title: Establish Alternate Charging Pump Cooling Using Fire Water

Date Performed: ____________________

Examinee: ____________________

For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	**15**	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Evaluator: ____________________
Print / Sign

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC P.2 Revision: 0

Initial Conditions: The plant is in Mode 5. A loss of all AC power has occurred. The control room team has progressed through EOP 3501. Attempts are being made to establish injection flow using the charging pumps. Attempts to restore cooling to CCE have failed.

Initiating Cues: The US has directed you to establish alternate charging pump cooling using EOP 3501 Attachment K.

You are to perform this task on (select Non Protected Train):

☐ TRAIN A

☐ TRAIN B

JOB PERFORMANCE MEASURE APPROVAL SHEET

JPM Title:	Secondary Side PEO Actions on a Control Room Evacuation
JPM Number:	2023 NRC P.3
Revision:	0

Initiated:

W. M. Forrestt – *Signature on File*	6/7/23
Developer	Date

Reviewed:

J. Keith – *Signature on File*	6/7/23
Technical Reviewer	Date

Approved:

A. Leone – *Signature on File*	6/13/23
Supervisor, Nuclear Training	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/7/23	Modified bank JPM P012 to include alternate path.	0

JPM WORKSHEET

Facility: MP3 Examinee: ____________

JPM Number: 2023 NRC P.3 Revision: 0

Task Title: Secondary Side PEO Actions on a Control Room Evacuation

Time Critical Task: ( ) YES (X) NO

Alternate-Path JPM: (X) YES ( ) NO

Validated Time (minutes) 16

Applicable To: SRO **X** RO **X**

K/A Number: APE: 068 AA1.31 K/A Rating: 3.8

Method of Testing: Simulated Performance: X Actual Performance: ____

Location: Classroom: ____ Simulator: ____ In-Plant: X

Task Standards: Given a control room evacuation, implement EOP 3509.1, Attachment B, while demonstrating the ability to complete the following regarding the Emergency Diesel Generators (EDGs):

(1) Place 'A' EDG in local (isolated from the sequencer) with procedurally directed support systems aligned. Additionally, manually control generator voltage.

(2) Stop the 'B' EDG.

Required Materials: (procedures, equipment, etc.) EOP 3509.1, Control Room, CSR, or IRR Fire, Rev. 27, Attachment B

General References: NA

***** READ TO THE EXAMINEE *****

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this JPM will be satisfied. You may use any approved reference material normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgements, and log entries as if the evolution was actually being performed.

JPM WORKSHEET

JPM Number: 2023 NRC P.3 Revision : 0

Initial Conditions:	A Control Room fire has caused the evacuation of the Control Room. A loss of offsite power has also occurred. The Control Room team is carrying out actions of EOP 3509.1.
Initiating Cues:	The US directs you to perform secondary side PEO actions on a control room evacuation IAW EOP 3509.1, Attachment B. You have both EDG Remote/Local keys from Fire Equipment Locker (Service Bldg. 24'6") and a 800Mhz radio.
Simulator Requirements:	NA

*** * * * NOTES TO TASK PERFORMANCE EVALUATOR * * * ***

1. Critical steps for this JPM are indicated by checking "Y". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When the examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions/observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM Number: 2023 NRC P.3 Revision: 0

Task Title: Secondary Side PEO Actions on a Control Room Evacuation

START TIME: ________

Step	Performance	Standard	Critical	Grade
STEP #1 Att B Step 1	Performance: Obtain Required Equipment From Fire Equipment Locker (Service Bldg. 24'6") • 800 Mhz radio • Copy of EOP 3509.1 • EDG A CONTROL MODE selector switch key (12B554) • EDG B CONTROL MODE selector switch key (ILCO 999NY1E) • Battle Lantern (optional)	Standard: Per initiating cue candidate has the EDG Mode selector keys and 800 MHz radio. The battle lantern is not required. The candidate has a copy of Attachment B.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: You have the 'A' and 'B' Control Mode selector switch keys and the radio. The battle lantern is not required.			
	Comments:			
STEP #2 Att B Step 2	Performance: Prior to performing local actions, Refer to "Appendix "R" Lighting Illuminated Path" maps at end of attachment.	Standard: Candidate reviews maps starting at page 8 of EOP 3509.1 Attachment B	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			

<table>
<tr><td rowspan="4">STEP #3

Att B Step 3.a</td><td rowspan="2">Performance:
Check Diesel Generator A Status

At EDG A control panel (3EGS*PNLA), using key 12B554, Unlock and Place CONTROL MODE selector switch in LOCAL</td><td>Standard:
Locates the CONTROL MODE selector switch and simulates inserting key into switch and rotating switch to LOCAL.</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td>Standard:
Simulates silencing/acknowledging alarm.</td><td>Critical:
Y [ ] N [X]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue: 1. Key 12B554 is inserted. The Control Mode selector switch is in LOCAL. Alarm window 4-8 on EGPA blinks and an audible alarm is heard.
2. Audible alarm stops. Alarm window 4-8 on EGPA is lit and solid.</td></tr>
<tr><td colspan="4">Comments: A and B EDGs are running, let the candidate know as he/she approaches the EDG building that there is exhaust noise coming from the EDG building</td></tr>
<tr><td rowspan="3">STEP #4

Att B Step 3.b</td><td>Performance:
Using Ops lock key (AG1 or Master A), Unlock and Place transfer switch 43FT1 in ISOLATE</td><td>Standard:
Locates transfer switch 43FT1 and simulates inserting PEO Rounds key into lock, unlocking lock, and swinging the switch cover up. Simulates rotating transfer switch 43FT1 to the ISOLATE position.</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue:
The cover for transfer switch 43FT1 is unlocked and swung up. Switch 43FT1 handle is aligned to the ISOLATE position and the cover is lowered.</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td rowspan="3">STEP #5

Att B Step 3.c</td><td>Performance:
Using Ops lock key (AG1 or Master A), Unlock and Place transfer switch 43FT in ISOLATE</td><td>Standard:
Locates transfer switch 43FT and simulates inserting PEO Rounds key into lock, unlocking lock, and swinging the switch cover up. Simulates rotating transfer switch 43FT to the ISOLATE position</td><td>Critical:
Y [X] N [ ]</td><td>Grade
S [ ] U [ ]</td></tr>
<tr><td colspan="4">Cue: The cover for transfer switch 43FT is unlocked and swung up. Switch 43FT handle is aligned to the ISOLATE position and the cover is lowered</td></tr>
<tr><td colspan="4">Comments:</td></tr>
</table>

STEP	Performance	Standard	Critical	Grade
STEP #6 Att B Step 3.d	Performance: Check EDG A - RUNNING	Standard: Inquires if A EDG is running.	Critical: Y [] N [X]	Grade S [ ] U [ ]
	Cue: The A EDG is running.			
	Comments:			
STEP #7 Att B Step 3.e	Performance: Open EDG A service water outlet valve (3SWP*AOV39A) by venting (3SWP*HV39A).	Standard: Locates 3SWP*HV39A and simulates rotating the handle to the "vent" position.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: If examinee checks valve position indication, "Valve indicates Closed". When vent valve is opened, "Air venting noise is heard and 3SWP*AOV39A indicates OPEN".			
	Comments:			
STEP #8 Att B Step 3.f	Performance: Fail Open diesel generator enclosure air supply dampers • Place circuit breaker 6 on 3SCV*PNL25(O) to OFF	Standard: Locates PNL25 (O) in the southeast corner of the A EDG room, locates circuit breaker 6 and simulates placing breaker in the OFF (or open) position	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Breaker 6 moves to the OFF (open) position			
	Comments:			
STEP #9 Att B Step 3.g	Performance: CHECK generator voltage - BETWEEN 3740 and 4580 volts	Standard: Locates "GEN VOLTMETER" (EGPA) and reads voltage. Proceeds to RNO to correct voltage.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Generator voltage is 3620 volts.			
	Comments: This begins the Alternate Path portion of the JPM.			

Step	Performance	Standard	Critical	Grade
#10 Att B Step 3.g RNO	Performance: **PERFORM** the following: **1. PLACE** CONTROL MODE selector switch in LOCAL.	Standard: Locates CONTROL MODE selector switch and verifies switch is already selected in LOCAL.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments: JPM Step 3 placed this switch in LOCAL.			
#11 Att B Step 3.g RNO	Performance: **2.** Using AUTO VOLTAGE CONTROL switch, **ADJUST** voltage.	Standard: Locates AUTO VOLTAGE CONTROL switch (EGPA) and simulates momentarily placing switch in "RAISE" direction.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: Switch rotates and points toward "RAISE". Volts read 3620 volts. .			
	Comments: The Auto Voltage Control switch will not function. The examinee should proceed in the RNO to use the manual voltage control switch.			
#12 Att B Step 3.g RNO	Performance: **IF** generator voltage **CANNOT** be adjusted, **THEN**: a. **PLACE** EXCITER REGULATOR MODE switch in MANUAL.	Standard: Locates the "EXCITER REGULATOR MODE" switch (EGPA) and simulates rotating switch handle to the "MANUAL" position.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Switch rotates and points toward Manual.			
	Comments:			
#13 Att B Step 3.g RNO	Performance: **b.** Using the MANUAL VOLTAGE CONTROL switch, **ADJUST** voltage.	Standard: Locates the "MANUAL VOLTAGE CONTROL" switch (EGPA) and simulates momentarily placing switch in Raise direction.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: Voltage rises to 3800 volts. (If subsequent adjustments are made to achieve center of 3740 to 4580 volt band, provide further cues of increasing voltage (~100 volts per raise adjustment)).			
	Comments:			
STEP #14 Att B Step 3.h	Performance: CHECK generator frequency - BETWEEN 59.2 and 60.8 Hz	Standard: Locates generator frequency meter (EGPA) and reads frequency.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: Generator frequency reads 60.1 Hz.			
	Comments:			

STEP	Performance	Standard	Critical	Grade
STEP #15 Att B Step 3.i	Performance: CHECK generator circuit breaker - CLOSED	Standard: Locates generator circuit breaker and verifies RED CLOSED light illuminated	Critical: Y [] N [X]	Grade S [ ] U [ ]
	Cue: Red light is ON, Green and Amber lights are OFF			
	Comments:			
STEP #16 Att B Step 3.j	Performance: Proceed to step 6.	Standard: Proceeds to step 6	Critical: Y [] N [X]	Grade S [ ] U [ ]
	Cue:			
	Comments:			
STEP #17 Att B Step 6.a	Performance: CHECK Diesel Generator B Status At 3EGS*PNLB CHECK EDG B - RUNNING	Standard: Asks if B EDG is running OR opens door to B EDG to verify conditions exist consistent with a running EDG .	Critical: Y [] N [X]	Grade S [ ] U [ ]
	Cue: EDG noise is coming from B EDG room..			
	Comments:			
STEP #18 Att B Step 6.b	Performance: CHECK ASP operator desires EDG B - STOPPED	Standard: Candidate uses 800 MHz portable radio previously obtained and head set (in box in A EDG room)	Critical: Y [] N [X]	Grade S [ ] U [ ]
	Cue: ASP operator directs B EDG to be stopped.			
	Comments: Use of radio can be simulated but candidate shall locate the EOP storage box and where the head set connection is.			

STEP #19 Att B Step 6.c	Performance: Using key ILCO 999NY1E from SM key ring, Unlock and Place the CONTROL MODE selector switch in MAINT	Standard: Locates CONTROL MODE switch and simulates inserting key into switch and rotating to MAINT.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
		Standard: Simulates silencing and acknowledging alarm.	Critical: Y [ ] N [X]	Grade S [ ] U [ ]
	Cue: 1. Key 999NY1E is inserted. The Control Mode Switch is in the MAINT position and alarm 4-8 illuminates 2. Audible alarm stops. Alarm window 4-8 on EGPB is lit and solid			
	Comments:			
STEP #20 Att B Step 6.d	Performance: Simultaneously PRESS *both* EMERGENCY DIESEL STOP buttons	Standard: Locates both EDG B Emergency Diesel Stop buttons and simulates pressing them simultaneously.	Critical: Y [X] N [ ]	Grade S [ ] U [ ]
	Cue: • BOTH EMERGENCY DIESEL STOP push buttons are depressed. • B EDG output breaker OPENS. • B EDG shuts down. • Ann 1-3 “DIESEL EMERGENCY SHUTDOWN” actuates. • Ann 1-1 “DIESEL NOT READY FOR AUTO START” actuates. • Ann 6-2 “DIESEL GENERATOR NOT RESET” actuates.			
	Comments:			

TERMINATION CUE: The evaluation for this JPM is concluded. **STOP TIME: _________**

VERIFICATION OF JPM COMPLETION

JPM Number: 2023 NRC P.3 Revision: 0

Task Title: Secondary Side PEO Actions on a Control Room Evacuation

Date Performed: ________________

Examinee: ____

For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

EVALUATION SECTION:

Time Critical Task?		☐ Yes ☒ No	
Validated Time (minutes):	16	Actual Time to Complete (minutes):	
Overall Result of JPM:		☐ SAT ☐ UNSAT	

Evaluator: ____
Print / Sign

Comments:

EXAMINEE HANDOUT

JPM Number: 2023 NRC P.3 Revision: 0

Initial Conditions: A Control Room fire has caused the evacuation of the Control Room. A loss of offsite power has also occurred.

The Control Room team is carrying out actions of EOP 3509.1.

Initiating Cues: The US directs you to perform secondary side PEO actions on a control room evacuation IAW EOP 3509.1, Attachment B.

You have both EDG Remote/Local keys from Fire Equipment Locker (Service Bldg. 24’6”) and a 800Mhz radio.

SITE:	**Millstone Power Station**	
PROGRAM:	**Unit 3 ILT**	
COURSE:	**N/A**	
EXAM TITLE:	**NRC SIM EXAM 1**	**EXAM #: 2K23 NRC-01**
Total Time	**100 Minutes**	

Prepared by:	William M. Forrestt	Signature on file	6/7/23
	Printed Name	Developer Signature	Date
Reviewed by:	Tom Brown	Signature on file	6/8/23
	Printed Name	Operations Tech Review Signature	Date
Approved by:	Angelo Leone	Signature on file	6/12/23
	Printed Name	Facility Review Signature	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/7/23	Original issue.	0

SEG# 2K23 NRC-01 Rev ; 0

Facility: Millstone 3 Scenario #.: 1
Scenario Source.: New Op. Test # 2K23 NRC-01
Examiners: Operators:

Initial Conditions: The plant is 93% power (BOL) with the plant being returned to full power following a refueling outage.

Turnover: The following equipment is Out-Of-Service: The 'B' Emergency Diesel Generator is OOS to repair an oil leak on the pre-lube pump. The 'B' Stator Cooling Pump is out of service for a bearing replacement.

Critical Tasks: 1.) Manually trip the Reactor from the Control Room before transition out of E-0
2.) Isolate faulted SG before transition out of E-2

Event No.	Malf. No	Event Type*	Event Description
1	-	R – RO N – BOP N- SRO	Raise power to 97% iaw OP 3204 "At Power Operation"
2	RC23A	C, MC – RO C, TS - SRO	Pressurizer Spray Valve Fails Open
3	TC07D	C – BOP C - SRO	No. 4 Turbine Control Valve Fails Closed
4	-	TS - SRO	Turbine Driven AFW Pump becomes inoperable with the 'B' EDG OOS
5	RP04B	C – RO C– BOP C, TS - SRO	Inadvertent 'B' Train Containment Depressurization Actuation (CDA)
6	TC01 RP10A RP10B	C, MC – BOP C - SRO	Turbine Trips w/ the Reactor failing to Auto Trip (CT1)
7	MS07A MS02D	M – RO M – BOP M - SRO	2 SG's become faulted on the transient (CT2)
8	RP11L	C, MC – RO C - SRO	FWI Components fail to isolate automatically (CT2)

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

SEG# 2K23 NRC-01 Rev ; 0

EXAM OVERVIEW

Millstone 2023 NRC Scenario 1

The plant is 93% power (BOL) with the plant being returned to full power following a refueling outage. After an extended delay, 3DSM-P1B "Moisture Separator Drain Pump B" has been returned to service and the plant is ready for return to full power operation.

The following equipment is Out-Of-Service: The 'B' Emergency Diesel Generator is OOS to repair an oil leak on the pre-lube pump. Additionally, the 'B' Stator Cooling Pump is out of service for a bearing replacement.

The crew takes the watch and raises power in accordance with step 4.1.32c of OP 3204, "*At Power Operation*". After power is raised to ~97%, a pressurizer spray valve fails open lowering RCS pressure. The RO implements AOP 3581, "Immediate Actions" and is able to close the spray valve using RNO actions. The US will enter TS 3.2.5.b "DNB Parameters".

Following this, the No. 4 Turbine Control Valve fails closed causing a loss of Main Turbine load. The US enters AOP 3579, "Response to Turbine Runback / Loss of Turbine Load" and diagnoses the cause and addresses RIL.

Subsequently, the Turbine Driven AFW Pump becomes inoperable with the 'B' EDG OOS. The US enters TS 3.7.1.2.b "Auxiliary Feedwater System" Action c and TS 3.8.1.1 "AC Sources" Action b.3.

Then, an inadvertent 'B' Train Containment Depressurization Actuation (CDA) is generated. The US enters AOP 3583, "Inadvertent Containment Depressurization Actuation" and mitigates the event by stopping the containment spray pumps, restoring plant systems to normal, and addressing Tech Specs. The US enters TS 3.3.2 "ESFAS Instrumentation" and TS 3.4.6.1 "RCS Leak Detection". Depending on plant response & crew timeliness, the US may enter up to four additional Tech Specs.

Following this, the Main Turbine trips with the Reactor failing to auto trip. Auto Reactor trip and both MB Reactor trip switches are not functional requiring the BOP to isolate 480 Volt Load Centers 32B and 32N **(Critical Task)**. The crew enters E-0, "Reactor Trip or Safety Injection". On the Main Turbine trip, **two SG low set safety valves on 'A' SG stick open & 'D' SG steam line becomes breached.** Initially, a Safety Injection signal is generated on low pressurizer pressure. The auto Main Steam Line Isolation (MSI) signal will not be generated for several minutes (due to fault size). Once the crew diagnoses the faulted SG's, the BOP will isolate AFW flow. While performing E-0 Attachment B, the RO observes Feedwater Isolation Components on MB5 did not close. The RO closes the associated FWI valves **(Critical Task)**.

After meeting transition criteria for faulted SG's, the crew enters E-2, "Faulted SG Isolation". While in E-2, the crew completes the isolation for the two faulted SG's **(Critical Task)**. Once this is done, the scenario will end.

CRITICAL TASKS

CT1 TITLE: Manually trip the Reactor from the Control Room before transition to FR-S.1.

A. INITIATING CUE: Multiple indications (including on Reactor First Out Annunciator Panel) that the Main Turbine has tripped and a Reactor Trip is warranted. Indications of the Reactor remaining at power include breaker position, rod position indication, and plant parameters.

B. PERFORMANCE FEEDBACK: Both Reactor Trip Switches (MB4 & MB7) will not function (as indicated by Rx trip breaker position & rod position indication). Feedback on a successful trip from opening 32B and 32N 480V load center breakers include: load center breaker indication and Rx trip breaker position & rod position indication.

C. SUCCESS PATH: The reactor will be tripped by proper execution of E-0 step 1 RNO actions (ultimately directs tripping Bus 32B & 32N).

D. MEASURABLE PERFORMANCE STANDARD:

i. . **<u>Expected actions:</u> Trip breakers supply Bus 32B AND 32N.**

ii. **<u>Boundary conditions</u>**: **Breakers are tripped while in E-0 and before a transition is made to FR-S.1.**

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP “ERG Rev. 3 Based Critical Tasks”. The CT-1 discussion includes “The first of the E-0 verifications ensures that automatic reactor trip occurs. This highest priority verification ensures that the core heat production does not exceed the design capability of the safeguards heat removal systems…”.

CT2 TITLE: Isolate faulted SG.

A. INITIATING CUE: Post Reactor Trip indication of multiple faulted SG’s. For both ‘A’ and ‘D’ SG’s (post MSI), steam flows will be abnormally high. For the ‘A’ SG, two safety valves will indicate open on the MB5 safety valve status panel. For the ‘D’ SG, the pipe break is in the MSVB and MSVB temp high will annunciate on VP1. Further conditions of a fault are present by evaluation of the primary plant cooldown.

B. PERFORMANCE FEEDBACK: Isolating AFW and Steam flows of ‘A’ and ‘D’ SG will eventually lead to SG dryout and allow the RCS cooldown to stop. This will be observed by MB5 SG parameters (WR levels, Steam flows and pressures) and MB4 RCS parameters (RCS WR temperature, PZR level and pressure).

C. SUCCESS PATH: Proper identification of ‘A’ and ‘D’ SG’s being faulted and execution of E-2 isolation step 5.

D. MEASURABLE PERFORMANCE STANDARD:

i. . **Expected actions: Perform E-2 Step 5 isolation of 'A' and 'D' SG** (specifically, CLOSE (1) 3FWS*CTV41A & D, (2) MSS*MOV17A & D, and (3) one of two AFW flow control valves for 'A' and 'D' SG's.

ii. **Boundary conditions: Provide isolation before any of the following two conditions occur: (1) FR-P.1 conditions are met OR (2) transition out of E-2 is made.**

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP "ERG Rev. 3 Based Critical Tasks". The CT-17 discussion includes: "Failure to isolate a faulted SG that can be isolated causes challenges to CSFs beyond those irreparably introduced by the postulated conditions."

NOTE: In addition to the above critical tasks, there may be additional critical tasks created by crew performance. *"Per NUREG-1021, ES-3.3, if an applicant's actions or inactions create a challenge to plant safety, those actions or inactions may form the basis for a Critical Task identified in the post scenario review."*

INPUT SUMMARY						
RESET SIMULATOR TO IC–91						
THEN VERIFY the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
MALFUNCTIONS						
EG06B	EDG B FAILS TO START	initial				
MB8B-B14	DG B Local Panel Trouble	initial				ON
MB8B-A12	DG B Emergency Shutdown	initial				ON
RP09A	Manual Reactor Trip Failure MB4	initial				
RP09B	Manual Reactor Trip Failure MB7	initial				
RP10A	Automatic Reactor Trip Train A Fail	initial				
RP10B	Automatic Reactor Trip Train B Fail	initial				
RP11L	Failure of MB5 FWI	initial				
RC23A	PZR Spray VV 455B Mechanical Failure	2				100%
TC07D	TURBINE CV-4 FAI	3				0
TC01	Turbine Trip	6				
MS07A	Main Steam Safety Valve RV22A Failure	27				100%
MS02D	Main Steam Line D Rupture Outside Containment & Upstream of MSIV's	27				4.5 E005
RP04B	Containment Spray Train B Actuation	5			5 sec.	

SEG# 2K23 NRC-01 Rev : 0

INPUT SUMMARY						
RESET SIMULATOR TO IC–91						
THEN VERIFY the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
MS07E	MS Safety Valve RV23A Fail	27				100%
REMOTE FUNCTIONS						
OVERRIDES						
EGLO0086	WL-3EGSB05 WHITE D/G B START LIGHT					OFF
EGLO0003	‘B’ EDG Pre-Lube Pump ‘red’					OFF
EGLO0004	‘B’ EDG Pre-Lube Pump ‘green’					OFF
EGLO0015	‘B’ EDG Output Breaker ‘green’					OFF
EGLO0016	‘B’ EDG Output Breaker ‘red’					OFF
EGLO0017	‘B’ EDG Output Breaker ‘amber’					OFF

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
❑ COMPLETE Simulator Setup and Readiness Checklist. ❑ SELECT appropriate IC: **IC-91**, 93% power, BOL. Password: '**Coral7!**'. ❑ As necessary, VERIFY the following Initial Malfunctions / I/Os / Remote Functions, as specified on previous '**Input Summary**' page. ❑ When the simulator is ready, PLACE to Run and VERIFY the simulator reflects the following Initial Conditions for the scenario and is stable: ❑ As necessary, REMOVE the following Equipment from service and tag accordingly: ▪ **B' Emergency Diesel is OOS** for emergent maintenance on the pre-lube pump. **ENSURE:** **1. YCT hung** on 'B' EDG Start Switch MB8 **2. Depress** 'B' EDG Byp Annunciator (MB1) ▪ **'B' Stator Cooling pump i**s out for a bearing replacement. **ENSURE 3GMC-P1B control switch is both:** **1. Pull to Lock** **2. YCT hung**		N/A
❑ CONDUCT briefing with evaluators.	**PRE-SCENARIO:** ❑ BRIEF the crew initial plant conditions and provide a shift turnover.	
		(All) Walk down control boards and conduct shift briefing.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
EVENT 1, Raise Power to 97% **US (N) / RO (R) / BOP (N)**		
General Note(s): **1.) <u>Allow crew to brief this power manipulation before entering the simulator:</u>** The examinees should be given the following information in the briefing room: (a) Turnover sheet (includes Rx Plan) attached to back of guide (b) Marked up copy of OP 3204 (complete thru 4.1.30) (c) The following turnover: OP 3204, *At Power Operation,* is in **progress** and complete up through step 4.1.30. The US should facilitate a brief of the evolution prior to taking the shift. (2) <u>Crew direction:</u> Continue to raise power to 97%. Once at 97% power, hold power stable (for a planned calorimetric). (3) <u>Other Parameter bands are found in OP 3204:</u> Tavg: within 2.5 F of program, *not* to exceed 589.5_F (Attachment 1, “Temperature vs. Thermal Power”) PZR Level: within 5% of program (Attachment 2, “Pressurizer Level vs. TAVG”) PZR Press: 2,225 – 2,280 psia SG NR Lvl: 45 – 55% **2.) <u>Power increase methodology:</u>** Per the attached reactivity plan, the RO will use control rods to raise power.		
T= When directed by the Lead Examiner: **PLACE SIMULATOR in RUN**	Crew takes the shift.	

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
OP 3204, At Power Operation		
	Crew commences power increase to 97% per reactivity plan	**4.1.32c** INITIATE load increase as follows: 1) COORDINATE power increase with ISO New England. 2) IF performing up power using a Reactivity Plan, INITIATE plan and Go To step c.4) 4) WHEN Tavg begins to increase, Refer To Attachment 6, “Turbine Generator Load Limit Adjustments,” and LOAD turbine at desired rate to desired power level while continuing with this procedure.
If called as ISO NE, acknowledge report that load increase is complete. **At the direction of the Lead Examiner, proceed to the next event.**	Crew holds power at 97%.	**4.1.33** WHEN desired final reactor power level AND generator load are attained, PERFORM the following: a. STOP turbine load increase. b. MAINTAIN AFD in target band using a combination of boron concentration adjustment AND control rod positioning. c. NOTIFY ISO New England that load increase is complete.
EVENT 2, Pressurizer Spray Valve Fails Open **US (C, TS) / RO (C, MC)**		
General Note(s): 1.) **Pressurizer Spray Valve (3RCS*PCV455B) Fails Open.** The operator will be unsuccessful closing the spray valve with the master pressure controller or the individual spray valve controller. The failure of the air line necessitates using the associated spray valve’s solenoid selector switch to close the spray valve (and avoid a Rx trip / Safety Injection).		

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T= When directed by the Lead Examiner: **Trigger 2 (RC23A)**		MB4A 4-4 "Pressurizer Pressure Deviation" annunciates and all PZR heaters energize. RCS pressure lowers rapidly. RO Identifies a pressurizer spray valve, 3RCS*PCV455B, has spuriously opened. RO takes Immediate Operator Actions of AOP 3581, Attachment E.
AOP 3581, *Immediate Actions, Attachment E "Pressurizer Spray Valve Open"*		
	RO takes IOA and successfully closes the spray valve (3RCS*PCV455B) by closing its solenoid selector switch.	**(RO) *E.1 Terminate Pressurizer Spray** **a. CHECK** pressurizer spray valves - BOTH CLOSED • 3RCS*PCV455B • 3RCS*PCV455C **RNO:** **a. PERFORM** the following: **1. IF** Pressurizer Pressure is less than 2270 psia, **THEN PLACE** Master Pressure Controller (3RCS-PK455A) in MAN **AND ADJUST** to **GREATER THAN OR EQUAL TO** 50% output 2. **IF** Spray Valve(s) do **NOT** close, **THEN** Manually **CLOSE** Spray Valve(s) (MB4): • 3RCS-PK455B **3. IF** Spray Valve(s) do **NOT** close, **THEN PLACE** any open Spray Valve Solenoid Selector Switch to - CLOSE: • 3RCS-HS455B

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) E.2 Check Pressurizer Spray TERMINATED **a. CHECK** Pressurizer Pressure - STABLE OR INCREASING
		(RO) E.3 CHECK Initiating Event - INSTRUMENT FAILURE • Pressurizer Pressure **RNO: GO TO** procedure **AND** step in effect.
At the direction of the Lead Examiner, proceed to the next event.	**US enters Tech Specs:** • **TS 3.2.5.b** (DNB PARAMETERS)	**US conducts a brief and recognizes TS for DNB was met during the transient.**
EVENT 3, No. 4 Turbine Control Valve fails closed **US (C) / BOP (C)**		
General Note(s): **1.) <u>#4 Turbine Control Valve fails closed, causing loss of turbine load.</u>** Loss of load may be sufficient to result in RIL being reached. The crew will diagnose the cause and the BOP places the turbine on STANDBY LOAD SET. **2.) <u>Expected procedure flow path:</u>** Initially, the BOP will check for applicability of AOP 3581, Immediate Operator Actions. However, there are no AOP 3581 required. The optimum procedure flow path is a direct entry into AOP 3579, Response to Turbine Runback / Loss of Turbine Load.		
T= When directed by the Lead Examiner: **Trigger 3** (TC07D)		AOP 3581 Attachment A steps: RO notes control rods moving, monitors / reports indications of a runback and determines AOP 3579 entry required US **FB** AOP 3579 Entry
AOP 3579, Response to Turbine Runback / Loss of Turbine Load		
	The grid is stable.	**(BOP) 1. CHECK Grid Frequency (MB7 or MB8) - STABLE AT 60Hz**

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
As ISO NE, Acknowledge report on runback / loss of load and inform the Control Room that the grid is stable.		**(BOP) 2. Contact ISO New England / CONVEX** **a.** Contact ISO New England / CONVEX to **REPORT** Turbine Runback Status **AND** **DISCUSS** status of Electrical Grid Stability
		(BOP) 3. CHECK Rod Control - IN AUTO
		(BOP) 4. Check for Valid Turbine Runback **a. CHECK** ONE of the following- LIT **OR** PREVIOUSLY LIT: • OVERTEMP □T RUNBACK/ROD BLOCK C-3 permissive blue light (MB4D 4-4) • OVERPOWER □T RUNBACK/ROD BLOCK C-4 permissive blue light (MB4D 5-4) • STAT CLG PROT CKT ENERGIZED annunciator (MB7C 1-2)
	BOP places the turbine on STANDBY Load Set	**(BOP) 4a RNO:** **1. PRESS** and **HOLD** ON button under STANDBY SIGNAL MATCH. 2. **ROTATE** STANDBY LOAD SET knob until PRI and S/B outputs are matched under CV SIGNAL. 3. **CHECK** the following: • OFF light is **NOT** LIT • ON light is LIT 4. **RELEASE** ON button. 5. **CHECK** the following under OPERATING MODE: • IN STANDBY light is LIT • MANUAL light is **NOT** LIT

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Step 5 is a continuous action step and maybe required later. In such case, the crew would start a boration and restore rods outward to clear the RIL.	**(RO) 5. Check Rod Position** **a. CHECK** either of the following - LIT: ROD CONTROL BANKS LIMIT LO, (MB4C 3-9) OR Check ROD CONTROL BANKS LIMIT LO-LO, (MB4C 4-9) **RNO: PROCEED TO** step 6.
		(BOP) 6. Determine Turbine Load Status **a. CHECK** loss of Turbine Load - OCCURRED DUE TO STATOR COOLANT PROTECTION CIRCUIT RUNBACK **RNO: PROCEED TO** step 6.c.
		(BOP) 6c. CHECK Turbine Stop Valve Positions - ALL 100% OPEN
	Control Valve #4 has failed closed.	**(BOP)** **NOTE:** Control Valve #4 is approximately 45% open when at 100% power and is expected to be closed at lower power levels. **6d. CHECK** Turbine Control Valve Positions - CONTROL VALVES AT REQUIRED POSITIONS FOR CURRENT LOADING **RNO: IF** GREATER THAN one Turbine Control Valve is unexpectedly closed, **THEN PERFORM** the following:
		(BOP) 6e. CHECK Combined Intercept Valve Positions - ALL 100% OPEN
		(BOP) 7. Check Turbine Load - STABLE

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 8. REFER to ATTACHMENT B **AND CHECK Primary Plant Parameters - TRENDING TO EXPECTED VALUES FOR CURRENT CONDITIONS**
		(BOP) 9. REFER to ATTACHMENT B **AND CHECK Secondary Plant Parameters - TRENDING TO EXPECTED VALUES FOR CURRENT CONDITIONS**
		(BOP) 10. CHECK MSR Steam Supply Valves tracking symmetrically
At the direction of the Lead Examiner, proceed to the next event.		**(BOP) 11. CHECK Plant - Can Be Maintained Stable At Current Power Level**
		(BOP) 12. Unless otherwise directed, ADJUST the Voltage Regulator MAN/AUTO Control Switch (90CS-EXSN11) to establish initial MVAR Reactive Load (MB7) 50-100 MVAR
		(BOP) 13. Degrade Condenser Backpressure **a. CHECK** Turbine Load (MWe) - LESS THAN 913 MWe (approx 70% reactor power)
EVENT 4, Turbine Driven AFW Pump becomes inoperable with the 'B' EDG OOS **US (TS)**		
General Note(s): **1.) <u>Turbine Driven AFW (TDAFW) Pump Governor Oil Level empty:</u>** The Radwaste PEO on rounds reports the sight glass empty on the TDAFW Pp's governor. The Unit Supervisor (US) directs disabling the pump and enters TS 3.7.1.2.b Action c. Also, due to the 'B' EDG being OOS, US enters a two hour action statement for TS 3.8.1.1b Action b.3.		
As Radwaste PEO, call the Control Room and REPORT: "The TDAFW Pp's governor oil level sight glass is empty. The governor's casing is leaking oil."	**(BOP)** acknowledges report.	

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
At the direction of the Lead Examiner, proceed to the next event.	**US** enters **Tech Specs**: • TS 3.7.1.2.b Action c • TS 3.8.1.1b Action b.3 • TRM 7.4.1.i Action i	**(US)** **(1)** Directs disabling the TDAFW Pp by closing 3MSS*MOV17A, B & D. **(2)** Enters appropriate Tech Specs.
EVENT 5, Inadvertent 'B' Train Containment Depressurization Actuation (CDA) **US (C, TS) / RO (C) / BOP (C)**		
General Note(s): **1.) <u>Inadvertent CDA, plant impact is:</u>** MB1: - 3 SWP pps running after SWP*MV71B closes - "B" CCP pump trips, ctmt header isolates with "B" train valves MB2: - ECCS pumps start on "B" train (SIH, RHR, CHS) - "B" QSS pump starts - SWP flow shifts from CCP HX to RSS HX MB4: - RCP alarms with CCP system configuration MB5: - "A" AFW pump starts MB8: - Battery 6 discharging with no charger -		
T= When directed by the Lead Examiner: **Trigger 5** (RP04B)		**(RO)** observes MB2B 5-5 "CDA" annunciator (among many other annunciators) and determines 'B' CDA train has actuated. **(US)** directs primary plant parameters and enters AOP 3583.
AOP 3583, Inadvertent Containment Depressurization Actuation		
	Yes. 'A' CCP is running.	**(RO) 1. Check If Charging And Letdown Should Be Isolated** **a. CHECK** Train A RPCCW Pump – RUNNING

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Yes. CTMT pressure is normal.	**(RO) 2. Check Containment Depressurization Actuation (CDA) - NOT REQUIRED** **a. CHECK** Ctmt pressure - LESS THAN 18 psia
	Momentary failure. CDA can be reset.	**(RO) 3. Reset ESF Actuation Signals As Required** **a. RESET** SI b. **RESET** the following: • CDA • CIB
	TYPICAL NOTE: Only 'B' train equipment has re-positioned. The crew will only have to manipulate 'B' train components.	**(RO) 4. Stop Quench Spray** **a. CHECK** ESF Actuation Signals – RESET b. **STOP** Quench Spray Pump(s) **AND PLACE** in AUTO c. **CLOSE** Quench Spray Pump(s) Discharge Valves: 3QSS*MOV34B
	RO opens 3SWP*MOV71B.	**(RO) 5. OPEN Service Water Supply To TPCCW Valves** • 3SWP*MOV71A • 3SWP*MOV71B
	RO opens 3CCP*MOV45B, 3CCP*MOV48B & 3CCP*MOV49B.	**(RO) 6. OPEN RPCCW Ctmt Supply And Return Header Isolation Valves** • 3CCP*MOV45A • 3CCP*MOV48A • 3CCP*MOV49A • 3CCP*MOV45B • 3CCP*MOV48B • 3CCP*MOV49B

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO starts 3CCP*P1B, closes SWP*MOV54B & opens SWP*MOV50B.	**(RO) Align RPCCW** **a. START** RPCCW Pump on both trains b. **CLOSE** RSS Heat Exchanger SW Inlet Isolation Valves: • 3SWP*MOV54A • 3SWP*MOV54B • 3SWP*MOV54C • 3SWP*MOV54D c. **OPEN** RPCCW Heat Exchanger SW Inlet Isolation Valves: • 3SWP*MOV50A • 3SWP*MOV50B
	BOP re-starts 3HVU-FN2B.	**(BOP) 8. CHECK Two CRDM Cooling Fans - RUNNING** • 3HVU-FN2A • 3HVU-FN2B • 3HVU-FN2C
	BOP re-starts 3HVU-FN1B.	**(BOP) 9. CHECK Two CAR Fans – RUNNING** • 3HVU-FN1A • 3HVU-FN1B • 3HVU-FN1C
	Because ‘B’ train, Charging and Letdown are unaffected.	**(RO) 10. Check Charging and Letdown Status** **a. CHECK** two Charging Pumps running b. **STOP** the Charging Pump that was previously in standby c. **CHECK** Charging and Letdown – ISOLATED **RNO: PROCEED TO** Step 11
	BOP stops 3FWA*P1B.	**(BOP) 11. Stop AFW Pumps STOP** Motor Driven Auxiliary Feedwater Pumps **NOT** required for feeding SGs **AND PLACE** in AUTO • 3FWA*P1A • 3FWA*P1B

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO stops 3RHS*P1B, 3SIH*P1B, 3CCI*P1B & 3SWP*P1D.	**(RO) 12. STOP Following Pumps AND PLACE In Auto** • RHR Pump B (3RHS*P1B) • RHR Pump A (3RHS*P1A) • SI Pump A (3SIH*P1A) • SI Pump B (3SIH*P1B) • CCI Pump A (3CCI*P1A) • CCI Pump B (3CCI*P1B) • Follow Service Water Pump -Train B • Follow Service Water Pump -Train A
CHR24C to **Stop/Reset** then **Start** to restart “C” CDS Chiller		**(RO) 13. Check Previously Running CDS Chillers- AUTO STARTED** • 3CDS-CHL1A • 3CDS-CHL1B • 3CDS-CHL1C
	3IAS-C1B breaker is open. RO closes breaker.	**(RO) 14. CHECK B Instrument Air Compressor Breaker- CLOSED** **RNO: CLOSE** B Instrument Air Compressor Breaker, CMPR 1B (IAS-C1B) (MB1).
	‘B’ EDG is red tagged oos.	**(BOP) 15. Check If Diesel Generators Should Be Stopped**
	‘A’ Control Building Chiller is running.	**(BOP) 16. Check Control Building Chillers** **a. CHECK** Standby Control Building Chiller - AUTO STARTED **RNO: PROCEED TO** step 17

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
At the direction of the Lead Examiner, proceed to the next event.	**US** enters **Tech Specs**: • **TS 3.3.2** (ESFAS) **Action 14A** - FU 2.b & FU 3.b.2 • **TS 3.4.6.1.b** (RCS Leak Det) **Action b.1** - Inability to detect 1 gpm RCS leak • **TRM 7.4.1.a Action a** (for duration that that 'B' CCP was no running). <u>Dependant on crew timing & resultant plant conditions:</u> • **TS 3.5.4** (RWST Level) **(IF RWST level < 1,166,000 gal.)** • **TS 3.6.1.4** (Ctmt Pressure) **Action – (IF < 10.6 psia)** • **TS 3.6.1.5 (**Air Temp) **Action** – **(IF <80°F)** • **TRM 3.1.2.6.b.1** (Boration Sources) **Action b (IF RWST < 1,166,000 gal)**	**(US) Determine Applicable Action Requirements** **Refer** to the following for any required actions: • TS - 3.3.2, Engineered Safety Features Actuation System Instrumentation • TS - 3.4.6.1 RCS Leakage Detection Systems • TS - 3.5.4 RWST Level • TS - 3.6.1.4 Ctmt Pressure • TS - 3.6.1.5 Ctmt Temperature • TRM- 7.4.1, Fire Related Safe Shutdown Components • TRM- 3.1.2.5, Borated Water Source – Shutdown • TRM- 3.1.2.6, Borated Water Sources - Operating
EVENT 6, Turbine Trips w/ the Reactor failing to Auto Trip **US (C) / BOP (C, MC)** **EVENT 7, 2 SG's become faulted on the transient** **US (M) / RO (M) / BOP (M)** **EVENT 8, FWI Components fail to isolate automatically** **US (C) / RO (C, MC)**		

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
General Note(s): **1.) Event 6: Turbine Trips w/ the Reactor failing to Auto Trip** The main turbine spuriously trips. Auto Reactor trip and both MB Reactor trip switches are not functional requiring the BOP to isolate 480 Volt Load Centers 32B and 32N (**Critical Task**). **2.) Event 7: 2 SG's become faulted on the transient** On the turbine trip, two SG's become faulted (**'A' SG low set safety sticks open & 'D' SG – inlet to a SG safety valve is breached**). Initially, a Safety Injection signal will be generated on low pressurizer pressure. The auto Main Steam Line Isolation (MSI) signal will not be generated for several minutes (due to fault size). The foldout page for isolating Aux Feed flow becomes in effect after completion of E-0 Immediate Actions (Step 4 complete). It's expected that the BOP will isolate Aux Feed flow using the foldout page. **On the transition to E-2, the steam line break on 'D' SG will worsen.** **3.) Event 8: FWI Components fail to isolate automatically** While performing E-0 Attachment B, RO observes Feedwater Isolation Components on MB5 did not close. RO takes action to complete the feedwater isolation.		
T= When directed by the Lead Examiner: **Trigger 6 (TC01)**		**(RO) recognizes a valid Rx First Out (Turbine Trip) with the Reactor not tripped.** **(US) enters E-0**
E-0, Reactor Trip or Safety Injection		
	Event 6: BOP successfully trips the Rx by opening both load center breakers 32B & 32N.	**(RO) 1. * Check Reactor Trip** • **CHECK** Reactor Trip and Bypass Breakers – OPEN • **CHECK** Rod Bottom lights – LIT • **CHECK** Neutron Flux – DECREASING **RNO: TRIP** the Reactor. **IF** Reactor will **NOT** trip, **THEN**: a. **TRIP** Bus 32B and 32N.
		(BOP) 2. * Check Turbine Trip a. **CHECK** all Turbine Stop Valves - CLOSED

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 3. * Check Power To AC Emergency Busses a. **CHECK** AC Emergency Busses 34C and 34D - BOTH ENERGIZED b. Open Phase Condition (OPC)- **NONE** EXISTS: • RSST Open Phase (MB8C 1-8) - **NOT** LIT • Generator Phase Unbalance (MB7C 1-5) - **NOT** LIT • Main XFMR Open Phase (MB7C 2-1) - **NOT** LIT
	After the step 4 pause, the US will assign foldout page criterion. The BOP should identify that the 'A' and 'D' SG's are faulted and recommend to the US implementing foldout page instructions (ie stopping AFW supply).	**(RO) 4. * Check If SI Is Actuated** a. **CHECK** SAFETY INJECTION ACTUATION annunciators, (MB4D 1-6 or MB2B 5-9) – LIT
		(RO) 5. DETERMINE IF ADVERSE CTMT CONDITIONS EXIST • Ctmt temperature - GREATER THAN 180°F OR • Ctmt radiation - GREATER THAN 105 R/hr **5 RNO.** DO **NOT** USE ADVERSE CTMT Parameters
		(RO) 6. Using ATTACHMENT B**, Actuation Signal Verification, CHECK Equipment Alignment**

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Event 8: RO observes the MB5 Feed Reg Valves & Isolation valves did not close. RO closes the following valves: • 3FWS*CTV41A / B / C / D	**(RO) Att. B, Step 13: CHECK FW Isolation (MB5)** • SG Feed Regulating Valves – CLOSED • SG Feed Regulating Bypass Valves – CLOSED • FW Isolation Trip Valves – CLOSED • TD FW Pumps – TRIPPED • MD FW Pump - STOPPED
		(BOP) 7. Check AFW Pumps Running b. **Turbine Driven Pump** – RUNNING IF NECESSARY RNO: **OPEN** Steam Supply Valves
		(BOP) 8. CHECK AFW Valve Alignment - PROPER EMERGENCY ALIGNMENT
		BOP) 9. Check Adequate Heat Sink a. **CHECK** NR level in at least one SG - GREATER THAN 8% (42% ADVERSE CTMT) b. **CONTROL** feed flow to maintain NR level - BETWEEN 8% and 50% (42% and 50% ADVERSE CTMT) c. **PROCEED TO** step 10

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 10. Check RCS Temperature a. Using GA-26, **DUMP** steam to control No-Load RCS Temperature - AT 557°F b. **CHECK** RCS Temperature – AT NO-LOAD VALUE: • **IF ANY** RCP RUNNING - RCS Tavg - STABLE AT OR TRENDING TO 557°F **OR** • **IF NO** RCP RUNNING – RCS COLD LEG WR TEMPERATURE - STABLE AT OR TRENDING TO 557°F
		(BOP) 11. Check Power To SBO Diesel Auxiliaries a. **CHECK** any SBO Bus Tie Breaker - CLOSED TO AN ENERGIZED BUS • Bus 34A: 34A1-2 • Bus 34B: 34B1-2 • Bus 24E: A505 (Unit 2)
		(BOP) 12. Check PZR Valves **12a. CHECK** PORVs – CLOSED **12b. CHECK** normal PZR Spray Valves – CLOSED **12c. CHECK** PORV Block Valves - AT LEAST ONE ENERGIZED VALVE OPEN **12d. CHECK** PORV Block Valves - ALL ENERGIZED VALVES OPEN **12e. CHECK** PZR Safety Valves - CLOSED

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) **13. Check If RCPs Should Be Stopped**
	Crew transitions to E2.	**(BOP) 14. Check If SG Secondary Boundaries Are Intact** **14a. CHECK** pressure in all SGs: • **NO** SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER • **NO** SG COMPLETELY DEPRESSURIZED
E-2, Faulted Steam Generator Isolation		
On transition to E-2, **MODIFY MS02D to 5E006** ('D' SG SLB worsens)		**(BOP) 1. CHECK Main Steam Isolation And Bypass Valves - CLOSED**
	'B' and 'C' SG's are intact.	**(BOP) 2. Check At Least One SG Secondary Boundary Intact** **2a. CHECK** pressures in all SGs - AT LEAST ONE STABLE OR RISING **AND NOT** COMPLETELY DEPRESSURIZED
	Total AFW flow is likely below 530 gpm with no SG's > 8% NR level. These conditions require use of the RNO to assess heat sink.	**(BOP) 3. Check Secondary Heat Sink** **a. CHECK** The Following – ESTABLISHED • GREATER THAN 530 gpm established to SG(s) **OR** • At least one intact SG level - GREATER THAN 8% NR (42% NR ADVERSE CTMT)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Conditions of RNO are met ('B' and 'C' SG WR levels rising slowly and CET's are lowering slowly. US proceeds to step 3b.	**(BOP) RNO 3.** **1. ESTABLISH** GREATER THAN 530 gpm to intact SG(s). **2. IF** GREATER THAN 530 gpm to SG(s) **CANNOT** be established, **THEN CHECK** minimum heat sink requirements, as indicated by: Wide Range level in at least one intact SG - STABLE OR RISING AND Core Exit TCs - STABLE OR LOWERING **3. IF** minimum heat sink requirements **CANNOT** be met, **THEN GO TO** EOP 35 FR-H.1, Response to Loss of Secondary Heat Sink. **4**. **IF** step 4 and step 5 are complete, **THEN PROCEED TO** step 6.
		(BOP) 3b. PROCEED TO step 4 **AND IF** isolation of feed flow to faulted SG(s) results in LESS THAN 530 gpm to intact SG(s) **WITH** all intact SG(s) level - LESS THAN 8% NR (42% NR ADVERSE CTMT), **THEN PERFORM** step 3 to confirm secondary heat sink
	'A' and 'D' SG's are faulted	**(BOP) 4. Identify Faulted SG(s)** **4a. CHECK** pressures in all SGs • ANY SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER <u>**OR**</u> • ANY SG COMPLETELY DEPRESSURIZED

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Critical Task – **Isolate faulted SG before transition out of E-2** **Note 1:** The only manipulation needed is bolded for the affected 'A' and 'D' SG's (3FWS*CTV41A & D). **Note 2:** The Steam Supply Isolation valve(s) to TD AFW pump that require isolation are MSS*MOV17A & D. This may have been done earlier. **Note 3:** Crew needs to isolate one of two series AFW valves – from TDAFW AND MDAFW pump.	**(BOP) 5. Isolate Each Faulted SG** • **CHECK Main Feed line – ISOLATED** • TRIP TD FW pumps • PLACE MD FW pump in PULL-TO-LOCK • **CLOSE Steam Supply Isolation valve to TD AFW pump** • CHECK SG Atmospheric Relief and Bypass valves – CLOSED • Using Table 1, CHECK Main Steam line drains upstream of MSIVs and TD AFW pump – CLOSED for 'A' and 'D' SG's • CHECK SG Blowdown Isolation valve – CLOSED • CHECK SG Blowdown Sample Isolation valve – CLOSED • CHECK SG Chemical Feed Isolation valve – CLOSED • **ISOLATE AFW flow path**
When called as the ADTS, "It's not desired to use GA-17 to gag safety valves, at this time."		**(BOP) 6. Check SG Code Safety Valves Closed** • **CHECK** Table 2 FLO indication lights (MB5) - **NOT** LIT **RNO: CONSULT** ADTS to determine whether valve(s) **NOT** closed should be gagged using GA-17.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
When called as PEO, acknowledge request. Wait 3 minutes and report: "Some steam is coming from the tailpiece of two safety valves" **BOOTH NOTE:** The amount of steam reported should be commensurate with SG conditions. Likely, the 'A' SG is dry.		**(BOP) 6… continued** • **PERFORM** Local observation of safety valves (MSVB Roof) – **NO** STEAM OBSERVED
		(BOP) 7. Check AFW Suction Source **a. CHECK** DWST level - LESS THAN 80,000 gal **RNO: PROCEED TO** step 8 **AND IF** DWST level lowers to LESS THAN 80,000 gal, **THEN** using GA-4, **SHIFT** AFW pump suction to the CST **AND FILL** the DWST.
Upon direction of Lead Examiner, PLACE Simulator in FREEZE	**Examiner Note:** **End the exam once 'A' & 'D' SG's are isolated or at the Lead Examiner's direction.**	**(BOP) Control RCS Temperature** **a. CHECK** intact loop(s) RCS Hot Leg Wide Range Temperature – STABLE OR RISING **b.** Using GA-26, **STABILIZE** intact loop(s) RCS Hot Leg Wide Range Temperature

SEG# 2K23 NRC-01 Rev : 0

SHIFT TURNOVER REPORT

DATE-TIME	PREPARED BY	SHIFT
Today 0515	Unit Supervisor /"NIGHT" Shift	18:00 - 06:00

PLANT STATUS:

Mode:	1	Rx Power:	93 %
Megawatts:	Thermal: 3458 MWTH	PZR Pressure:	2250 psia
	Electric: 1198 MWe	RCS T-AVE:	585 deg F
RCS Leakage:	Identified: 0.015 gpm	Core Burnup:	150 MWD/MTU
	Unidentified: 0.036 gpm	Protected Train/Facility:	A (Orange)
Date/Time:	Today 0015	Intake:	Green

Active Tracking Records and Action Statements

Equipment/Reason

LCO	Action	Date	Time in LCO	Action Requirement	Time Left
'B' EDG is OOS					
3.8.1.1.b	**b.1**	**today**	**Recurring every 8 hours – perform ac sources**		**7 hours**
3.8.1.1.b	**b.5**	**today**	**1 hour**	**Restore 'B' EDG**	**13 day 23 hrs**

OD Compensatory Actions / Temp Logs

Open Date	Class Reason	Reason	Watch Position

PLANT SYSTEMS APC

System	Notes
'B' EDG	'B' Emergency Diesel Generator is OOS to repair an oil leak on the pre-lube pump. Expect repairs complete in 6 hours.
3GMC-P1B	'B' Stator cooling pump tagged out of service for a bearing replacement.

CROSS UNIT SYSTEM STATUS

SURVEILLANCES / EVOLUTIONS IN PROGRESS

OP 3204	After an extended delay, 3DSM-P1B "Moisture Separator Drain Pump B" has been returned to service and the plant is ready for return to full power operation. Raise and stabilize power to 97% per step 4.1.32c (& attached Rx Plan). ISO NE is aware of power increase.

REACTIVITY BRIEFING (SEE REACTIVITY THUMBRULES / SPREAD SHEET FOR ADDITIONAL INFO)

Current Rod Height	186	
Xenon Trend	Stable	
Current Boron	1406	
Boron Pot Setting / Blend Ratio	3.99 / 15.9 gpm	
Plant Risk	LERF 1.06 ACT: 1 year	CDF 4.15 ACT: 46.9 days

SEG#_2K23 NRC-01_ Rev : __0__

TIME	% POWER	CBD STEPS	DILUTION
NOW	**93%**	**186 STEPS**	**X**
10 MIN (FROM NOW)	**95%**	**196 STEPS**	**X**
20 MIN (FROM NOW)	**97%**	**210 STEPS**	**X**

SEG#_2K23 NRC-01_ Rev : __0__

REFERENCE MATERIAL		
Session No.: NRC-01		
Reference No.	**Revision**	**# Copies**
ARP's		
OTHER – RO Station		
OP 3204	**43**	**N/A**
		N/A
OTHER– BOP Station		
US Desk Procedures		
AOP 3571	**18**	**N/A**
AOP 3581	**09**	**N/A**
AOP 3579	**11**	**N/A**
AOP 3583	**04**	**N/A**
E-0	**36**	**N/A**
E-2	**15**	**N/A**

SITE:	**Millstone Power Station**
PROGRAM:	**Unit 3 ILT**
COURSE:	**N/A**
EXAM TITLE:	**NRC SIM EXAM 2** — **EXAM #: 2K23 NRC-02**
Total Time	**100 Minutes**

Prepared by:	William M. Forrestt	Signature on file	6/6/23
	Printed Name	Developer Signature	Date
Reviewed by:	Tom Brown	Signature on file	6/7/23
	Printed Name	Operations Tech Review Signature	Date
Approved by:	Angelo Leone	Signature on file	6/12/23
	Printed Name	Facility Review Signature	Date

SEG#_2K23 NRC-02_ Rev ; __0__

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/6/23	Original issue.	0

SEG# 2K23 NRC-02 Rev ; 0

Facility: Millstone 3 Scenario #.: 2
Scenario Source.: New Op. Test # 2K23 NRC-02
Examiners: ____________ Operators: ____________

Initial Conditions: The plant is 100% power (EOL). ISO NE has issued a capacity deficiency alert.

Turnover: The following equipment is Out-Of-Service: 3RHS*P1B, 'B' RHR Pump, is tagged out to repair a pump seal leak. 'B' TPCCW pump is tagged out for motor repair.

Critical Tasks: 1.) Establish AFW flow during SBO
2.) Isolate RCP Seal Injection before a Charging Pump is started

Event No.	Malf. No	Event Type*	Event Description
1	RCDI0023	C, MC – RO C, TS - SRO	'B' PORV Fails Open
2	FW14A	C – BOP C - SRO	First Point Feedwater Heater (FWH) develops a tube leak
3	-	R – RO C – BOP C - SRO	Rapid downpower to 87% power at 3% / min
4	-	TS - SRO	Diesel Driven Fire Pump is inoperable
5	CV01	C – RO C, TS - SRO	Isolable RCS leak inside Containment
6	ED01 ED04D EG07A	M – RO M – BOP M - SRO	Loss of ALL AC Power. 'A' EDG trips. Bus differential on 'B' train 4kv Bus. Recovery with Station Blackout Diesel using ECA-0.0 and ECA-0.3. (CT2)
7	FW20C	C, MC – BOP C - SRO	Turbine Driven Aux Feed Pump Fails to start (CT1)

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

SEG# 2K23 NRC-02 Rev ; 0

EXAM OVERVIEW

Millstone 2023 NRC Scenario 2

The plant is 100% power (EOL). ISO NE has issued a capacity deficiency alert.

The following equipment is Out-Of-Service: 3RHS*P1B, 'B' RHR Pump, is tagged out to repair a pump seal leak. 'B' TPCCW pump is tagged out for motor repair.

Shortly after taking the watch, the 'B' PORV fails open causing RCS pressure to lower rapidly. In order to mitigate, the RO will be required to take Immediate operator actions and close the 'B' PORV Block Valve. The US will enter AOP 3581, "Immediate Operator Actions" and ensure the plant is stable. The US enters TS 3.2.5.b DNB Parameters, TS 3.4.4 "Relief Valves" ACTION b, and TRM 3.4.11 b. "Reactor Coolant Vents" Action c.

Following this, tube leakage on the 1A high pressure Feedwater heater causes heater level to increase and reactor power to rise. The crew enters AOP 3567, "Operation with One Feedwater Heater String Isolated". The crew mitigates the event by down powering the unit to 87% power and isolating / bypassing the effected feedwater heater string.

Subsequently, the diesel driven fire pump becomes inoperable. The US makes notifications and enters TRM 3.7.12.1.a "Fire Depression Systems".

Then, an isolable leak develops on the Charging System line inside Containment. The crew enters AOP 3555, RCS Leak, and successfully isolates the ~35 gpm leak using Attachment F "Isolating Letdown While Supplying Seal Injection At Normal Operating Pressure". The RO stabilizes Pressurizer level by performing GA-14, *Establish Head Vent Letdown.*

Following this, a loss of offsite power occurs and the reactor is shutdown. The 'A' EDG starts but experiences a mechanical failure. The 'B' EDG initially re-powers the remaining 4kv emergency bus and then a bus differential lockout occurs causing a station blackout. The crew transitions to ECA-0.0 *Loss of all AC Power.* While in ECA-0.0, the BOP recognizes that the Turbine Driven Aux Feed Pump failed to auto start. It's a **Critical Task** that the TDAFW Pp is started prior to SG dry-out. The crew chooses 4kv emergency bus 34C to re-power from the Station Blackout (SBO) diesel. After the crew takes action to isolate and align bus 34C, the BOP energizes the bus from the SBO diesel and the US transitions to ECA-0.3, *Loss of All AC Power – Recovery with the SBO Diesel.* In ECA-0.3, the crew stabilizes the plant and It is a **Critical Task** to isolate RCP Seal Injection before a Charging Pump is started. Once this is done, the scenario will end.

CRITICAL TASKS

CT1 TITLE: Establish AFW flow during SBO.

A. INITIATING CUE: Indication of a Station blackout and no aux feed flow from the Turbine Driven Aux Feed Pump (TDAFW Pp). Indications of no aux feed flow include flow meters to each SG on MB5 and TDAFW Pp discharge pressure, rpm, and inlet steam supply valve indications.

B. PERFORMANCE FEEDBACK: When the TDAFW Pp is started, the operator will see rpm and discharge pressure rise while the steam supply valves show open indication. MB5 flow meters will indicate flow to each SG.

C. SUCCESS PATH: Establish AFW flow by opening 3MSS*AOV31A, B & D prior to approach of SG dry-out.

D. MEASURABLE PERFORMANCE STANDARD:

i. . **<u>Expected actions:</u>** The **TDAFW Pp is started by opening** the TD AFW Pump Steam Supply Valves: **3MSS*AOV31A, B & D.**

ii. **<u>Boundary conditions</u>**: The TDAFW Pp is started **before 3 SG levels lower below 21% Wide Range level indication** (approach of SG dry out conditions).

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP "ERG Rev. 3 Based Critical Tasks". The CT-23 discussion includes: "Establishing the minimum required AFW flow rate, under the postulated plant conditions, constitutes a task that is essential to safety, because its improper performance or omission by an operator will result in direct adverse consequences or significant degradation in the mitigative capability of the plant".

CT2 TITLE: Isolate RCP Seal Injection before a Charging Pump is started.

A. INITIATING CUE: Indications of a station blackout (Bus voltage, EDG status lights, circuit breaker position) and step 6 of ECA-0.0 is reached to locally isolate RCP seal injection.

B. PERFORMANCE FEEDBACK: Dispatching of operators to locally isolate RCP seals and field report on the status. Subsequent to this, control switch indication for 'A' CHS pump, breaker status light and pump parameters (amps, discharge pressure, flow).

C. SUCCESS PATH: Operator controls restoration of Charging Pump such that the RCP Seal injection valves are closed prior to starting a Charging Pump.

D. MEASURABLE PERFORMANCE STANDARD:

- *i.* . **Expected actions: RCP Seal Supply Isolation Valves (3CHS*MV8109A, B, C & D) are closed**.

ii. **Boundary conditions**: Valves closed **prior to starting a Charging Pump**.

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP “ERG Rev. 3 Based Critical Tasks”. The CT-27 discussion includes: “Failure to isolate RCP seal injection before starting a charging pump, under the postulated plant conditions, can result in unnecessary and avoidable degradation of the RCS fission-product barrier, specifically at the point of the RCP seals.”

NOTE: In addition to the above critical tasks, there may be additional critical tasks created by crew performance. *"Per NUREG-1021, ES-3.3, if an applicant’s actions or inactions create a challenge to plant safety, those actions or inactions may form the basis for a Critical Task identified in the post scenario review.”*

INPUT SUMMARY						
RESET SIMULATOR TO IC–92						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
MALFUNCTIONS						
FW14A	HP HTR 1A TUBE RUP	2		30 sec.		5.7 E+05
CV01	Letdown Line Leak Inside Containment	5				2.5 %/min (~35 gpm)
EG07A	EDG A TRIP	6	15 sec.			
ED01	Loss of Offsite Power	6				
ED04D	Loss of 34D	6	3 min			
FW20C	TDAFW Pp Fails to Auto Start (P2)					
REMOTE FUNCTIONS						
CVR90	SEAL WATER SPLY ISO(MOV8109A)(LOP ONLY)	10				CLOSE
CVR91	SEAL WATER SPLY ISO(MOV8109B)(LOP ONLY)	10	60 sec.			CLOSE

INPUT SUMMARY						
RESET SIMULATOR TO IC–92						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
CVR92	SEAL WATER SPLY ISO(MOV8109C)(LOP ONLY)	10	120 sec.			CLOSE
CVR93	SEAL WATER SPLY ISO(MOV8109D)(LOP ONLY)	10	180 sec.			CLOSE
CVR94	LETDOWN ISO(MOV8100)(LOP ONLY)	10	240 sec.			CLOSE
CCR47	CCP HEADER ISOL (MOV49A) VV (LOP ONLY)	10	300 sec.			0% (CLOSE)
CCR48	CCP HEADER ISOL (MOV49B) VV (LOP ONLY)	10	360 sec.			0% (CLOSE)
OVERRIDES						
RCDI0023	3RCS*PCV456 PORV Control to OPEN	1				OPEN
EGLO0012	1A-3ENSACB-A GREEN D/G A BKR CNTL	11	4 m			OFF
EDLO0162	1A-3ENSACB-AR GREEN RSSA to Bus 34C	11	3 m			OFF
EDLO0071	1-3NNSACB-AN GREEN NSS SUPPLY TO 34A(NSSA-34A-2	11	5 m			OFF

SCENARIO TIME LINE

BOOTH INSTRUCTOR	EXPECTED RESPONSE	PROCEDURE INSTRUCTION
❑ COMPLETE Simulator Setup and Readiness Checklist. ❑ SELECT appropriate IC: **IC-92**, 100% power, EOL, password **"Coral7!"** ❑ As necessary, VERIFY the following Initial Malfunctions / I/Os / Remote Functions, as specified on previous '**Input Summary**' page. ❑ When the simulator is ready, PLACE to Run and VERIFY the simulator reflects the following Initial Conditions for the scenario and is stable: ❑ As necessary, REMOVE the following Equipment from service and tag accordingly: ▪ The 'B' RHR Pump, is tagged out to repair an emergent pump seal leak. **ENSURE** 3RHS*P1B control switch is both: **1. Pull to Lock** **2. YCT hung** ▪ The 'B' TPCCW pump is OOS for motor repair. **ENSURE** 3CCS-P1B control switch is both: **1. Pull to Lock** **2. YCT hung**		N/A
❑ CONDUCT briefing with evaluators.	**PRE-SCENARIO:** ❑ BRIEF the crew initial plant conditions and provide a shift turnover.	
		(All) Walk down control boards and conduct shift briefing.
EVENT 1, 'B' PORV Fails Open **SRO (C, TS) / RO (C, MC)**		

General Note(s):

1.) On trigger 1, 'B' PORV fails open causing RCS pressure to lower rapidly. In order to mitigate, the RO will be required to take Immediate operator actions and close the 'B' PORV Block Valve.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T= When directed by the Lead Examiner: **INSERT Trigger 1** (RCDI0023 to open)	RO notes 3 annunciators: • MB4B 4-9 PORV Open • MB4A 4-4 PZR Pressure dev. • MB4A 3-5 PZR Relief Vlv Dis Temp Hi RO observes 'B' PORV indicates open with RCS pressure lowering rapidly. RO begins taking immediate operator actions.	
AOP 3581, Immediate Operator Actions		
	RCS pressure has fallen rapidly below normal operating pressure of 2250 psia.	**(RO)** C1. **CHECK Pressurizer Pressure - GREATER THAN 2350 psia** **RNO: PROCEED TO** step C.4.
	No. 'B' PORV indicates open and will not close. RO takes RNO actions and ultimately closes the 'B' PORV Block Valve. RCS pressure stops lowering immediately but has fallen below DNB pressure (2204 psia) in Tech Specs.	**(RO)** C.4 **CHECK Both PORVs – CLOSED** **RNO: PERFORM** the following: a. **PLACE** control switch for open PORV(s) to CLOSE: 3RCS*PCV456 b. **IF** a PORV does **NOT** close, **THEN CLOSE** associated block valve: **IF** 3RCS*PCV456 is open, **THEN CLOSE** 3RCS*MV8000B
		(RO) C.5 **Check PORV Flow paths – ISOLATED** **a. CHECK** Pressurizer Pressure - STABLE OR INCREASING

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T= When directed by the Lead Examiner: PROCEED to the next event	Crew reviews ARP's. **US enters Tech Specs:** • **TS 3.2.5.b DNB Parameters** • **TS 3.4.4 ACTION b.** • **TRM REACTOR COOLANT VENTS 3.4.11 b. Action c.** (comply with TS 3.4.4)	**(US) C.6 GO TO Procedure And Step In Effect**
EVENT 2, First Point Feedwater Heater (FWH) Develops a Tube Leak **SRO (C) / BOP (C)** **EVENT 3, Rapid downpower to 87% power at 3% / min** **SRO (C) / RO (R) / BOP (C)**		
General Notes: **1.) 1st Point FWH Tube Leak:** Tube leakage on the 1A high pressure_Feedwater heater causes heater level to increase and reactor power to rise. The crew enters AOP 3567, "Operation with One Feedwater Heater String Isolated". The crew mitigates the event by down powering the unit to 87% power and isolating / bypassing the effected feedwater heater string.		
T= When directed by the Lead Examiner: **INSERT Trigger 2** (FW14A)		
As Secondary Rounds PEO, REPORT: "**I hear banging/loud noise from the 'A' FIRST POINT FEEDWATER HTR".**		Crew acknowledges report and enters AOP 3567.
AOP 3567, Operation With One Feedwater Heater String Isolated		

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Annunciators are not lit.	**(BOP) 1. Check Starting Standby Condensate Pump** a. **CHECK** the following Annunciators - ANY LIT: • MOTOR FW PP SUCTION PRESSURE LO (MB5A 3-2) • TDFW PP A SUCTION PRESSURE LO (MB5A 3-6) • TDFW PP B SUCTION PRESSURE LO (MB5C 3-4) **RNO:** Proceed to Step 2
	Annunciator is not lit.	**(BOP) 2. Check Condensate Demineralizer DP** a. **CHECK** COND DEMIN DP HI (MB6A 2-7) - LIT **RNO:** Proceed to Step 3.
		(BOP) 3. Reduce Turbine Load a. **PERFORM** both of the following: • **GO TO** AOP 3575, Rapid Downpower, **LOWER** Reactor Power - EQUAL TO OR LESS THAN 87% **AND** • **PROCEED TO** step 4
AOP 3575, Rapid Downpower		

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Crew completes Step 1 / briefing.	**1. Determine The Following:** Final desired MWe: 1135 MWe Load Set Indicated MWe Setting: 1200 MWe Final desire power level: 87% Initial Rate: 3% / min Boration determination: RE-H-17
	Yes.	**(RO) 2. CHECK Rod Control - IN AUTO**
	BOP aligns the EHC panel for load set operation.	**(BOP) 3 Align EHC Panel** a. **CHECK** Load reduction using Load Set – DESIRED b. Using ATTACHMENT E, **ALIGN** EHC Panel for Load Set operation
	Yes. 3% / min desired.	**(US) 4. Determine Power Reduction Rate** **a. CHECK** power reduction rate - 3%/min or 5%/min
	RO determines canned reactivity plan can be used.	**(RO) 5. Initiate Rapid Boration** **a. CHECK** Rod Control – AVAILABLE FOR ROD INSERTION **b. CHECK** use of Rapid Downpower Summary Sheet (RE-H-17) in the RE Curve and Data Book – DESIRED c. **REFER** to the Rapid Downpower Summary Sheet (RE-H-17), **DETERMINE** approximate boration time **PROCEED TO** step 5.g

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO initiates rapid boration, starts a timer, and adjusts charging flow.	**(RO) 5. Initiate Rapid Boration*… continued*** **g. CHECK** RCS Makeup System in – AUTO h. **START** ONE Boric Acid Transfer Pump i. **OPEN** Emergency Boration Valve, (3CHS*MV8104) j. **CHECK** direct Boric Acid flow (3CHS-FI183A) – INDICATED k. **RECORD** time boration started l. **ADJUST** Charging Line Flow Control Valve, as necessary, to establish net charging flow (CVNETCHG) matched or exceeding Boric Acid flow m. **CHECK** Calculation method - MANUAL CALCULATION RNO: **PROCEED TO** step 7 **AND WHEN** boration has been performed for the calculated time, **THEN** using ATTACHMENT G**, STOP** boration
	BOP adjusts EHC insert to 1200 MWe at a 3%/ min ramp rate.	**(BOP) 7. Initiate Load Reduction** a. **CHECK** Turbine OPERATING MODE – MANUAL b. **CHECK** load reduction- USING LOAD SET c. **SELECT** LOAD RATE LIMIT %/MIN (1%/MIN, 3%/MIN, or 5%/MIN) d. **CHECK** RCS Tavg or Rx power- LOWERING e. Refer to ATTACHMENT H **AND** Using the LOAD SELECTOR pushbuttons, **ADJUST** LOAD SET to Load Set Indicated MWe setting recorded in step 1

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) **7f. ENERGIZE** ALL PZR Heaters **7g. ADJUST** PZR Spray Valves to 50% set point ▪ 3RCS-PK 455B ▪ 3RCS-PK 455C
		(RO / BOP) **7h. MAINTAIN** plant parameters values as listed in ATTACHMENT C **OR** as directed by Operations Management
		(US) **7i. CHECK** power reduction - ISO-NE REQUESTED **RNO: NOTIFY** ISO-NE of load reduction rate (MWe/min) and final MWe level.
	BOP monitors for 'At Set Load' Light on EHC Insert and makes final adjustment for load reduction.	**(BOP) 7j. CHECK** using either of the following to reduce turbine load: • Load Limit • Standby Load Set **RNO: PROCEED TO** step 8 **AND WHEN** actual load is within 200 MWe of the final desired load, **THEN**, **ADJUST** LOAD SET to obtain final desired load **OR** target power level.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 8. Check Rod Position Above RIL a. **CHECK** either of the following - LIT: • ROD CONTROL BANKS LIMIT LO, (MB4C 3-9) OR • ROD CONTROL BANKS LIMIT LO-LO, (MB4C 4-9) **RNO: PROCEED TO** step 9
		(US) **9. Monitor Downpower** **a. CHECK** the following- REMAINS UNCHANGED • Final desired MWe load • Final desired target power level • Boron injection path **b. PROCEED TO** step 10
		(BOP) **9. Degrade Condenser Backpressure** **a. CHECK** final desired Turbine load (MWe) - LESS THAN 913 MWe **RNO: PROCEED TO** step 14
		(RO / BOP) **14. Monitor Rapid Downpower Parameters**
	US returns to AOP 3567	**(BOP)** **15. Check Plant Status** **a. CHECK** - AT FINAL DESIRED MWe LOAD **OR** TARGET POWER LEVEL

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
AOP 3567… continued		
		(BOP) 4. Identify Faulted Feedwater Heater **a. CHECK** LP Feedwater Heater Bypass Valve (3CNM-MOV88) – CLOSED **b. DETERMINE** affected Feedwater Heater • Any Feedwater Heater high level (with proper LCV operation) • Noise and vibration in any Feedwater Heater • Any Feedwater Heater indicating degraded performance • Any Condensate or Feedwater System leakage
		(BOP) 5. Bypass The Affected Feedwater Heaters **a. CHECK** affected Feedwater Heater or Heater String – IDENTIFIED b. **CHECK** affected heater a - 1st POINT FEEDWATER HEATER c. **OPEN** 1st Point Feedwater Heater Bypass Valve (3FWS-MOV17)
		(BOP) 6. Isolate Extraction Steam To Affected 1st Point Feedwater Heater **a. CHECK** affected 1st Point Feedwater Heater Extraction Steam Supply Valve – CLOSED • Heater E1A: 3ESS-MOV21A **RNO: CLOSE** affected 1st Point Feedwater Heater Extraction Steam Supply valve.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 6b. CHECK affected 1st Point Feedwater Heater Scavenge Steam Supply valve – CLOSED **RNO: CLOSE** affected 1st Point Feedwater Heater Scavenge Steam Supply valve.
		(BOP) 6c. CHECK 1st Point Feedwater Heater Extraction Steam Drain Valve (3DTM-AOV35) – OPEN **RNO: OPEN** 1st Point Feedwater Heater Extraction Steam Drain Valve (3DTM-AOV35).
As PEO: Acknowledge request. Two minutes later call the Control room (using time compression) & REPORT: "Step A.1 of Attachment 'A' is complete".		**(BOP) 7. Isolate Drains To And From Affected 1st Point Feedwater Heater** **a.** Locally **PERFORM** Isolate Reheater Drains To 1st Point Feedwater Heater, for the affected feedwater heater • 1st Point Feedwater Heater E1A, ATTACHMENT A, Step A.1 **b. CHECK** local actions of selected attachment – COMPLETE **RNO: WHEN** initial actions completed, **THEN PROCEED TO** step 8.
		(BOP) 8. Isolate Feedwater To Affected 1st Point Feedwater Heater **a. CLOSE** affected 1st Point Feedwater Heater Outlet Valve: • Heater E1A: 3FWS-MOV19A **b. CLOSE** affected 1st Point Feedwater Heater Inlet Valve: • Heater E1A: 3FWS-MOV16A

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T= When directed by the Lead Examiner: PROCEED to the next event As PEO: Acknowledge request. Five minutes later call the Control room (using time compression) & REPORT: "Step A.2 of Attachment 'A' is complete".		**(BOP) 9. Align Affected 1st Point Feedwater Heater Vents** **a.** Locally **PERFORM** Complete Isolation Of 1st Point Feedwater Heater, for the affected feedwater heater • 1st Point Feedwater Heater E1A, ATTACHMENT A , Step A.2 **b**. **CHECK** local actions of selected attachment – COMPLETE • 1st Point Feedwater Heater E1A, ATTACHMENT A , Step A.2 **RNO: WHEN** local actions completed, **THEN PROCEED TO** Note prior to step 15.
EVENT 4, Diesel Driven Fire Pump is inoperable **SRO (TS)**		
As Outside Rounds PEO, call the Control Room and report "The Diesel Fire Pump Coolant Overflow Reservoir level is out of sight low and there is some water on the floor".		**(RO / BOP)** Receives call and informs US.
T= When directed by the Lead Examiner: PROCEED to the next event	**US enters:** • TRM 3.7.12.1.a Action a	**US** enters appropriate Tech Spec, informs Unit 2, and has PEO place the Diesel Fire Pump local control switch in the 'OFF' position.
EVENT 5, Isolable RCS leak inside Containment **SRO (C, TS) / RO (C)**		
General Note: **1.) <u>Isolable letdown line leak inside Containment:</u>** With Pressurizer pressure and level lowering, the crew enters AOP 3555 RCS Leak. The crew successfully isolates a ~35 gpm leak on the Letdown line inside Containment.		

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T= When directed by the Lead Examiner: **INSERT Trigger 5** (CV01)		**(RO)** observes Pressurizer pressure and level lowering. **(US)** enters AOP 3555.
AOP 3555, Reactor Coolant System Leak		
		(RO) 1. CHECK PZR Level - LOWERING
	RO raises Charging flow to maximum, notes PZR level rising, and throttles down on 3CHS*FCV121 to stabilize PZR level.	**(RO) 2. Raise Charging Flow** **a. CHECK** Normal Charging to the RCS - IN SERVICE b. **CHECK** Charging lineup – NORMAL c. **OPEN** Charging Flow Control Valve (3CHS*FCV121) to raise charging flow to maximum d. **CHECK** Normal Letdown - IN SERVICE e. **CHECK** Letdown Orifice Isolation Valves - ONLY ONE OPEN f. **CHECK** Reactor Power – STABLE g. **CHECK** RCS Cold Leg WR temperature – STABLE h. **CHECK** PZR level - STABLE OR RISING **ADJUST** the following to stabilize PZR level: • Charging Flow Control Valve (3CHS*FCV121)
		(RO) 2j. CHECK any SI Accumulator Isolation Valve – OPEN **2k. PROCEED TO** Note prior to step 7
	RO determines RCS leak rate is approximately 35 gpm.	**(RO) 7. DETERMINE Leak Rate Using One Or More Of The Following:** • Computer program • Inventory balance • VCT level trend

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 8. Restore PZR Level To Program Level
		(US) 9. EVALUATE Event Using MP-26-EPI-FAP06-003, Millstone Unit 3 Emergency Action Levels (Barrier Failure)
	Based on UNID SUMP LEVEL rising, the US enters Tech Spec: **TS 3.4.6.2.b Action b** However, later steps will isolate the leak in the normal letdown line. At this point, this TS would be exited (no longer applicable).	**(US) 10. REFER To TS 3.4.6.2, Operational Leakage, For Required Actions**
		(RO) 11. CHECK RCS leakage - STILL EXISTS
		NOTE: Steps 12 through 19 may be performed in any order.
		(RO) 12. Check If SG Tubes Are Intact **a. CHECK** trend history and alarm status of radiation monitors: • Main Steamline - NORMAL • Condenser Air Ejector - NORMAL • SG Blowdown - NORMAL • N16 monitors – NORMAL
		(RO) 13. Isolate Charging And Letdown **a. CHECK** leak rate – GREATER THAN 3 gpm b. **CHECK** normal Charging and Letdown - IN SERVICE c. Using ATTACHMENT F, **PERFORM** isolating Letdown while supplying Seal Injection at normal operating pressure

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
Attachment F of AOP 3555		
		(RO) F.1 ISOLATE Letdown While Supplying Seal Injection at Normal Operating Pressure **F.1.1** Simultaneously, **PERFORM** the following: Manually • **CLOSE** CHG LINE FLOW (3CHS-FK121) • **CLOSE** L/D Orifice Isol (3CHS*AV8149A) • **CLOSE** L/D Orifice Isol (3CHS*AV8149B) • **CLOSE** L/D Orifice Isol (3CHS*AV8149C)
		(RO) F.1.2 CLOSE CHG ISOL (3CHS*MV8106).
		(RO) F.1.3 IF RCP Seal Injection flow is NOT 8 - 13 gpm for each RCP, **THEN ADJUST** CHG HDR TO SEALS (3CHS-HC182), to supply 8 gpm to 13 gpm to each RCP Seal.
Continuing with AOP 3555…		
	RO determines leak still exists.	**(RO) 13d. CHECK** status of leak - STILL EXISTS
		(RO) 13e. CLOSE Charging Loop Isolation Valves: • 3CHS*AV8146 • 3CHS*AV8147
		(RO) 13f. CLOSE Letdown Header Inner Ctmt Isolation Valve, (3CHS*CV8160)
		(RO) 13g. CLOSE Letdown Isolation Valve, (3RCS*LCV460)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO determines that the leak is isolated.	**(RO) 13h. CHECK** leak status - STILL EXISTS **RNO: PROCEED TO** step 13.m.
		(RO) 13m. PERFORM the following: 1. Using GA-14, **ESTABLISH** Head Vent Letdown to the VCT 2. **PERFORM** actions to identify leaking component or line section 3. **PROCEED TO** step 19
GA-14, Establish Head Vent Letdown		
	Both head vent valves are already closed.	**(RO)** **1. Check Reactor Head Vent Valves CLOSED** • 3RCS*HC442A • 3RCS*HC442B
		(RO) **2. OPEN One Set Of Reactor Vessel Head Vent Isolation Valves** • 3RCS*SV8095A & 3RCS*SV8096A **OR** • 3RCS*SV8095B & 3RCS*SV8096B
	Yes, it's desired to recover the water in the VCT.	**(RO)** **3. Check Head Vent Letdown To VCT --- DESIRED**
	Yes.	**(RO)** **4. Check Instrument Air --- IN SERVICE**
	Both CHS*MV8100 and CHS*MV8112 are already open.	**(RO)** **5. Establish Head Vent Letdown To VCT** **a.** Check Train B RPCCW --- IN SERVICE b. Check RCP seal leakoff containment inner and outer isolation valves (3CHS*MV8112 and 3CHS*MV8100) --- OPEN

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO establishes head vent letdown to the VCT.	**(RO)** **5c.** OPEN reactor vessel head to excess letdown valve (3RCS*MV8098) **5d**. Place excess letdown divert valve (3CHS*AV8143) to VCT position **5e**. Adjust excess letdown flow control valve (3CHS---HC123) to obtain the desired flow rate while maintaining: • Excess letdown heat exchanger outlet temperature LESS THAN OR EQUAL TO 165° F • VCT Pressure LESS THAN OR EQUAL TO 65 psia (3CHS---PI 115) • Using Att. A, CBO flow within normal operating range for running RCPs **5f.** Go to procedure and step in effect
Continuing with AOP 3555…		
As Chemistry, ACKNOWLEDGE request to perform SP 3867 for noble gas determination.		**(RO) 19. Check Noble Gas Sample Required** **a. CHECK** the following radiation monitor trends - ANY GREATER THAN 50% RISE b. **REQUEST** Chemistry perform SP 3867, Offsite Dose - Noble Gas from Unit 3
T= When directed by the Lead Examiner: PROCEED to the next event		**(RO) 20. Check The Status Of Leak** **a. CHECK** Reactor Coolant System leak – LOCATED b. **CHECK** Reactor Coolant System leak - ISOLATED c. Using applicable plant procedures, **CONTINUE** with normal plant evolutions

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
EVENT 6, Loss of ALL AC Power **SRO (M) / RO (M) / BOP (M)** **EVENT 7, Turbine Driven Aux Feed Pump Fails to start** **SRO (C) / RO (C, MC)**		
General Notes: **1.) Event 6: On the loss of offsite power, 'B' EDG re-powers one e-bus & then a Bus 34D lockout causes a station blackout:** The 'A' EDG starts but experiences a mechanical failure. The 'B' EDG starts and loads on 4kv emergency bus, 34D. However, three minutes later, a bus differential develops causes a station blackout. The crew transitions to ECA-0.0 and ultimately power emergency bus 34C from the Station Blackout Diesel utilizing ECA-0.3. In ECA-0.3, the crew stabilizes the plant and It is a **Critical Task** to isolate RCP Seal Injection before a Charging Pump is started. **2.) Event 7: Turbine Driven Aux Feed Pump (TDAFW Pp) Fails to start:** The BOP recognizes that the Turbine Driven Aux Feed Pump failed to auto start. It's a **Critical Task** that the TDAFW Pp is started prior to SG dry out.		
E-0, Reactor Trip or Safety Injection		
T= When directed by the Lead Examiner: **INSERT Trigger 6 (ED01)**		**(RO) 1. * Check Reactor Trip** • **CHECK** Reactor Trip and Bypass Breakers – OPEN • **CHECK** Rod Bottom lights – LIT • **CHECK** Neutron Flux – DECREASING
		(BOP) 2. * Check Turbine Trip a. **CHECK** all Turbine Stop Valves - CLOSED
	BOP determines that 'A' EDG tripped. 'B' EDG will start and power Bus 34D for 3 minutes (when a bus diff develops).	**(BOP) 3. * Check Power To AC Emergency Busses** a. **CHECK** AC Emergency Busses 34C and 34D - BOTH ENERGIZED

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	No Open Phase Condition is present.	**(BOP) 3.b.** Open Phase Condition (OPC)- **NONE** EXISTS: • RSST Open Phase (MB8C 1-8) - **NOT** • Generator Phase Unbalance (MB7C 1-5) - **NOT** LIT • Main XFMR Open Phase (MB7C 2-1) - **NOT** LIT
	Safety Injection was manually actuated.	**(RO) 4. * Check If SI Is Actuated** a. **CHECK** SAFETY INJECTION ACTUATION annunciators, (MB4D 1-6 or MB2B 5-9) – LIT
		When Bus 34D de-energizes (bus diff, 3 minutes after Rx was tripped), US transitions to ECA-0.0.
ECA-0.0, *Loss of all AC Power*		
	RO closes either 3CHS*AV8149B or C.	**(RO)** **3. Check If RCS Is Isolated** **a. CLOSE** letdown orifice isolation valves **b. Check** PZR PORVs --- CLOSED **RNO**--IF PZR pressure is LESS THAN 2350 psia, THEN CLOSE the PORVs.
	RO verifies all valves are closed.	**(RO) 3c. Check** excess letdown and reactor head vent isolation valves --- CLOSED • 3RCS*SV8095A • 3RCS*SV8095B • 3RCS*SV8096A • 3RCS*SV8096B • 3RCS*AV8153

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO verifies all valves are closed.	**(RO) 3d. CHECK** RCS Sampling Isolation Valves (MB1) - CLOSED: • SSR*CTV26 • SSR*CTV27 • SSR*CTV29 • SSR*CTV30
	BOP determines that 3MSS*AOV31A, B, D didn't open. BOP successfully opens all valves to start the TDAFW Pp **(Critical Task)**.	**(BOP)** **4. Check Secondary Heat Sink** **a. CHECK** TDAFW Pump – RUNNING RNO: **OPEN** TD AFW Pump Steam Supply Valves: • 3MSS*MOV17A • 3MSS*MOV17B • 3MSS*MOV17D • 3MSS*AOV31A • 3MSS*AOV31B • 3MSS*AOV31D
	BOP feeds SG's using the TDAFW Pp.	**(BOP)** **4. Check Secondary Heat Sink… continued** **b. CHECK** TD AFW Pump Flow Control Valves - OPEN: **c. CHECK** Intact NR Level - GREATER THAN 8% (42% ADVERSE CTMT) IN AT LEAST ONE SG **RNO: MAINTAIN** GREATER THAN 530 gpm until Intact NR Level - GREATER THAN 8%
		(BOP) **4.d. MAINTAIN** SG NR LEVEL - 8% to 50% (42% and 50% ADVERSE CTMT)
	BOP verifies DWST level is greater than 80,000 gal.	**(BOP) 4 e CHECK** DWST Level – GREATER THAN 80,000 gal
	BOP closes MSIV's. MSIV Bypass valves are already closed.	**(BOP) 4.f. CLOSE** MSIVs and MSIV Bypass Valves

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
The crew may dispatch PEO's / Electricians here. Wait 5 minutes and REPORT: **'A' EDG: REPORT "There is a local annunciator: CRANKCASE Pressure High (EGPA 2-5) & oil is coming from the crankcase."** ***NOTE for BOOTH:*** The 'A' EDG is catastrophic & the EDG will not be made available to the crew. **'B' EDG: REPORT "This a Local target flag for Bus Differential are in with an acrid smell in the switchgear".** ***NOTE for BOOTH:*** 34D Bus Diff will prevent re-energizing 34D (for the duration of the scenario).		**(BOP)** **5. Restore Power To Any AC Emergency Bus** **a. CHECK** Main Generator Output Breaker – OPEN **b. START** at least one EDG (MB8) **RNO: PROCEED TO** step 6.
When called as Primary Rounds PEO: **(1) Acknowledge** request **(2) INPUT TRIGGER 10** **(3) After Trigger 10 is inputted** (noting time delays), Call CR and **REPORT:** **" ECA-0.0 Step 6 actions are complete".**	RO calls PEO and gives direction to locally isolate RCP seals (iaw Step 6 of ECA-0.0).	**(RO)** **6. Locally Isolate RCP Seals**
		(RO) **7. Block Automatic Loading Of AC Emergency Busses** **7a. RESET** the following, if actuated: SI / CDA / Aux FW Train A (B) for Lo-Lo SG Level

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><td></td><td>RO places both ‘A’ & ‘B’ Charging Pumps in PTL.</td><td>(RO)
7b. PLACE the following components in PULL-TO-LOCK:
Charging Pump A, 3CHS*P3A
Charging Pump B, 3CHS*P3B</td></tr>
<tr><td></td><td>BOP places control switches in PTL.</td><td>(BOP)
7c. Using ATTACHMENT K, POSITION the following in Pull to Lock:
<table>
<tr><th></th><th>Component</th></tr>
<tr><td>☐</td><td>3RHS*P1B, RHR Pump B</td></tr>
<tr><td>☐</td><td>3RHS*P1A, RHR Pump A</td></tr>
<tr><td>☐</td><td>3SIH*P1B, SI Pump B</td></tr>
<tr><td>☐</td><td>3SIH*P1A, SI Pump A</td></tr>
<tr><td>☐</td><td>3RSS*P1D, RSS Pump D</td></tr>
<tr><td>☐</td><td>3RSS*P1B, RSS Pump B</td></tr>
<tr><td>☐</td><td>3RSS*P1C, RSS Pump C</td></tr>
<tr><td>☐</td><td>3RSS*P1A, RSS Pump A</td></tr>
<tr><td>☐</td><td>3QSS*P3B, QSS Pump B</td></tr>
<tr><td>☐</td><td>3QSS*P3A, QSS Pump A</td></tr>
<tr><td>☐</td><td>3CCP*P1A, CCP Pump A</td></tr>
<tr><td>☐</td><td>3CCP*P1C (A Train), CCP Pump C</td></tr>
<tr><td>☐</td><td>3CCP*P1C (B Train), CCP Pump C</td></tr>
<tr><td>☐</td><td>3CCP*P1B, CCP Pump B</td></tr>
<tr><td>☐</td><td>3SWP*P1B
<u>OR</u>
3SWP*P1D, Train B SW Pump (Follow Pump Preferred)</td></tr>
<tr><td>☐</td><td>3SWP*P1A
<u>OR</u>
3SWP*P1C, Train A SW Pump (Follow Pump Preferred)</td></tr>
</table></td></tr>
</table>

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><td></td><td>BOP places control switches in PTL.</td><td>(BOP)
7c. CONTINUED….Using ATTACHMENT K, POSITION the following in Pull to Lock:
<table>
<tr><th></th><th>Component</th></tr>
<tr><td>☐</td><td>3FWA*P1A, MDAFW Pump A</td></tr>
<tr><td>☐</td><td>3FWA*P1B, MDAFW Pump B</td></tr>
<tr><td>☐</td><td>3HVK*CHL1A, HVK Chiller A</td></tr>
<tr><td>☐</td><td>3HVC*FN1A, CB Filter Unit A</td></tr>
<tr><td>☐</td><td>3HVR*FN14A/13A, CHG & CCP Pp Fans A</td></tr>
<tr><td>☐</td><td>3HVR*FN6A, AB Filter Unit Fan A</td></tr>
<tr><td>☐</td><td>3HVR*FN12A, SLCRS Fan A</td></tr>
<tr><td>☐</td><td>3HVU-FN1A, CAR Fan A</td></tr>
<tr><td>☐</td><td>3HVU-FN2A, CRDM Cooling Fan A</td></tr>
<tr><td>☐</td><td>3HVK*CHL1B, HVK Chiller B</td></tr>
<tr><td>☐</td><td>3HVC*FN1B, CB Filter Unit B</td></tr>
<tr><td>☐</td><td>3HVR*FN14B/13B, CHG & CCP Pp Fans B</td></tr>
<tr><td>☐</td><td>3HVR*FN6B, AB Filter Unit Fan B</td></tr>
<tr><td>☐</td><td>3HVR*FN12B, SLCRS Fan B</td></tr>
<tr><td>☐</td><td>3HVU-FN1B, CAR Fan B</td></tr>
<tr><td>☐</td><td>3HVU-FN2B, CRDM Cooling Fan B</td></tr>
</table></td></tr>
<tr><td>When called as CONVEX, REPORT “There is a large power outage in Southeastern Ct. There is no current estimate for power restoration.”

NOTE for BOOTH: Offsite power will not be restored.</td><td></td><td>(US)
8. Locally Attempt To Restore AC Power
8a. CHECK Offsite power – AVAILABLE
RNO: PROCEED TO step 8.d AND IF offsite power becomes available, THEN using GA-3, ENERGIZE
Emergency Bus 34C or 34D AND WHEN power is restored to any AC Emergency Bus, THEN PROCEED TO step 28.</td></tr>
</table>

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	As previously noted, the crew will be unsuccessful restoring either bus from an EDG.	**(BOP)** **8d. CHECK** Emergency Diesel Generators - AT LEAST ONE RUNNING **RNO:** **- Using** ATTACHMENT E, locally **START BOTH EDGs.** **- PROCEED TO** step 9 **AND WHEN** EITHER EDG is started, **THEN PERFORM** steps 8.e and 8.f. **8e. CHECK** Emergency Bus 34C or 34D – AUTOMATICALLY ENERGIZED RNO: **IF** the EDG Output Breaker **DOES NOT** close **THEN:** **a. STOP** the EDG by simultaneously pressing BOTH Emergency Stop pushbuttons. **b.** Using ATTACHMENT F, locally **ENERGIZE** Emergency Bus 34C or 34D with its EDG.
When called as U2: "Report A505 breaker is open".		**(BOP)** **9. Energize An AC Emergency Bus From The SBO Diesel** **a. CHECK** SBO diesel - AVAILABLE FOR STARTING b. **OPEN** all SBO Bus Tie Breakers: • For Bus 34A: 34A1-2 • For Bus 34B: 34B1-2 • For Bus 24E: A505 (Unit 2)
		(BOP) 9c. CHECK SBO Diesel Output Breaker - CLOSED

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><td>As PEO:
(1) Acknowledge request
(2) INSERT Trigger 11
(3) Wait 5 minutes & using time compression call CR and REPORT: “Attachment H, Aligning Busses 34A and 34C for SBO Diesel, is complete”.</td><td></td><td>(BOP) 9d. Using one of the following attachments, locally ALIGN the selected AC bus pair:
• For Busses 34A and 34C: ATTACHMENT H</td></tr>
<tr><td></td><td></td><td>(BOP) 9e. PERFORM the following:
1. OPEN AND GREEN FLAG EDG Supply Breaker for selected Emergency AC bus (MB 8)
• Bus 34C: DGA*34C-2
2. OPEN AND GREEN FLAG NSST Feeder Breaker for selected Non-Emergency AC bus (MB 8)
• Bus 34A: NSSA-34A-2</td></tr>
<tr><td></td><td></td><td>(BOP) 9f. OPEN the following (High and Low side) Load Center Supply Breakers for the selected non-emergency AC bus:

For Bus 34A:
<table><tr><th>Bus</th><th></th><th>High Side Breaker</th><th></th><th>Low Side Breaker</th></tr><tr><td>32A</td><td>☐</td><td>32A-XFMR-2</td><td>☐</td><td>32A-2</td></tr><tr><td>32B</td><td>☐</td><td>32B-XFMR-2</td><td>☐</td><td>32B-2</td></tr><tr><td>32C</td><td>☐</td><td>32C-XFMR-2</td><td>☐</td><td>32C-2</td></tr><tr><td>32D</td><td>☐</td><td>32D-XFMR-2</td><td>☐</td><td>32D-2</td></tr><tr><td>32E</td><td>☐</td><td>32E-XFMR-2</td><td>☐</td><td>32E-2</td></tr><tr><td>32F</td><td>☐</td><td>32F-XFMR-2</td><td>☐</td><td>32F-2</td></tr><tr><td>32G</td><td>☐</td><td>32G-XFMR-2</td><td>☐</td><td>32G-2</td></tr><tr><td>SWYD/FWPH</td><td>☐</td><td>XFMR SUPPLY</td><td></td><td>----------</td></tr></table></td></tr>
</table>

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 9g. CHECK the selected Non-Emergency AC bus- BUS 34A 1. **PLACE** the following switches in PULL-TO-LOCK: • Screen Wash Pump (3SWT-P1A) • Circulating Water Pumps (3CWS-P1A/C/E) • TPCCW Pump(s) (3CCS-P1A/C)
		(RO / BOP) 9.g.2. PLACE the following switches to STOP: • CDS Chiller(s) (3CDS-CHL1A/C) • Heater Drain Pump(s) (3HDL-P1A/C) • MSR Drain Pump (3DSM-P1A)
	US proceeds to step 10. Steps 9h through 9s are provided below and will be completed when field report of Att. H is provided in 5 minutes.	**(US) 9.h. CHECK** Local Alignment Of Selected Busses – COMPLETED • ATTACHMENT H, Aligning Busses 34A and 34C for SBO Diesel **RNO: IF** local alignment of selected busses is being performed, **THEN PROCEED TO** step 10 **AND WHEN** bus alignments are completed, **THEN CONTINUE** with step 9.h through 9.s.
	Yes.	**(US) 9i. CHECK** ATTACHMENT K, Blocking Automatic Loading of AC Busses, - COMPLETE
		(RO) 9j. PLACE the remaining Service Water Pump on the selected Emergency Bus in PULL-TO-LOCK

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 9.k. RESET the Under voltage Block for the selected AC Emergency Bus 1. **CHECK** Bus Under voltage annunciator • For Emergency Bus 34C: BUS 34C UNDERVOLTAGE (MB8A 3-12) - **NOT** LIT **2. PRESS** Under voltage Block BYPASS pushbutton (MB8R)
		(RO) 9.l. RESET LOP (MB2) for the selected train
		(BOP) 9.m. CHECK SBO Diesel Output Breaker - CLOSED
		(BOP) 9.n. CLOSE SBO Bus Tie Breaker (MB8) for selected Non-Emergency AC bus • For Bus 34A: A Train SBO Tie Breaker, 34A1-2
		(BOP) 9.o. PLACE the Synchronizing Selector to ON for the selected AC bus pair • For Bus 34A and 34C: SYNC SEL 34A-34C TIE
		(BOP) 9.p. CLOSE the Bus Tie Breaker between the selected AC bus pair • For 34A and 34C: 34A-34C TIE, 34C*1T-2
		(BOP) 9.q. PLACE the Synchronizing Selector to OFF for the selected AC bus pair • For Bus 34A and 34C: SYNC SEL 34A-34C TIE
		(BOP) 9.r. CHECK any AC Emergency Bus - ENERGIZED
		(BOP) 9.s. GO TO ECA-0.3, Loss of All AC Power - Recovery With The SBO Diesel

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 10. Check Plant Status **a.** To restore power to the 345 Kv switchyard, **REQUEST** CONVEX use all possible means, including dispatching personnel as needed
		(RO) 10 b. DETERMINE if ADVERSE CTMT parameters should be used: • Ctmt temperature – GREATER THAN 180°F OR • Ctmt radiation - GREATER THAN 105 R/HR
		(BOP) 10 c. CHECK SLCRS Doors - CLOSED
		(BOP) 10 d. Using ATTACHMENT B, **PERFORM** actions for the following: • Instrument Rack Room Cabinet Doors • Control Building Pressure Boundary Doors
		(US) 10 e. CHECK C OP 200.2, Response to Security Event - BEING PERFORMED WITH A SECURITY EVENT IN PROGRESS **AND** SHELTERING IN PLACE REQUIRED RNO: **PROCEED TO** Caution prior to step 11.
	BOP checks valves closed in steps 11a thru e. BOP has to close Main Steam Line Drain Isolation valves.	**(BOP) 11. Isolate Main Steam, Main Feed And SG Blowdown** **f. CLOSE** Main Steam Line Drains upstream of MSIVs and TD AFW Pump as follows: 3DTM*AOV29A-D 3DTM*AOV61A-D 3DTM*AOV63A,B, D 3DTM*AOV64A,B, D

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
ECA-0.3, Loss of All AC Power – Recovery with the SBO Diesel		
		(BOP) 1. Stabilize SG Pressures Using GA-26, **STABILIZE** SG pressure by adjusting the following as applicable: • SG Atmospheric Steam Relief valves **OR** • SG Atmospheric Relief Bypass valves
		(RO) 2. Check RCP Seal Isolation Status **a. CHECK** RCP Seal Water Return CTMT Outer Isolation Valve (3CHS*MV8100) - CLOSED
		(RO) 2b. CHECK RCP Seal Supply Isolation Valves – CLOSED • 3CHS*MV8109A • 3CHS*MV8109B • 3CHS*MV8109C • 3CHS*MV8109D
		(RO) 2c. CHECK RPCCW Containment Return Outer Isolation Valves – CLOSED • 3CCP*MOV49A • 3CCP*MOV49B
		(RO) 3. Reset Actuated ESF Signals **a. RESET** SI b. **RESET** the following: • CDA • LOP • CIA • CIB

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
As PEO at SBO diesel report SBO loading as shown on Xtreme View Drawing EG02.		**(RO / BOP) 4. Place RPCCW In Service On The Energized AC Emergency Bus** **a. CHECK** RPCCW to the associated train Fuel Pool Cooler – ALIGNED **b. CHECK** total SBO Diesel load: • At SBO D/G Control Panel (preferred)- LESS THAN OR EQUAL TO 1010 Kw OR • Bus Tie 34A-C or 34B-34D amps (Alternate) - LESS THAN OR EQUAL TO 216 amps. **c. START** one RPCCW pump
		(RO) 5. Place Service Water In Service On The Energized AC Emergency Bus a. **CHECK** energized bus TPCCW Heat Exchanger SW Supply Isolation Valve – CLOSED • 3SWP*MOV71A OR • 3SWP*MOV71B
		(BOP) 5.b. CHECK MCC/Rod Control Area SW Booster pumps - **NOT** RUNNING • 3SWP*P3A • 3SWP*P3B
As PEO at SBO diesel report SBO loading as shown on Xtreme View Drawing EG02.		**(BOP) 5.c. CHECK** total SBO Diesel load: • At SBO D/G Control Panel (preferred)- LESS THAN OR EQUAL TO 1450 Kw OR • Bus Tie 34A-C or 34B-34D amps (Alternate) - LESS THAN OR EQUAL TO 321 amps.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 5.d. START one Service Water pump **5e. CHECK** Service Water Pump Discharge Valve - OPEN FOR RUNNING PUMP • For Pump A - 3SWP*MOV102A • For Pump B - 3SWP*MOV102B • For Pump C - 3SWP*MOV102C • For Pump D - 3SWP*MOV102D
		(RO) 6. Place Charging In Service On The Energized AC Emergency Bus **a. OPEN** at least one RWST To Charging Isolation Valve • 3CHS*LCV112D OR • 3CHS*LCV112E
		(RO) 6b. CLOSE at least one VCT to Charging Isolation Valve • 3CHS*LCV112B OR • 3CHS*LCV112C
		(RO) 6c. CLOSE Charging Isolation Valve (3CHS*MV8105)
		(RO) 6d. CHECK the Miniflow Isolation to the RWST for the Charging pump to be started – OPEN • 3CHS*MV8511A OR • 3CHS*MV8511B
		(RO) 6e. CLOSE the Recirculation Discharge Isolation Valve for the charging pump to be started • 3CHS*MV8111A • 3CHS*MV8111B • 3CHS*MV8111C
		(RO) 6f. CHECK both Charging Pump Cold Leg Injection Valves – CLOSED • 3SIH*MV8801A • 3SIH*MV8801B

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 6g. CHECK RCP seals isolated: **CHECK** either RCP Seal Water Return CTMT Isolation Valve- CLOSED (3CHS*MV8100 or 3CHS*MV8112) **CHECK** RCP Seal Supply Isolation Valves - CLOSED: • 3CHS*MV8109A • 3CHS*MV8109B • 3CHS*MV8109C • 3CHS*MV8109D
As PEO at SBO diesel report SBO loading as shown on Xtreme View Drawing EG02.		**(BOP)) 6h. CHECK** total SBO Diesel load: • At SBO D/G Control Panel (preferred)- LESS THAN OR EQUAL TO 1450 Kw OR Bus Tie 34A-C or 34B-34D amps (Alternate) - LESS THAN OR EQUAL TO 321 amps.
Upon direction of Lead Examiner, PLACE Simulator in FREEZE	It is a **Critical Task** to isolate RCP Seal Injection before a Charging Pump is started. **Examiner Note:** End scenario after satisfactory start of a Charging Pump.	**(RO) 6i. START** one Charging pump

SEG# 2K23 NRC-02 Rev : 0

SHIFT TURNOVER REPORT

DATE-TIME	PREPARED BY	SHIFT
Today 0515	Unit Supervisor /"NIGHT" Shift	18:00 - 06:00

PLANT STATUS:

Mode:	1	Rx Power:	100 %
Megawatts:	Thermal: 3704 MWTH	PZR Pressure:	2250 psia
	Electric: 1275 MWe	RCS T-AVE:	587 deg F
RCS Leakage:	Identified: 0.015 gpm	Core Burnup:	20000 MWD/MTU
	Unidentified: 0.036 gpm	Protected Train/Facility:	A (Orange)
Date/Time:	Today 0015	Intake:	Green

Active Tracking Records and Action Statements

Equipment/Reason

LCO	Action	Date	Time in LCO	Action Requirement	Time Left
'B' RHR Pp OOS					
TS 3.5.2.d	**a**	**today**	**2 hours**	**Restore**	**70 hrs**

OD Compensatory Actions / Temp Logs

Open Date	Class Reason	Reason	Watch Position

PLANT SYSTEMS APC

System	Notes
TPCCW	'B' TPCCW pump is OOS for motor repair.
RHS	3RHS*P1B, 'B' RHR Pump, is tagged out to repair an emergent pump seal leak.

CROSS UNIT SYSTEM STATUS

SURVEILLANCES / EVOLUTIONS IN PROGRESS

OP 3204	Steady State Operation. ISO NE has issued a capacity deficiency alert in accordance with C OP 200.8.

REACTIVITY BRIEFING (SEE REACTIVITY THUMBRULES / SPREAD SHEET FOR ADDITIONAL INFO)

Current Rod Height	218	
Xenon Trend	Stable	
Current Boron	142	
Boron Pot Setting / Blend Ratio	0.41 / 1.6 gpm	
Plant Risk	LERF 1.06 ACT: 1 year	CDF 4.15 ACT: 46.9 days

SEG#_2K23 NRC-02_ Rev : __0__

REFERENCE MATERIAL		
Session No.: NRC-02		
Reference No.	**Revision**	**# Copies**
ARP's		
MB4A 4-4	**Current**	**2**
MB4A 3-5	**Current**	**2**
MB4B 4-9	**Current**	**2**
OTHER – RO Station		
GA-14	**Rev. 3**	**N/A**
OTHER– BOP Station		
US Desk Procedures		
AOP 3555	**Rev. 25**	**N/A**
AOP 3567	**Rev. 10**	**N/A**
AOP 3575	**Rev. 30**	**N/A**
AOP 3581	**Rev. 09**	**N/A**
E-0	**Rev. 36**	**N/A**
ECA-0.0	**Rev. 41**	**N/A**
ECA-0.3	**Rev. 19**	**N/A**

SITE:	**Millstone Power Station**
PROGRAM:	**Unit 3 ILT**
COURSE:	**N/A**
EXAM TITLE:	**NRC SIM EXAM 3** — **EXAM #: 2K23 NRC-03**
Total Time	**100 Minutes**

Prepared by:	William M. Forrestt	Signature on file	6/6/23
	Printed Name	Developer Signature	Date
Reviewed by:	Tom Brown	Signature on file	6/8/23
	Printed Name	Operations Tech Review Signature	Date
Approved by:	Angelo Leone	Signature on file	6/12/23
	Printed Name	Facility Review Signature	Date

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/6/23	Original issue.	0

SEG# 2K23 NRC-03 Rev ; 0

Facility: Millstone 3 Scenario #.: 3
Scenario Source.: New Op. Test # 2K23 NRC-03
Examiners: ______ Operators: ______

Initial Conditions: The plant is 97% power (EOL). LEFM is OOS for calibration. Calorimetric is selected to Feed Flow (venturis).
Turnover: The following equipment is Out-Of-Service: The 'A' Quench Spray Pump is out of service to repair an oil leak. The SBO diesel is tagged out to for a computer repair.
Critical Tasks:
1.) Energize at least one AC Emergency Bus before placing safeguards equipment hand switches in the pull-to-lock position.
2.) Manually actuate containment spray before transitioning out of FR-Z.1.

Event No.	Malf. No	Event Type*	Event Description
1	-	N - RO N- SRO	Shift SG Blowdown Tank vent path from atmosphere to the fourth point feedwater heaters
2	MB5B-A04	TS - SRO	SG Feed Isolation valve has low accumulator pressure
3	RX05_1A	I, MC – RO I – BOP I, TS - SRO	RCS temperature (CH. 1), fails high causing Control Rods to auto insert.
4	FW16B	R - RO C - BOP C - SRO	'B' Heater Drain Pump trips, rapid down power required
5	ED01 RP11M	C, MC- BOP C - SRO	Loss of offsite Power - Reactor trips. Manual actions needed to restore a single 4KV Emergency Bus. Crew transitions to ES-0.1. (CT1)
6	RC03A CV23A	C, MC - RO C - SRO	SBLOCA develops in ES-0.1. Transition to E-0. Manual actions to start only available 'A' CHS Pp.
7	RC03A	M - RO M - BOP M - SRO	LBLOCA develops in E-0 with status trees in effect. Transition to Functional Recovery Procedures (includes establishing CTMT Spray using an alternate alignment in FR-Z.1). (CT2)

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

SEG# 2K23 NRC-03 Rev ; 0

EXAM OVERVIEW

Millstone 2023 NRC Scenario 3

The plant is 97% power (EOL).

The following equipment is Out-Of-Service: The ‘A’ Quench Spray Pump is out of service to repair an oil leak. The SBO diesel is tagged out to for a computer repair. LEFM is OOS for calibration. The calorimetric is selected to Feed Flow (venturis).

The crew takes the watch with the direction to re-align the blowdown tank vent path from the atmosphere to the fourth point feedwater heaters. The RO utilizes OP 3316C to accomplish this task.

As the RO is performing this, the BOP receives a main board annunciator for low Nitrogen pressure for ‘B’ SG Feed Isolation Valve’s actuator. The BOP has a Plant Equipment Operator (PEO) add nitrogen and the US enters TS 3.6.3.a, CTMT Isolation Valves.

Following this, the Control Rods automatically insert. The RO implements AOP 3581, *Immediate Actions*, and places the Control Rods in manual. The US transitions to AOP 3571, *Instrument Failure Response*, to restore Rod Control to auto and address the failed instrument. The US enters TS 3.3.1 (for both FU7 and FU8) and TS 3.3.2 for FU 5.d.

Subsequently, the ‘B’ Heater Drain Pump trips. Due to low feed pump suction pressures, the BOP starts a third condensate pump and bypasses condensate demineralizers. The annunciator response procedure directs a downpower to 92% power. The crew enters AOP 3575, *Rapid Downpower*, and performs the downpower.

Following the downpower, a loss of offsite power occurs causing a reactor trip. The crew performs immediate actions of E-0, *Reactor Trip and Safety Injection.* On the reactor trip, there is a station blackout caused from the failure of the ‘A’ EDG Output Breaker to auto close and a catastrophic failure of the ‘B’ EDG (time delay of 40 seconds). In order to recover power to an emergency bus, the BOP must close the ‘A’ Emergency Diesel output breaker **(Critical Task)**. Once power is restored to a single 4kv emergency bus, transition is made to ES-0.1. After taking actions to control RCS Temperature, a SBLOCA occurs. The crew exercises foldout page criteria for manual Safety Injection and transitions back to E-0.

In E-0, the RO must manually start the ‘A’ Charging Pump (which had a failure to automatically start). A short time later, the cold leg break worsens and becomes a LBLOCA. With status trees now in effect, the Core Cooling (driven from low plenum level) and Containment (driven from no QSS pumps operating) trees turn orange. Transition to Functional Recovery Procedures is required. FR-C.2 will be entered first on low RVLM’s plenum level. Exit conditions should be met in step 1. FR-Z.1 will be entered next. With a quench spray pump unavailable, the crew will establish CTMT Spray using a RSS pump aligned to the RWST **(Critical Task)**.

SEG# 2K23 NRC-03 Rev : 0

CRITICAL TASKS

CT1 TITLE: Energize at least one AC Emergency Bus before placing safeguards equipment switches in the pull-to-lock position.

A. INITIATING CUE: The Reactor will Trip. On the reactor trip, there is a station blackout caused from the failure of the ‘A’ EDG Output Breaker to auto close and a catastrophic failure of the ‘B’ EDG (time delay of 40 seconds). There will not be a bus differential alarm for 4Kv emergency bus 34C (‘A’ train). Bus 34C will read 0 volts on MB8.

B. PERFORMANCE FEEDBACK: Upon closing the ‘A’ EDG output breaker, bus 34C will re-energize (bus volts indicate normally) and Control Room lights will partially illuminate. Associated loads will sequence on.

C. SUCCESS PATH: Closing the ‘A’ EDG output breaker will accomplish this task. The instruction is provided in E-0 step 3a RNO: “IF NO Bus Differential exists (MB8A 4-12 or MB8C 4-2), THEN ENERGIZE the affected AC Emergency Buss(es) from associated EDG”.

D. MEASURABLE PERFORMANCE STANDARD:

i. . **Expected actions:** **Close the ‘A’ EDG output breaker,** thereby energizing 4kv bus 34C.

ii. **Boundary conditions**: Bus 34C is energized **before the crew takes actions in ECA-0.0, Loss of all AC Power, to place handswitches in pull to lock (Step** 7).

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP “ERG Rev. 3 Based Critical Tasks”. The CT-24 discussion includes “Failure to energize an ac emergency bus constitutes mis-operation or incorrect crew performance in which the crew does not prevent degraded emergency power capacity. Failure to perform the critical task also results in needless degradation of any barrier to fission product release, specifically of the RCS barrier at the point of the RCP seals. Additionally, failure to perform the critical task results in the unnecessary continuation of a situation in which RCS inventory is being lost uncontrollably and cannot be replaced.”

CT2 TITLE: Manually actuate containment spray before transitioning out of FR-Z.1.

A. INITIATING CUE: Post Reactor Trip, a LBLOCA develops and CDA annunciates on MB2. Neither Quench Spray Pump operates (‘A’ QSS pump is tagged OOS, ‘B’ QSS pump has no power). Containment pressure exceeds 45 psia. The status tree for Containment illuminates ORANGE on the plant process computer displays.

B. PERFORMANCE FEEDBACK: When alternate means (a RSS pump) to provide CTMT Spray is established, the chosen RSS pump will show proper running indication (breaker, amps, discharge pressure) and CTMT pressure indicators will show a lowering pressure trend.

C. SUCCESS PATH: Align C’ RSS Pump suction to the RWST and ultimately start the pump in accordance with FR-Z.1 step 7.

D. MEASURABLE PERFORMANCE STANDARD:

SEG# 2K23 NRC-03 Rev : 0

i. . **Expected actions:** **'C' RSS pump is started to spray down CTMT** with RWST inventory.

ii. **Boundary conditions**: Manually actuate containment spray **before transitioning out of FR-Z.1.**

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP "ERG Rev. 3 Based Critical Tasks". The CT-3 discussion includes: "… failure to prevent a significant reduction of safety margin beyond that irreparably introduced by the scenario."

NOTE: In addition to the above critical tasks, there may be additional critical tasks created by crew performance. *"Per NUREG-1021, ES-3.3, if an applicant's actions or inactions create a challenge to plant safety, those actions or inactions may form the basis for a Critical Task identified in the post scenario review."*

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INPUT SUMMARY						
RESET SIMULATOR TO IC–93						
THEN **VERIFY** the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
MALFUNCTIONS						
MB8B-A10	SBO LOSS OF DC CNTL PWR					ON
MB8B-C10	SBO DG PRIMARY LOCKOUT					ON
EG05	SBO DIESEL OUTPUT BKR TRIP					
RX05_1A	RCS LOOP 1 NR HL TE411A FAIL	3				650
FW16B	4TH POINT HTR DRN PP TRIP (P1B)	4				
MB8B-A12	DG B EMERGENCY SHUTDOWN	30	40 sec.			ON
MB1E-F04	DIESEL GEN	30				ON
EG07B	EDG B TRIP	30	40 sec.			
RP11M	Auto Act Fail: DG A Bkr Control					
ED01	Loss of Offsite Power	5				
CV23A	Charging Pump 3A fails to auto start (contact XK21 fails open)					
RC03A	RCS Cold Leg A Rupture	30	5 min.			100 lbm/sec
MB8B-B10	SBO DG Local Panel Trouble					OFF

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INPUT SUMMARY						
RESET SIMULATOR TO IC–93						
THEN **VERIFY** the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
MB5B-A04	Stop Valve B Accum Pressure low	2				ON
REMOTE FUNCTIONS						
OVERRIDES						

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><td colspan="2">❑ COMPLETE Simulator Setup and Readiness Checklist.
❑ SELECT appropriate IC: IC-93, 97% power, EOL, password “Coral7!”
❑ As necessary, VERIFY the following Initial Malfunctions / I/Os / Remote Functions, as specified on previous ‘Input Summary’ page.
❑ When the simulator is ready, PLACE to Run and VERIFY the simulator reflects the following Initial Conditions for the scenario and is stable:
❑ As necessary, REMOVE the following Equipment from service and tag accordingly:
▪ ENSURE the following: 1. ‘B’ Charging Pump is running 2. Feed Flow calorimetric is selected

▪ The ‘A’ QSS Pp is out of service to repair an oil leak. ENSURE 3QSS*P1A control switch is both:
1. Pull to Lock
2. YCT hung

▪ The SBO Diesel is tagged out for a computer repair. ENSURE the following for the SBO Diesel:
1. OPEN 34A1-2 <u>and</u> 34B1-2
2. Hang YCT on MB8 SBO output breaker</td><td>N/A</td></tr>
<tr><td>❑ CONDUCT briefing with evaluators.</td><td colspan="2">PRE-SCENARIO:
❑ BRIEF the crew initial plant conditions and provide a shift turnover.</td></tr>
<tr><td></td><td></td><td>(All) Walk down control boards and conduct shift briefing.</td></tr>
<tr><th colspan="3">EVENT 1, Shift SG Blowdown Tank vent path from atmosphere to the fourth point feedwater heaters
SRO (N) / RO (N)</th></tr>
<tr><td colspan="3">General Note(s):
1) The Crew was able to preview this evolution in the briefing room. Once the evolution begins and the RO completes closing the Blowdown Flow Control Valves, the next event can begin (will allow Events 1 & 2 to run in parallel, at the discretion of Lead Examiner).</td></tr>
</table>

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T= When directed by the Lead Examiner:	Crew takes the shift.	
OP 3316C, step 4.4.7		
		4.4.6 IF it is desired to shift Steam Generator Blowdown Tank vent path from atmosphere to the fourth point feedwater heaters, PERFORM the following:
	RO acknowledges normal condensate is in service.	**(RO)** a. ENSURE condensate flow through fourth point heaters exists to condense steam from blowdown.
If called as PEO, report 3BDG-V871 is closed.	Valve was reported closed on turnover.	**(RO)** b. CLOSE 3BDG-V871, open cycle vent trap isolation.
If called as PEO, report 3BDG-V872 is closed.	Valve was reported closed on turnover.	**(RO)** c. CLOSE 3BDG-V872, open cycle vent trap isolation.
	RO notes initial demand of 35 to 40%.	**(RO)** d. NOTE initial settings (% demand) on steam generator blowdown flow control valves (MB1): • 3BDG---HIC20A, “SG BLDN FLOW CNTL” “1” • 3BDG---HIC20B, “SG BLDN FLOW CNTL” “2” • 3BDG---HIC20C, “SG BLDN FLOW CNTL” “3” • 3BDG---HIC20D, “SG BLDN FLOW CNTL” “4”

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO slowly closes flow control valves and monitors proper auto operation of the Blowdown Tank Level Control valve (3BDG-LI25).	**(RO)** e. *Slowly* CLOSE the following valves (MB1): • 3BDG---HV20A, "SG BLDN FLOW CNTL" "1" • 3BDG---HV20B, "SG BLDN FLOW CNTL" "2" • 3BDG---HV20C, "SG BLDN FLOW CNTL" "3" • 3BDG---HV20D, "SG BLDN FLOW CNTL" "4"
T= When directed by the Lead Examiner: PROCEED to the next event and allow both Events 1 and 2 to run in parallel.		**(RO)** f. CLOSE the following valves (MB1): • 3BDG*CTV22A, "SG DIS TO BLDN TK" "1" • 3BDG*CTV22B, "SG DIS TO BLDN TK" "2" • 3BDG*CTV22C, "SG DIS TO BLDN TK" "3" • 3BDG*CTV22D, "SG DIS TO BLDN TK" "4"
		(RO) g. CLOSE 3BDG---MOV37, "SG BLOWDOWN" "VENT TO ATM" (MB1).
		(RO) h. OPEN the following valves (MB1): • 3BDG---MOV21A, "TO 4TH PT HTRS VENT" • 3BDG---MOV21B, "TO 4TH PT HTRS VENT" • 3BDG---MOV21C, "TO 4TH PT HTRS VENT"
As PEO, acknowledge request and report: "3BDG---V876 has been closed".		**(RO)** i. CLOSE 3BDG---V876, blowdown tank atmospheric vent isolation (local).

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) j. OPEN the following valves (MB1): • 3BDG*CTV22A, "SG DIS TO BLDN TK" "1" • 3BDG*CTV22B, "SG DIS TO BLDN TK" "2" • 3BDG*CTV22C, "SG DIS TO BLDN TK" "3" • 3BDG*CTV22D, "SG DIS TO BLDN TK" "4"
	RO monitors proper auto operation of the Blowdown Tank Level Control valve (3BDG-LI25).	**(RO)** k. *Slowly* OPEN the following steam generator blowdown flow control valves to their initial positions (% demand) (MB1) to restore blowdown flow: • 3BDG---HIC20A, "SG BLDN FLOW CNTL" "1" • 3BDG---HIC20B, "SG BLDN FLOW CNTL" "2" • 3BDG---HIC20C, "SG BLDN FLOW CNTL" "3" • 3BDG---HIC20D, "SG BLDN FLOW CNTL" "4"
EVENT 2, SG Feed Isolation valve has low accumulator pressure **SRO (TS)**		
T = Lead Examiner Cue **INSERT Trigger 2** (MB5B-A04) Stop Valve B Accum Press Lo		(BOP) Acknowledges annunciator MB 5B 1-4 alarm.
OP 3353.MB5B 1-4 Stop Valve B Accumulator Pressure LO		
		WARNING: General area oxygen levels **must** be greater than 19.5% and CO2 levels **must** be less than 5,000 ppm to allow entrance to the Main Steam Valve Building.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Crew acknowledges notes.	**NOTE:** 1. Normal accumulator pressure is 255 to 275 psig. Closing of a FWIV will cause the accumulator low pressure alarm. At least 234.7 psig accumulator pressure is required for the valve to close in less than five seconds. [Ref. 4.1] 3FWS*CTV41B is *not* OPERABLE if 'B' accumulator pressure is less than 235 psig with the valve open. 2. Pressure switch may *not* auto reset. After testing, I&C support may be required to reset the pressure switch.
	NA. Multiple alarms aren't present.	**(BOP)** 1. IF multiple Stop Valve Accumulator low pressure alarms have been initiated (Windows 1---2, 1---4, 1---6, 1---8) AND are *not* due to an area temperature change, PERFORM the following:
As PEO, acknowledge dispatch to the MSVB 24 ft. elevation.		**(BOP)** 2. SEND Operator to check 'B' accumulator pressure (MSVB 24 ft.).
Call Control Room (as dispatched PEO) and report: "B FWIV accumulator pressure is 230 psig. There are no leaks. The building is abnormally cold".	**US enters Tech Spec:** • **TS 3.6.3.a** (CTMT Isol Valves)	**(US) 3.** IF 'B' accumulator pressure is less than 235 psig, Refer To T/S 3.6.3, "Containment Isolation Valves," and PERFORM applicable action(s).
Acknowlege request to raise accumulator pressure. Wait 3 minutes (using time compression) and performing the following: **1. Modify malfunction**: **MB5B-A04** to **'OFF'** **2. Report:** "I added Nitrogen to 'B' FWIV accumulator per OP 3321 section 4.43. Accumulator pressure is 265 psig and stable".	Crew adds nitrogen to the accumulator and exits TS after alarm clears.	**(BOP)** 4. IF desired, Refer To OP 3321, "Main Feedwater," and RAISE SG Feedwater Line Trip Accumulator pressure.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
EVENT 3, RCS temperature (CH. 1) fails high causing control rods to auto insert **SRO (I / TS) / RO (I, MC) / BOP (I)**		
General Note: **(1) Effects of RCS temperature (CH. 1) failing high:** Loop 1 RTD fails Hi, causing Channel to 1 TAVG to rise. This affects two control systems (w/ only Rod Control requiring immediate actions). A.) Rod Control ckt senses RCS temperature is high and rods will auto insert b.) Pressurizer Level control setpoint fails to it's high clipped value of 64%. Because the plant is at close to 100% power AND 64% pressurizer level, there will be minimal impact to pressurizer level control.		
T= When directed by the Lead Examiner: **INSERT Trigger 3** (RX05_1A to 650F)		**(RO)** Takes Immediate Actions and places Rod Control in manual.
AOP 3581, Immediate Actions		
		(US) 1. Using Appropriate Attachment, **PERFORM Immediate Actions – Attachment A "Uncontrolled Rod Motion"**
	RO Places Rod Control in manual.	**(RO) * A. 1. Check Turbine Runback In Progress** a. **CHECK** the following: • Main Generator MWE - **NOT** AT EXPECTED VALUE • Main Generator MWE – CHANGING **RNO a. PERFORM** the following: 1. **PLACE** Rod Control SEL switch in MAN. 2. **PROCEED TO** step A.2.
	RO verifies Rods stop moving.	**(RO) * A. 2. CHECK Rod Motion - STOPPED**

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO / US determine instrument failure has affected CH. 1 TAVG.	**(RO) A. 3. CHECK Initiating Event - INSTRUMENT FAILURE** • Tavg • Nuclear Instrument • Turbine Impulse Pressure
		(US) A. 4. GO TO AOP 3571, Instrument Failure Response
AOP 3571, Instrument Failure Response		
		(US) Enters Attachment 'A' RCS Narrow Range Temperature Channel Failure
		(RO) A. 1 CHECK Control Rods In - MAN
	RO places 3CHS-FK-121 in Manual.	**(RO) A. 2 PLACE One Of The Following PZR Level Controllers In MAN** • PZR MASTER LVL CONTROL (3RCS-LK459) OR • CHARGING FLOW CONTROL (3CHS-FK-121)
	BOP defeats steam dump operation.	**(BOP) A. 3 PLACE ONE Steam Dump Interlock Selector Switch - OFF** • INTLK-TR A (MSS-N05) • INTLK-TR B (MSS-N06)
	RO defeats control and recorder input for failed Tavg channel.	**(RO) A. 4 DEFEAT Failed Channel Input.** • LOOP TEMP CUTOUT- □T (MB4) • LOOP TEMP CUTOUT-Tavg (MB4) • OT/OP□T Record Select (MB4)
	Annunciators are not lit.	**(RO) A. 5 CHECK The Following Annunciators - NOT LIT:** • TREF/AUCT TAVE DEVIATION (MB4C 6-5) • TAVE HI (MB4C 5-6)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Steam dump demand is at 0%.	**(BOP) A. 6 CHECK Steam Dump Demand Indicator, 3MSS-UI500 (MB5) - INDICATING 0%**
	BOP restores steam dump control function.	**(BOP) A. 7 PLACE Both Steam Dump Interlock Selector Switches – ON** • INTLK-TR A (MSS-N05) • INTLK-TR B (MSS-N06)
	HOLD light is not LIT.	**(BOP) A. 8 CHECK Main Turbine HOLD light - NOT LIT**
		(RO) A. 9 CHECK TAVG – TREF ERROR/DEVIATION - LESS THAN +/-1°F
	RO places Rod Control back to Auto.	**(RO) A.10 Restore Rod Control** **a. CHECK** plant conditions allow - AUTOMATIC ROD CONTROL OPERATION b. **PLACE** Rod Control SEL switch in AUTO
		(RO) A.11 CHECK PZR Level - STABLE AT PROGRAM LEVEL
	RO places 3CHS-FK-121 in Auto when PZR level is restored to program level.	**(RO) A.12 Restore PZR Level Control to Automatic** a. **PLACE** PZR Level Controller selected in step A.2 to AUTO: • PZR MASTER LVL CONTROL (3RCS-LK459) • CHARGING FLOW CONTROL (3CHS-FK-121)
	No. Loop 1 failure.	**(RO) A. CHECK RCS Loop 3 Cold Leg Narrow Range Temperature Channel - AFFECTED BY INSTRUMENT FAILURE** **RNO: PROCEED TO** step A.16.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(US) Trip Associated Reactor Protection System Bistable(s) a. Using Table A.2, **PLACE** a check mark in the box above the channel required to be tripped
	US enters Tech Specs: • **TS 3.3.1** (RX TRIP INSTRU.) **FU 7, Action 6A** • **TS 3.3.1** (RX TRIP INSTRU.) **FU 8, Action 6A** • **TS 3.3.2** (ESF Actuation Instrumentation) **FU 5.d, Action 20** NOTE: FU 9.b, Action 21 is not applicable as Action is for less than Minimum # of channels (which is 3 of 4).	**(US) b. REFER TO** the following Tech Specs for required actions: • TS 3.3.1, Reactor Trip System Instrumentation • TS 3.3.2, Engineered Safety Features Actuation System Instrumentation
		(RO) c. CHECK existing Bistable Status - REACTOR TRIP WILL NOT OCCUR WHEN THE FAILED CHANNEL IS TRIPPED
	Yes. CH. 1 TAVG is not normal.	**(RO) d. CHECK** affected channel indication - **NOT** NORMAL
Bistables will not be tripped. IF I&C is requested, report that two technicians will be made available asap. However, it is likely to take up to an hour for a response. **T= When directed by the Lead Examiner: PROCEED to the next event**		**(US) e. REQUEST** I&C use Table A.2 and ATTACHMENT S to perform the following:

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
EVENT 4, 'B' Heater Drain Pump trips, rapid down power required **SRO (C) / RO (R) / BOP (C)**		
General Note: **(1)** The crew will respond by starting a third condensate pump and bypassing the condensate demins (per ARP). The ARP will then direct a rapid down using AOP 3575 to 92% power. **(2)** If a Main Feed Pump suction pressure lowers to 263 psig for 30 seconds, the associated Main Feed Pump will trip.		
T= When directed by the Lead Examiner: **INSERT Trigger 4 (FW16B)**	(BOP) Announces multiple Feed Pump Low Suction Pressure alarms on MB5 and a Heater Drain Pump Trip Annunciator on MB6.	
ARP MB6A 5-7, HTR DRN PP AUTO TRIP OVERCURRENT		
	US and BOP will need to communicate and understand that FRV's have fully opened and SG's are still being underfed. Success lies with implementing the down power IAW step 4 of the ARP.	**(BOP)** 1. CHECK heater drain pump current and pressure to determine affected heater drain pump (MB6).
	NO	**(BOP)** IF a feedwater heater string is isolated, Go To AOP 3567, "Operation With One Feedwater Heater String Isolated."
	BOP starts the third condensate pump.	**(BOP)** IF any of the following annunciators are lit, START the Standby Condensate Pump:
	Likely, 3CNM-MOV78 is required to be throttled	5. IF annunciator MB6A 2---7, "COND DEMIN DP HI," is lit, THROTTLE open 3CNM---MOV78, "DEMIN BED BYP," to maintain 3CND---PDI20B, Demineralizer Differential Pressure, to less than 65 psid (MB6).
	SG level deviation alarms are likely.	6. IF desired, ADJUST feedwater flow to match steam flow.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	US performs transition brief.	7. IF reactor power is greater than 92% (3,411 MWth), Refer to AOP 3575 and REDUCE reactor power to equal to or less than 92% (1,200 MWe / 3,411 MWth).
AOP 3575, Rapid Downpower		
If called as OMOC: Acknowledge report on 'B' HDL Pp and request down power at a rate of 1% / min.	Crew completes Step 1 / briefing.	**1. Determine The Following:** Final desired MWe: 1200 Load Set Indicated MWe Setting: 1250 Final desire power level: 92% Initial Rate: 1% / min Manual Calc
		(RO) 2. CHECK Rod Control - IN AUTO
	BOP aligns the EHC panel for load set operation.	**(BOP) 3 Align EHC Panel** a. **CHECK** Load reduction using Load Set – DESIRED b. Using ATTACHMENT E, **ALIGN** EHC Panel for Load Set operation
	US proceeds to step 6.	**(US) 4. Determine Power Reduction Rate** **a. CHECK** power reduction rate - 3%/min or 5%/min **RNO a1. IF** power reduction rate is 1%/min, **THEN PROCEED TO** step 6.
	Rods are available in auto. Use of the Rapid Summary Sheet is desired.	**(US / RO) 6. Align RCS Makeup System For Boration** **6a. CHECK** Rod Control – AVAILABLE FOR ROD INSERTION **6b. CHECK** use of Rapid Downpower Summary Sheet (RE-H-17) in the RE Curve and Data Book – DESIRED **6b RNO:** b. **PROCEED TO** step 6.e.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	35.6 gal / % power	**(US / RO) 6e. REFER** to the Monthly Reactivity Data Sheet in the RE Curve and Data Book to **DETERMINE** the Gallons of Boric Acid/%Power Reduction
	21.3 gal (~21 gal)	**(US / RO) 6f. CALCULATE** 60% value of Gallons of Boric Acid/%Power from the Data Sheet for use in step 6.g (___ gals BA/% pwr) x 0.6 =____ gals BA/%pwr
	Total Power Change 5.5% X 21 gal BA % power = 115.5 gal (~116 gal)	**(US / RO) 6g.** Using the formula below, **DETERMINE** boration amount **Total Power Change (%) X ( ) gal BA / % Power = Boration Amount (gallons)**
	RO commences boration of 116 gallons.	**(RO)** **6h. SET** Boric Acid Batch Counter to the boration amount determined **6i. ADJUST** Boric Acid Blend Flow Controller Pot setting to 6.25 (25 gpm) **6j. SELECT** BORATE on Reactor Coolant Makeup Select Switch **6k. SELECT** START on Reactor Coolant Makeup Start switch **6l. CHECK** boric acid flow – INDICATED **6m. PROCEED TO** step 7 **AND WHEN** boration has been performed for the selected amount, **THEN CHECK** Reactor Coolant Makeup boration stops

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	The BOP waits for RCS temperature to decrease then commences 1%/min down power by selecting 1250 MWe on EHC inset (this will provide a target of 1200 MWe).	**(BOP)** **7. Initiate Load Reduction** **7a. CHECK** Turbine OPERATING MODE – MANUAL **7b. CHECK** load reduction- USING LOAD SET **7c. SELECT** LOAD RATE LIMIT %/MIN (1%/MIN, 3%/MIN, or 5%/MIN) **7d. CHECK** RCS Tavg or Rx power- LOWERING RNO: **IF** plant conditions allow, **THEN: WHEN** Tavg **OR** Reactor power change due to boration, **THEN PROCEED TO** step 7.e. **7e REFER** to ATTACHMENT H **AND** Using the LOAD SELECTOR pushbuttons, **ADJUST** LOAD SET to Load Set Indicated MWe setting recorded in step 1
		(RO) 7f. ENERGIZE ALL PZR Heaters **7g. ADJUST** PZR Spray Valves to 50% set point
		(US) 7h. MAINTAIN plant parameters values as listed in ATTACHMENT C **OR** as directed by Operations Management
When the US calls ISO-NE, acknowledge down power report and request a desired MVAR loading of 100 (+/- 50 MVAR).		**(US) 7i. CHECK** power reduction - ISO-NE REQUESTED **RNO NOTIFY** ISO-NE of load reduction rate (MWe/min) and final MWe level.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(US) 7j. CHECK using either of the following to reduce turbine load: • Load Limit • Standby Load Set **RNO: PROCEED TO** step 8 **AND WHEN** actual load is within 200 MWe of the final desired load, **THEN**, **ADJUST** LOAD SET to obtain final desired load **OR** target power level.
		(RO) 8. Check Rod Position Above RIL
Upon reaching final power OR Lead Examiner direction, proceed to the next event.	Desired final down power is unchanged at 92%.	**(US)** **9. Monitor Downpower**
		10. Degrade Condenser Backpressure **a. CHECK** final desired Turbine load (MWe) - LESS THAN 907 MWe **RNO: PROCEED TO** step 14
		(Crew) **14. Monitor Rapid Downpower Parameters**
		(Crew) **15. Check Plant Status**
EVENT 5, Loss of offsite Power, manual actions needed to restore a 4KV Emergency Bus **SRO (C) / BOP (C, MC)** **EVENT 6, SBLOCA develops in ES-0.1, manual actions to start 'A' CHS Pp** **SRO (C) / RO (C, MC)** **EVENT 7, LBLOCA develops in E-0 with status trees in effect. Transition to Functional Recovery Procedures FR-C.2 and FR-Z.1.** **SRO (M), RO (M), BOP (M)**		

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**

General Note(s):

(1) Expectant Procedure Flow path: 1. E-0 (on loss of offsite power / reactor trip) transition to **2. ES-0.1** (SBLOCA occurs) transition back to **3. E-0** with a SBLOCA in progress **4. On LBLOCA, transition to FR-C.2 (status trees in effect) 5. Transition to FR-Z.1** (NOTE: The core cooling barrier is a higher priority and should be addressed before FR-Z.1 – as both status trees will be ORANGE. Due to timing the Containment tree will illuminate Orange first; however, shortly after this Core Cooling tree will illuminate Orange and the crew should address this tree first (once it comes in).

(2) Event 5: Loss of offsite power with manual closure of 'A' EDG output breaker is required to avoid a Station Blackout: A loss of offsite power occurs causing the Reactor to trip. With the Station Blackout (SBO) Diesel tagged out and a mechanical failure of the 'B' EDG (emergency shutdown of engine – 40 second delay), the crew will only have the 'A' EDG available. However, the 'A' EDG output breaker fails to auto close requiring manual actions to restore a 4KV emergency bus (**Critical Task**). Once power is restored to emergency 4kv Bus 34C, transition is made to ES-0.1 (as natural circulation conditions develop).

(3) Event 6: After the crew takes mitigative actions in ES-0.1, a SBLOCA occurs and 'A' CHS pump requires manual start. After taking actions to control RCS Temperature, a SBLOCA occurs (automatically inserted 5 minutes post trip). The crew exercises foldout page criteria for manual SI and transitions back to E-0. No Charging pumps are running. The 'A' Charging pump is available; however, the pump fails to auto start. The RO needs to manually start the pump while in E-0

(3) Event 7: LBLOCA develops in E-0 with status trees in effect. Transition to Functional Recovery Procedures FR-C.2 and FR-Z.1. <u>The booth operator will manually adjust the RCS leak size 13 minutes post trip.</u> The resultant LBLOCA occurs while the crew is in E-0 with status trees in effect (due to second E-0 entry). Transition to Functional Recovery Procedures is required. FR-C.2 will be entered first on low RVLM's plenum level. Exit conditions should be met after step 1. FR-Z.1 will be entered next. With a quench spray pump unavailable, the crew will establish CTMT Spray using a RSS pump aligned to the RWST (**Critical Task**).

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T= When directed by the Lead Examiner: **1. Start a timer (for step 4)** **2. INSERT TRIGGER 5** (EDO1) **3. Monitor for TRIGGER 30 (Rx Trip) to activate automatically** (SBLOCA on a 5 minute delay time to start, RC03A). **4. 13 minutes post Reactor trip, MODIFY** RCS leak size, **RC03A**, **to 8,000** lbm /sec.		**Crew observes reactor trip.** **US Enters E-0.**
E-0, Reactor Trip or Safety Injection		
		(RO) 1. * Check Reactor Trip • **CHECK** Reactor Trip and Bypass Breakers – OPEN • **CHECK** Rod Bottom lights – LIT • **CHECK** Neutron Flux – DECREASING
		(BOP) 2. * Check Turbine Trip a. **CHECK** all Turbine Stop Valves - CLOSED
	BOP determines that 'A' EDG is running without a bus differential and successfully closes the output breaker. **Critical Task** ('B' EDG has an emergency shutdown – mechanical failure)	**(BOP) 3. * Check Power To AC Emergency Busses** a. **CHECK** AC Emergency Busses 34C and 34D - BOTH ENERGIZED **RNO: IF NO** Bus Differential exists (MB8A 4-12 or MB8C 4-2), **THEN ENERGIZE** the affected AC Emergency Buss(es) from associated EDG.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	No Open Phase Condition is present.	**(BOP) 3.b.** Open Phase Condition (OPC)- **NONE** EXISTS: • RSST Open Phase (MB8C 1-8) - **NOT** • Generator Phase Unbalance (MB7C 1-5) - **NOT** LIT • Main XFMR Open Phase (MB7C 2-1) - **NOT** LIT
	Crew determines that SI is not required. After Natural Circulation develops, RCS pressure will lower based on the MSIV's open (and steam trap bypasses are failed open to the main condenser). Timely transition to E-0 will be required to close the MSIV's in ES-0.1.	**(RO) 4. * Check If SI Is Actuated** a. **CHECK** SAFETY INJECTION ACTUATION annunciators, (MB4D 1-6 or MB2B 5-9) – LIT **RNO: a. CHECK** if SI is required: • CTMT Pressure - GREATER THAN 18 psia • PZR Pressure - LESS THAN 1890 psia • PZR Level - LESS THAN 9% • RCS Subcooling - LESS THAN 32°F • SG Pressure - LESS THAN 660 psig **IF** SI is **NOT** required, **THEN INITIATE monitoring** of CSF Status Trees **AND GO TO** ES-0.1, Reactor Trip Response.
ES-0.1, Reactor Trip Response		
	Crew determines MSIV's need to be closed and the Steam Dump Dumps are unavailable.	**(BOP) 1. Check RCS Temperature Control** a. **CHECK** RCPs- ANY RUNNING **RNOa: PERFORM** the following: 1. **IF** Busses 34A and 34B are **NOT** energized, **THEN CLOSE** MSIVs and MSIV Bypass Valves. 2. **IF** the Condenser is available, **THEN PLACE** Condenser Steam Dumps in Steam Pressure Mode as follows:

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	BOP throttles AFW.	**(BOP) 1b. CHECK** Feed Source To SGs - ESTABLISHED **AND** BETWEEN 530 to 600 gpm
		(BOP) 1c CHECK RCS Temperature - AT NO-LOAD VALUE: **IF NO** RCP running - RCS Cold Leg WR Temperature – STABLE AT OR TRENDING TO 557°F 1d. **PROCEED TO** step 1.j
	BOP has atmospheric relief valves available. AFW to the SG's is complicated by 4kv E-bus 34D ('B' train) being de-energized. As such, on the TDAFW pump is available to feed the 'B' & 'C' SG's. The other SG's have a MDAFW and TDAFW pump available to feed / throttle.	**(BOP) 1j. PERFORM** the following to control No-Load RCS Temperature – AT 557°F: • Using GA-26, **DUMP** steam **AND** • **ADJUST** total feed flow while maintaining GREATER THAN 530 gpm until Narrow Range level in at least one SG is GREATER THAN 8%
	Yes open.	**(RO) 2. Check FW Status** a. **CHECK** Reactor Trip and Bypass Breakers - OPEN
	Yes lit.	**(BOP) 2b. CHECK** Annunciator FW ISOLATION BY RX TRIP AND LO T AVG (MB5C 2-1) - LIT
	Yes all valves are closed.	**(RO / BOP) 2c. CHECK** FW isolation: • SG Feed Regulating Valves – CLOSED • SG Feed Regulating Bypass valves – CLOSED • FW Isolation Trip Valves – CLOSED • SG Chemical Feed Isolation Valves - CLOSED
	Yes all valves are closed.	**(RO) 2d. CHECK** SG Blowdown Isolation: SG Blowdown Isolation Valves – CLOSED SG Blowdown Sample Isolation Valves - CLOSED

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	MD FW Pp is stopped. BOP places pump in PTL.	**(BOP) 2e. STOP** the MD FW pump **AND PLACE** control switch in PULL-TO-LOCK
	TD FW Pp's are tripped.	**(BOP) 2f. CHECK** TD FW Pumps- TRIPPED
SBLOCA develops 5 minutes post Rx trip (TRIGGER 30 - Rx Trip) (RC03A).		Crew identifies PZR level is and subcooling are lowering uncontrollably. **US directs** foldout page actions of **manually actuating SI** and **transitions** to **E-0.**
E-0, Reactor Trip or Safety Injection		
	Crew re-enters E-0 starting at step 1. The only major difference now is that status trees are in effect.	**(RO) 1. * Check Reactor Trip** • **CHECK** Reactor Trip and Bypass Breakers – OPEN • **CHECK** Rod Bottom lights – LIT • **CHECK** Neutron Flux – DECREASING
		(BOP) 2. * Check Turbine Trip a. **CHECK** all Turbine Stop Valves - CLOSED
		(BOP) 3. * Check Power To AC Emergency Busses a. **CHECK** AC Emergency Busses 34C and 34D - BOTH ENERGIZED **RNO: IF NO** Bus Differential exists (MB8A 4-12 or MB8C 4-2), **THEN ENERGIZE** the affected AC Emergency Buss(es) from associated EDG.

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 3.b. Open Phase Condition (OPC)- **NONE** EXISTS: • RSST Open Phase (MB8C 1-8) - **NOT** • Generator Phase Unbalance (MB7C 1-5) - **NOT** LIT • Main XFMR Open Phase (MB7C 2-1) - **NOT** LIT
		(RO) 4. * Check If SI Is Actuated a. **CHECK** SAFETY INJECTION ACTUATION annunciators, (MB4D 1-6 or MB2B 5-9) – LIT
		(RO) 5. DETERMINE IF ADVERSE CTMT CONDITIONS EXIST • Ctmt temperature - GREATER THAN 180°F <u>OR</u> • Ctmt radiation - GREATER THAN 105 R/hr **5 RNO.** DO **NOT** USE ADVERSE CTMT Parameters
	RO performs Attachment 'B'. During performance, the RO starts the 'A' Charging Pump.	**(RO) 6. Using** ATTACHMENT B**, Actuation Signal Verification, CHECK Equipment Alignment**
	The 'A' MDAFW Pp and TDAFW Pp are running.	**(BOP) 7. Check AFW Pumps Running** a. MD Pumps – RUNNING b. **Turbine Driven Pump** – RUNNING IF NECESSARY
		(BOP) 8. CHECK AFW Valve Alignment - PROPER EMERGENCY ALIGNMENT

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
REMINDER: 13 minutes post Reactor trip, MODIFY RCS leak size, **RC03A**, **to 8,000** lbm /sec. (LBLOCA)	Shortly after the LBLOCA, orange paths for CORE COOLING & CTMT will come in (as previously discussed). When this occurs, the crew should enter FR-C.2 then FR-Z.1. Remaining steps in E-0 are given as timing may differ between crews. FR-C.2 and FR-Z.1 guidance is provided on subsequent pages.	**(BOP) 9. Check Adequate Heat Sink** a. **CHECK** NR level in at least one SG - GREATER THAN 8% (42% ADVERSE CTMT) b. **CONTROL** feed flow to maintain NR level - BETWEEN 8% and 50% (42% and 50% ADVERSE CTMT) c. **PROCEED TO** step 10
	BOP uses GA-26 to establish RCS temperature control.	**(BOP) 10. Check RCS Temperature** a. Using GA-26, **DUMP** steam to control No-Load RCS Temperature - AT 557°F b. **CHECK** RCS Temperature – AT NO-LOAD VALUE: • **IF ANY** RCP RUNNING - RCS Tavg - STABLE AT OR TRENDING TO 557°F **OR** • **IF NO** RCP RUNNING – RCS COLD LEG WR TEMPERATURE - STABLE AT OR TRENDING TO 557°F **c. PROCEED TO** step 11
	No. SBO is tagged out.	**(BOP) 11. Check Power To SBO Diesel Auxiliaries** a. **CHECK** any SBO Bus Tie Breaker - CLOSED TO AN ENERGIZED BUS • Bus 34A: 34A1-2 • Bus 34B: 34B1-2 • Bus 24E: A505 (Unit 2)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Yes - all PZR Valves are verified to be in their proper position.	**(BOP) 12. Check PZR Valves** **12a. CHECK** PORVs – CLOSED **12b. CHECK** normal PZR Spray Valves – CLOSED **12c. CHECK** PORV Block Valves - AT LEAST ONE ENERGIZED VALVE OPEN **12d. CHECK** PORV Block Valves - ALL ENERGIZED VALVES OPEN **12e. CHECK** PZR Safety Valves - CLOSED
	No RCP's are running with the loss of offsite power.	**(BOP) 13. Check If RCPs Should Be Stopped**
	BOP determines that the SG's are intact.	**(BOP) 14. Check If SG Secondary Boundaries Are Intact** **14a. CHECK** pressure in all SGs: • **NO** SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER • **NO** SG COMPLETELY DEPRESSURIZED
	BOP determines all SG tubes are intact.	**(BOP) 15. Check If SG Tubes Are Intact** a. **CHECK** Steam Generator levels – **NO** SG LEVEL RISING IN AN UNCONTROLLED MANNER b. **CHECK** trend history and alarm status of radiation monitors: • Main Steam Line – NORMAL • Condenser Air Ejector – NORMAL • SG Blowdown – NORMAL

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<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><td></td><td>Crew transitions to E-1.</td><td>(RO) 16. Check RCS Intact
• CHECK CTMT Radiation using 3CMS*RE22 (pre-trip) – NORMAL
• CHECK CTMT Radiation using radiation monitoring group histogram (CTMT) – NORMAL
• CHECK CTMT Pressure – NORMAL
• CHECK CTMT Recirculation Sump Level – NORMAL

RNO: INITIATE monitoring of CSF Status Trees AND GO TO E-1, Loss of Reactor or Secondary Coolant.</td></tr>
<tr><th colspan="3">FR-C.2, Response to Degraded Core Cooling</th></tr>
<tr><td></td><td>CET’s will be 300F and lowering. It’s likely that the RO started the ‘A’ CHS pump while in E-0. Based on meeting these two conditions, the crew exits FR-C.2 and transitions to FR-Z.1.

(NOTE: If the RO didn’t start the ‘A’ CHS pump yet, the crew will stay in FR-C.2, start the pump, perform additional checks, and exit at a later point.)</td><td>(RO) 1. Check Core Cooling

a. CHECK the following:
• Core Exit TCs - LESS THAN 718°F
• ECCS - AT LEAST ONE TRAIN IN OPERATION

b. GO TO procedure and step in effect</td></tr>
<tr><th colspan="3">FR-Z.1, Response to High Containment Pressure</th></tr>
<tr><td></td><td></td><td>(RO) 1. Check Cold Leg Recirculation Criteria
1a. CHECK RWST Level - LESS THAN 520,000 gal
RNO: PROCEED TO step 2 AND IF RWST Level lowers to LESS THAN 520,000 gal, THEN GO TO ES-1.3, Transfer to Cold Leg Recirculation, to align the ECCS system.</td></tr>
</table>

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Yes. Containment pressure is 44 psia and lowering slowly. All pumps are off.	**(RO) 2. Check CDA – REQUIRED** **2a. CHECK** CTMT pressure - GREATER THAN 23 psia **2b. CHECK** annunciator CONTAINMENT DEPRES ACTUATION (MB2B 5-5) – LIT **2c. CHECK** RPCCW pumps - STOPPED: **2d. STOP** all RCPs
	All fans are off.	**(BOP) 2e. CHECK** CAR fans – STOPPED
	All fans are off.	**(BOP) 2f. CHECK** CRDM fans - STOPPED
	Yes. MB2A 5-2 is not lit.	**(RO) 3. Confirm Quench Spray System Operation** **3a. CHECK** annunciator RWST EMPTY QSS PP OFF (69,331 gal) (MB2A 5-2) - **NOT** LIT
	No QSS pumps are available. US proceeds to step 5.	**3b. CHECK** Quench Spray pumps - RUNNING: • 3QSS*P3A • 3QSS*P3B **RNO: START** pumps. **IF NO** QSS pump is running, **THEN PROCEED TO** step 5.
	Due to B' train EDG failure, several 'B' train components are not in their required position. However, minimum safety function is met with 'A' train. Typical NOTE: Only 'A' train components are available for use.	5. **Check CIA** **5a. CHECK** ESF Group 2, columns 2 through 10 - LIT

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RWST volume is greater than 520k gallons, RSS pumps are not running. Proceeds to 6d.	**6. Check Recirculation Spray System Operation** **6a. CHECK** RSS pump Suction Isolation Valves – OPEN 6b. **CHECK** RSS pumps - ANY RUNNING: **RNO: IF** RWST level is GREATER THAN 520,000 gal, **THEN PROCEED TO** step 6.d.
	CTMT sump level is 2 ft. US proceeds to step 7.	**(RO) 6d. CHECK** CTMT WR Sump level - GREATER THAN 7.5 feet • 3RSS*LI22A • 3RSS*LI22B **RNO: PERFORM** the applicable action: • **IF** QSS flow is indicated, **THEN PROCEED TO** step 8 **AND WHEN** CTMT WR Sump level is GREATER THAN 7.5 feet, **THEN RETURN TO** step 6.b. • **IF** QSS flow is **NOT** indicated, **THEN PROCEED TO** Note prior to step 7.
	Based on this note and power availability, the US should select the 'C' RSS Pp.	**NOTE:** The preferred priority for selecting a Recirculation Spray Pump is as follows: 1. Pump C or D 2. Pump A or B
When called as ADTS / CR DSEO, Acknowledge report as state "It is desired to use one RSS Pump from RWST to Spray Containment".	RWST volume is approximately 1 million gallons.	**(RO) 7. Check Establishing Spray Using An RSS Pump From The RWST** **a. CHECK** the following: • RWST level- GREATER THAN 100,000 gal • Quench Spray pumps - NONE RUNNING • ADTS/CR DSEO recommends - USING ONE RSS PUMP FROM RWST TO SPRAY THE CONTAINMENT

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 7b. RESET SI.
		(RO) 7c. DETERMINE the RSS pump to be placed in service:
	Places 'C' RSS pump in PTL.	**(RO) 7d. PLACE** the selected RSS pump in PULL TO LOCK
	Starts 3HVQ*ACUS2A	**(RO) 7e.** For the selected RSS pump, **START** the associated RECIRC SPRAY ACU • 3HVQ*ACUS2A • 3HVQ*ACUS2B
		(RO) 7f. OPEN the RWST recirculation suction valves (MB1) • 3QSS*AOV27 • 3QSS*AOV28
As PEO, acknowledge request to perform Attachment B, *Local Alignment of Recirculation Spray Pump.* (If direction is not clear to only align 'C' RSS Pump, then ask what pump(s) do you want to align?) Using time compression, 3 minutes later REPORT: "'C' RSS Pump is aligned iaw FR-Z.1 Att. B."	4 page Attachment for local actions. Only the 'C' RSS should be aligned locally.	**(RO) 7g.** Using ATTACHMENT B, locally **ALIGN** the selected RSS pump
	RO verifies 3RSS*MV8838A is closed.	**(RO) 7h. CHECK** the selected RSS pump RHR isolation – CLOSED • For pump C: 3RSS*MV8838A • For pump D: 3RSS*MV8838B • For pump A: 3RSS*MV8837A • For pump B: 3RSS*MV8837B
		(RO) 7i. CHECK the selected RSS pump spray header isolation valve – OPEN • 3RSS*P1C: 3RSS*MOV20C

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Yes completed.	**(RO) 7j. CHECK** local system alignment - COMPLETED
	This establishes CTMT Spray using the RWST as a source.	**(RO) 7k. START** the selected RSS pump • 3RSS*P1C
	Minimum safety function (with exception of 'A' QSS Pp) is met with Train 'A'. The 'A' train RSS Pps haven't started per design (RWST vol. is not below 520k gallons) and CCP*MOV49A is a 'B' train component (no power) with a closed, in series penetration valve of 3CCP*MOV48A.	**(RO) 8. CHECK ESF Group 4 Lights – LIT** **RNO: OPERATE** components to align for minimum safety function.
	All valves are closed.	**(BOP) 9. Check Main Steam Line Isolation** • **CHECK** MSIVs and MSIV Bypass Valves – CLOSED • **CHECK** ESF Group 3 lights - LIT
	All valves are closed.	**(BOP) 10. Check Main Feedwater Isolation** • **CHECK** MD FW pump – TRIPPED • **CHECK** TD FW pumps – TRIPPED • **CHECK** FW Isolation Trip Valves – CLOSED • **CHECK** SG Feed Regulating Valves – CLOSED • **CHECK** SG Feed Regulating Bypass Valves – CLOSED • **CHECK** SG Chemical Feed Isolation Valves - CLOSED

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SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		CAUTION **(1)** At least one SG must be maintained available for RCS cooldown. **(2)** If ALL SGs are faulted, then at least 100 gpm feed flow should be maintained to each SG. **(3)** With ALL Steam Generators faulted and total feed flow LESS THAN 530 gpm due to operator action, EOP 35 FR-H.1 should **NOT** be performed.
	While all SG pressures are lowering, it is due to the LOCA and not faulted SG's. The crew should not isolate AFW flow to any SG's and proceed to step 12.	**(BOP) 11. Check Continuing Auxiliary Feedwater Flow To All SGs** **a. CHECK** pressures in all SGs - AT LEAST ONE STABLE OR RISING b. **ISOLATE** AFW flow to Faulted SG(s)
Upon direction of Lead Examiner, PLACE Simulator in FREEZE.	Containment spray is established from 'C' RSS pump. Transition is made back to E-0.	**(RO) 12. Check CTMT Spray Initiation - SUCCESSFUL** **a. CHECK** CTMT spray from at least one source - IN PROGRESS **b**. **GO TO** Procedure And Step In Effect

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SHIFT TURNOVER REPORT

DATE-TIME	PREPARED BY	SHIFT
Today 0515	Unit Supervisor /"NIGHT" Shift	18:00 - 06:00

PLANT STATUS:

Mode:	1	Rx Power:	97.5 %
Megawatts:	Thermal: 3600 MWTH	PZR Pressure:	2250 psia
	Electric: 1267 MWe	RCS T-AVE:	587 deg F
RCS Leakage:	Identified: 0.015 gpm	Core Burnup:	20000 MWD/MTU
	Unidentified: 0.036 gpm	Protected Train/Facility:	**A (Orange)**
Date/Time:	Today 0015	Intake:	**Green**

Active Tracking Records and Action Statements

Equipment/Reason

LCO	Action	Date	Time in LCO	Action Requirement	Time Left
3.6.2.1	**3QSS*P3A inop**	**today**	**4 hours**	**Restore**	**68 hours**

OD Compensatory Actions / Temp Logs

Open Date	Class Reason	Reason	Watch Position

PLANT SYSTEMS APC

System	Notes
QSS	3QSS*P3A is tagged out to repair an oil leak. Pump is expected back in 12 hours.
SBO	Tagged out for computer repair. SBO Diesel is expected back in 24 hours.

CROSS UNIT SYSTEM STATUS

SURVEILLANCES / EVOLUTIONS IN PROGRESS

BDG	The blowdown tank vent path is aligned to the atmosphere per Chemistry request. Chemistry now requests re-aligning the blowdown tank vent path to the fourth point feedwater heaters. See attached copy of OP 3316C, step 4.4.7. 3BDG-V871 and 3BDG-V872 are closed.
LEFM	OOS for calibration. Calorimetric is selected to Feed Flow (venturis). TRM 3.3.5 (limit power below 3650 MWth).

REACTIVITY BRIEFING (SEE REACTIVITY THUMBRULES / SPREAD SHEET FOR ADDITIONAL INFO)

Current Rod Height	218	
Xenon Trend	Stable	
Current Boron	142	
Boron Pot Setting / Blend Ratio	0.41 / 1.6 gpm	
Plant Risk	LERF 1.06 ACT: 1 year	CDF 4.15 ACT: 46.9 days

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REFERENCE MATERIAL		
Session No.: NRC-03		
Reference No.	**Revision**	**# Copies**
ARP's		
MB5B 1-4		**2**
MB5A 3-2, 3-6		**2**
MB5C 3-4		**2**
MB6A 5-7		**2**
OTHER – RO Station		
OTHER– BOP Station		
OP 3316C	**28**	**N/A**
US Desk Procedures		
AOP 3571	**18**	**N/A**
AOP 3575	**30**	**N/A**
AOP 3581	**9**	**N/A**
E-0	**36**	**N/A**
ES-0.1	**32**	**N/A**
E-1	**27**	**N/A**
FR-C.2	**17**	**N/A**
FR-Z.1	**18**	**N/A**

SITE:	**Millstone Power Station**	
PROGRAM:	**Unit 3 ILT**	
COURSE:	**N/A**	
EXAM TITLE:	**NRC SIM EXAM 4**	**EXAM #: 2K23 NRC-04**
Total Time	**100 Minutes**	

Prepared by:	William M. Forrestt	Signature on file	6/7/23
	Printed Name	Developer Signature	Date
Reviewed by:	Tom Brown	Signature on file	6/8/23
	Printed Name	Operations Tech Review Signature	Date
Approved by:	Angelo Leone	Signature on file	6/12/23
	Printed Name	Facility Review Signature	Date

SEG#_2K23 NRC-04_ Rev ; __0__

SUMMARY OF CHANGES

DATE	DESCRIPTION	REV/CHANGE
6/7/23	Original issue.	0

SEG# 2K23 NRC-04 Rev ; 0

Facility: Millstone 3 Scenario #.: 4
Scenario Source.: New Op. Test # 2K23 NRC-04
Examiners: ________ Operators: ________

Initial Conditions: The plant is 26% power (BOL) with the plant being returned to full power following a forced shutdown. Xenon is slowly building in.

Turnover: The following equipment is Out-Of-Service: The 'B' Condensate Pump is out of service for a thrust bearing replacement. The 'C' CCP heat exchanger is out of service to repair a tube leak.

Critical Tasks: 1.) Isolate feedwater flow into and steam flow from the ruptured SG 2.) Control initial RCS cooldown

Event No.	Malf. No	Event Type*	Event Description
1	-	R - RO N - BOP N - SRO	Restore rod control and steam dumps systems iaw OP 3203, "Plant Startup". Raise reactor power to 30%.
2	CV04B	I, MC – RO I - SRO	Letdown heat exchanger outlet temperature instrument, 3CHS-TE130, fails low
3	-	TS–SRO	3CCI*P1A, SI PP 'A' COOLING PP, becomes inoperable
4	RX12P	I, MC - BOP I, TS - SRO	'D' SG level instrument drifts low and fails as-is
5	SG01A	C – RO C - SRO	'A' SG develops a 30 gpm tube leak
6	SG01A	M – RO M – BOP M - SRO	'A' SG tube leak becomes a 300 gpm rupture (CT1, CT2)
7	SI07B	C – RO C - SRO	'B' SIH Pump fails to auto start (Man start available)
8	MS12A	C – BOP C - SRO	'A' MSIV stuck open, requires alternate isolation of 'A' SG (CT1)

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

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EXAM OVERVIEW

Millstone 2023 NRC Scenario 4

The plant is 26% power (BOL) with the plant being returned to full power following a refueling outage. Xenon is slowly building in.

The following equipment is Out-Of-Service: The 'B' Condensate Pump is out of service for a thrust bearing replacement. The 'C' CCP heat exchanger is out of service to repair a tube leak.

The crew will take the watch and perform actions of OP 3203, "*Plant Startup*". Actions include placing rod control in automatic and placing the steam dump controllers in Tavg mode. Following this, the crew will begin a planned power increase to 30% power.

Following this, a letdown temperature instrument fails low causing CCP flow to the Letdown HX to modulate closed. This raises actual letdown temperature. The crew responds using ARP (MB3A 5-5, Letdown HX Out Temp Hi) to control letdown temperature manually using diverse indications. If letdown temperature reaches 134 F, letdown flow will automatically bypass the letdown demins and this would need to be re-aligned.

Subsequently, a Plant Equipment Operator reports an oil leak on 3CCI*P1A, Safety Injection Pp 'A' Cooling Pump. On the field report, the US should determine that oil leak renders 3SIH*P1A, 'A' Safety Injection Pump inoperable. The crew should place 'A' Safety Injection Pump in Pull to Lock (3CCI*P1A does not have a pull to lock position available). US should enter TS 3.5.2, "ECCS Subsystems" and TRM 7.4, "Fire Related Safe Shutdown Components".

Then a controlling SG level instrument channel drifts low and fails as –is. This failure causes the 'D' Feedwater Regulating Valve (FRV) to modulate open, resulting in a SG overfeed event. The RO implements AOP 3581, "*Immediate Actions"*, and places 'D' FRV in manual. The US transitions to AOP 3571, "*Instrument Failure Response"*, to restore feed water control to auto and address the failed instrument. The Unit Supervisor will enter TS 3.3.1, "Reactor Trip Instrumentation" and TS 3.3.2.b, "ESFAS Instrumentation".

Following this, a 30 gpm tube leak develops on the 'A' Steam Generator. Because of the low power, the N16 radmonitors are not operational. The crew will not be able to determine the affected SG but they will implement actions of AOP 3576, *SG Tube Leak*, to determine the leak rate and minimize contamination. After these actions are complete, the tube ruptures creating a 300 gpm RCS leak. The crew will need to trip the Reactor and initiate Safety Injection and enter E-0, "Reactor Trip or Safety Injection".

From E-0, the crew will transition to E-3, *SG Tube Rupture*. During event response, 'B' SIH Pump fails to automatically start. Because 'A' SIH pump is in PTL (from earlier cooling pump oil leak), the RO needs to manually start the 'B' SIH pump. Additionally, 'A' MSIV fails to close complicating the recovery and requiring use of Attachment 'A' to complete isolation. The crew will stop feeding the ruptured 'A' SG and isolate the ruptured it from the other SG's (**Critical Task**). Then the crew establish and maintain the necessary subcooling (**Critical Task**) followed by RCS depressurization and terminating ECCS.

The scenario will terminate following completion of Step 20, *Stop ECCS Pumps*, of E-3.

CRITICAL TASKS

CT1. TITLE: Isolate feedwater flow into and steam flow from the ruptured SG.

A. INITIATING CUE: The reactor will trip and Safety Injection will actuate. Post trip high radiation levels on multiple radiation detectors alert the Operator of a SG tube rupture. Determination of the specific ‘A’ SG must be made on increasing SG levels (when compared to other SG levels).

B. PERFORMANCE FEEDBACK: Isolation of aux feedwater to ‘A’ SG will lower the SG’s level rate of rise and the operator will observe AFW flow going to zero gpm. Isolation of steam flow paths will initially be made based on controller positioning. Subsequently, the crew will receive feedback on effective isolation when the ‘A’ SG pressure doesn’t lower when a plant cooldown is initiated using the unaffected SG’s.

C. SUCCESS PATH: Proper execution of E-3 steps 3 and 4 (including use of RNO actions) will accomplish this task.

D. **MEASURABLE PERFORMANCE STANDARD:** NOTE: **AFW flow and Steam paths are separated below.**

i. . **<u>Expected actions:</u> a) Isolate Aux Feed Water flow to the ‘A’ SG.**

ii. **<u>Boundary conditions</u>**: a) Because of a low power Rx Trip (with little SG shrink), SG levels will be ~25 – 30% Narrow Range immediately post trip. **The operator must isolate AFW to the ‘A’ SG prior to the post trip ‘A’ NR SG level rising additional 22% (from post trip levels).** This value is consistent with a band used in MP3 Credited Operator Actions (8% - 30% NR level). This is a reasonable amount of time to allow the operator / crew to diagnose and take actions. Limiting feed flow is essential to ensuring SG overflow doesn’t occur. SG overflow into the Main Steam piping would cause an increased rad release and complicate recovery.

i. . **<u>Expected actions:</u> b) Isolate Steam flow from ‘A’ SG**. Specifically, close the following valves:

- **3MSS*MOV17A**
- **3DTM*AOV29A**
- **3DTM*AOV61A**
- **3DTM*AOV63A**
- **3DTM*AOV64A**
- **MSS*CTV27B**
- **MSS*CTV27C**
- **MSS*CTV27D**

ii. **<u>Boundary conditions:</u>** The operator provides steam isolation thereby preventing depressurization of the ruptured SG. **If steam isolation is not accomplished and a subsequent cooldown causes required transition to ECA-3.1, this task will not be met.**

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP “ERG Rev. 3 Based Critical Tasks”. The CT-18 “Isolate ruptured SG” discussion includes: “Failure to isolate the ruptured SG causes a loss of differential pressure between the ruptured SG and the intact SGs. The fact that the crew allows the differential pressure to dissipate and, as a result, are then forced to transition to a contingency ERG constitutes:

- An incorrect performance that “necessitates the crew taking compensating actions that would complicate the even mitigation strategy” AND
- A “significant reduction of safety margin beyond that irreparably introduced by the scenario”.

CT2. TITLE: Control initial RCS cooldown
A.. INITIATING CUE: Step 6 of E-3 “Initiate RCS Cooldown” provides the necessary cue to determine, achieve, and maintain the required cooldown.

B. PERFORMANCE FEEDBACK: The B, C & D Atmospheric Relief Valves or Atmospheric Relief Bypass Valves will be used to achieve and maintain the cooldown. Controller indications, SG pressures, RCS temperatures and Steam flows are all feedback indications available to the operator.

C. SUCCESS PATH: Proper execution of E-3 step 6 will accomplish this task.

D. MEASURABLE PERFORMANCE STANDARD:

i. . **Expected actions: Establish / maintain an RCS temperature** using either

‘B’, ‘C’ & ‘D’ Atmospheric Relief Valves OR

‘B’, ‘C’ & ‘D’ Atmospheric Relief Bypass Valves

ii. **Boundary conditions:** RCS temperature is controlled to **prevent EITHER** of the following undesired procedure transitions:

- **Transition to ECA-3.1 (based on inadequate subcooling) OR**
- **Transition to FR-P.1 (based on excessive subcooling causing a red or orange path on the integrity status tree)**

E. OVERALL SAFETY SIGNIFICANCE: This task is derived from Westinghouse PWROG-14043-NP “ERG Rev. 3 Based Critical Tasks”. The CT-19 discussion includes “Failure to achieve the required RCS subcooling results in a condition that forces the crew to transition to contingency procedure, ECA-3.1. While terminating the cooldown too late challenges either the subcriticality CSF or the integrity CSF. Failure to establish or maintain subcooling would require the crew to take compsensating action that would complicate the event mitigation strategy.

NOTE: In addition to the above critical tasks, there may be additional critical tasks created by crew performance. *"Per NUREG-1021, ES-3.3, if an applicant’s actions or inactions create a challenge to plant safety, those actions or inactions may form the basis for a Critical Task identified in the post scenario review.”*

ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
INPUT SUMMARY						
RESET SIMULATOR TO IC–94						
THEN **VERIFY** the following functions:						
MALFUNCTIONS						
CV04B	LTDN TRANS FAIL TE130	2		1 min.		0% (50F)
SI07B	SI PUMP AUTO START FAILURE					
SG01A	S/G ‘A’ TUBE RUPTURE	5				30 gpm
MS12A	MS ISO VALVE CTV27A STUCK OPEN					
RX12P	SG Level LT554 Fail	4		1 min.		44%
REMOTE FUNCTIONS						
FWR33	COND DRAW-OFF BYP VV (V11)	11	6 min			CLOSE
FWR62	COND DRAW-OFF INLET VV (V9)	11	6 min			CLOSE
RCR 23 thru 26	RCP HOT / COLD SWITCHES	12				COLD

INPUT SUMMARY						
RESET SIMULATOR TO IC–94						
THEN **VERIFY** the following functions:						
ID	Description	Event Trigger	Delay Time	Ramp Time	Delete Time	Severity Or Value
OVERRIDES						

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><td colspan="2">❑ COMPLETE Simulator Setup and Readiness Checklist.
❑ SELECT appropriate IC: IC-94, 26% power, BOL, password “Coral7!”
❑ VERIFY the following Initial Malfunctions / I/Os / Remote Functions, as specified on previous ‘Input Summary’ page.
❑ When the simulator is ready, PLACE to Run and VERIFY the simulator reflects the following Initial Conditions for the scenario and is stable.
❑ As necessary, REMOVE the following Equipment from service and tag accordingly:
▪ The ‘C’ CCP heat exchanger is out of service for tube leak repair. Ensure the ‘C’ CCP pump control switches (both trains) are both:
1. Pull to Lock (both trains)
2. YCT hung (both trains)
▪ The ‘B’ Condensate Pump is OOS for a thrust bearing replacement. Ensure the ‘B’ Condensate Pump control switch is both:
1. Pull to Lock
2. YCT hung</td><td>N/A</td></tr>
<tr><td>• CONDUCT briefing with evaluators.</td><td colspan="2">PRE-SCENARIO:
❑ BRIEF the crew initial plant conditions and provide a shift turnover.</td></tr>
<tr><td></td><td></td><td>(All) Walk down control boards and conduct shift briefing.</td></tr>
</table>

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
EVENT 1, *Plant Startup 26% – 30% power* **US (N) / RO (R) / BOP (N)**		
General Note(s): **1.) <u>Allow crew to brief this power manipulation before entering the simulator:</u>** The examinees should be given the following information in the briefing room: (a) Turnover sheet (includes Rx Plan) attached to back of guide (b) Marked up copy of OP 3203 (c) The following turnover: OP 3203, *Plant Startup,* is in **progress** and complete up through step 4.3.64. The US should facilitate a brief of the evolution prior to taking the shift. **Because Xenon is building in, ensure the crew is ready prior to placing the simulator in RUN.** (2) <u>Crew direction:</u> Complete steps 4.3.65 and 4.3.66 of OP3203 and then raise reactor power from 26% to 30% in accordance with step 4.3.69 and attached reactivity plan (back of guide). Once at 30% power, hold power stable. (3) <u>Other Parameter bands are found in OP 3203, 3.1.2:</u> Tavg: within 4_F of program, *not* to exceed 589.5_F (Attachment 1, "Temperature vs. Thermal Power") PZR Level: within 5% of program (Attachment 2, "Pressurizer Level vs. TAVG") PZR Press: 2,225 – 2,275 psia SG NR Lvl: 45 – 55% **2.) <u>Power increase methodology:</u>** Per the attached reactivity plan, the RO will use a combination of control rods in manual and dilutions to support raising power. The BOP will use load limit and Attachment 4 of OP 3203 to make the necessary adjustments to turbine load.		
T= When directed by the Lead Examiner: **PLACE SIMULATOR in RUN**	Crew takes the shift.	
OP 3203, Plant Startup		
		(RO) 4.3.65 SHIFT rod control to automatic mode as follows: a. ENSURE TAVG within 1F of TREF. b. PLACE "ROD DRIVE" "SEL" switch in "AUTO" (MB4).

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 4.3.66 SHIFT steam dump controllers to TAVG mode as follows: a. ENSURE 3MSS---UI 500, “DEMAND,” at 0% (MB5).
		(BOP) b. CHECK the following blue “PERMISSIVE STATUS” lights: • MB4D 5---6, “CONDENSER AVAIL FOR STM DUMP C---9,” lit • MB4D 5---7, “TURB BYPASS VV TRIPPED OPEN,” *not* lit • MB4D 6---7, “TURB BYPASS VV ARM FOR OPENING,” lit
	C-7 is not lit.	**(BOP)** c. IF blue “PERMISSIVE STATUS” light MB4D 6---6, “TURB LOAD REJECTION ARM C---7,” is lit, PERFORM the following:
		(BOP) d. PLACE 3MSS---N07, “MODE SEL,” switch in “TAVG” (MB5).
	Yes, alarm clears.	**(BOP)** e. CHECK blue “PERMISSIVE STATUS” light MB4D 6---7, “TURB BYPASS VV ARM FOR OPENING,” *not* lit.
	3CNM---PV99 strokes closed.	**(BOP)** f. ENSURE 3CNM---PV99, “DE---SUPERHEAT SPRAY CNTL,” closed (MB6).
	MB4C 6---8 is not lit.	**(US)** 4.3.67 IF annunciator MB4C 6---8, “AMSAC TROUBLE/BYPASS,” is lit AND AMSAC has been bypassed or out of service for at least twelve hours, REQUEST I&C Department perform SP 3446C11, “AMSAC Operability Test,” while continuing with startup.
		(US) 4.3.68 IF desired to reduce power, Go To OP 3206, “Plant Shutdown.”
		(US) CAUTION: When turbine load is less than 325 MWe, power increases should be limited to between 1 and 3 MWe per minute to minimize the chance of turbine rubbing.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Crew commences power increase to 30% per reactivity plan.	**(US)** 4.3.69 Before reactor power exceeds 30%, STOP power increase and PERFORM a heat balance as follows: a. STABILIZE reactor power. b. Refer To SP 31002, “Plant Calorimetric,” and PERFORM a heat balance calculation to adjust nuclear instrumentation.
OP 3203, Att. 4 Turbine Generator Load Adjustments Using Load Limit		
	This Attachment is “Information” Level of Use. The BOP may refer to for turbine load adjustments.	**(BOP)** 1. DETERMINE magnitude and direction of required turbine load adjustment.
		(BOP) 2. ENSURE Reactor Thermal Power and Temperature can support expected load change.
		(BOP) 3. CHECK the following indications to ensure Main Turbine on “Load Limit” (MB7, EHC Insert Panel): • “LOAD MONITORING” “AT SET LOAD” light, lit • “LOAD LIMIT LIMITING” light, lit • “LOAD RATE LIMIT %/MIN” lights, *not* lit
		(BOP) 4. ADJUST “LOAD LIMIT SET” knob to increase or decrease turbine load (MB7, EHC Insert Panel).
		(BOP) 5. IF turbine load was increased, PRESS and HOLD “LOAD SELECTOR” “INCREASE LOAD” pushbutton until “LOAD SET” indicator stops increasing (MB7, EHC Insert Panel).
		(BOP) 6. ENSURE “STANDBY LOAD SET” matched (MB7, EHC Insert Panel).

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) 7. MONITOR the following plant indications: • "LOAD MONITORING" "AT SET LOAD" light, lit • Reactor Thermal Power • "GENERATOR OUTPUT" "MW" • TAVG, TAVG---TREF deviation • Turbine 1st Stage Pressures • Turbine Control Valve positions
OP 3304C Section 4.10 Aligning for Frequent Dilutions During Power Changes and/or Xenon Concentration Changes		
		(RO) 4.10.1 IF at any time VCT level decreases unexpectedly, Go To step 4.10.13.
		(RO) 4.10.2 PLACE "REAC CLNT MAKEUP START SW" in "STOP."
		(RO) 4.10.3 PLACE "REAC CLNT MAKEUP SELECT SW" in "DILUTE."
		(RO) 4.10.4 DETERMINE the quantity AND flow rate of dilution water to be added for the desired boron concentration reduction using one of the following: Approved Reactivity Plan
		(RO) 4.10.5 IF necessary, ADJUST 3CHS-FK111, "TOTAL MAKEUP FLOW CONT," to provide flow rate determined in step 4.10.4 by applying the following formula: 3CHS–FK111 pot setting = Required primary water flow x 10 turn / 160 gpm
		(RO) 4.10.6 At 3CHS- FY111B, "PRI WTR" BATCH" counter, SET preset quantity to desired value.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 4.10.7 PLACE “REAC CLNT MAKEUP START SW” in “START.”
		(RO) 4.10.8 ENSURE the following counters reset to “0”: • CHS- FY110B, “BORIC ACID” “BATCH” counter • 3CHS- FY111B, “PRI WTR” “BATCH” counter
		(RO) 4.10.9 During the dilution, PERFORM the following: • MONITOR reactor power, Tave, and dilution flow rate, and IF necessary, ADJUST dilution flow rate per step 4.10.5. • MONITOR VCT level and PLACE 3CHS*LCV112A, “L/D DIVERT,” to “GWS” and RETURN to “AUTO,” as necessary, to maintain desired VCT level below 66%.
		(RO) 4.10.10 WHEN the dilution operation has been completed, ENSURE the following: • 3CHS*FCV111A, “PRI WTR SPLY VV TO BLENDER,” closed • 3CHS*FCV111B, “MAKE- UP TO VCT,” closed • 3CHS*LCV112A, “L/D DIVERT,” in “AUTO”
		(RO) 4.10.11 IF the reactor coolant boron concentration decreased by 50 ppm or greater, Refer To OP 3301G, “Pressurizer Pressure Control,” and PERFORM steps to equalize RCS and Pressurizer boron concentration.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
At the direction of the Lead Examiner, proceed to the next event.		**(RO)** 4.10.12 IF additional frequent dilutions are desired during the current shift, Go To step 4.10.4.

EVENT 2, CHS-TE130 Fails High
US (I) / RO (I, MC)

General Note(s):

1.) Letdown heat exchanger outlet temperature transmitter failure causes TCV to modulate closed raising letdown temperature: CHS-TE130 will fail low causing CCP flow to the Letdown HX to modulate closed raising actual letdown temperature. The crew will respond with the appropriate ARP (MB3A 5-5, Letdown HX Out Temp Hi) to control letdown temperature manually using diverse indications. If letdown temperature reaches 134 F (as measured by redundant TE129), letdown flow will automatically bypass the letdown demins.

2.) The following annunciators / diverse indications are available to the crew:

- Annunciators: MB3A 5-5 LETDOWN HX OUT TEMP HI at 120 F.
- Controller indications: CHS-TI130 (failed instrument) & CHS-TK130 output (normally ~78% output/ failure causes valve to close with 100% output) (MB3)
- VCT outlet temperature CHS-T116 (MB3)
- CHS-TCV129 position (MB3) (will auto divert if actual letdown temp goes above 134 F)
- Component Cooling Water Flow Indications on computer (CVCCPTRA CCP Train A Total Flow & CCP- F15A* A RPCCW CTMT Header Flow)

3.) Expected Crew Response: It's expected that the US will implement direction in ARP: MB3A 5-5 LETDOWN HX OUT TEMP HI to take manual control of letdown temperature and re-align letdown flow (thru the demins, as needed).

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T = Lead Examiner Cue **Trigger 2** **CV04B** CHS-TE130 fails low	As needed discuss parameters to be checked to diagnose failure • CHS-TI130 • CHS-TK130 output • VCT temperature • CHS-TCV129 position • CHS-II116	**RO** reports L/D HX Temp Hi alarm and CHS-TK130 indications. RO requests permission to take manual control of CHS-TK130. **US** directs RO to take manual control of CHS-TK130 and restore output to original value. **RO** takes manual control and restores output to ≈ 78% output.
ARP MB3A 5-5, **LETDOWN HX OUT TEMP HI**		
	RO notes that CHS-TI130 indicates low and 3CHS-TIC130 has modulated closed.	**US** refer to ARP MB3A 5-5. 1. CHECK 3CHS*TI130, letdown heat exchanger outlet temperature (MB3), to confirm alarm.
		2. IF temperature is greater than 134° F, ENSURE CHS*TCV129, "L/D DIVERT" has bypassed demineralizers by placing the control switch to "VCT."
		NOTE: If an alarm is caused by an instrument failure, the following diverse indications can be used when manually controlling Letdown HX Outlet temperature: • CHS- T116 VCT Outlet Temperature • CVCCPTRA CCP Train A Total Flow • CCP- F15A* A RPCCW CTMT Header Flow
	RO takes manual control and uses diverse indications (VCT Temp, CCP Flows & previous controller output) to restore cooling flow to the Letdown HX (See General Note 2 for available indications).	3. IF directed by SM/US, PLACE 3CHS*TK130, letdown heat exchanger component cooling water temperature controller (MB3), in "MANUAL," and REDUCE letdown temperature to less than 115°F.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Provided RO takes prompt actions, 150 F letdown temperature shouldn't be reached.	4. IF 3CHS- TI 130, letdown temperature (MB3), increases to greater than 150_F, CLOSE the following letdown orifice isolation valves (MB3): • 3CHS*AV8149A • 3CHS*AV8149B • 3CHS*AV8149C
	This is not applicable. Using diverse indications, letdown temperature can be controlled manually.	5. IF 3CHS*TI 130, letdown temperature (MB3), cannot be reduced to less than 134_F, Refer To OP 3304A, "Charging and Letdown," and PERFORM section for Isolating Letdown While Supplying Seal Injection at Normal Operating Pressure.
If Chemistry is called, Acknowledge report and state: "Momentarily going above 134 F will not cause demineralizer bed damage. The letdown demineralizer may be placed back in service."		6. NOTIFY Chemistry of current Letdown and demineralizer configuration and REQUEST Chemistry to evaluate restoring demineralizer operation.
		NOTE: To restore demineralizer to operation, the control switch needs to held in "DEMIN" to allow full repositioning of valve or it will be released to AUTO and return to closed.
		7. IF desired to restore demineralizer operation, PERFORM the following: 7.1 PLACE and HOLD 3CHS*TCV129 "LID Divert" control switch in "DEMIN" until AOV fully strokes. 7.2 RELEASE to "AUTO."
At the direction of the Lead Examiner, proceed to the next event.	Depending on the crew's response time, this may be unnecessary.	8. WHEN 3CHS*TI 130, is less than 134_F, and it is desired to restore demineralizer operation, momentarily PLACE 3CHS*TCV129, "L/D DIVERT," control switch in "DEMIN," and allow to spring return to "AUTO."

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><td colspan="3">EVENT 3, 3CCI*P1A, SI PP ‘A’ COOLING PP, oil leak reported
US (TS)</td></tr>
<tr><td colspan="3">General Note(s):
1.) On the field report, the US should determine that oil leak on 3CCI*P1A, Safety Injection Pp ‘A’ Cooling Pump, renders 3SIH*P1A, ‘A’ Safety Injection Pump inoperable. The crew should place ‘A’ Safety Injection Pump in Pull to Lock (3CCI*P1A does not have a pull to lock position available). US should enter the appropriate Tech Specs.</td></tr>
<tr><td>As Radwaste PEO call Control Room and REPORT: “There is oil on the floor under 3CCI*P1A and the bubbler is empty. I have contained all the oil.”</td><td></td><td>RO acknowledges field report.</td></tr>
<tr><td>At the direction of the Lead Examiner, proceed to the next event.</td><td>US enters Tech Specs:
• TS 3.5.2 Action a
• TRM 7.4.1
○ Action f.1
○ Action f.3
○ Action i.1</td><td>(US) Enters associated Tech Specs and directs the RO to place the ‘A’ Safety Injection Pump, 3SIH*P1A, in “Pull To Lock.”</td></tr>
<tr><td colspan="3">EVENT 4, ‘D’ Steam Generator level transmitter fails to 44%
US (I, TS) / BOP (I, MC)</td></tr>
<tr><td colspan="3">General Note(s):
(1) <u>Controlling NR Level instrument fails to 44% & requires manual control:</u> This failure will cause the ‘D’ Feedwater Regulating Valve (FRV) to modulate open, resulting in a SG overfeed event. In response to this, the BOP performs immediate operator actions (AOP 3581) and takes manual control of the ‘D’ FRV. Because only two NR level channels are on MB5, the RO should provide backup with alternate NR level indications on MB2. The US transitions to AOP 3571, Instrument Failure Response, to restore feed water control to auto and address the failed instrument.
(2) <u>AOP 3581 is written for power levels above 30% power:</u> Using AOP 3581 at other power requires a step by step evaluation to determine if a specified action is still applicable in the current plant condition.</td></tr>
</table>

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
T = Lead Examiner Cue **Trigger 4** (RX12P)		**(BOP)** Identifies 'D' SG Level transmitter has failed slightly low, 44%. BOP takes Immediate Operator Actions by placing 'D' FRV in manual.
AOP 3581, *Immediate Actions*		
	BOP takes manual control of the 'D' FRV and restores SG level to 50%.	**(BOP) B. 1 CHECK Steam Generator Narrow Range Level - STABLE AT 50%** **RNO: IF** SG Level is changing in an uncontrolled manner, **THEN PERFORM** the following: a. As necessary, **SHIFT** affected SG Feedwater Flow Control to **MAN** and **THROTTLE** affected SG Feedwater Flow Control Valve to maintain SG narrow range level stable between 45% and 55%: o 3FWS-FK540 for SG D
	Main Feed Pump(s) (MFP) are operating properly.	**(BOP) B. 2 Check Main Feedwater Pump Status:** **a. CHECK** Reactor Power - GREATER THAN 50% **b. CHECK** two Main Feedwater Pumps: **c. CHECK ALL** Running Feedwater Pumps- OPERATING PROPERLY
	Suction Pressure is stable.	**(BOP) B. 3 Check Main Feedwater Pump Suction Pressure:**
	Demin DP Hi shouldn't be lit.	**(BOP) B. 4 CHECK COND DEMIN DP HI (MB6A 2-7) – LIT** **RNO: Proceed to B.6**

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) B. 6 CHECK Initiating Event - ANY LISTED INSTRUMENT FAILURE • SG Narrow Range Level
		(US) B. 7 GO TO AOP 3571, Instrument Failure Response
AOP 3571, *Instrument Failure Response*		
	US Proceeds to Attachment N, Narrow Range SG Level Channel Failure	**(US) 1. PROCEED TO** the Appropriate Attachment, AND PERFORM Corrective Actions
	BOP identifies failure of 3FWS-LT554.	**(BOP) N.1 CHECK** Failed NR Level Channel Is Selected As **Input To SG Level Control**
		(BOP) N.2 CHECK Affected, In-Service, Steam Generator Feed Controller In – MAN • SG Feed Reg Valve Controller
		(BOP) N.3 THROTTLE Affected, In-service, SG Feed Flow Valve OR Feed Bypass Level Control Valve To Maintain SG Narrow Range Level – STABLE BETWEEN **45% And 55% (Target 50%)**
	BOP selects Ch. 2.	**(BOP) N.4 DEFEAT** Failed Channel Input By Selecting Alternate Channel On Level Selector LVL SEL (SG4) (MB5) 3FWS-LS549C
		(BOP) N.5 CHECK Affected SG NR Level - STABLE AT 50%
	BOP places 'D' FRV in Auto.	**(BOP) N.6 PLACE** Affected In-service SG Feed Flow Controller OR Feed Bypass Level **Controller In – AUTO** • STM GEN 4 FW FLOW CONT (3FWS-FK540)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(US) N.7 Trip Associated Reactor Protection System Bistable(s) **a.** Using Table N.1, **PLACE** a check mark in the box above the channel required to be tripped
	US enters Tech Specs: • **TS 3.3.1** (Rx Trip INSTRU) **FU 13, Action 6A** • **TS 3.3.2.b** (ESFAS INSTRU) **FU 5.b & FU 6.c, Action 20A**	**(US) N.7b REFER TO** the following Tech Specs for required actions • TS 3.3.1, Reactor Trip System Instrumentation • TS 3.3.2, Engineered Safety Features Actuation System Instrumentation • TS 3.3.3.5, Remote Shutdown Instrumentation • TS 3.3.3.6, Accident Monitoring Instrumentation
At the direction of the Lead Examiner, proceed to the next event.	RO performs bistable lamp check and reports a Rx trip will NOT occur when the bistables are tripped.	**(RO) N.7c CHECK** existing bistable status to ensure a Reactor trip will **NOT** occur when the failed channel is tripped.
	BOP determines the channel indication is not normal.	**(BOP) N.7d CHECK** affected channel indication - **NOT** NORMAL
		(US) N.7e REQUEST I&C use Table N.1 and ATTACHMENT S to perform the following:

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) N.8 CHECK Any Two Of The Following NR Level Channels, Which Serve As Inputs To AMSAC, Are Failed: **RNO: Proceed to N.11**
		(US) N.11 REQUEST I&C Perform Corrective Maintenance On Failed Instrument
EVENT 5, 'A' S/G develops a 30 gpm tube leak **US (C) / RO (C)**		
General Note(s): **1) 'A' SG develops 30 gpm tube leak:** Because the N16's radiation monitors don't accurately read below 50% power, the crew will identify a tube leak exists but they will not be able to: (1) quantify it for shutdown determination (need Chemistry sample) or (2) determine which SG has the tube leak.		
T= When directed by the Lead Examiner: **TRIGGER 5 (SG01A = 30 gpm)**	The crew may also choose to address AOP 3573 *Rad Monitor Response*, but AOP 3576 is the priority.	**(RO)** acknowledges radiation alerts / alarms and **(US)** enters AOP 3576.
AOP 3576, SG Tube Leak		
	RO Fully Opens 3CHS*FCV121 and causes PZR level to rise. RO then manually throttles 3CHS*FCV121 to restore PZR level to program value.	**(RO) 1. Check PZR Level** **a. CHECK** PZR Level – LOWERING **b. OPEN** Charging Line Flow Control Valve (3CHS*FCV121) to raise charging flow to maximum **c. CHECK** Letdown Orifice Isolation Valves - ONLY ONE OPEN **d. CHECK** PZR level – LOWERING **RNO: PROCEED TO** step 1.g. **g. ADJUST** Charging Flow Control Valve to maintain PZR level on level set point **h. IF** desired, **THEN PLACE** Charging Line Flow Controller in AUTO

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
As Chemistry, Acknowledge request and report: "A qualitative (confirmation of S/G tube leak) will be available within ½ hour. However, a leak rate value can be determined in an hour."		**(US) 2. Notify Chemistry** a. **REQUEST** Chemistry perform SP 3861, Primary to Secondary Leak Rate Determination, to: • Determine the presence of primary to secondary leakage • Determine the leak rate • Identify the leaking SG
	Due to insufficient activity, the N16's do not properly read below 50% power. The crew will likely realize this as they implement the remaining of the procedure.	**(RO) 3. Check Primary To Secondary Leakage** **a. CHECK** N16 monitors in service **AND** trend history **OR** alarm status - **NOT** NORMAL **RNO: PROCEED to 3.c.**
	The condenser Air Ejector and SG blowdown radmonitor will be trending up and should be considered 'NOT NORMAL'.	**(RO) 3c. CHECK** trend history **OR** alarm status of the following radiation monitors - AT LEAST 2 **NOT** NORMAL • Condenser Air Ejector radiation monitor • Steam Generator Blowdown radiation monitor • MSS75/76/77/78 Main Steam Line Radiation Monitors **3d. PROCEED** to step 4.
	Not applicable at this power level.	**(RO) 4. Perform Monitoring Of N16 Monitor Trends** a. **IF** N16 monitors are in service, **THEN MONITOR** trend history **AND** leak rate at least once every 15 minutes
	While Blowdown radiation monitor reading is elevated, it's not in alarm. RNO actions will be taken.	**(RO) 5. Check SG Blowdown Status** **a. CHECK** if Blowdown should be isolated **RNO: PROCEED TO** step 5.d **AND IF** any Blowdown isolation criteria is met, **THEN PERFORM** step 5.b.

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 5d. CHECK SG Blowdown flow path - ALIGNED TO CONDENSER
		(RO) 5e. CHECK SG blowdown vent path - ALIGNED TO CONDENSER (3BDG-MOV32) OR FOURTH POINT HEATERS (3BDG-MOV21A(B)(C))
When called as OMOC / PEO: Acknowledge request and REPORT this will take several hours (involves having Maintenance assist in removing the boilers from dry lay-up conditions).		**(BOP) 6. Limit Effects Of Secondary Contamination** b. Using OP 3331A, Auxiliary Boiler, Steam and Condensate, **PERFORM** the following: 1. Startup of Auxiliary Boiler A(B) 2. Shift Auxiliary Steam from Main Steam to Auxiliary Boiler System
When called as PEO: 1. Acknowledge request. 2. **INSERT TRIGGER 11** to CLOSE CNS-V9 & V11. 3. After 6 minutes, call Control Room & report valves are closed.		**(BOP) 6 c.** Locally **CLOSE** Condensate Recirculation to Condensate Surge Tank Isolation Valves: (3CNS-V9 and 3CNS-V11)
When requested as HP, acknowledge request.		**(BOP) 6d. REQUEST** HP determine if personnel should be evacuated from affected areas: • North end of Turbine building • Secondary Sample Sink • CPE • MSVB

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
When called for support, acknowledge request to implement C OP 200.11.	C OP 200.11 offers limited guidance for this event.	**(US) 6f. Using C OP 200.11,** Operation of a Cross Contaminated System, **PERFORM** any required actions
		NOTE: To avoid an unnecessary plant shutdown, confirmation from two sources is desired. Up to 1 hour is permitted to obtain confirmation.
	Because a grab sample is not complete and N16's aren't available, the SG tube leak can't be confirmed. US proceeds to Step 8.	**(US) 7. Check If Unit Shutdown Should Be Initiated** a. **CHECK** either of the following conditions exist: Chemistry grab sample confirms primary to secondary leakage in any SG - GREATER THAN OR EQUAL TO 75 gpd **OR** • Annunciator N-16 HIGH (MB2B 3-6A) - LIT **WITH:** Any monitor listed below radiation levels - **NOT** NORMAL RNO: **PROCEED TO** step 8.
T= When directed by the Lead Examiner: proceed to the next event.	This step will calibrate the N16's (which aren't available at this power level) and then loops crew back to Step 7 (pending Chemistry sample results).	**(US) 8. Perform Continued Monitoring**
EVENT 6, 'A' SG tube leak worsens requiring a RX Trip & SI **US (M) / RO (M) / BOP (M)**		
MODIFY SG01A = 300 gpm	US may elect to trip the initiate SI (per foldout page) or go back to continuous action step 1 to direct this. Either is acceptable. Foldout page instruction is provided here.	**Foldout Page:** **SI ACTUATION CRITERIA (MODE 1 OR 2)** **IF** PZR level is lowering in an uncontrolled manner, **THEN PERFORM** the following: a. **TRIP** the reactor. b. **ACTUATE** SI. c. **GO TO** E-0, Reactor Trip or Safety Injection.

<table>
<tr><th colspan="3">SCENARIO TIME LINE</th></tr>
<tr><th>BOOTH INSTRUCTOR</th><th>EXPECTED RESPONSE</th><th>PROCEDURE INSTRUCTION</th></tr>
<tr><th colspan="3">E-0, Reactor Trip or Safety Injection</th></tr>
<tr><td colspan="3">General Note(s):
1.) Event 7 & 8 will occur while in E-0:

<u>Event 7</u>: ‘B’ SIH Pump fails to automatically start. Because ‘A’ SIH pump is in PTL (from earlier cooling pump oil leak), the RO needs to manually start the ‘B’ SIH pump. US (C) / RO (C)

<u>Event 8:</u> While isolating the affected SG in E-3, the ‘A’ MSIV will not close. The US must implement RNO actions which include performing Attachment A ‘Steam Generator Isolation Valve Lineup”. US (C) / BOP (C)

2.) When mitigation the ‘A’ SG tube rupture, two critical tasks will be monitored (<u>outlined in detail in front of guide</u>):
• The crew will stop feeding the ‘A’ SG (likely in E-0 using foldout page) and isolate steam flow paths (in E-3). (Critical Task / CT1)
• While in E-3, the crew will control the initial RCS cooldown (Critical Task / CT2)</td></tr>
<tr><td></td><td></td><td>(RO) 1. * Check Reactor Trip
• CHECK Reactor Trip and Bypass Breakers – OPEN
• CHECK Rod Bottom lights – LIT
• CHECK Neutron Flux – DECREASING</td></tr>
<tr><td></td><td></td><td>(BOP) 2. * Check Turbine Trip
a. CHECK all Turbine Stop Valves - CLOSED</td></tr>
<tr><td></td><td></td><td>(BOP) 3. * Check Power To AC Emergency Busses
a. CHECK AC Emergency Busses 34C and 34D - BOTH ENERGIZED
b. Open Phase Condition (OPC)- NONE EXISTS:
• RSST Open Phase (MB8C 1-8) - NOT LIT
• Generator Phase Unbalance (MB7C 1-5) - NOT LIT
• Main XFMR Open Phase (MB7C 2-1) - NOT LIT</td></tr>
</table>

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(RO) 4. * Check If SI Is Actuated a. **CHECK** SAFETY INJECTION ACTUATION annunciators, (MB4D 1-6 or MB2B 5-9) – LIT
		(RO) 5. DETERMINE IF ADVERSE CTMT CONDITIONS EXIST • Ctmt temperature - GREATER THAN 180°F OR • Ctmt radiation - GREATER THAN 105 R/hr **5 RNO.** DO **NOT** USE ADVERSE CTMT Parameters
	Event 7: 'B' SIH Pump fails to automatically start. RO starts 'B' SIH Pump using Attachment B instruction.	**(RO) 6. Using** ATTACHMENT B**, Actuation Signal Verification, CHECK Equipment Alignment**
	It's not necessary to start the TDAFW Pump.	**(BOP) 7. Check AFW Pumps Running** b. **Turbine Driven Pump** – RUNNING IF NECESSARY
		(BOP) 8. CHECK AFW Valve Alignment - PROPER EMERGENCY ALIGNMENT
		(BOP) 9. Check Adequate Heat Sink a. **CHECK** NR level in at least one SG - GREATER THAN 8% (42% ADVERSE CTMT) b. **CONTROL** feed flow to maintain NR level - BETWEEN 8% and 50% (42% and 50% ADVERSE CTMT) c. **PROCEED TO** step 10

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	BOP uses GA-26 to establish RCS temperature control.	**(BOP) 10. Check RCS Temperature** a. Using GA-26, **DUMP** steam to control No-Load RCS Temperature - AT 557°F b. **CHECK** RCS Temperature – AT NO-LOAD VALUE: • **IF ANY** RCP RUNNING - RCS Tavg - STABLE AT OR TRENDING TO 557°F **OR** • **IF NO** RCP RUNNING – RCS COLD LEG WR TEMPERATURE - STABLE AT OR TRENDING TO 557°F
		(BOP) 11. Check Power To SBO Diesel Auxiliaries a. **CHECK** any SBO Bus Tie Breaker - CLOSED TO AN ENERGIZED BUS • Bus 34A: 34A1-2 • Bus 34B: 34B1-2 • Bus 24E: A505 (Unit 2)
	Yes - all PZR Valves are verified to be in their proper position.	**(BOP) 12. Check PZR Valves** **12a. CHECK** PORVs – CLOSED **12b. CHECK** normal PZR Spray Valves – CLOSED **12c. CHECK** PORV Block Valves - AT LEAST ONE ENERGIZED VALVE OPEN **12d. CHECK** PORV Block Valves - ALL ENERGIZED VALVES OPEN **12e. CHECK** PZR Safety Valves - CLOSED

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
		(BOP) **13. Check If RCPs Should Be Stopped**
	BOP determines that the SG's are intact.	**(BOP) 14. Check If SG Secondary Boundaries Are Intact** **14a. CHECK** pressure in all SGs: • **NO** SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER • **NO** SG COMPLETELY DEPRESSURIZED
	BOP determines the 'A' SG is ruptured. US transitions to E-3.	**(BOP) 15. Check If SG Tubes Are Intact** **a. CHECK** Steam Generator levels - **NO** SG LEVEL RISING IN AN UNCONTROLLED MANNER b. **CHECK** trend history and alarm status of radiation monitors
E-3, Steam Generator Tube Rupture		
		(RO) 1. Check If RCPs Should Be Stopped Check RCPs --- ANY RUNNING
	The BOP identifies that the 'A' SG is ruptured.	**(BOP) 2. Identify Ruptured SGs**

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	(CT1) It is a **[Critical Task]** that the BOP **Isolates Steam flow from 'A' SG.** Bolded valves will require manipulation (ie some in required position already).	**(BOP / RO) 3. Isolate Flow From Each Ruptured SG** a. Verify each ruptured SG atmospheric relief valve controller ---IN AUTO AT 1125 psig (3MSS*PV20A thru PV20D) b. Check each ruptured SG atmospheric relief valve ---CLOSED (3MSS*PV20A) c. Check each ruptured SG atmospheric relief bypass valve --- CLOSED (3MSS*MOV 74A) d. CLOSE each ruptured SG steam supply isolation valve to TD AFW pump (**3MSS*MOV17A**) e. Verify each ruptured SG blowdown isolation valve ---CLOSED (3BDG*CTV22A) f. CLOSE each ruptured SG blowdown sample isolation valve (3SSR*CTV19A) g. Verify each ruptured SG chemical feed isolation valve --- CLOSED (3SGF*AOV24A)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Event 8: 'A' MSIV will not close. US must implement RNO column. Once this is done, this completes the ***step*** to isolate (steam / feed) the ruptured SG. The crew is not required to complete Attachment 'A' (has PEO actions) prior to proceeding on with the RCS cooldown.	**(BOP / RO) 3. *Continued…*** **h.** Using table, CLOSE the main steam line drains upstream of MSIVs and TD AFW pump for the ruptured SG(s) **SG D** **3DTM*AOV29A** **3DTM*AOV61A** **3DTM*AOV63A** **3DTM*AOV64A** i. CLOSE each ruptured SG MSIV and MSIV bypass valve RNO--Perform the following: 1. **CLOSE all remaining SG MSIVs MSS*CTV27B, C, D** and MSIV bypass valves. 2. Place both condenser steam dump interlock selectors --- OFF 3. **Close all valves listed on Attachment A. (specifically, only 3ASS-PIC20 requires closure from the Control Room, balance of valves are closed or PEO actions).** 4. Use the intact SG atmospheric relief valves to dump steam, for RCS temperature control or cooldown.
	(CT1) It is a **[Critical Task]** that the BOP isolates **AFW to the 'A' SG prior to the post trip 'A' NR SG level rising an additional 22% (from post trip levels).**	**(BOP) 4. Check Ruptured SG Level** a. Verify one of the following is satisfied: *Ruptured SG WR level --- GREATER THAN 67% (75% ADVERSE CTMT) OR *Ruptured SG NR level --- GREATER THAN 8% (42% ADVERSE CTMT) b. Stop feed flow to ruptured SG(s)

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	Yes.	**(BOP) 5. Check Ruptured SGs Pressure --- GREATER THAN 530 psig**
INSERT TRIGGER 12 when requested (RCR 23, 24, 25, 26) RCP HOT/COLD SWITCHES	PEO will need to be dispatched.	**(RO) 6. Initiate RCS Cooldown** **a.** Check RCPs ---ANY RUNNING b. Locally, Place the eight RCP overcurrent trip switches (43PP and 43PB) in the COLD position using CO Key Locker Key #7
	CT1 It is a **[Critical Task]** that the BOP isolates aux feed to the 'A' SG.	**(BOP) 6c. CHECK** one of the following is satisfied: • **CHECK** one of the following is satisfied: Ruptured SG WR level -GREATER THAN 67% (75% ADVERSE CTMT) OR • Ruptured SG NR level – GREATER THAN 8% (42% ADVERSE CTMT)
	Ensure US selects temperature that correlates with lowest pressure (no interpolating).	**(US) 6.** **d.** Using lower pressure, **DETERMINE** required Core Exit temperature without interpolating
	The B, C & D Atmospheric Relief Valves or Atmospheric Relief Bypass Valves will be used. Also, the BOP should max feed these SGs.	**(BOP) 6.** **e.** Using GA---26, Dump steam from intact SGs at maximum rate

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	CT2 While in E-3, establish and maintain the necessary subcooling (***Critical Task***).	**(BOP) 6.** **f. CHECK** core exit TCs --- LESS THAN REQUIRED TEMPERATURE **g.** Using GA---26, Perform the following: 1) Stop RCS cooldown 2) Maintain core exit TCs ---LESS THAN REQUIRED TEMPERATURE
		(BOP) 7. Check Intact SG Levels
	RO verifies PORV's are closed and Block Valves are open.	**(RO) 8. Check PZR PORVs And Block Valves**
	SI and CIA will need to be reset.	**(RO) 9. Reset ESF Actuation Signals If Required** RESET SI RESET the following: *CDA *LOP *CIA *CIB
	Instrument air containment isolation valves need to be opened.	**(RO) 10. Establish Instrument Air To Ctmt**
		(BOP) 11. Restore MCC 32-3T a. CHECK Emergency Bus 34C ENERGIZED b. Using GA-1, ENERGIZE 32-3T

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
	RO stops both RHR Pumps.	**(RO) 12. RO:** **Check If RHR Pumps Should Be Stopped** *Check RHR pumps --- ANY RUNNING IN SI MODE *Check RCS pressure ---GREATER THAN 300 psia (500 psia ADVERSE CTMT) *STOP RHR pumps and Place in AUTO
	It is a **(Critical Task)** that subcooling is maintained less than the required temperature. NOTE: This is a HOLD step in the procedure. **EXAMINER NOTE:** This is the last critical task. End session when Lead Examiner is satisfied.	**(BOP) 13. Check Whether Cooldown Should be Stopped** *Check RCS Cooldown ---IN PROGRESS *Check core exit TCs ---LESS THAN REQUIRED TEMPERATURE *Using GA---26, Perform the following: 1) Stop RCS cooldown 2) Maintain core exit TCs ---LESS THAN REQUIRED TEMPERATURE
	The ruptured SG pressure should be rising slowly—the RNO will not be met.	**(BOP) 14. Check Ruptured SG(s) Pressure --- STABLE OR INCREASING**
		(RO) 15. Check RCS Subcooling Based On Core Exit TCs --- GREATER THAN 52°F (135°F ADVERSE CTMT)
		(RO) 16. Depressurize RCS To Minimize Break Flow And Refill PZR
		(RO) 19. Check terminating ECCS
		(RO) 20. Stop ECCS Pumps • STOP SI pumps and place in AUTO • STOP all but one charging pump and place in AUTO

SCENARIO TIME LINE		
BOOTH INSTRUCTOR	**EXPECTED RESPONSE**	**PROCEDURE INSTRUCTION**
Upon direction of Lead Examiner, PLACE Simulator in FREEZE	**Examiner Note:** If not ended prior, END scenario here.	**(RO) 21. Establish Normal Charging Flow Path**

SEG# 2K23 NRC-04 Rev : 0

SHIFT TURNOVER REPORT

DATE-TIME	PREPARED BY	SHIFT
Today 0515	Unit Supervisor /"NIGHT" Shift	18:00 - 06:00

PLANT STATUS:

Mode:	1	Rx Power:	26 %
Megawatts:	Thermal: 990 MWTH	PZR Pressure:	2250 psia
	Electric: 190 MWe	RCS T-AVE:	564 deg F
RCS Leakage:	Identified: 0.015 gpm	Core Burnup:	150 MWD/MTU
	Unidentified: 0.036 gpm	Protected Train/Facility:	A (Orange)
Date/Time:	Today 0015	Intake:	Green

Active Tracking Records and Action Statements

Equipment/Reason

LCO	Action	Date	Time in LCO	Action Requirement	Time Left

OD Compensatory Actions / Temp Logs

Open Date	Class Reason	Reason	Watch Position

PLANT SYSTEMS APC

System	Notes
CNM	The 'B' Condensate Pump is OOS for a thrust bearing replacement.
CCP	The 'C' CCP heat exchanger is out of service to repair a tube leak.

CROSS UNIT SYSTEM STATUS

SURVEILLANCES / EVOLUTIONS IN PROGRESS

OP 3203	Plant Startup is in progress following an early cycle forced shutdown. All fuel is fully conditioned. Xenon is building in. Complete steps 4.3.65 and 4.3.66 of OP3203. Then raise reactor power from 26% to 30% in accordance with step 4.3.69 and attached reactivity plan. Once at 30% power, hold power stable.

REACTIVITY BRIEFING (SEE REACTIVITY THUMBRULES / SPREAD SHEET FOR ADDITIONAL INFO)

Current Rod Height	125	
Xenon Trend	Building in at 29 pcm / hr	
Current Boron	1793	
Boron Pot Setting / Blend Ratio	5.09 / 20.3 gpm	
Plant Risk	LERF 1.06 ACT: 1 year	CDF 4.15 ACT: 46.9 days

SEG# 2K23 NRC-04 Rev : 0

TIME	% POWER	CBD STEPS	DILUTION
NOW	**26%**	**125 STEPS**	**X**
10 MIN (FROM NOW)	**28%**	**135 STEPS**	**X**
20 MIN (FROM NOW)	**30%**	**145 STEPS**	**X**
30 MIN (FROM NOW)	**30%**	**145 STEPS**	**70 gal**
45 MIN (FROM NOW)	**30%**	**145 STEPS**	**70 gal**
1 HR (FROM NOW)	**30%**	**145 STEPS**	**70 gal**

SEG#_2K23 NRC-04_ Rev : __0__

REFERENCE MATERIAL		
Session No.: NRC-04		
Reference No.	**Revision**	**# Copies**
ARP's		
OP 3353.MB3A 5-5	**07**	**2**
OTHER – RO Station		
OTHER– BOP Station		
US Desk Procedures		
OP 3203	**36**	**N/A**
OP 3304C	**37**	**N/A**
AOP 3571	**18**	**N/A**
AOP 3576	**11**	**N/A**
AOP 3581	**09**	**N/A**
E-0	**36**	**N/A**
E-3	**29**	**N/A**