

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

A1

RCS Flow Verification and FC1 Calculation

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Perform RCS Flow Factor channel checks and calculate new FC1 value for Channel B.

Task Standard: Applicant completes OP-903-001, Technical Specification Surveillance Logs, page 27 for RCS Flow verification in accordance with the key and concludes Channel B does not meet the required value. Applicant then calculates the new value for CPC PID060 in accordance with OP-903-001, attachment 11.9 in accordance with the key.

References: OP-903-001, Technical Specification Surveillance Logs

Validation Time: 15 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-903-001, Technical Specification Surveillance Logs

Description:

The setting will be in the simulator for this JPM. The applicant will gather information from the PMC and all 4 Core Protection Calculators to complete page 27 of the Tech Spec Surveillance Logs. Completion of page 27 should conclude that Channel B does not meet the required limits and that Channel B CPC PID 060 must be adjusted. Applicant will complete OP-903-001, Attachment 11.9 for Channel B.

At the start of the task, the applicant should only be given page 27 of OP-903-001. He can use the reference books in the simulator for reviewing notes that apply. Do not give the applicant Attachment 11.9 until he has determined Channel B does not meet the requirements.

READ TO APPLICANT

DIRECTION TO APPLICANT:

Each administrative JPM has a cue sheet with the instructions for that JPM. Each administrative JPM stands alone, and conditions from 1 JPM do not carry over to any other JPM. If you have any questions, raise your hand and I will come to your desk.

Provide all answers on the sheets provided.

INITIAL CONDITIONS:

- The Plant is at 100% power
- Access to the control panels for additional information is allowed.
- Access to Control Room procedures is allowed.

INITIATING CUES:

- I&C maintenance was completed on components affecting COLSS RCS flow indication.
- The CRS directs you to complete OP-903-001, Technical Specification Surveillance Logs, page 27.

TASK ELEMENT	STANDARD
Complete page 27 of OP-903-001.	Completed in accordance with the key. Channel B MDBAR will be greater than the RCS Flow Factor.
Comment:	<u>Critical</u> SAT / UNSAT

Evaluator Note
When the applicant communicates that Channel B MDBAR is greater than the RCS Flow Factor and that a calculation is required, provide the applicant with Attachment 11.9, Adjustment of FC1.

TASK ELEMENT	STANDARD
Complete Attachment 11.9, Adjustment of FC1	Completed in accordance with the key.
Comment: Cue: When page 1 of the attachment is completed, inform the applicant that another operator will verify the calculation and that the task is complete.	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The Plant is at 100% power
- Access to the control panels for additional information is allowed.
- Access to Control Room procedures is allowed.

INITIATING CUES:

- I&C maintenance was completed on components affecting COLSS RCS flow indication.
- The CRS directs you to complete OP-903-001, Technical Specification Surveillance Logs, page 27.

Key A1

11.9.1 SM/CRS Permission: _____
(Signature / Date / Time)

RCS Mass Flow Rate: PMC PID C24564: 1.6085 $\text{E} + 8$

NE-004-004: N/A

Base Core Coolant Mass Flow Rate (MDBAR) CPC PID-265: 1.0811

$$\text{Corrected Value of FC1} = \frac{(\text{RCS Mass Flow Rate}) \times (\text{FC1})}{(\text{MDBAR}) \times (148.0 \text{ E}+6) \times (1.0015)}$$

$$\text{Corrected Value of FC1} = \frac{(1.6085E+8)}{(1.0871)} \times \frac{(1.0875)}{(148.222 E+6)}$$

Corrected Value of FC1 = $\frac{(174924375)}{(161132136.2)}$

Corrected Value of FC1 = 1.0856

Calculation Performed By: _____
(Signature / Date / Time)

Calculation Verified By: _____
(Signature / Date / Time)

Key A1

DATE

DESCRIPTION	NOTE	MODE	T. S.	COMP #	LIMIT	UNITS	0000	1200
RCS Flow verification:	7.0	1	4.2.5					
RCS COLSS Flow	7.1, 7.3			PMC PID-C24564	<input type="checkbox"/> <u>Cycle 16</u> 154.512 E+6 <input type="checkbox"/> <u>Cycle 17</u> (TC >549°F, ≤557°F)	Lbm/Hr	1.685 E+8	
RCS Calculated Flow	7.2, 7.3			NE-4-004	<input type="checkbox"/> <u>Cycle 17</u> 152.440 E+6 (TC ≤549°F) 152.292 E+6	Lbm/Hr	N/A	
RCS CPC Flow Verification:	8.0	1, >70%	4.3.1.1 Tbl 4.3-1 (10,16)	CP-7				
RCS Flow Factor	8.1			C24564÷148 E+6	N/A	N/A	1.0868	
CPC Chnl A MDBAR	8.2			CPC PID-265	N/A	N/A	1.0852	
MDBAR A < Flow Fctr	8.3			N/A	YES	✓	✓	
CPC Chnl B MDBAR	8.2			CPC PID-265	N/A	N/A	1.0871	
MDBAR B < Flow Fctr	8.3			N/A	YES	✓	✓	
CPC Chnl C MDBAR	8.2			CPC PID-265	N/A	N/A	1.0842	
MDBAR C < Flow Fctr	8.3			N/A	YES	✓	✓	
CPC Chnl D MDBAR	8.2			CPC PID-265	N/A	N/A	1.0836	
MDBAR D < Flow Fctr	8.3			N/A	YES	✓	✓	
REMARKS:								

DATE *today*

DESCRIPTION	NOTE	MODE	T. S.	COMP #	LIMIT	UNITS	0000	1200
RCS Flow verification:	7.0	1	4.2.5					
RCS COLSS Flow	7.1, 7.3			PMC PID-C24564	<input type="checkbox"/> <u>Cycle 16</u> 154.512 E+6 <input type="checkbox"/> <u>Cycle 17</u> (TC >549°F, ≤557°F) 152.440 E+6 <input type="checkbox"/> <u>Cycle 17</u> (TC ≤549°F) 152.292 E+6			
RCS Calculated Flow	7.2, 7.3			NE-4-004				
RCS CPC Flow Verification:	8.0	1, >70%	4.3.1.1 Tbl 4.3-1 (10,16)	CP-7				
RCS Flow Factor	8.1			C24564÷148 E+6	N/A	N/A		
CPC Chnl A MDBAR	8.2			CPC PID-265	N/A	N/A		
MDBAR A < Flow Fctr	8.3			N/A	YES	✓		
CPC Chnl B MDBAR	8.2			CPC PID-265	N/A	N/A		
MDBAR B < Flow Fctr	8.3			N/A	YES	✓		
CPC Chnl C MDBAR	8.2			CPC PID-265	N/A	N/A		
MDBAR C < Flow Fctr	8.3			N/A	YES	✓		
CPC Chnl D MDBAR	8.2			CPC PID-265	N/A	N/A		
MDBAR D < Flow Fctr	8.3			N/A	YES	✓		
REMARKS:								

11.9 ADJUSTMENT OF FC1

CHANNEL UNDER ADJUSTMENT: A ☐ B ☐ C ☐ D ☐

11.9.1 SM/CRS Permission: CR Supervision today
(Signature / Date / Time)

11.9.2 Perform New FC1 Calculation:

RCS Mass Flow Rate: PMC PID C24564: _____

OR

NE-004-004: _____

Core Coolant Mass Flow Rate CPC PID-060: _____
Rate Calibration Constant (FC1)

Base Core Coolant Mass Flow CPC PID-265: _____
Rate (MDBAR)

$$\text{Corrected Value of FC1} = \frac{(\text{RCS Mass Flow Rate}) \times (\text{FC1})}{(\text{MDBAR}) \times (148.0 \text{ E}+6) \times (1.0015)}$$

$$\text{Corrected Value of FC1} = \frac{(\quad) \times (\quad)}{(\quad) \times (148.222 \text{ E}+6)}$$

$$\text{Corrected Value of FC1} = \frac{(\quad)}{(\quad)}$$

$$\text{Corrected Value of FC1} = \underline{\hspace{2cm}}$$

Calculation Performed By: _____
(Signature / Date / Time)

Calculation Verified By: _____
(Signature / Date / Time)

[illegible]

- 7.3 The limit for RCS flow reflects the Technical Specification limit plus a value of uncertainty in the flow calculation for COLSS and CPC's as per the following Operating cycle schedule:

Plant Operating Cycle	T _{Cold}	Uncertainty (%)	Uncertainty (LBM/Hr)	Minimum Allowed RCS Flow with Uncertainty (LBM/Hr)
Cycle 16	>549 F	4.40%	6.512 E+6	154.512 E+6
Cycle 17	>549 F, 557 F	3.00%	4.440 E+6	152.440 E+6
	549 F	2.90%	4.292 E+6	152.292 E+6

- 8.0 In Mode 1, >70% PWR, verify total RCS flow as indicated by each CPC channel (MDBAR, PID 265) is less than the value of RCS flow (actual or calculated).
- 8.1 Determine the RCS Flow Factor (% RCS flow) by dividing the value of RCS COLSS or Calculated flow by 148×10^6 lbm/hr. NA if not in Mode 1, >70% pwr.
- 8.2 Record MDBAR (% RCS Flow) as indicated by CPC PID-265. NA if not in Mode 1, >70% pwr.
- 8.3 Verify MDBAR < RCS Flow Factor. If MDBAR > RCS flow factor, then perform Attachment 11.9, Adjustment of FC1. Re-verify MDBAR < RCS Flow Factor after adjustment and document in the Remarks section. Attach documentation to this Attachment. NA if not in Mode 1, >70% pwr.

11.9 ADJUSTMENT OF FC1

CHANNEL UNDER ADJUSTMENT: A ☐ B ☐ C ☐ D ☐

11.9.1 SM/CRS Permission: _____
(Signature / Date / Time)

11.9.2 Perform New FC1 Calculation:

RCS Mass Flow Rate: PMC PID C24564: _____

OR

NE-004-004: _____

Core Coolant Mass Flow Rate CPC PID-060: _____
Rate Calibration Constant (FC1)

Base Core Coolant Mass Flow CPC PID-265: _____
Rate (MDBAR)

$$\text{Corrected Value of FC1} = \frac{(\text{RCS Mass Flow Rate}) \times (\text{FC1})}{(\text{MDBAR}) \times (148.0 \text{ E}+6) \times (1.0015)}$$

$$\text{Corrected Value of FC1} = \frac{(\quad) \times (\quad)}{(\quad) \times (148.222 \text{ E}+6)}$$

$$\text{Corrected Value of FC1} = \frac{(\quad)}{(\quad)}$$

$$\text{Corrected Value of FC1} = \underline{\hspace{2cm}}$$

Calculation Performed By: _____
(Signature / Date / Time)

Calculation Verified By: _____
(Signature / Date / Time)

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

A2

**Manual CEA Subgroup Selection for Reactor
Power Cutback**

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Complete a manual CEA Subgroup Selection for Reactor Power Cutback

Task Standard: OP-004-015, Reactor Power Cutback System, Attachment 11.1, Manual CEA Subgroup Selection, is completed in accordance with the key.

References: OP-004-015, Reactor Power Cutback System

Validation Time: 10 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-004-015, Reactor Power Cutback System, Attachment 11.1
Plant Data Book

Description:

The setting will be in the simulator for this JPM. The applicant will gather information from the PMC and use that data to complete Attachment 11.1. Plant Data Book Figure 1.7.2.1 will be required to complete this task. The Plant Data Book is available in the simulator. The only handout required will be OP-004-015, Attachment 11.1.

READ TO APPLICANT

DIRECTION TO APPLICANT:

Each administrative JPM has a cue sheet with the instructions for that JPM. Each administrative JPM stands alone, and conditions from 1 JPM do not carry over to any other JPM. If you have any questions, raise your hand and I will come to your desk.

Provide all answers on the sheets provided.

INITIAL CONDITIONS:

- The plant is in Mode 1.
- No equipment is out of service.
- The crew has been directed to place Reactor Power Cutback in service.
- Access to the control panels and Control Room reference material is allowed.

INITIATING CUES:

- The CRS directs you to perform OP-004-015, Reactor Power Cutback System, Attachment 11.1, Manual CEA Subgroup Selection.

TASK ELEMENT	STANDARD
Complete OP-004-015, Reactor Power Cutback System, Attachment 11.1, Manual CEA Subgroup Selection.	Attachment 11.1 is completed in accordance with the key.
Comment:	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The plant is in Mode 1.
- No equipment is out of service.
- The crew has been directed to place Reactor Power Cutback in service.
- Access to the control panels and Control Room reference material is allowed.

INITIATING CUES:

- The CRS directs you to perform OP-004-015, Reactor Power Cutback System, Attachment 11.1, Manual CEA Subgroup Selection.

Key A2

11.1 MANUAL CEA SUBGROUP SELECTION

11.1.1 Current Reactor Power (PMC Point C24107) 99.94 % PWR

11.1.2 Current EFPD (PMC Point C24110) 50 EFPD

11.1.3 Number of Operable SBCS Valves 6

11.1.4 Number of Operable SBCS Valves \times 9.88 (Maximum Allowed Reactor Power after Reactor Cutback) 59.28 % PWR

11.1.5 Minimum Allowed Reactor Power Level after Reactor Cutback (Turbine DEH System Program Floor in Automatic Control) 20% PWR

11.1.6 From Plant Data Book Figure 1.7.2.1, select CEA Subgroup 5 (Regulating Group 6) or CEA Subgroups 5 and 11 (Regulating Groups 6 and 5) such that the selections will allow Reactor Power to fall between 20% and the Maximum Allowed Reactor Power determined in Step 11.1.4. Use current Reactor Power and current EFPD with CEA Group Lines.

Subgroup 5 ☐ *
Subgroups 5 & 11 ☐
(check one)

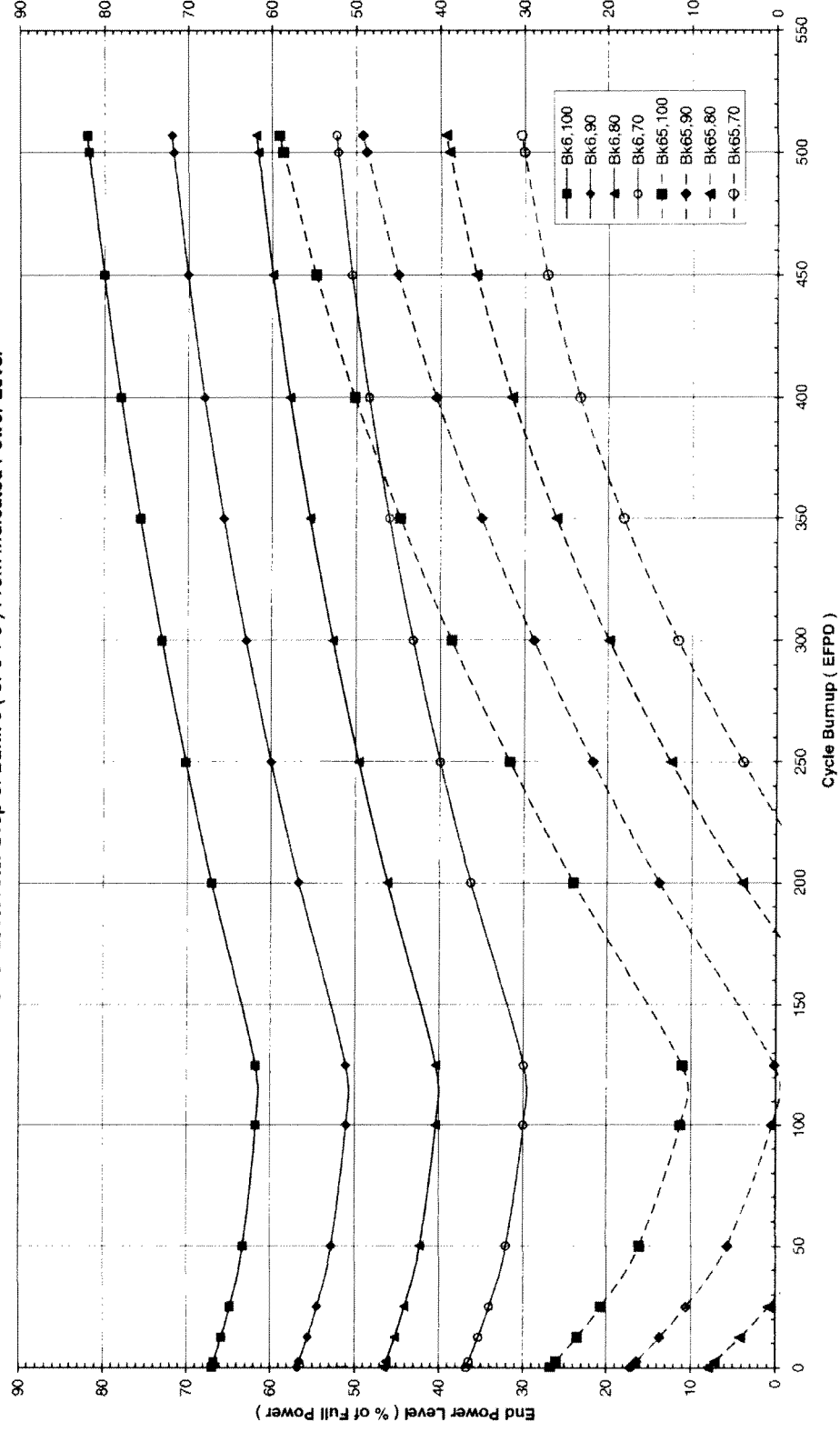
Performed by: _____
(Signature) (Date)

Verified by: _____
(Signature) (Date)

SM/CRS Review: _____ / _____
(Signature) (Date/Time)

* Applicant should not check either box. Selecting only CEA Subgroup 5 (Regulating Group 6) would result in a power level greater than the maximum allowed power from step 11.1.4. Selecting CEA Subgroup 5 (Regulating Group 6) and Subgroup 11 (Regulating Group 5) will result in a power level below the minimum allowed 20%.

WSES-3 Cycle-17 PDB Figure 1.7.2.1
Power Level After Drop of Bank 6 (or 6 + 5) From Indicated Power Level





GROUP SELECTION

- 11.1.1 Current Reactor Power (PMC Point C24107) _____ % PWR
- 11.1.2 Current EFPD (PMC Point C24110) _____ EFPD
- 11.1.3 Number of Operable SBCS Valves _____
- 11.1.4 Number of Operable SBCS Valves \times 9.88 (Maximum Allowed Reactor Power after Reactor Cutback) _____ % PWR
- 11.1.5 Minimum Allowed Reactor Power Level after Reactor Cutback (Turbine DEH System Program Floor in Automatic Control) _____ 20% PWR
- 11.1.6 From Plant Data Book Figure 1.7.2.1, select CEA Subgroup 5 (Regulating Group 6) or CEA Subgroups 5 and 11 (Regulating Groups 6 and 5) such that the selections will allow Reactor Power to fall between 20% and the Maximum Allowed Reactor Power determined in Step 11.1.4. Use current Reactor Power and current EFPD with CEA Group Lines.

Subgroup 5 ☐

Subgroups 5 & 11 ☐

(check one)

Performed by: _____

(Signature) (Date)

Verified by: _____

(Signature) (Date)

SM/CRS Review: _____ / _____

(Signature) (Date/Time)

11.1 MANUAL CEA SUBGROUP SELECTION

11.1.1 Current Reactor Power (PMC Point C24107) _____ % PWR

11.1.2 Current EFPD (PMC Point C24110) _____ EFPD

11.1.3 Number of Operable SBCS Valves _____

11.1.4 Number of Operable SBCS Valves 9.88 (Maximum Allowed Reactor Power after Reactor Cutback) _____ % PWR

11.1.5 Minimum Allowed Reactor Power Level after Reactor Cutback (Turbine DEH System Program Floor in Automatic Control) _____ 20% PWR

11.1.6 From Plant Data Book Figure 1.7.2.1, select CEA Subgroup 5 (Regulating Group 6) or CEA Subgroups 5 and 11 (Regulating Groups 6 and 5) such that the selections will allow Reactor Power to fall between 20% and the Maximum Allowed Reactor Power determined in Step 11.1.4. Use current Reactor Power and current EFPD with CEA Group Lines.

Subgroup 5 ☐

Subgroups 5 & 11 ☐

(check one)

Performed by: _____
(Signature) (Date)

Verified by: _____
(Signature) (Date)

SM/CRS Review: _____
(Signature) / (Date/Time)

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

A3

Tagging Boundary Identification

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Identify the consequences of isolation and the boundaries necessary to replace the limit switches on CC-200 B, CCW Header B to AB Supply Isolation.

Task Standard: Applicant identifies the correct breakers to isolate power to the limit switches for CC-200 B and correctly identifies that CC-563, CCW Header AB to B Return Isolation, and CC620, Fuel Pool Heat Exchangers Temperature Control Valve, are affected by operating the listed breakers.

References: Plant electrical drawing B424, sheet 836
Plant electrical drawing B424, sheet 841
EN-OP-102, Protective and Caution Tagging

Validation Time: 20 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY**Tools/Equipment/Procedures Needed:**

Plant electrical drawing B424, sheet 836
Plant electrical drawing B424, sheet 841
EN-OP-102, Protective and Caution Tagging

Description:

The applicant will be required to identify the boundaries necessary to replace the limit switches for CC-200 B, CCW Header B to AB Supply Isolation. Additionally, the applicant will be required to identify what other Component Cooling Water valves will be affected by the tagout.

The applicant will be allowed access to the Asset Suite software and eB library, as well as the drawings in the Admin area of the Control Room. The applicant will not be allowed access to the ESOMS Tagging program.

READ TO APPLICANT**DIRECTION TO APPLICANT:**

Each administrative JPM has a cue sheet with the instructions for that JPM. Each administrative JPM stands alone, and conditions from 1 JPM do not carry over to any other JPM. If you have any questions, raise your hand and I will come to your desk.

Provide all answers on the sheets provided.

EXAMINER COPY ONLY**INITIAL CONDITIONS:**

- The plant is in Mode 1 with no equipment out of service.
- The limit switches for CC-200B, CCW Header B to AB Supply Isolation, are scheduled to be replaced.

INITIATING CUES:

- You have been assigned to develop the tagging boundaries for this limit switch replacement.
- The Component Cooling Water System and the valve actuator will not be breached during this work.

Provide the answers to the following questions on your cue sheet:

- A. List the applicable breaker(s) that must be opened to support this work.
- B. List any other Component Cooling Water valves that will be affected by hanging this tagout.

You are allowed access to the Asset Suite software and eB library, as well as the drawings in the Admin area of the Control Room.

You are **not** allowed access to the ESOMS Tagging program.

TASK ELEMENT	STANDARD
List the applicable breaker(s) that must be opened to support this work	Correct breakers identified.
Comment: 2 breakers must be opened to remove power from the limit switches for CC-200 B: <ul style="list-style-type: none"> • CC EBKR91B – 11 • CC EBKR91B – 21 	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
List any other Component Cooling Water valves that will be affected by hanging this tagout.	Correct valves identified.
Comment: 2 CCW valves will be affected by opening the breakers listed above: <ul style="list-style-type: none"> • CC-563, CCW Header AB to B Return Isolation. • CC-620, Fuel Pool Heat Exchangers Temperature Control Valve. 	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The plant is in Mode 1 with no equipment out of service.
- The limit switches for CC-200B, CCW Header B to AB Supply Isolation, are scheduled to be replaced.

INITIATING CUES:

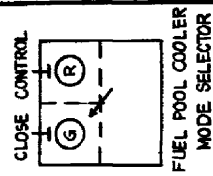
- You have been assigned to develop the tagging boundaries for this limit switch replacement.
- The Component Cooling Water System and the valve actuator will not be breached during this work.

Provide the answers to the following questions on your cue sheet:

- A. List the applicable breaker(s) that must be opened to support this work.
- B. List any other Component Cooling Water valves that will be affected by hanging this tagout.

You are allowed access to the Asset Suite software and eB library, as well as the drawings in the Admin area of the Control Room.

You are **not** allowed access to the ESOMS Tagging program.



This drawing was used in its entirety to scan and rasterize to produce this revision, REV 2

Waterford 3

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JOB PERFORMANCE MEASURE

A4

Gaseous Release Evaluation

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Meteorological conditions are evaluated for gaseous release from the GWM System.

Task Standard: Applicant concludes that a release is permitted. The conclusions must include the restrictions on wind speed, wind direction, and stability class.

References: OP-007-003, Gaseous Waste Management

Validation Time: 10 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-007-003, Gaseous Waste Management

Description:

The setting will be in the simulator for this JPM. The applicant will gather information from the PMC for the applicable meteorological conditions. The data will be used evaluate the flow chart in OP-007-003, Attachment 11.5.

READ TO APPLICANT

DIRECTION TO APPLICANT:

Each administrative JPM has a cue sheet with the instructions for that JPM. Each administrative JPM stands alone, and conditions from 1 JPM do not carry over to any other JPM. If you have any questions, raise your hand and I will come to your desk.

Provide all answers on the sheets provided.

INITIAL CONDITIONS:

- The plant is in Mode 1.
- Chemistry has requested a release of all 3 Gas Decay Tanks for planned maintenance.

INITIATING CUES:

- The CRS directs you to complete an evaluation of meteorological conditions for the release in accordance with OP-007-003, Gaseous Waste Management.
- Document all conclusions on this sheet.

TASK ELEMENT	STANDARD
Evaluate 10 meter (33 foot) wind speed.	Concludes wind speed is 3.22 m/s and continues down through the flow chart.
Comment: 199 foot reading will conclude that there are no restrictions on the release.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Evaluate 10 meter (33 foot) wind direction.	Concludes wind direction is 72.9 deg and continues right through the flow chart.
Comment: 199 foot reading will conclude that there are no restrictions on the release.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Evaluate Pasquill Stability Class.	Concludes ΔT is -0.45°C , stability class D, and that the release is permitted..
Comment:	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The plant is in Mode 1.
- Chemistry has requested a release of all 3 Gas Decay Tanks for planned maintenance.

INITIATING CUES:

- The CRS directs you to complete an evaluation of meteorological conditions for the release in accordance with OP-007-003, Gaseous Waste Management.
- Document all conclusions on this sheet.

SELECT FUNC. KEY OR TURN-ON CODE GD

>

PAGE 1 OF 2

GROUP DISPLAY FOR METDATA

GROUP
MAIN
MENU

1 SECOND UPDATE RATE

POINT ID	DESCRIPTION	CURRENT VALUE	UNITS	LOW		
				ALARM/ COUNTS	HIGH SENSOR	ALARM/ QUAL
048616	PRC TWR 03 WIND DIR 15M AVG	72.9	DEG	N/A	N/A	GOOD
048618	BLUP TWR 03 WIND DIR 15M AVG	72.9	DEG	N/A	N/A	GOOD
048619	PRC TWR 199 WIND DIR 15M AVG	58.1	DEG	N/A	N/A	GOOD
048620	PRC TWR 03 WIND SPEED 15M AVG	3.23	M/S	N/A	N/A	GOOD
048624	BLUP TWR 03 WIND SPEED 15M AVG	3.23	M/S	N/A	N/A	GOOD
048627	PRC TWR 199 WIND SPEED 15M AVG	3.40	M/S	N/A	N/A	GOOD
048628	PRC TWR 199-03 DELTA T 15M AVG	-0.45	DEGC	N/A	N/A	GOOD
048629	PRC TWR 199-03 DELTA T 315M AVG	-0.45	DEGC	N/A	N/A	GOOD
048631	BLUP TWR 199-03 DELTA T 15M AVG	-0.45	DEGC	N/A	N/A	GOOD
048632	PRC TWR 03 WIND SPEED	3.26	M/S	N/A	N/A	GOOD
048637	PRC TWR 03 WIND DIR	73.0	DEG	N/A	N/A	GOOD
048639	PRC TWR 199-03 DELTA T 15M	-0.45	DEGC	N/A	N/A	GOOD
048640	BLUP TWR 03 WIND SPEED	3.26	M/S	N/A	N/A	GOOD
048646	PRC TWR 199 WIND SPEED	3.44	M/S	N/A	N/A	GOOD
048655	PRC TWR 199 SIGMA THETA 15 M AVG	3.1	DEG	N/A	N/A	GOOD
048658	PRC TWR 199-03 DELTA T 315M	-0.45	DEGC	N/A	N/A	GOOD
048661	BLUP TWR 199-03 DELTA T 315M	-0.45	DEGC	N/A	N/A	GOOD
048671	PRC TWR 03 AIR TEMP 15M	15.12	DEGC	N/A	N/A	GOOD
048672	PRC TWR 03 SIGMA THETA 15M AVG	6.3	DEG	N/A	N/A	GOOD
048673	BLUP TWR 03 SIGMA THETA 15M AVG	3.1	DEG	N/A	N/A	GOOD

F1=

F2=

F3=

F4=

F5=

F6=

TERM=TT042CONSOLE=PRIM/BAC MODE=PWR OPER ARCHV=NORMAL

SIMULATOR

SELECT FUNC. KEY OR TURN-ON CODE GD

>

PAGE 2 OF 2

GROUP DISPLAY FOR METDATA

GROUP
MAIN
MENU

1 SECOND UPDATE RATE

POINT ID	DESCRIPTION	CURRENT VALUE	UNITS	LOW		
				ALARM/ COUNTS	HIGH SENSOR	ALARM/ QUAL
048606	3KUP TWR 33 WIND DIR	73.0	DEG	V-A	V-A	GOOD
048608	PRC TWR 199 WIND DIR	58.0	DEG	V-A	V-A	GOOD
048610	PRC TWR PRECIP DAILY TOTAL	0.00	IN/24	V-A	V-A	GOOD
048612	PRC TWR 33 WIND SPEED 15M RAVG	3.23	M/S	V-A	V-A	GOOD
048613	PRC TWR 199-33 DELTA T 15M RAVG	-0.45	DEGC	V-A	V-A	GOOD
048614	PRC TWR 33 AIR TEMP 15M RAVG	15.12	DEGC	V-A	V-A	GOOD
048615	PRC TWR 33 SIGMA-THETA 15M RAVG	6.3	DEG	V-A	V-A	GOOD
048616	PRC TWR 33 WIND SPEED 1HR RAVG	2.27	M/S	V-A	V-A	GOOD
048617	PRC TWR 199-33 DELTA T 1HR RAVG	-0.19	DEGC	V-A	V-A	GOOD
048618	3KUP TWR 33 WIND SPEED 1HR RAVG	5.07	M/S	V-A	V-A	GOOD
048619	3KUP TWR 199-33 DELTA T 1HR RAVG	-0.19	DEGC	V-A	V-A	GOOD
048620	PRC TWR 33 AIR TEMP 15M RAVG	15.12	DEGC	V-A	V-A	GOOD
048621	PRC TWR 33 SIGMA-THETA 15M RAVG	6.3	DEG	V-A	V-A	GOOD
048622	3KUP TWR 33 SIGMA-THETA 15M RAVG	3.1	DEG	V-A	V-A	GOOD
048623	PRC TWR 199 SIGMA-THETA 15M RAVG	3.1	DEG	V-A	V-A	GOOD
048624	PRC TWR PRECIP ACCUMULATION	0.00	IN	V-A	V-A	GOOD
048625	PRC TWR 33 AIR TEMP 15M RAVG	59.00	DEGF	V-A	V-A	GOOD
048626	PRC TWR 33 AIR TEMP 1HR RAVG	58.73	DEGF	V-A	V-A	GOOD
048627	PRC TWR WET BULB TEMP 15M RAVG	57.00	DEGF	V-A	V-A	GOOD
048628	PRC TWR WET BULB TEMP 1HR RAVG	56.73	DEGF	V-A	V-A	GOOD

F1=MET RATE

F2=

F3=TEST DATA

F4=

F5=

F6=TEST DATA

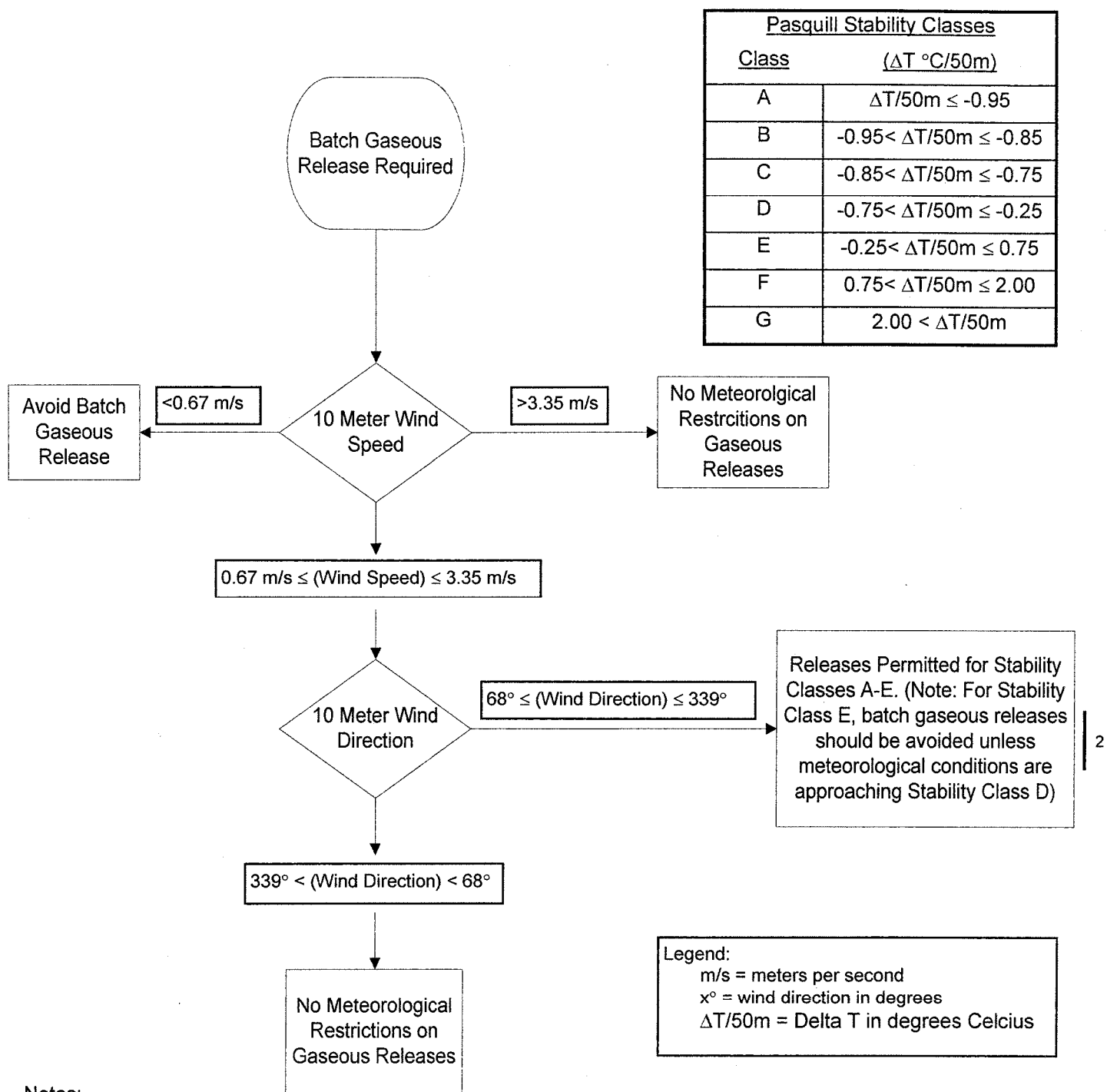
PRC TWR 33

TERM=TT042CONSOLE=PRIM/BAC

MODE=PWR OPER ARCHV=NORMAL

SIMULATOR

11.5 METEOROLOGICAL CONDITIONS REQUIREMENTS [Commitment P11585]



Notes:

1. All parameters should be obtained from the 15 minute average values displayed on the PMC.
2. 10 meter wind speed and wind direction may be obtained from the primary or back-up tower 33' reading.
3. $\Delta T/50m$ may be obtained from the primary or back-up tower 199-33' Delta T reading.

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

S1

Emergency Boration

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Perform Emergency Boration upon recognition of 2 CEAs failing to insert on a reactor trip.

Task Standard: Applicant establishes Emergency Boration in accordance with OP-901-103, Emergency Boration.

References: OP-901-103, Emergency Boration

Validation Time: 5 minutes Time Critical: No

Alternate Path: Yes

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

None. Actions are Immediate Operator Actions and procedure reference is not allowed.

Description:

Initiating cue will direct the applicant to trip the reactor due to high Main Turbine vibration. After the reactor is tripped, 2 CEAs will remain withdrawn. The applicant must recognize the condition and initiate Emergency Boration. This is an immediate operator action. There are 2 allowed flow paths for Emergency Boration. There will be faults for both paths. When the applicant attempts the first flow path, the booth operator will remove the malfunction on the path not attempted. The applicant will be required to use the second path to complete the task.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- You are the ATC Operator, only perform actions for the ATC
- The plant is at 100% power.
- Alarms have come in for high vibration on the Main Turbine

INITIATING CUES:

- The Control Room Supervisor has directed you to trip the reactor and perform Standard Post Trip Actions in accordance with OP-902-000, Standard Post Trip Actions.

TASK ELEMENT	STANDARD
Trips the reactor when directed by the CRS.	Reactor is tripped using the pushbuttons on CP-2 or CP-8.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Check less than TWO CEAs are NOT fully inserted.	Applicant recognizes the need to commence Emergency Boration
Comment:	<u>Critical</u> SAT / UNSAT

Evaluator Note
All manipulations associated with Emergency Boration are located on CP-4.

TASK ELEMENT	STANDARD
Place Makeup Mode selector switch to MANUAL.	Switch is placed in MANUAL
Comment: Switch will already be in Manual	<u>Critical</u> SAT / UNSAT

Evaluator Note
Applicant can align a borated water source by 1 of 2 methods. Which ever method is used first will fail, requiring use of the second. The following steps are in the order most likely used by the applicant.

Gravity Feed Alignment

TASK ELEMENT	STANDARD
Open the following Boric Acid Makeup Gravity Feed valves: <ul style="list-style-type: none"> • BAM-113 A Boric Acid Makeup Gravity Feed Valve A • BAM-113 B Boric Acid Makeup Gravity Feed Valve B 	Both BAM-113 A and BAM -113 B are open
Comment: BAM-113 A will fail to open, requiring the use of the BAM Pumps for Emergency Boration.	<u>Critical</u> SAT / UNSAT

Boric Acid Pump Alignment

TASK ELEMENT	STANDARD
Open Emergency Boration Valve, BAM-133.	BAM-133 is open.
Comment: 	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Start one Boric Acid Pump (A or B).	BAM Pump A or B is running.
Comment: If the Boric Acid Pumps are used before the Gravity Feed Valves, the applicant will not be able to start either BAM Pump.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Close recirc valve for Boric Acid Pump started: <ul style="list-style-type: none"> BAM-126 A, Boric Acid Makeup Pump Recirc Valve A BAM-126 B, Boric Acid Makeup Pump Recirc Valve B 	BAM-126 A or B is closed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Close VCT Disch Valve, CVC-183.	CVC-183 is closed.
Comment: This step applies regardless of which flow path is used.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify at least one Charging Pump operating and Charging Header flow is ≥ 40 GPM.	Flow is verified at CP-4.
Comment: This step applies regardless of which flow path is used.	SAT / UNSAT

Evaluator Note
After Emergency Boration has been established, the applicant will continue with the rest of the Standard Post Trip Actions. End task when applicant moves on to the rest of the Standard Post Trip Actions.

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- You are the ATC Operator, only perform actions for the ATC
- The plant is at 100% power.
- Alarms have come in for high vibration on the Main Turbine

INITIATING CUES:

- The Control Room Supervisor has directed you to trip the reactor and perform Standard Post Trip Actions in accordance with OP-902-000, Standard Post Trip Actions.

SIMULATOR OPERATOR INSTRUCTIONS

Reset to IC-190

Verify the following Malfunctions:

- Tu01c 7 mils
- Tu01g 10 mils
- Tu01o 15 mils
- Rd11a69 true sticks CEA 69
- Rd11a83 true sticks CEA 83

Verify the following Overrides were used in JPM S1:

- Di-04a4s30-1 BAM-113 A closed
- Di-04a4s02-1 BAM Pump A off (trigger 1)
- Di-04a4s08-1 BAM Pump B off (trigger 1)
- Di-01a08a03s06-1 Moisture Separator Reheater Reset (trigger 2)

If applicant attempts to use the Boric Acid Pumps first:

- Initiate Trigger 1 when BAM-133 is opened.
- Delete Override di-04a4s30-1 for BAM-113 A.

If applicant attempts to use Boric Acid Gravity Feed first:

- No action required. Do **not** initiate trigger 1.

Initiate Trigger 2 anytime after the reactor is tripped.

D. IMMEDIATE OPERATOR ACTIONS

1. Place Makeup Mode selector switch to MANUAL.
2. Align borated water source by performing one of the following (a. or b.):
 - a. Initiate Emergency Boration using Boric Acid Pump as follows:
 - Open Emergency Boration Valve, BAM-133.
 - Start one Boric Acid Pump.
 - Close recirc valve for Boric Acid Pump started:
 - BAM-126A Boric Acid Makeup Pump Recirc Valve A
 - or
 - BAM-126B Boric Acid Makeup Pump Recirc Valve B
 - or
 - b. Initiate Emergency Boration using Gravity Feed as follows:
 - Open the following Boric Acid Makeup Gravity Feed valves:
 - BAM-113A Boric Acid Makeup Gravity Feed Valve A
 - BAM-113B Boric Acid Makeup Gravity Feed Valve B
3. Close VCT Disch Valve, CVC-183.
4. Verify at least one Charging Pump operating and Charging Header flow ≥ 40 GPM.

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

S2

Hot and Cold Leg Safety Injection

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Align Hot and Cold Leg Safety Injection for Trains A and B

Task Standard: Applicant aligns Hot and Cold Leg Safety Injection in accordance with OP-902-009, Standard Appendices, Appendix 15.

References: OP-902-002, Loss of Coolant Accident Recovery
OP-902-009, Standard Appendices

Validation Time: 20 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-902-009, Standard Appendices, Appendix 15, Hot and Cold Leg Injection.

Description:

This JPM occurs during a Loss of Coolant Accident. The applicant will receive direction to align simultaneous Hot and Cold Leg Safety Injection. All manipulations will occur at CP-8. There are no faults during this JPM.

Applicant must obtain keys for all of the valves manipulated in this JPM.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- A Loss of Coolant Accident occurred 2.5 hours ago.
- The crew has entered OP-902-002, Loss of Coolant Accident Recovery
- All requirements of step 47, Hot and Cold Leg Injection, have been met.
- You are the BOP operator.

INITIATING CUES:

- The Control Room Supervisor directs you to establish Hot and Cold Leg Injection in accordance with OP-902-009, Standard Appendices, Appendix 15.

Establish simultaneous Hot and Cold leg injection for Train A by performing the following:

TASK ELEMENT	STANDARD
Close SI-219A, HPSI HEADER ORIFICE BYPASS valve.	SI-219 A is closed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Open SI-502A, HOT LEG 1 INJECTION ISOLATION valve.	SI-502 A is open.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Open SI-506A, HOT LEG 1 INJECTION FLOW CONTROL valve.	SI-506 A is open.
Comment:	<u>Critical</u> SAT / UNSAT

Establish simultaneous Hot and Cold leg injection for Train B by performing the following:

TASK ELEMENT	STANDARD
Close SI-219B, HPSI HEADER ORIFICE BYPASS valve.	SI-219 B is closed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Open SI-502B, HOT LEG 2 INJECTION ISOLATION valve.	SI-502 B is open.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Open SI-506B, HOT LEG 2 INJECTION FLOW CONTROL valve.	SI-506 B is open.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
WHEN hot and cold leg injection has been established, THEN adjust SI-506 A and SI-506 B to obtain the sum of ALL cold leg flows equal to the sum of the hot leg flows.	The sum of all cold leg flows is approximately equal to the sum of the hot leg flows.
<p>Comment:</p> <p>Applicant can obtain Hot and Cold Leg flows from either the PMC, the meters on CP-8, or QSPDS.</p> <p>After the initial alignment is complete, Hot Leg flow will be approximately 875 gpm and Cold Leg flow will be approximately 845 gpm. Applicant should throttle SI-506 A and/or B to reduce Hot Leg flow.</p>	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- A Loss of Coolant Accident occurred 2.5 hours ago.
- The crew has entered OP-902-002, Loss of Coolant Accident Recovery
- All requirements of step 47, Hot and Cold Leg Injection, have been met.
- You are the BOP operator.

INITIATING CUES:

- The Control Room Supervisor directs you to establish Hot and Cold Leg Injection in accordance with OP-902-009, Standard Appendices, Appendix 15.

SIMULATOR OPERATOR INSTRUCTIONS

Reset to IC-191

Verify the following Malfunctions:

- Rc24a 3%

Place the Simulator in Run on the lead examiner's cue.

INSTRUCTIONSCONTINGENCY ACTIONS**Hot and Cold Leg Injection**

- * 47. **IF** elapsed time from the start of the event is between 2 and 3 hours **AND ANY** of the following conditions exist:

- RCS subcooling is less than 28°F based on representative CET temperature
- Pressurizer level is less than 7% **[23%]**
- Reactor vessel level indicates at least one of the following:
 - QSPDS REACTOR VESSEL LEVEL 5 is voided
 - VESSEL LEVEL PLENUM less than 80%

THEN REFER TO Appendix 15, "Hot and Cold Leg Injection" and establish simultaneous hot and cold leg injection.

Reset Safety Systems

- * 48. **IF** any ESFAS actuations have initiated **AND** are **NO** longer needed, **THEN** REFER TO Appendix 5, "ESFAS Reset" and reset ESFAS actuations as required.

Hot and Cold Leg Injection

INSTRUCTIONS

CONTINGENCY ACTIONS

- ____ 1.1 Establish simultaneous hot and cold leg injection for Train A by performing the following:
- a. Close SI 219A, HPSI HEADER ORIFICE BYPASS valve.
 - b. Open SI 502A, HOT LEG 1 INJECTION ISOLATION valve.
 - c. Open SI 506A, HOT LEG 1 INJECTION FLOW CONTROL valve.
- ____ 1.2 Establish simultaneous hot and cold leg injection for Train B by performing the following:
- a. Close SI 219B, HPSI HEADER ORIFICE BYPASS valve.
 - b. Open SI 502B, HOT LEG 2 INJECTION ISOLATION valve.
 - c. Open SI 506B, HOT LEG 2 INJECTION FLOW CONTROL valve.

INSTRUCTIONS

CONTINGENCY ACTIONS

- _____ 1.3 WHEN hot and cold leg injection has been established, THEN adjust SI 506A and SI 506B to obtain the sum of ALL cold leg flows equal to the sum of the hot leg flows.

End of Appendix 15

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

S3

Pressurizer Spray Valve Testing

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Cycle Pressurizer Main Spray valves RC-301 A and B and respond to failed Pressurizer pressure transmitter.

Task Standard: Cycle RC-301 A and RC-301 B in accordance with OP-903-118, Primary Auxiliaries Quarterly IST Valve Test. Report failure of RC-IPR-0100 X and carry out the actions of OP-901-120, Pressurizer Pressure Control Malfunction, E1, as directed by the CRS.

References: OP-903-118, Primary Auxiliaries Quarterly IST Valve Test
OP-901-120, Pressurizer Pressure Control Malfunction

Validation Time: 20 minutes Time Critical: No

Alternate Path: Yes

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-903-118, Primary Auxiliaries Quarterly IST Valve Test, section 7.10.
OP-901-120, Pressurizer Pressure Control Malfunction, section E1.

Description:

Applicant will be directed to perform section 7.10 of OP-903-118 to cycle the Pressurizer Main Spray Valves. After the first valve is cycled, Pressurizer pressure instrument RC-IPR-0100 X will fail high. If the applicant places the Pressurizer Spray Valve controller to automatic, action will need to be taken to close the spray valve selected. After the applicant reports the instrument failure to the CRS, direction will be given to carry out the actions of OP-901-120, section E1, and select the non-faulted channel for Pressurizer Pressure Control.

All manipulations are at CP-2.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- Plant is at 100% power.
- OP-903-118, Primary Auxiliaries Quarterly IST Valve Test, has been started

INITIATING CUES:

- You are directed by the CRS to continue with OP-903-118 with section 7.10, Reactor Coolant, and cycle RC-301 A and RC-301 B.

TASK ELEMENT	STANDARD
Obtain SM/CRS permission to perform this Subsection and document on Attachment 10.10, Reactor Coolant.	Attachment 10.10 will be provided with the CRS authorization.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Caution This test will initiate Pressurizer spray which may result in a decrease in RCS pressure. RCS pressure should be monitored closely during performance of this test.	Acknowledges caution.
Comment: Applicant should take time at this point to bring up additional RCS pressure indications on the PMC to aid in monitoring pressure.	SAT / UNSAT

TASK ELEMENT	STANDARD
Place Spray Valve Selector Switch to Loop 1A.	Spray Valve Selector Switch is in the Loop 1A position.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Place Spray Valve Indicator Controller, RC-IHIC-0100, in Manual and Raise output until one of the following occurs: <ul style="list-style-type: none"> Pressurizer Normal Spray Control Valve A, RC-301A, indicates Intermediate or <ul style="list-style-type: none"> Pressurizer pressure is reduced as indicated on Pressurizer Pressure Indicator, RC-IPI-0102-A3, RC-IPI-0102-B3, or PMC PID A12205. 	Controller, RC-IHIC-0100 is in manual and RC-301 A indicates intermediate or Pressurizer pressure is dropping.
Comment: RC-301 A should indicate intermediate prior to a change in Pressurizer pressure.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Check indication used and document results on Attachment 10.10.	Attachment updated.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Lower Spray Valve Indicator controller, RC-IHIC-0100, Output to 0%.	Controller RC-IHIC-0100 output is 0%.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Place Spray Valve Selector Switch to Loop 1B.	Spray Valve Selector Switch is in the Loop 1B position.
Comment:	<u>Critical</u> SAT / UNSAT

Evaluator Note
Trigger 1 will be initiated during this manipulation, causing RC-IPR0100 X to fail high.

TASK ELEMENT	STANDARD
Place Spray Valve Indicator Controller, RC-IHIC-0100, in Manual and Raise output until one of the following occurs: <ul style="list-style-type: none"> Pressurizer Normal Spray Control Valve B, RC-301B, indicates Intermediate or <ul style="list-style-type: none"> Pressurizer pressure is reduced as indicated on Pressurizer Pressure Indicator, RC-IPI-0102-A3, RC-IPI-0102-B3, or PMC PID A12205. 	Controller, RC-IHIC-0100 is in manual and RC-301 B indicates intermediate or Pressurizer pressure is dropping.
Comment: If applicant places controller RC-IHIC-0100 to automatic at this point, RC-301 B will go full open. The applicant should take action to close RC-301 B if this action is taken.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Report indication of the failed RC-IPR-0100 X to the CRS.	Report made.
Comment:	<u>Critical</u> SAT / UNSAT

Evaluator Cue
<p>After applicant reports the failed instrument, provide the following cue:</p> <p>The CRS acknowledges that RC-IPR0100 X has failed and has entered OP-901-120. The CRS directs you to perform the actions of section E1, steps 1 through 4.</p> <p>Provide the applicant a copy of OP-901-120, section E1.</p>

TASK ELEMENT	STANDARD
Verify control channel instrument failure by checking PRESSURIZER PRESSURE CHANNEL X/Y recorder (RC-IPR-0100).	Verifies that RC-IPR-0100X has failed high.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Transfer Pressurizer pressure control to operable channel using Pressurizer Pressure Channel Selector control switch.	Pressurizer Pressure Channel Selector Switch is placed in the Y position.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Transfer Pressurizer Lo Level Heater Cutout selector switch to the Operable Pressurizer Pressure control channel.	Pressurizer Lo Level Heater Cutout selector switch is placed in position Y.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Reset Proportional Heater Banks #1 & #2.	Proportional Heater Banks #1 & #2 breakers indicate closed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify proper operation of Pressurizer Pressure controller (RC-IPIC-0100) AND Pressurizer Pressure controlling OR being restored to 2250 PSIA.	Verifies RC-IPIC-0100 indication is normal.
Comment:	SAT / UNSAT

Evaluator Cue
After applicant has completed OP-901-120, E1, direct him to complete restoration in accordance with OP-903-118, step 7.10.2.5.

TASK ELEMENT	STANDARD
Place Spray Valve Indicator Controller, RC-IHIC-0100, in Manual and Raise output until one of the following occurs: <ul style="list-style-type: none"> Pressurizer Normal Spray Control Valve B, RC-301B, indicates Intermediate or <ul style="list-style-type: none"> Pressurizer pressure is reduced as indicated on Pressurizer Pressure Indicator, RC-IPI-0102-A3, RC-IPI-0102-B3, or PMC PID A12205. 	Controller, RC-IHIC-0100 is in manual and RC-301 B indicates intermediate or Pressurizer pressure is dropping.
Comment: This is the step that was started at the point of the failure. RC-301 B may already indicate intermediate at this point.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Check indication used and document results on Attachment 10.10.	Attachment updated.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Lower Spray Valve Indicator controller, RC-IHIC-0100, Output to 0%.	Controller RC-IHIC-0100 output is 0%.
Comment: Applicant may have already taken this action during the malfunction.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Place Spray Valve Indicator Controller, RC-IHIC-0100, in Auto	Spray Valve Indicator Controller, RC-IHIC-0100, is in Auto.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Document final position on Attachment 10.10	Attachment updated.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Place Spray Valve Selector Switch to Both	Spray Valve Selector Switch is in Both.
Comment:	<p><u>Critical</u></p> <p>SAT / UNSAT</p>

TASK ELEMENT	STANDARD
Document final position on Attachment 10.10.	Attachment updated.
Comment:	<p>SAT / UNSAT</p>

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- Plant is at 100% power.
- OP-903-118, Primary Auxiliaries Quarterly IST Valve Test, has been started

INITIATING CUES:

- You are directed by the CRS to continue with OP-903-118 with section 7.10, Reactor Coolant, and cycle RC-301 A and RC-301 B.

SIMULATOR OPERATOR INSTRUCTIONS

Reset to IC – 195

Verify the following Malfunctions:

- Rx14a 100% (Trigger 1)

After applicant has placed the Spray Valve Selector Switch in 1B, when manipulating the Spray Valve controller to open RC-301 B, initiate Trigger 1.

E₁ PRESSURIZER PRESSURE CONTROL CHANNEL INSTRUMENT FAILURE

PLACEKEEPER		
START	DONE	N/A
<div>1. Verify control channel instrument failure by checking PRESSURIZER PRESSURE CHANNEL X/Y recorder (RC-IPR-0100).</div>	<div></div>	
<div>2. Transfer Pressurizer pressure control to operable channel using Pressurizer Pressure Channel Selector control switch.</div>	<div></div>	
<div>3. <u>IF</u> Pressurizer Pressure control channel is failed high, <u>THEN</u> perform the following:</div>	<div></div>	<div></div>
<div> a. Transfer Pressurizer Lo Level Heater Cutout selector switch to the Operable Pressurizer Pressure control channel.</div>	<div></div>	
<div> b. Reset Proportional Heater Banks #1 & #2.</div>	<div></div>	
<div>4. Verify proper operation of Pressurizer Pressure controller (RC-IPIC-0100) <u>AND</u> Pressurizer Pressure controlling <u>OR</u> being restored to 2250 PSIA.</div>	<div>Continuous</div>	
<div>5. Refer to Technical Specification 3.2.8.</div>	<div></div>	

END

7.10 REACTOR COOLANT

- 7.10.1 Obtain SM/CRS permission to perform this Subsection and document on Attachment 10.10, Reactor Coolant.

CAUTION

THIS TEST WILL INITIATE PRESSURIZER SPRAY WHICH MAY RESULT IN A DECREASE IN RCS PRESSURE. RCS PRESSURE SHOULD BE MONITORED CLOSELY DURING PERFORMANCE OF THIS TEST.

7.10.2 Testing of RC-301A and RC-301B:

- 7.10.2.1 Place Spray Valve Selector Switch to Loop 1A.

- 7.10.2.2 Place Spray Valve Indicator Controller, RC-IHIC-0100, in Manual and Raise output until one of the following occurs:

Pressurizer Normal Spray Control Valve A, RC-301A, indicates Intermediate

or

Pressurizer pressure is reduced as indicated on Pressurizer Pressure Indicator, RC-IPI-0102-A3, RC-IPI-0102-B3, or PMC PID A12205.

- 7.10.2.2.1 Check indication used and document results on Attachment 10.10.

- 7.10.2.3 Lower Spray Valve Indicator controller, RC-IHIC-0100, Output to 0%.

- 7.10.2.4 Place Spray Valve Selector Switch to Loop 1B.

- 7.10.2.5 Verify Spray Valve Indicator Controller, RC-IHIC-0100, in Manual and Raise output until one of the following occurs:

Pressurizer Normal Spray Control Valve B, RC-301B, indicates Intermediate,

or

Pressurizer pressure is reduced as indicated on Pressurizer Pressure Indicator, RC-IPI-0102-A3, or RC-IPI-0102-B3, or PMC PID A12206.

- 7.10.2.5.1 Check indication used and document results on Attachment 10.10.

7.10.2.6 Lower Spray Valve Indicator Controller, RC-IHIC-0100, Output to 0%.

7.10.2.7 Place Spray Valve Indicator Controller, RC-IHIC-0100, in Auto.

7.10.2.7.1 Document final position on Attachment 10.10.

7.10.2.8 Place Spray Valve Selector Switch to Both.

7.10.2.8.1 Document final position on Attachment 10.10.

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JOB PERFORMANCE MEASURE

S4

Break Main Condenser Vacuum

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Break Main Condenser Vacuum

Task Standard: Applicant completes step 5 of OP-901-210, Turbine Trip, and commences breaking Main Condenser vacuum.

References: OP-901-210, Turbine Trip

Validation Time: 10 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-901-210, Turbine Trip, section E0.

Description:

This JPM will be performed after JPM S1. The plant will be tripped and Standard Post Trip Actions complete. The applicant will be directed to carry out the actions of OP-901-210 to break Main Condenser vacuum. The steps require manipulations on panels CP-1 and CP-8.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- The plant has been tripped due to high Main Turbine Vibration.
- Standard Post Trip Actions have been completed.
- You are the BOP operator.

INITIATING CUES:

- The CRS directs you to carry out the actions in step 5 of OP-901-210, Turbine Trip, while he and the ATC review Standard Post Trip Actions.

TASK ELEMENT	STANDARD
Verify tripped OR Manually trip the Reactor.	Verification complete.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Go to OP-902-000, STANDARD POST TRIP ACTIONS, AND perform concurrently with this procedure.	Provided in the cue.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Announce the following twice: ATTENTION STATION PERSONNEL, ATTENTION STATION PERSONNEL, BREAKING CONDENSER VACUUM.	Announcement complete.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Place STEAM BYPASS MASTER controller (MS-IPIC-1010) in MAN.	Controller MS-IPIC-1010 is in Manual.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Slowly lower output of STEAM BYPASS MASTER controller (MS-IPIC-1010) to zero.	Controller MS-IPIC-1010 is at zero.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify Steam Generator pressure maintained at approximately 992 psig by Atmospheric Dump valves.	Verification complete.
Comment: Pressure will initially be lower than 992 psig since they were being controlled by the Steam Bypass System. Applicant may wait at this point to see the Atmospheric Dump valves open.	SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Caution Main Feedwater Pumps will trip when Main Steam is isolated.	Caution reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Close BOTH Main Steam Isolation Valves (MS 124A AND MS 124B).	MS-124 A and MS-124 B are closed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Open Condenser Vacuum Breaker valves by simultaneously depressing THINK push button AND placing CNDSR VAC BKR control switch to OPEN.	Condenser Vacuum Breaker valves are open.
Comment:	<p><u>Critical</u></p> <p>SAT / UNSAT</p>

TASK ELEMENT	STANDARD
<p>WHEN the following annunciators alarm, THEN secure respective Condenser Vacuum pumps by placing the CONDENSER VACUUM PUMP control switch to STOP for 5 seconds:</p> <ul style="list-style-type: none"> • Condenser Vacuum Pump A AUTO START (Cabinet E, E-1) • Condenser Vacuum Pump B AUTO START (Cabinet E, E-2) • Condenser Vacuum Pump C AUTO START (cabinet E, E-3) 	All 3 Condenser Vacuum pumps are secured.
Comment:	<p><u>Critical</u></p> <p>SAT / UNSAT</p>

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The plant has been tripped due to high Main Turbine Vibration.
- Standard Post Trip Actions have been completed.
- You are the BOP operator.

INITIATING CUES:

- The CRS directs you to carry out the actions in step 5 of OP-901-210, Turbine Trip, while he and the ATC review Standard Post Trip Actions.

SIMULATOR OPERATOR INSTRUCTIONS

This JPM will be run following JPM S1. There is no need to reset the Simulator. The Simulator should be in IC – 190 with the reactor tripped.

The following Malfunctions were used in JPM S1:

- Tu01c 7 mils
- Tu01g 10 mils
- Tu01o 15 mils
- Rd11a69 true sticks CEA 69
- Rd11a83 true sticks CEA 83

Verify the following Overrides were used in JPM S1:

- Di-04a4s30-1 BAM-113 A closed
- Di-04a4s02-1 BAM Pump A off (trigger 1)
- Di-04a4s08-1 BAM Pump B off (trigger 1)
- Di-01a08a03s06-1 Moisture Separator Reheater Reset (trigger 2)

No action is necessary during this JPM.

E. SUBSEQUENT OPERATOR ACTIONS

E₀ GENERAL

NOTE

High vibration is defined for bearings #1 through #10 as a sustained vibration above 10 mils. Due to lower bearing loads, high vibration on Bearing #11 would not require breaking condenser vacuum unless it affected the adjacent bearing (#10). [ER-W3-2002-0324-001]

1. IF a Reactor trip occurs, THEN perform EITHER of the following:
 - 1.1 IF turbine trip was due to loss of Main Lube Oil OR high vibration, THEN GO TO step 5.
 - 1.2 IF turbine trip was due to any reason other than those listed in step 1.1 above, THEN GO TO OP-902-000, STANDARD POST TRIP ACTIONS.
2. IF the turbine tripped due to loss of Main Lube Oil OR high vibration, THEN GO TO step 5.
3. IF a Reactor Power Cutback occurred, THEN perform OP-901-101, REACTOR POWER CUTBACK, concurrently with this procedure.
4. IF turbine trip was due to any reason other than those listed in step 2, THEN GO TO step 6.
5. IF Turbine trip was due to a loss of Main Lube Oil OR high vibration OR normal Turbine coast down may damage the unit, THEN perform the following:
 - 5.1 Verify tripped OR Manually trip the Reactor.
 - 5.2 Go to OP-902-000, STANDARD POST TRIP ACTIONS, AND perform concurrently with this procedure.
 - 5.3 Announce the following twice:

ATTENTION STATION PERSONNEL,
ATTENTION STATION PERSONNEL,
BREAKING CONDENSER VACUUM.
 - 5.4 Close ALL Steam Bypass Control valves by performing the following:
 - 5.4.1 Place STEAM BYPASS MASTER controller (MS-IPIC-1010) in MAN.
 - 5.4.2 Slowly lower output of STEAM BYPASS MASTER controller (MS-IPIC-1010) to zero.

E₀ GENERAL (CONT'D)

- 5.5 Verify Steam Generator pressure maintained at approximately 992 psig by Atmospheric Dump valves.

CAUTION

MAIN FEEDWATER PUMPS WILL TRIP WHEN MAIN STEAM IS ISOLATED.

- 5.6 Close BOTH Main Steam Isolation Valves (MS 124A AND MS 124B).
- 5.7 Open Condenser Vacuum Breaker valves by simultaneously depressing THINK push button AND placing CND SR VAC BKR control switch to OPEN.
- 5.8 WHEN the following annunciators alarm, THEN secure respective Condenser Vacuum pumps by placing the CONDENSER VACUUM PUMP control switch to STOP for 5 seconds:
- Condenser Vacuum Pump A AUTO START (Cabinet E, E-1)
 - Condenser Vacuum Pump B AUTO START (Cabinet E, E-2)
 - Condenser Vacuum Pump C AUTO START (cabinet E, E-3)
- 5.9 GO TO step 9.
6. IF a turbine trip has occurred AND a low EH reservoir level exists, THEN place both EH pump switches to OFF.
7. Verify the following automatic actions have occurred:
- Turbine tripped
 - The following breakers trip:
 - Generator Breaker A
 - Generator Breaker B
 - EXCITER FIELD BREAKER
 - Automatic transfer from Unit Auxiliary Transformer A to Startup Transformer A
 - Automatic transfer from Unit Auxiliary Transformer B to Startup Transformer B
 - Steam Bypass Control System OR Atmospheric Dump valves responding to maintain Steam Generator pressure
 - Heater Drain Pumps trip

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JOB PERFORMANCE MEASURE

S5

Start Hydrogen Recombiner A

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Start Hydrogen Recombiner A

Task Standard: Hydrogen Recombiner A is operating in accordance with OP-008-006, Hydrogen Recombiner.

References: OP-008-006, Hydrogen Recombiner.

Validation Time: 25 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-008-006, Hydrogen Recombiner

Description:

Applicant will be directed to start Hydrogen Recombiner A using OP-008-006. All manipulations will occur at CP-33. One reading will be required to be obtained from CP-8. Step 6.1.10 will direct monitoring for temperature to rise to > 1225 °F. The task will be stopped when this step is reached.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- A Loss of Coolant Accident is in progress.
- Before the LOCA, Containment Temperature was recorded as 105 °F in OP-903-001, Technical Specification Logs.

INITIATING CUES:

- The CRS directs you to place Hydrogen Recombiner A in service using OP-008-006.

TASK ELEMENT	STANDARD
Record present Post-LOCA Containment pressure from Containment Atmosphere Pressure Indicator, ESF-IPI-6750A, on Attachment 11.2, Hydrogen Recombiner Power Control Setting Data Sheet.	Value recorded.
Comment: This value can vary based on the time taken to complete JPM S2. Value should be ~19 psia.	SAT / UNSAT

TASK ELEMENT	STANDARD
Record Pre-LOCA Containment Average Temperature from OP-903-001, Technical Specification Surveillance Logs, on Attachment 11.2.	Value recorded.
Comment: Given in the cue.	SAT / UNSAT

TASK ELEMENT	STANDARD
Determine Pressure Factor (Cp) from Attachment 11.4, Dry Containment Recombiner Power Correction Factor Graph.	Correction Factor determined.
Comment: Will vary based on pressure recorded in step 1. Should determine a value of 1.18 to 1.22.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Record Pressure Factor (Cp) on Attachment 11.2.	Value recorded.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Determine Hydrogen Recombiner Power Control Setting by multiplying a reference power of 48 KW by Cp.	Setting determined.
Comment: Equals value determined in step 6.1.1.3 * 48. Should be 56.6 – 58.6	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Record Hydrogen Recombiner Power Control Setting on Attachment 11.2.	Value recorded.
Comment:	 SAT / UNSAT

TASK ELEMENT	STANDARD
Continuously monitor the Hydrogen Recombiner A Power Meter, HRA-EM-960, when power level is being changed.	Step reviewed.
Comment:	 SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Note Adjusting the Hydrogen Recombiner Power Control potentiometer slowly compensates for the lag between the meter and the potentiometer adjustments.	Note reviewed.
Comment:	 SAT / UNSAT

TASK ELEMENT	STANDARD
Verify Hydrogen Recombiner A Power Control potentiometer is set at zero (000).	Setting verified.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Place Hydrogen Recombiner A Power control switch, HRA-001A, to ON.	HRA-001A is ON.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Slowly adjust Hydrogen Recombiner Power Control potentiometer for Hydrogen Recombiner A until 5 KW is indicated on Hydrogen Recombiner A Power Meter, HRA-EM-960.	5 KW is indicated on Hydrogen Recombiner A Power Meter.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Hold reading for 10 minutes.	Acknowledges hold.
Comment: Prompt applicant that 10 minutes has elapsed.	SAT / UNSAT

TASK ELEMENT	STANDARD
Verify Hydrogen Thermocouple Temperatures trend upward when adjusting Power Control Potentiometer, as indicated on Hydrogen Recombiner A Outlet Air Temperature Indicator, HRA-ITI-0001A. Use Temperature Select switch to read thermocouple temperatures.	Temperatures monitored.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Adjust Hydrogen Recombiner Power Control potentiometer for Hydrogen Recombiner A until 10 KW indicated on Hydrogen Recombiner A Power Meter, HRA-EM-960.	10 KW is indicated on Hydrogen Recombiner A Power Meter.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Hold reading for 10 minutes.	Acknowledges hold.
Comment: Prompt applicant that 10 minutes has elapsed.	SAT / UNSAT

TASK ELEMENT	STANDARD
Adjust Hydrogen Recombiner Power Control potentiometer for Hydrogen Recombiner A until 20 KW indicated on Hydrogen Recombiner A Power Meter, HRA-EM-960.	20 KW is indicated on Hydrogen Recombiner A Power Meter.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Hold reading for 10 minutes.	Acknowledges hold.
Comment: Prompt applicant that 10 minutes has elapsed.	SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Caution DO NOT EXCEED 75 KW.	Caution Reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Adjust Hydrogen Recombiner Power Control Potentiometer for Hydrogen Recombiner A to setting calculated on Attachment 11.2.	Potentiometer adjusted.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Caution DO NOT EXCEED 1400 °F.	Caution reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
<p>Adjust Hydrogen Recombiner Power Control potentiometer as necessary, within the following guidelines, to maintain heater temperature > 1225 °F to 1400 °F, as read on Hydrogen Recombiner A Outlet Air Temperature Indicator, HRA-ITI-0001A:</p> <ul style="list-style-type: none"> • Use the average of all three thermocouples temperatures to obtain a heater temperature. Example: 1200, 1210, and 1220, use 1210°F. • If only two thermocouples are within 50°F of each other, then use average of the closest two temperatures. Examples: 1200, 1210, and 1270, use 1205°F. • The following computer points can be used to trend operation of the Hydrogen Recombiner Operation: <ul style="list-style-type: none"> A42700 – Temp 1 A42701 – Temp 2 A42702 – Temp 3 	Step reviewed.
<p>Comment:</p> <p>Temperature will be < 300 °F at this time. End task when this step is reached.</p>	SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- A Loss of Coolant Accident is in progress.
- Before the LOCA, Containment Temperature was recorded as 105 °F in OP-903-001, Technical Specification Logs.

INITIATING CUES:

- The CRS directs you to place Hydrogen Recombiner A in service using OP-008-006.

SIMULATOR OPERATOR INSTRUCTIONS

This JPM will be performed after JPM S2. No reset is required.

Verify the following Malfunctions:

- Rc24a 3%

Place the Simulator in Run on the lead examiner's cue.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 PRECAUTIONS

- 3.1.1 At no time should Hydrogen Recombiner temperature be allowed to exceed 1400 F.
- 3.1.2 At no time should Hydrogen Recombiner power be allowed to exceed 75 KW.

3.2 LIMITATIONS

- 3.2.1 Hydrogen Recombination occurs between temperatures of 1150 F and 1400 F depending on Hydrogen Concentration. Maintaining Hydrogen Recombiner Temperature > 1225 F assures Hydrogen Recombination at lower Hydrogen Concentrations.
- 3.2.2 Except for testing, Hydrogen Recombiners should only be operated when Containment hydrogen concentration rises to 0.6% Post Accident in Containment.

6.0 NORMAL OPERATION

6.1 RECOMBINER STARTUP

- 6.1.1 Calculate required Hydrogen Recombiner Power Control potentiometer setting by performing following:
 - 6.1.1.1 Record present Post-LOCA Containment pressure from Containment Atmosphere Pressure Indicator, ESF-IPI-6750A, on Attachment 11.2, Hydrogen Recombiner Power Control Setting Data Sheet.
 - 6.1.1.2 Record Pre-LOCA Containment Average Temperature from OP-903-001, Technical Specification Surveillance Logs, on Attachment 11.2.
 - 6.1.1.3 Determine Pressure Factor (Cp) from Attachment 11.4, Dry Containment Recombiner Power Correction Factor Graph.
 - 6.1.1.3.1 Record Pressure Factor (Cp) on Attachment 11.2.
 - 6.1.1.4 Determine Hydrogen Recombiner Power Control Setting by multiplying a reference power of 48 KW by Cp.
 - 6.1.1.4.1 Record Hydrogen Recombiner Power Control Setting on Attachment 11.2.
- 6.1.2 Continuously monitor the Hydrogen Recombiner A(B) Power Meter, HRA-EM-960(962), when power level is being changed.

NOTE

Adjusting the Hydrogen Recombiner Power Control potentiometer slowly compensates for the lag between the meter and the potentiometer adjustments

- 6.1.3 Verify Hydrogen Recombiner A(B) Power Control potentiometer is set at zero (000).
- 6.1.4 Place Hydrogen Recombiner A(B) Power control switch, HRA-001A(B), to ON.
- 6.1.5 Slowly adjust Hydrogen Recombiner Power Control potentiometer for Hydrogen Recombiner A(B) until 5 KW is indicated on Hydrogen Recombiner A(B) Power Meter, HRA-EM-960(962).
 - 6.1.5.1 Hold reading for 10 minutes.
- 6.1.6 Verify Hydrogen Thermocouple Temperatures trend upward when adjusting Power Control Potentiometer, as indicated on Hydrogen Recombiner A(B) Outlet Air Temperature Indicator, HRA-ITI-0001A(B). Use Temperature Select switch to read thermocouple temperatures.

- 6.1.7 Adjust Hydrogen Recombiner Power Control potentiometer for Hydrogen Recombiner A(B) until 10 KW indicated on Hydrogen Recombiner A(B) Power Meter, HRA-EM-960(962).

6.1.7.1 Hold reading for 10 minutes.

- 6.1.8 Adjust Power Control Potentiometer for Hydrogen Recombiner(s) A(B) until 20 KW is indicated on Hydrogen Recombiner A(B) Power meter, HRA-EM-960(962).

6.1.8.1 Hold reading for 10 minutes.

CAUTION

DO NOT EXCEED 75 KW.

- 6.1.9 Adjust Hydrogen Recombiner Power Control Potentiometer for Hydrogen Recombiner A(B) to setting calculated on Attachment 11.2.

CAUTION

DO NOT EXCEED 1400 F.

- 6.1.10 Adjust Hydrogen Recombiner Power Control potentiometer as necessary, within the following guidelines, to maintain heater temperature > 1225 F to 1400 F, as read on Hydrogen Recombiner A(B) Outlet Air Temperature Indicator, HRA-ITI-0001A(B):

Use the average of all three thermocouples temperatures to obtain a heater temperature. Example: 1200, 1210, and 1220, use 1210 F.

If only two thermocouples are within 50 F of each other, then use average of the closest two temperatures. Examples: 1200, 1210, and 1270, use 1205 F.

The following computer points can be used to trend operation of the Hydrogen Recombiner Operation:

Hydrogen Recombiner A

A42700 – Temp 1

A42701 – Temp 2

A42702 - Temp 3

Hydrogen Recombiner B

A42703 – Temp 1

A42704 - Temp 2

A42705 - Temp 3

- 6.1.11 Record Containment hydrogen concentration, Date, and Time on Attachment 11.3 when Hydrogen Recombiner Heater temperature reaches > 1225 F.
- 6.1.12 Verify proper Hydrogen Recombiner operation in accordance with Section 6.2, Verification of Recombiner Operation.

11.2 HYDROGEN RECOMBINER POWER CONTROL SETTING DATA SHEET

SECTION 6.1 (6.2)

STEP #

6.1.1.1 (6.2.4.1) Post-LOCA Containment Pressure, ESF-IPI-6750A (CP-8) _____

6.1.1.2 (6.2.4.2) Pre-LOCA Containment Temperature (from OP-903-001) _____

6.1.1.3.1 (6.2.4.3.1) _____ Cp (from Attachment 11.4)

6.1.1.4.1 (6.2.4.4.1) 48 KW X Cp = Recombiner Power Control Setting

48 KW X _____ = _____

Performed by: _____
(Signature) (Date)

Verified by: _____
(Signature) (Date)

11.3 CONTAINMENT HYDROGEN CONCENTRATION DATA SHEET

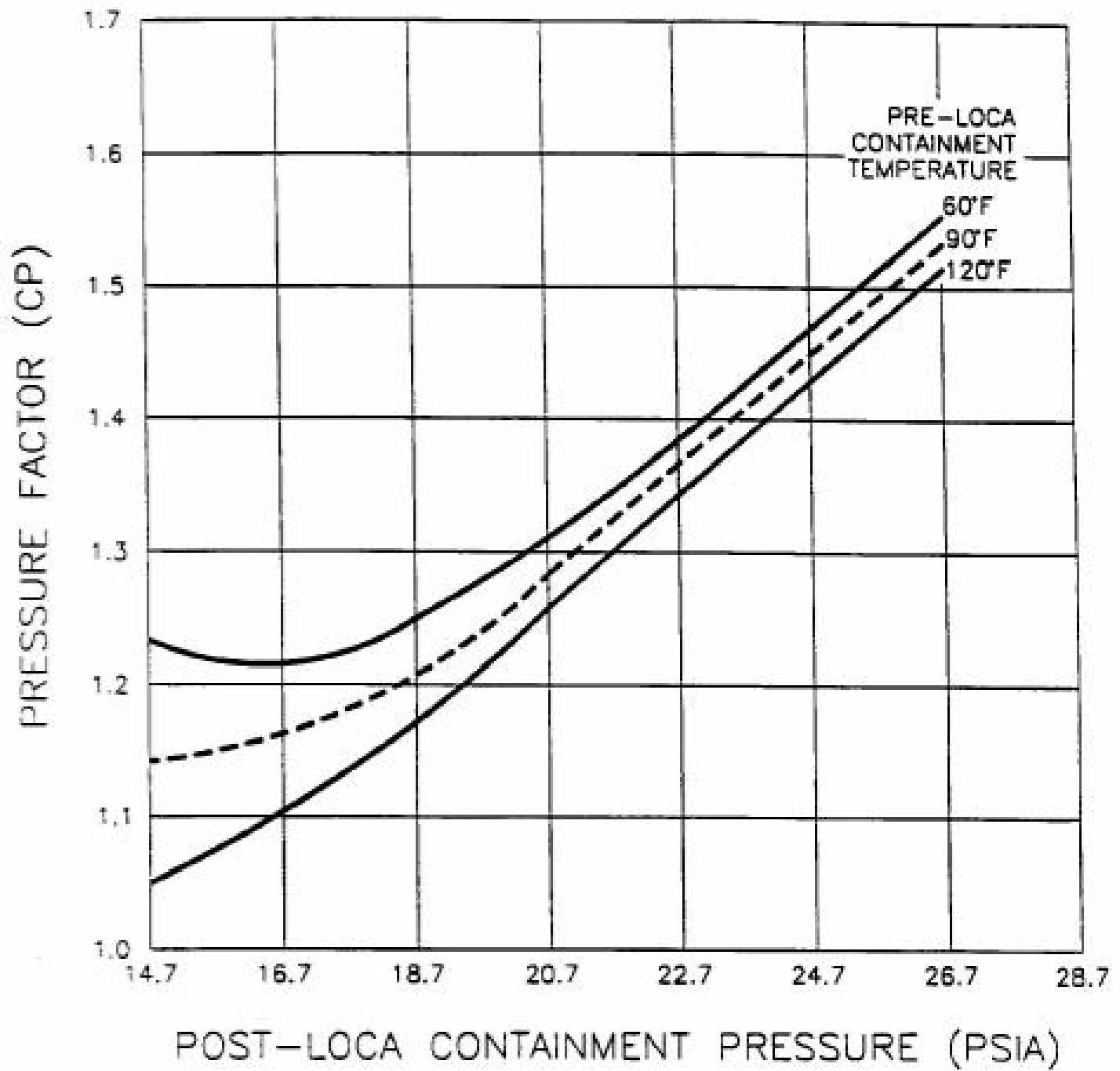
SECTION 6.1

<u>STEP #</u>		<u>INITIALS</u>
6.1.11	_____ % Hydrogen concentration at start of recombiners	_____
6.1.11	_____ Start Date and Time	_____

SECTION 6.2

<u>STEP #</u>		<u>INITIALS</u>
6.2.3	_____ % Hydrogen concentration after 24 hours	_____
6.2.3	_____ Date and Time	_____

11.4 DRY CONTAINMENT RECOMBINER POWER CORRECTION FACTOR GRAPH



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JOB PERFORMANCE MEASURE

S6

Stabilize RCS Temperature

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Stabilize RCS Temperature during an Excess Steam Demand Event

Task Standard: Actions contained in step 16 of OP-902-004, Excess Steam Demand Recovery, are complete. Emergency Feedwater controller will be failed requiring use of alternate EFW controller to establish flow.

References: OP-902-004, Excess Steam Demand Recovery

Validation Time: 15 minutes Time Critical: No

Alternate Path: Yes

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-902-004, Excess Steam Demand Recovery

Description:

The simulation begins with a Main Steam line break event in progress. The trigger points for taking action in step 16 are CET temperature rising and Pressurizer pressure rising. Pressurizer pressure will begin rising shortly after coming out of freeze. The CET temperature rise will begin a few minutes later. Upon receiving the indication of both critical parameters rising, the applicant will be required to action the actions specified to prevent pressurized thermal shock conditions.

In the JPM, both EFW control stations are failed. The simulator operator will remove the malfunction on the controller the applicant does not use first. The applicant will have to use the alternate controller to establish EFW flow to S/G #1.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- An Excess Steam Demand event is in progress.
- The crew is implementing OP-902-004, Excess Steam Demand Recovery.
- Steam Generator #2 is currently blowing down in Containment.

INITIATING CUES:

- The CRS has directed you to monitor for the trigger points in step 16, and carry out the actions of step 16 when appropriate.
- Carry out the actions of the BOP and the ATC for step 16.

TASK ELEMENT	STANDARD
<p>Actions to stabilize RCS temperature following an excess steam demand event should be initiated when BOTH of the following parameters are met:</p> <ul style="list-style-type: none"> • CET temperatures rise • Pressurizer pressure rise 	Both parameters are monitored. Action does not begin until both parameters are rising.
<p>Comment:</p> <p>Parameters can be monitored on the control panels, the PMC, or QSPDS. Pressurizer pressure will begin rising shortly after beginning. CET temperature will begin rising a few minutes later.</p>	<p><u>Critical</u></p> <p>SAT / UNSAT</p>

TASK ELEMENT	STANDARD
Place the ADV for the least affected steam generator to manual and fully open the ADV.	ADV #1 is in manual with 100% output.
Comment:	<p><u>Critical</u></p> <p>SAT / UNSAT</p>

Evaluator Note
Proper manual initiation of Emergency Feedwater requires all 4 switches for the correct S/G to be taken to <u>ACT</u> , 2 on CP-7 and 2 on CP-8.

TASK ELEMENT	STANDARD
Manually initiate EFAS for the least affected steam generator.	Both EFAS initiation switches for S/G #1 at CP-7 are taken to ACT.
Comment:	<p><u>Critical</u></p> <p>SAT / UNSAT</p>

TASK ELEMENT	STANDARD
Manually initiate EFAS for the least affected steam generator.	Both EFAS initiation switches for S/G #1 at CP-8 are taken to ACT.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Place the EFW Flow Control Valve to manual and commence feeding the least affected steam generator.	EFW is established to S/G #1 at a rate of approximately 400 gpm.
Comment: Both the Primary and Backup EFW flow controllers for S/G #1 are faulted. The booth operator will observe which controller the applicant uses first, and then remove the other fault. The applicant will be required to use the alternate controller to establish EFW flow.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
IF RCS pressure is greater than or equal to 1500 psia, THEN stabilize RCS pressure at a value not to exceed 1600 psid between the RCS and the lowest SG pressure.	RCS pressure reduced using Auxiliary Spray valves to < 1600 psid of S/G #2.
Comment: If applicant asks for a RCS pressure band, request a recommendation. An appropriate RCS pressure band is 1500-1600 psia. The critical element for this task is to lower RCS pressure with Auxiliary Spray.	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- An Excess Steam Demand event is in progress.
- The crew is implementing OP-902-004, Excess Steam Demand Recovery.
- Steam Generator #2 is currently blowing down in Containment.

INITIATING CUES:

- The CRS has directed you to monitor for the trigger points in step 16, and carry out the actions of step 16 when appropriate.
- Carry out the actions of the BOP and the ATC for step 16.

SIMULATOR OPERATOR INSTRUCTIONS

Reset to IC – 192

Verify the following Malfunctions:

- Ms11b 25%

Verify the following Overrides:

- Di-08a04a01d-1 Push (for S/G #1 Backup Flow Control Valve, Train A)
- Di-08a07a01d-1 Push (for S/G #1 Primary Flow Control Valve, Train B)

The booth operator must observe which EFW m/a station the applicant attempts to use first. Delete the override of the second m/a station when the applicant is manipulating the first controller.

INSTRUCTIONSCONTINGENCY ACTIONS

NOTE

Actions to stabilize RCS temperature following an excess steam demand event should be initiated when BOTH of the following parameters are met:

- CET temperatures rise
 - Pressurizer pressure rise
-

Stabilize RCS Temperature

- * 16. Verify RCS temperature is stabilized by performing the following:
- a. Place the ADV for the least affected steam generator to manual and fully open the ADV.
 - b. Manually initiate EFAS for the least affected steam generator.
 - c. Place the EFW Flow Control Valve to manual and commence feeding the least affected steam generator.
 - d. IF RCS pressure is greater than or equal to 1500 psia, THEN stabilize RCS pressure at a value not to exceed 1600 psid between the RCS and the lowest SG pressure.
 - d.1 IF RCS pressure is less than 1500 psia, THEN stabilize RCS pressure at greater than HPSI shutoff head (1500-1600 psia).

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2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

S7

Reset Containment Spray Actuation

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Reset Containment Spray Actuation

Task Standard: CSAS initiation and actuation are reset in accordance with OP-902-009, Standard Appendices, Appendix 5 – E.

References: OP-902-009, Standard Appendices, Appendix 5 – E
OP-902-004, Excess Steam Demand Recovery

Validation Time: 15 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-902-009, Standard Appendices, Appendix 5 – E
OP-902-004, Excess Steam Demand Recovery

Description:

The JPM begins in an Excess Steam Demand event, after the applicable Steam Generator has blown dry. Containment Spray termination criteria are met. The applicant will be directed to reset CSAS. Actions for this task take place at CP-8, CP-10 A through D, and CP-33.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- An Excess Steam Demand event has occurred.
- The crew is implementing OP-902-004, Excess Steam Demand Recovery
- The conditions of step 44 of OP-902-004 have been verified to be met.
- Containment Spray is NOT needed for iodine removal.

INITIATING CUES:

- The CRS directs you, the BOP operator, to perform OP-902-009, Standard Appendices, Appendix 5 – E and reset CSAS.

TASK ELEMENT	STANDARD
Place control switches for the following valves to CLOSE: <ul style="list-style-type: none"> • CC-641, CCW RCP INLET OUTSIDE ISOL • CC-710, CCW RCP OUTLET INSIDE ISOL • CC-713, CCW RCP OUTLET OUTSIDE ISOL 	All 3 valve control switches are in CLOSED.
Comment:	<u>Critical</u> SAT / UNSAT

Evaluator Note
To Reset CSAS Initiation relays, the following 4 steps must be performed on Channels A, B, C, and D.

TASK ELEMENT	STANDARD
Place the Reset Permissive switch to "UNLK" position. (CP-10)	The applicable Reset Permissive switch is in UNLK.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Press CSAS Reset pushbutton.	CSAS Reset pushbutton is pressed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify the initiation relay indicator lit on the ENGINEERED SAFETY FEATURES SYSTEM mimic.	Verification complete.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Place the Reset permissive switch to LK position	The applicable Reset Permissive switch is in the LK position.
Comment: This sequence must be repeated for Channels A – D.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Reset CSAS actuation logic on BOTH trains as follows: <ul style="list-style-type: none"> Press the CSAS Reset pushbuttons. (CP-33) 	CSAS Reset pushbuttons A & B have been de-pressed.
Comment: There are 2 buttons on CP-33 that must be pressed, 1 for Train A and 1 for Train B.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify the actuation relay indicator lit on the ENGINEERED SAFETY FEATURES SYSTEM mimic. (CP-10)	CP-10 verification is complete.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Stop ONE CS pump at a time.	One Containment Spray Pump is secured.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
IF a CS pump is operating, THEN stop the remaining CS pump.	Second Containment Spray Pump is secured.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Close the following Containment Spray valves: <ul style="list-style-type: none"> CS-125 A, CNTMT SPRAY HEADER A ISOL CS-125 B, CNTMT SPRAY HEADER B ISOL 	CS-125 A and CS-125 B are closed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Place BOTH Containment Spray pump control switches to normal position.	Both Containment Spray pump control switches are in the normal position.
Comment:	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- An Excess Steam Demand event has occurred.
- The crew is implementing OP-902-004, Excess Steam Demand Recovery
- The conditions of step 44 of OP-902-004 have been verified to be met.
- Containment Spray is NOT needed for iodine removal.

INITIATING CUES:

- The CRS directs you, the BOP operator, to perform OP-902-009, Standard Appendices, Appendix 5 – E and reset CSAS.

SIMULATOR OPERATOR INSTRUCTIONS

Reset to IC – 193

Verify the following Malfunctions:

- Ms11b 25%
- Ch09 50%

Place the Simulator in Run on the lead examiner's cue.

ESFAS Reset**Attachment 5-E: CSAS Reset Procedure****INSTRUCTIONS****CONTINGENCY ACTIONS**

____ 1.1 Place control switches for the following valves to "CLOSE:"

- CC 641, CCW RCP INLET
OUTSIDE ISOL
- CC 710, CCW RCP OUTLET
INSIDE ISOL
- CC 713, CCW RCP OUTLET
OUTSIDE ISOL

____ 1.2 Reset CSAS Initiation relays on **ALL** four channels as follows:

- a. Place the Reset Permissive switch to "UNLK" position.
(CP-10)
- b. Press CSAS Reset pushbutton.
- c. Verify the initiation relay indicator lit on the
ENGINEERED SAFETY
FEATURES SYSTEM mimic.
- d. Place the Reset permissive switch to "LK" position.

INSTRUCTIONS

CONTINGENCY ACTIONS

- ____ 1.3 Reset CSAS actuation logic on **BOTH** trains as follows:
- a. Press the CSAS Reset pushbuttons. (CP-33)
 - b. Verify the actuation relay indicator lit on the ENGINEERED SAFETY FEATURES SYSTEM mimic. (CP-10)
- ____ 1.4 Stop **ONE** CS pump at a time.
- ____ 1.5 **IF** a CS pump is operating, **THEN** stop the remaining CS pump.
- ____ 1.6 Close the following Containment Spray valves:
- CS 125A, CNTMT SPRAY HEADER A ISOL
 - CS 125B, CNTMT SPRAY HEADER B ISOL
- ____ 1.7 Place **BOTH** Containment Spray pump control switches to normal position.

End of Appendix 5

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JOB PERFORMANCE MEASURE

S8

Start Component Cooling Water Pump AB

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Start Component Cooling Water Pump AB as the second CCW Pump.

Task Standard: Transfer 3AB Bus and start Component Cooling Water Pump AB in accordance with OP-901-311, Loss of Train B Safety Bus.

References: OP-901-311, Loss of Train B Safety Bus

Validation Time: 15 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____

Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-901-311, Loss of Train B Safety Bus

Description:

Plant conditions start after a Loss of Offsite Power. Emergency Diesel Generator B tripped on overspeed; the 3B Safety Bus is not energized. Emergency Diesel Generator A and Component Cooling Water Pump A are running. The applicant will be directed to start CCW Pump AB as the second CCW Pump. The 3AB Bus will be aligned to Train B, requiring an AB Bus transfer prior to starting CCW Pump AB. Manipulations will occur at CP-1 and CP-8.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- A Loss of Offsite Power has occurred.
- Emergency Diesel Generator B tripped on Overspeed.
- Emergency Diesel Generator A is running connected to the 3A Bus

INITIATING CUES:

- The CRS directs you to start Component Cooling Water Pump AB using OP-901-311, Loss of Train B Safety Bus, section E0.

If BUS AB3 is not energized, then align BUS AB3 to BUS A3 as follows:

TASK ELEMENT	STANDARD
Place BUS TIE B TO AB keyswitch to TRIP.	BUS TIE B TO AB keyswitch is in TRIP.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Place BUS AB STATUS SELECTOR switch to A.	BUS AB STATUS SELECTOR switch is in A.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Place BUS TIE A TO AB keyswitch to CLOSE	BUS TIE A TO AB keyswitch is in CLOSE.
Comment:	<u>Critical</u> SAT / UNSAT

Verify two Component Cooling Water Pumps operating and supplying both A and B loops.

TASK ELEMENT	STANDARD
Place CCW Assignment Switch to position B.	CCW Assignment Switch is in position B.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify Open the following valves: <ul style="list-style-type: none"> • CC-126B/CC-114B CCW Suct & Disch Header Tie Valves AB to B • CC-127B/CC-115B CCW Suct & Disch Header Tie Valves AB to B 	CC-126B, CC-114B, CC-127B, and CC-115B are verified open.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Start CCW Pump AB.	CCW Pump AB is running.
Comment:	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- A Loss of Offsite Power has occurred.
- Emergency Diesel Generator B tripped on Overspeed.
- Emergency Diesel Generator A is running connected to the 3A Bus

INITIATING CUES:

- The CRS directs you to start Component Cooling Water Pump AB using OP-901-311, Loss of Train B Safety Bus, section E0.

SIMULATOR OPERATOR INSTRUCTIONS

Reset to IC – 194

Verify the following Malfunctions:

- Eg10b True
- Ed01a True
- Ed01b True
- Ed01c True
- Ed01d True

Place the Simulator in Run on the lead examiner's cue.

E. SUBSEQUENT OPERATOR ACTIONS

E₀ GENERAL

CAUTION

FAILURE TO ENERGIZE B3 SAFETY BUS OR START COMPONENT COOLING WATER PUMP RAISES THE FOLLOWING CONCERNS:

LOSS OF COOLING TO EMERGENCY DIESEL GENERATOR

RUNOUT OF OPERATING COMPONENT COOLING WATER PUMP

REDUCED COOLING FLOW TO REACTOR COOLANT PUMPS

PLACEKEEPER

	START	DONE	N/A
1. If <u>either</u> BUS B2 TO B3 TIE BKR <u>or</u> BUS B3 TO B2 TIE BKR opens, <u>then</u> verify the following: Emergency Diesel Generator B starts <u>and</u> output breaker closes. Emergency Diesel Generator B Sequencer starts loading sequence <u>or</u> has completed loading sequence.	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
2. If BUS AB3 is <u>not</u> energized, <u>then</u> align BUS AB3 to BUS A3 as follows: 2.1 BUS TIE B TO AB to TRIP. 2.2 BUS AB STATUS SELECTOR to A. 2.3 BUS TIE A TO AB to CLOSE.	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>

PLACEKEEPER			
	START	DONE	N/A
3. Verify <u>two</u> Component Cooling Water Pumps operating <u>and</u> supplying <u>both</u> A <u>and</u> B loops.	<input type="checkbox"/>	<input type="checkbox"/>	
3.1 <u>If</u> CCW Pump AB is the standby pump and it is desired to align this pump for service, <u>then</u> perform the following:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.1 Place CCW Assignment Switch to position B.	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.2 Verify Open the following valves:	<input type="checkbox"/>	<input type="checkbox"/>	
CC-126B/CC-114B CCW Suct & Disch Header Tie Valves AB to B	<input type="checkbox"/>	<input type="checkbox"/>	
CC-127B/CC-115B CCW Suct & Disch Header Tie Valves AB to B	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.3 Start CCW Pump AB.	<input type="checkbox"/>	<input type="checkbox"/>	
3.2 <u>If</u> CCW Pump B is the standby pump <u>and</u> it is desired to align this pump for service, <u>then</u> perform the following:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2.1 Start CCW Pump B.	<input type="checkbox"/>	<input type="checkbox"/>	
3.2.2 Place CCW Assignment Switch to NORM.	<input type="checkbox"/>	<input type="checkbox"/>	

- (1) Manual Override of RCP Seal Cooler Isolation Valves is accomplished by positioning associated Control Switch to Close, then to Open.
- (2) If RCP Seal Cooler(s) re-isolate following being overridden, then OP-901-510, Component Cooling Water Malfunction should be referred to for further guidance.

CC-679A/CC-6651A	RCP 1A
CC-679B/CC-6651B	RCP 1B
CC-680A/CC-666A	RCP 2A
CC-680B/CC-666B	RCP 2B

PLACEKEEPER		
START	DONE	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CAUTION

CCW PUMP RUNOUT OCCURS AT 8383 GPM. WHEN EVALUATING CCW PUMP OPERATING CONDITIONS, CONSIDER THE NUMBER OF PUMPS RUNNING AND IF CCW TRAINS ARE CROSS CONNECTED.

4. If two CCW Pumps are not operating, then perform the following:
- 4.1 Secure Emergency Diesel Generator B by pulling the overspeed trip plunger.

PLACEKEEPER		
START	DONE	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE

Closing CC-200B/CC-563 will also close CC-620, CCW to the Spent Fuel. CC-620 can be overridden, if necessary to lower Spent Fuel Pool Temperature.

- 4.2 Split CCW trains to prevent runout of operating pump by closing the following valves:
- | | |
|-----------------|---|
| CC 126B/CC 114B | CW SUCT & DISCH
HEADER TIE
VALVES AB TO B |
| CC 200B/CC 563 | CW SUCT & DISCH
HEADER TIE
VALVES B TO AB |

<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	
	<input type="checkbox"/>	

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

P1

Atmospheric Dump Valve Local Operation

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Locally operate Atmospheric Dump Valve A

Task Standard: Open Atmospheric Dump Valve A to 25% open in accordance with OP-005-004, Main Steam. Local pneumatic control will fail during the evolution, requiring local handwheel control.

References: OP-005-004, Main Steam

Validation Time: 20 minutes Time Critical: No

Alternate Path: Yes

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-005-004, Main Steam

Description:

Applicant will be directed to open Atmospheric Dump Valve A to 25% open. During the task, local pneumatic control will not function, requiring local handwheel operation. Task will occur in Main Steam Isolation Valve A room and does require climbing ladders to access the platform. Gloves are required.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- The plant is in Mode 3
- RCS temperature is being controlled by Atmospheric Dump Valve A and B.

INITIATING CUES:

- The CRS called and informed you that the CP-8 controller for Atmospheric Dump Valve A is not responding.
- The CRS directs you to locally open MS-116 A, Atmospheric Dump Valve A to 25% open using OP-005-004, Main Steam.
- All necessary Tech Spec actions will be performed by the Control Room.

TASK ELEMENT	STANDARD
Procedure Note Refer to T.S. 3.7.1.7 prior to performing this section.	Note reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Caution OPENING ADV MAY CAUSE AN RCS COOLDOWN, RESULTING IN A CHANGE IN REACTIVITY AND STEAM GENERATOR LEVELS.	Caution reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Establish communications with the Control Room.	Control Room contacted.
Comment: Cue: Control Room standing by for local operation of MS-116 A, ADV #1.	SAT / UNSAT

TASK ELEMENT	STANDARD
Record the pressure at the outlet of the transducer:	Pressure recorded.
Comment: Pressure reads as it is displayed (~ 3 psig).	SAT / UNSAT

TASK ELEMENT	STANDARD
Adjust the pressure at Air Regulator outlet on the front of the panel to the pressure noted in step 8.7.2.1.	Pressure adjusted to pressure from preceding step.
Comment: Cue: Turning the regulator operator counter clockwise will lower pressure. When handle is turned in the correct direction, cue that pressure lowers to required pressure.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Turn the Pneumatic Permissive Valve above the Transducer to Manual.	Pneumatic Permissive Valve is in manual.
Comment: Cue: Valve handle is rotated from Auto to Manual.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Turn the Pneumatic Permissive Valve above the Air Regulator to Manual.	Pneumatic Permissive Valve is in manual.
Comment: Cue: Valve handle is rotated from Auto to Manual.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Note The ADV will be closed when pressure at outlet of Air Regulator is < 4.5 PSIG and full open when pressure at outlet of Air Regulator is > 15 PSIG.	Note reviewed.
Comment:	SAT / UNSAT

Evaluator Note
The next step introduces the fault. When the air regulator is adjusted, provide the cue that there is no change in pressure and that MS-116 A, ADV #1 is not moving.

TASK ELEMENT	STANDARD
Adjust the Air Regulator pressure to obtain desired valve position by performing any of the following: <ul style="list-style-type: none"> Open MS-116 A by turning air regulator adjusting screw in the clockwise direction to raise air pressure. Close MS-116 A by turning the air regulator adjusting screw in the counterclockwise direction to lower air pressure. 	Applicant attempts to adjust pressure.
Comment: Cue: pressure and ADV position are not changing.	<u>Critical</u> SAT / UNSAT

If desired to operate MS-116A using local handwheel, then perform the following:

TASK ELEMENT	STANDARD
Close Local NG/IA Isolation to the positioner MS-116A SG 1 MS Atm Dump Valve: NG-8271 C, NG/IA Isolation to MS-116A	NG-8271 C is closed
Comment: Cue: Valve closes when operated.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Open Filter Petcock Drain and bleed off Air/N2 pressure by opening Filter Petcock Drain.	Filter Petcock Drain is open.
Comment: Cue: Air is heard coming from the drain when opened. Pressure lowers to zero and air flow stops.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Open MS-116A SG 1 MS Atm Dump Valve Local Valve Positioner Equalizing Valve.	Positioner Equalizing Valve is open.
Comment: Cue: Valve open when operated.	<u>Critical</u> SAT / UNSAT

Engage local handwheel and Open MS-116A SG 1 MS Atm Dump Valve to desired position by performing the following:

TASK ELEMENT	STANDARD
Unscrew clevis from top of the Manual Override Shaft.	Clevis removed.
Comment: Cue: Clevis unscrews when operated.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Turn handwheel to expose actuator shaft above manual override shaft.	Actuator shaft exposed.
Comment: Cue: As handwheel is turned clockwise, actuator shaft is exposed. When shaft is fully exposed, notch at the bottom of the shaft is visible.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Slide clevis onto actuator shaft.	Clevis installed.
Comment: Cue: Clevis fits into notch.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Turn handwheel to open MS-116A to desired position.	MS-116 A, ADV #1 is 25% open.
Comment: Cue: As handwheel is turned counter clockwise, MS-116 A, ADV #1 opens. Steam issues from ADV #1 exhaust pipe.	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The plant is in Mode 3
- RCS temperature is being controlled by Atmospheric Dump Valve A and B.

INITIATING CUES:

- The CRS called and informed you that the CP-8 controller for Atmospheric Dump Valve A is not responding.
- The CRS directs you to locally open MS-116 A, Atmospheric Dump Valve A to 25% open using OP-005-004, Main Steam.
- All necessary Tech Spec actions will be performed by the Control Room.

8.7 LOCAL OPERATION OF ATMOSPHERIC DUMP VALVE

NOTE

Refer to T.S. 3.7.1.7 prior to performing this section.

CAUTION

OPENING ADV MAY CAUSE AN RCS COOLDOWN, RESULTING IN A CHANGE IN REACTIVITY AND STEAM GENERATOR LEVELS.

8.7.1 Establish communications with the control room.

8.7.2 If desired to operate MS-116A(B) locally using pneumatic operation, then perform the following:

8.7.2.1 Record the pressure at the outlet of the transducer: _____ PSIG.

8.7.2.2 Adjust the pressure at Air Regulator outlet on the front of the panel to the pressure noted in step 8.7.2.1.

8.7.2.3 Turn the Pneumatic Permissive Valve above the Transducer to Manual.

8.7.2.4 Turn the Pneumatic Permissive Valve above the Air Regulator to Manual.

NOTE

The ADV will be closed when pressure at outlet of Air Regulator is <4.5 PSIG and full open when pressure at outlet of Air Regulator is >15 PSIG.

8.7.2.5 Adjust the Air Regulator pressure to obtain desired valve position by performing any of the following:

- Open MS-116 A(B) by turning air regulator adjusting screw in the clockwise direction to raise air pressure.
- Close MS-116 A(B) by turning the air regulator adjusting screw in the counterclockwise direction to lower air pressure.

- 8.7.3 When local pneumatic operation of MS-116A(B) is no longer desired, then perform the following:
- 8.7.3.1 Verify the applicable Atmospheric Dump Valve M/A station on CP-8 is in Manual with minimum output.
 - 8.7.3.2 Turn the Pneumatic Permissive Valve above the Air Regulator from Manual to Auto.
 - 8.7.3.3 Raise the pressure of the Air Regulator on the front of the panel until pressure no longer rises. Check that outlet pressure on the Air Regulator on the front of the panel is between 20-25 PSIG.
 - 8.7.3.4 Adjust Air Regulator outlet pressure on the front of the panel until the outlet pressure just begins to drop. Check that Air Regulator outlet pressure on the front of the panel is between 20-25 PSIG.

CAUTION

IF THE PRESSURE NOTED IN STEP 8.7.3.5.1 IS GREATER THAN 4.5 PSIG, THEN THE ADV MAY OPEN WHEN RETURNED TO REMOTE OPERATION.

- 8.7.3.5 Verify pressure at outlet of Transducer is ≤ 4.5 PSIG.
- 8.7.3.5.1 If the pressure is greater than 4.5 PSIG, then verify the applicable Atmospheric Dump Valve M/A station on CP-8 is in Manual with minimum output.
 - 8.7.3.5.2 If the applicable Atmospheric Dump Valve M/A station is in Manual with minimum output and transducer pressure is > 4.5 PSIG, then I&C Maintenance should be contacted for assistance prior to proceeding.

NOTE

Operation of the Air Regulator may loosen the lock nut on the Air Regulator on the front of the panel. The lock nut should be checked for tightness. A 1/2" open end wrench is required to tighten the lock nut. Do not over tighten.

8.7.3.6 Turn the Pneumatic Permissive Valve above the Transducer from Manual to Auto.

8.7.4 If desired to operate MS-116A(B) using local handwheel, then perform the following:

8.7.4.1 Close Local NG/IA Isolation to the positioner for applicable MS-116A(B) SG 1(2) MS Atm Dump Vlv:

- NG MVAAA8271 C NG/IA Isolation to MS-116A
or
- NG MVAAA9281 D NG/IA Isolation to MS-116B

8.7.4.2 Open Filter Petcock Drain and bleed off Air/N2 pressure by opening Filter Petcock Drain.

8.7.4.3 Open MS-116A(B) SG 1(2) MS Atm Dump Vlv Local Valve Positioner Equalizing Valve.

8.7.4.4 Engage local handwheel and Open MS-116A(B) SG 1(2) MS Atm Dump Vlv to desired position by performing the following:

8.7.4.4.1 Unscrew clevis from top of the Manual Override Shaft.

8.7.4.4.2 Turn handwheel to expose actuator shaft above manual override shaft.

8.7.4.4.3 Slide clevis onto actuator shaft.

8.7.4.4.4 Turn handwheel to open MS-116A(B) to desired position.

- 8.7.5 When local handwheel operation of MS-116A(B) is no longer desired, then perform the following:
- 8.7.5.1 Verify the applicable Atmospheric Dump Valve M/A station on CP-8 is in Manual with minimum output.
 - 8.7.5.2 Using the local handwheel, Close SG 1(2) MS Atm Dump Vlv, MS-116A(B).
 - 8.7.5.3 Turn local handwheel until pressure is relieved from clevis and remove clevis from actuator shaft.
 - 8.7.5.4 Turn handwheel until clevis can be installed onto manual override shaft and screw clevis onto manual override shaft.
 - 8.7.5.5 Close Filter Petcock Drain.
 - 8.7.5.6 Open Local NG/IA Isolation to the positioner for applicable MS-116A(B) SG 1(2) MS Atm Dump Vlv:
 - NG-8271C NG/IA Isolation to MS-116A
 - or
 - NG-9281D NG/IA Isolation to MS-116B
 - 8.7.5.7 Close MS-116A(B) SG 1(2) MS Atm Dump Vlv Positioner Equalizing Valve.
 - 8.7.5.8 Place Atmospheric Dump Valve M/A station in desired position as directed by SM/CRS.

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

P2

SUPS MA Operation

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Transfer SUPS MA from Alternate to Normal AC

Task Standard: SUPS MA is transferred from Alternate to Normal AC alignment in accordance with OP-006-005, Inverters and Distribution.

References: OP-006-005, Inverters and Distribution

Validation Time: 15 minutes Time Critical: No

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-006-005, Inverters and Distribution

Description:

SUPS MA will be simulated in the Alternate AC power alignment. Applicant will transfer SUPS MA to the Normal AC alignment. All steps will be simulated in Switchgear Room A. No special PPE will be required for this task.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- SUPS MA is in the Alternate AC alignment with the inverter isolated and the synchronizing circuitry isolated.

INITIATING CUES:

- The CRS directs you to place SUPS MA in the Normal AC alignment in accordance with OP-006-005, Inverters and Distribution.

TASK ELEMENT	STANDARD
If Manual Bypass Switch is in SYNC DISCONNECT, then place Manual Bypass Switch to ALTERNATE SOURCE TO LOAD.	Manual Bypass Switch is in ALTERNATE SOURCE TO LOAD.
Comment: Cue: Demonstrate that the Manual Bypass Switch is in SYNC DISCONNECT. When rotated, the manual Bypass Switch will indicate ALTERNATE SOURCE TO LOAD.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Note At least 60 seconds must be allowed for capacitors to fully discharge prior to re-energizing inverter.	Note reviewed.
Comment:	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure caution POTENTIAL SUPS DAMAGE COULD OCCUR IF THE PRE-CHARGE PUSHBUTTON DOES NOT POP BACK OUT AFTER BEING RELEASED.	Caution reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
If inverter was isolated in accordance with step 6.1.1.3 or section 8.1, then depress and hold Pre-charge pushbutton until the following are met: <ul style="list-style-type: none"> • Pre-charge light Illuminates • DC Input voltage \geq 120 VDC 	Pre-charge button operated properly with correct indications.
Comment: Cue: After the Pre-charge button is held, light illuminates and DC voltage rises to as displayed. Button does not stick.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify the following applicable SUPS supply breakers ON: <ul style="list-style-type: none"> ID-EBKR-312A-2B SUPS MA Normal Supply ID-EBKR-1A-22 SUPS MA Emergency Supply (DC) 	Breakers ON.
Comment: Cue: Breakers will be as displayed, ON.	SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Caution EMERGENCY FEEDER BREAKER SHALL NOT BE PLACED TO "ON" UNLESS PRE-CHARGE LIGHT IS ILLUMINATED AND DC INPUT VOLTAGE IS ≥ 120 VDC.	Caution reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Verify applicable SUPS Emergency Feeder breaker ON: <ul style="list-style-type: none"> ID-EBKR-MA-C SUPS MA Emergency Feeder 	Breaker is ON.
Comment: Cue: Breaker will initially OFF. Provide ON indication after operation.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify Inverter Output frequency is ~60 HZ (59.7 to 60.3 HZ).	Verification complete.
Comment: Cue: Parameters as displayed.	SAT / UNSAT

TASK ELEMENT	STANDARD
Verify applicable SUPS Normal Feeder breaker ON: <ul style="list-style-type: none"> ID-EBKR-MA-B SUPS MA Normal Feeder 	Breaker is ON.
Comment: Cue: Breaker will initially OFF. Provide ON indication after operation.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify DC Output from Rectifier voltage is 136 to 141.5 VDC.	Verification complete.
Comment: Cue: parameters as displayed.	SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure Caution TO PREVENT INVERTER DAMAGE, THE "IN SYNC" LIGHT MUST BE ILLUMINATED PRIOR TO PLACING MANUAL BYPASS SWITCH TO "INVERTER TO LOAD."	Caution Reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
Verify In Sync light Illuminated.	Verification complete.
Comment: Cue: As displayed.	SAT / UNSAT

TASK ELEMENT	STANDARD
Place Manual Bypass Switch to INVERTER TO LOAD.	Manual Bypass Switch is in INVERTER TO LOAD
Comment: Cue: Provide indication that the switch is initially in ALTERNATE SOURCE TO LOAD, then in INVERTER TO LOAD after operation.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Verify Transfer To Bypass Source alarm Clears at local SUPS annunciator panel.	Alarms verified.
Comment: Cue: As displayed.	SAT / UNSAT

TASK ELEMENT	STANDARD
Verify DC Output from Rectifier voltage is ~140 VDC (138.5 to 141.5 VDC).	Verification complete.
Comment: Cue: As displayed.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Perform applicable breaker lineup attachment for SUPS being transferred from Alternate to Normal AC Power: <ul style="list-style-type: none"> Attachment 11.1 SUPS MA Breaker Lineup 	N/A
Comment: Cue: Inform applicant that the attachment will be performed by another operator and that the task is complete.	<u>Critical</u> SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- SUPS MA is in the Alternate AC alignment with the inverter isolated and the synchronizing circuitry isolated.

INITIATING CUES:

- The CRS directs you to place SUPS MA in the Normal AC alignment in accordance with OP-006-005, Inverters and Distribution.

6.0 NORMAL OPERATIONS

6.1 SUPS MA, MB, MC, & MD NORMAL MANIPULATIONS

6.1.1 Transfer from Normal to Alternate AC Power as follows:

CAUTION

- (1) SUPS MA, MB, MC, AND MD MAY BE OPERATED ON THE NORMAL AC SUPPLY WITHOUT THE DC INPUT POWER (EMERGENCY DC SUPPLY) SUPPLIED FROM THE BATTERY. THE DURATION OPERATING IN THIS CONDITION SHOULD BE MINIMIZED. [EC-11831]
- (2) TECHNICAL SPECIFICATIONS 3.8.3.1 AND 3.8.3.2 SHALL BE REVIEWED PRIOR TO TRANSFER OF A SAFETY SUPS TO ALTERNATE AC POWER.
- (3) TO PREVENT INVERTER DAMAGE, THE “IN SYNC” LIGHT MUST BE ILLUMINATED PRIOR TO PLACING MANUAL BYPASS SWITCH TO “ALTERNATE SOURCE TO LOAD”.

6.1.1.1 Verify SUPS In Sync light Illuminated, then place Manual Bypass Switch to ALTERNATE SOURCE TO LOAD.

6.1.1.2 Verify Transfer To Bypass Source annunciator at local SUPS annunciator panel is Illuminated.

6.1.1.3 If inverter is to be isolated, then place the following applicable SUPS panel breakers to OFF:

MA	ID-EBKR-MA-B	SUPS MA	Normal Feeder
	ID-EBKR-MA-C	SUPS MA	Emergency Feeder
MB	ID-EBKR-MB-B	SUPS MB	Normal Feeder
	ID-EBKR-MB-C	SUPS MB	Emergency Feeder
MC	ID-EBKR-MC-B	SUPS MC	Normal Feeder
	ID-EBKR-MC-C	SUPS MC	Emergency Feeder
MD	ID-EBKR-MD-B	SUPS MD	Normal Feeder
	ID-EBKR-MD-C	SUPS MD	Emergency Feeder

6.1.1.4 If synchronizing circuitry is to be isolated, then place Manual Bypass Switch to SYNC DISCONNECT.

6.1.2 Transfer from Alternate to Normal AC Power as follows:

6.1.2.1 If Manual Bypass Switch is in SYNC DISCONNECT, then place Manual Bypass Switch to ALTERNATE SOURCE TO LOAD.

NOTE

At least 60 seconds must be allowed for capacitors to fully discharge prior to re-energizing inverter.

CAUTION

POTENTIAL SUPS DAMAGE COULD OCCUR IF THE PRE-CHARGE PUSHBUTTON DOES NOT POP BACK OUT AFTER BEING RELEASED. [CR-WF3-2005-02224]

6.1.2.2 If inverter was isolated in accordance with step 6.1.1.3 or section 8.1, then depress and hold Pre-charge pushbutton until the following are met:

- Pre-charge light Illuminates
- DC Input voltage ≥ 120 VDC

6.1.2.3 Verify the following applicable SUPS supply breakers ON:

MA	ID-EBKR-312A-2B	SUPS MA	Normal Supply
	ID-EBKR-1A-22	SUPS MA	Emergency Supply (DC)
MB	ID-EBKR-312B-2B	SUPS MB	Normal Supply
	ID-EBKR-B-37	SUPS MB	Emergency Supply (DC)
MC	ID-EBKR-311A-14F	SUPS MC	Normal Supply
	ID-EBKR-A-38	SUPS MC	Emergency Supply (DC)
MD	ID-EBKR-311B-14F	SUPS MD	Normal Supply
	ID-EBKR-1B-22	SUPS MD	Emergency Supply (DC)

CAUTION

EMERGENCY FEEDER BREAKER SHALL NOT BE PLACED TO "ON" UNLESS PRE-CHARGE LIGHT IS ILLUMINATED AND DC INPUT VOLTAGE IS ≥ 120 VDC.

6.1.2.4 Verify applicable SUPS Emergency Feeder breaker ON:

- ID-EBKR-MA-C SUPS MA Emergency Feeder
- ID-EBKR-MB-C SUPS MB Emergency Feeder
- ID-EBKR-MC-C SUPS MC Emergency Feeder

- ID-EBKR-MD-C SUPS MD Emergency Feeder

6.1.2.4.1 Verify Inverter Output frequency is ~60 HZ (59.7 to 60.3 HZ).

6.1.2.5 Verify applicable SUPS Normal Feeder breaker ON:

- ID-EBKR-MA-B SUPS MA Normal Feeder
- ID-EBKR-MB-B SUPS MB Normal Feeder
- ID-EBKR-MC-B SUPS MC Normal Feeder
- ID-EBKR-MD-B SUPS MD Normal Feeder

6.1.2.5.1 Verify DC Output from Rectifier voltage is 136 to 141.5 VDC.

CAUTION

TO PREVENT INVERTER DAMAGE, THE "IN SYNC" LIGHT MUST BE ILLUMINATED
PRIOR TO PLACING MANUAL BYPASS SWITCH TO "INVERTER TO LOAD."

6.1.2.6 Verify In Sync light Illuminated.

6.1.2.6.1 Place Manual Bypass Switch to INVERTER TO LOAD.

6.1.2.7 Verify Transfer To Bypass Source alarm Clears at local SUPS annunciator panel.

6.1.2.8 Verify DC Output from Rectifier voltage is ~140 VDC (138.5 to 141.5 VDC).

6.1.2.9 Perform applicable breaker lineup attachment for SUPS being transferred from Alternate to Normal AC Power:

- Attachment 11.1 SUPS MA Breaker Lineup
- Attachment 11.3 SUPS MB Breaker Lineup
- Attachment 11.5 SUPS MC Breaker Lineup
- Attachment 11.7 SUPS MD Breaker Lineup

Waterford 3

2010 NRC Walk Through Exam

JOB PERFORMANCE MEASURE

P3

BOP Evacuation of the Control Room Actions

Applicant: _____

Examiner: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: BOP time critical actions during evacuation of the Control Room.

Task Standard: Complete OP-901-502, Evacuation of Control Room and Subsequent Plant Shutdown, Attachment 4, steps 4 and 5 for BOP Time Critical Actions.

References: OP-901-502, Evacuation of Control Room and Subsequent Plant Shutdown

Validation Time: 20 minutes Time Critical: Yes

Alternate Path: No

Applicant: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments: _____

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

OP-901-502, Evacuation of Control Room and Subsequent Plant Shutdown

Description:

Task directs the applicant to perform steps 4 and 5 of Attachment 4 of OP-901-502, Evacuation of Control Room and Subsequent Plant Shutdown. Task is performed in the RCA. The procedure directs using a specific door to move from step 3 to step 4. Access through this door is not allowed during normal plant operation and applicant should use normal access routes. Step 4 is performed in EDG Room B. Step 5 is performed in BAM Tank Rooms A and B. No ladder use is required for this task.

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Indicate to me when you understand your assigned task.

INITIAL CONDITIONS:

- The Control Room was evacuated due to a fire in CP-1.
- OP-901-502, Evacuation of Control Room and Subsequent Plant Shutdown, is being implemented.
- You are the BOP operator.
- Steps 1 through 3 of OP-901-502, Attachment 4, BOP Time Critical Actions, are complete.

INITIATING CUES:

- Continue performance of Attachment 4, beginning with step 4.

Perform the following at Emergency Diesel Generator B:

TASK ELEMENT	STANDARD
Select LOCAL control of EDG B by depressing the Control Mode pushbutton.	Local control is selected.
Comment: Cue: Indications will be as is on arrival. After Local button is depressed, indication and handle shift to Local.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
At Diesel Generator B RTGB Isolation Panel (EDG B Room north of phone booth on west wall) perform the following: <ul style="list-style-type: none"> Depress AND Hold Transition pushbutton. Place key-operated switch, FR 2367, to ISOLATE. Release Transition pushbutton. 	FR 2367 is in isolate, operated with the Transition button held.
Comment: Cue: Indications will be as is on arrival. When keyswitch is placed in ISOLATE, provide cue that EDG B started.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
IF EDG B failed to start, THEN direct NAO to reset Control Power for 3B Swgr Undervoltage Relays AND THEN verify EDG B starts.	N/A
Comment: Cue: EDG B will start on previous step.	SAT / UNSAT

TASK ELEMENT	STANDARD
Inform the following that EDG 'B' is operating: <ul style="list-style-type: none"> ATC NAO 	Communication completed.
Comment: Cue: Acknowledge communication.	SAT / UNSAT

TASK ELEMENT	STANDARD
Procedure note (1) The east side stairwell has emergency lighting provided AND is the preferred path for transiting within the CAA. (2) Local BAM Tank indicators must be unisolated PRIOR to reading using BAM-1111A(B), BAMT A(B) Outlet Line BAMILI0240 (0241) Root, AND re-isolated when done.	Note Reviewed.
Comment:	SAT / UNSAT

TASK ELEMENT	STANDARD
WHEN informed by NAO that breakers for BAM-113A(B) are Open, THEN OPEN the following: <ul style="list-style-type: none"> BAM-113A Boric Acid Makeup Tank A Gravity Feed Valve BAM-113B Boric Acid Makeup Tank B Gravity Feed Valve 	BAM-113 A & BAM-113 B are open.
Comment: Cue: Provide the cue that the breakers for BAM-113 A & BAM-113 B are open. Applicant will de-clutch and manually operate MOVs BAM-113 A and BAM-113 B. Each valve is in their respective BAM Tank Room.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Inform ATC that BAM-113A AND BAM-113B are Open.	Communication completed.
Comment: Cue: Acknowledge communication.	SAT / UNSAT

TASK ELEMENT	STANDARD
Provide initial BAM Tank A AND BAM Tank B levels to the ATC using the following indicators: <ul style="list-style-type: none"> BAM-ILI-0240 Boric Acid Make-up Tank A Discharge Header Level Indicator BAM-ILI-0241 Boric Acid Make-up Tank B Discharge Header Level Indicator 	Level instruments are un-isolated and levels read. Level instruments isolated after readings are taken.
Comment: Cue: Provide manual valve cues when instruments are un-isolated and re-isolated. Provide tank level reading of 88% each.	<u>Critical</u> SAT / UNSAT

TASK ELEMENT	STANDARD
Provide hourly updates of BAM Tank levels to the ATC (or at a frequency as determined by ATC, based on BAMT levels and usage).	N/A
Comment: Cue: End task at this point.	SAT / UNSAT

END OF TASK

APPLICANT CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The Control Room was evacuated due to a fire in CP-1.
- OP-901-502, Evacuation of Control Room and Subsequent Plant Shutdown, is being implemented.
- You are the BOP operator.
- Steps 1 through 3 of OP-901-502, Attachment 4, BOP Time Critical Actions, are complete.

INITIATING CUES:

- Continue performance of Attachment 4, beginning with step 4.

ATTACHMENT 4 BOP TIME CRITICAL ACTIONS

PLACEKEEPER			
	START	DONE	N/A
1. Transfer controls to LCP-43 as follows: [10 Minutes]	<input type="checkbox"/>	<input type="checkbox"/>	
1.1 Place <u>ALL</u> TRANSFER SWITCHES in Aux Panels 2 <u>AND</u> 3 to AUX CR. (Rooms B and AB)			
• Aux Panel 2 Door 1 (12 switches)		<input type="checkbox"/>	
• Aux Panel 2 Door 2 (12 switches)		<input type="checkbox"/>	
• Aux Panel 3 Door 3 (5 Switches)		<input type="checkbox"/>	
1.2 Place <u>ALL</u> ISOLATION SWITCHES in Aux Panels 2 to ISOLATE.			
• Aux Panel 2 Door 1 (5 switches)		<input type="checkbox"/>	
1.3 <u>WHEN</u> informed by STA that Room A transfer is complete, <u>THEN</u> notify ATC that transfer to LCP-43 is complete.		<input type="checkbox"/>	
2. Verify MS-EBKR-1B-10, MSIV B Dump Valve B (MS-ISV-0124B-2&4)(DC), ON. [10 Minutes] (located in Power Dist Panel B1-DC, near MCC-311B)	<input type="checkbox"/>	<input type="checkbox"/>	

ATTACHMENT 4 BOP TIME CRITICAL ACTIONS (CONT'D)

		PLACEKEEPER		
		START	DONE	N/A
3.	Perform 'A' Switchgear breaker alignment as follows:	<input type="checkbox"/>	<input type="checkbox"/>	
3.1	Place the following breakers to OFF: [25 Minutes]			
	• EG-EBKR-A-11 EG A Engine Control Panel Feeder #1 (DC)		<input type="checkbox"/>	
	• EG-EBKR-A-12 EG A Engine Control Panel Feeder #2 (DC)		<input type="checkbox"/>	
	• EFW-EBKR-A-23 Emergency Feedwtr to SG2 B/U Isol (EFW-229B) (DC)		<input type="checkbox"/>	
	• EGF-EBKR-312A-3F EG A Fuel Oil Transfer Pump		<input type="checkbox"/>	
	• MS-EBKR-313A-6M MSIV A Upstream Drip Pot Bypass Drain (MS-119A)		<input type="checkbox"/>	
3.1.1	Inform CRS that MS-119A breaker is Open. [30 Minutes]		<input type="checkbox"/>	
3.2	Locally OPEN 4KV-EBKR-3A-11, Switchgear 3A Bus Tie to Switchgear 2A as follows: [30 Minutes]			
3.2.1	<u>Simultaneously</u> DEPRESS Permissive Pushbutton <u>AND</u> place breaker control switch to TRIP.		<input type="checkbox"/>	
3.2.2	OPEN DC knife switch for 4KV-EBKR-3A-11, Switchgear 3A Bus Tie to Switchgear 2A.		<input type="checkbox"/>	
3.2.3	<u>IF</u> 4KV-EBKR-3A-11, Switchgear 3A Bus Tie to Switchgear 2A breaker <u>DID NOT</u> Open using the control switch, <u>THEN</u> TRIP the breaker by DEPRESSING the Manual Trip Lever on the breaker.		<input type="checkbox"/>	

ATTACHMENT 4 BOP TIME CRITICAL ACTIONS (CONT'D)

NOTE

Entry into the Controlled Access Area (CAA) is from A Switchgear through Door D018.
[P-25082]

		PLACEKEEPER		
		START	DONE	N/A
4.	Perform the following at Emergency Diesel Generator B: [20 Minutes]	<input type="checkbox"/>	<input type="checkbox"/>	
4.1	Select LOCAL control of EDG B by depressing the Control Mode pushbutton.		<input type="checkbox"/>	
4.2	At Diesel Generator B RTGB Isolation Panel (EDG B Room north of phone booth on west wall) perform the following:			
4.2.1	Depress <u>AND</u> Hold Transition pushbutton.		<input type="checkbox"/>	
4.2.2	Place key-operated switch, FR 2367, to ISOLATE.		<input type="checkbox"/>	
4.2.3	Release Transition pushbutton.		<input type="checkbox"/>	
4.3	<u>IF</u> EDG B failed to start, <u>THEN</u> direct NAO to reset Control Power for 3B Swgr Undervoltage Relays <u>AND THEN</u> verify EDG B starts.		<input type="checkbox"/>	<input type="checkbox"/>
4.4	Inform the following that EDG 'B' is operating:	<input type="checkbox"/>	<input type="checkbox"/>	
	• ATC		<input type="checkbox"/>	
	• NAO		<input type="checkbox"/>	

ATTACHMENT 4 BOP TIME CRITICAL ACTIONS (CONT'D)

NOTE

- (1) The east side stairwell has emergency lighting provided AND is the preferred path for transiting within the CAA. [P-25082]
- (2) Local BAM Tank indicators must be unisolated PRIOR to reading using BAM-1111A(B), BAMT A(B) Outlet Line BAMILI0240 (0241) Root, AND re-isolated when done.

		PLACEKEEPER		
		START	DONE	N/A
5.	<u>WHEN</u> informed by NAO that breakers for BAM-113A(B) are Open, <u>THEN</u> OPEN the following: [1 Hour]	<input type="checkbox"/>	<input type="checkbox"/>	
	• BAM-113A Boric Acid Makeup Tank A Gravity Feed Valve		<input type="checkbox"/>	
	• BAM-113B Boric Acid Makeup Tank B Gravity Feed Valve		<input type="checkbox"/>	
5.1	Inform ATC that BAM-113A <u>AND</u> BAM-113B are Open.		<input type="checkbox"/>	
5.2	Provide initial BAM Tank A <u>AND</u> BAM Tank B levels to the ATC using the following indicators:	<input type="checkbox"/>	Continuous	
	• BAM-ILI-0240 Boric Acid Make-up Tank A Disch Hdr Level Indicator		<input type="checkbox"/>	
	• BAM-ILI-0241 Boric Acid Make-up Tank B Disch Hdr Level Indicator		<input type="checkbox"/>	
5.2.1	Provide hourly updates of BAM Tank levels to the ATC (or at a frequency as determined by ATC, based on BAMT levels and usage).	<input type="checkbox"/>	Continuous	

ATTACHMENT 4 BOP TIME CRITICAL ACTIONS (CONT'D)

		PLACEKEEPER		
		START	DONE	N/A
6.	<u>WHEN</u> informed by the NAO that breaker lineup is complete for aligning Essential Chiller B for service, <u>THEN</u> perform the following: [1.5 Hours]	<input type="checkbox"/>	<input type="checkbox"/>	
6.1	<u>IF</u> Essential Chiller AB is replacing B, <u>THEN</u> align Essential Chiller B to replace AB as follows:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.1.1	Verify Essential Chiller AB <u>and</u> Essential Chill Water Pump AB secured.		<input type="checkbox"/>	
6.1.2	Unlock, <u>THEN</u> CLOSE <u>AND</u> Lock the following:	<input type="checkbox"/>	<input type="checkbox"/>	
	• CHW-110AB CHW Expansion Tank AB Header Isolation		<input type="checkbox"/>	
	• CMU-528B Chiller AB Expansion Tank Makeup Isolation		<input type="checkbox"/>	
6.1.3	Unlock, <u>THEN</u> OPEN <u>AND</u> Lock the following:	<input type="checkbox"/>	<input type="checkbox"/>	
	• CMU-529B Condensate Makeup to CHW Expansion Tank B Isolation		<input type="checkbox"/>	
	• CC-305B Essential Chiller B CCW Inlet Isolation		<input type="checkbox"/>	
	• CHW-788B Chill Water Pump B Suction Line Isolation		<input type="checkbox"/>	
	• CHW-110B CHW Expansion Tank B Header Isolation.		<input type="checkbox"/>	
6.1.4	Unlock, <u>THEN</u> CLOSE <u>AND</u> Lock the following:	<input type="checkbox"/>	<input type="checkbox"/>	
	• CC-304B CCW Header B Supply to Essential Chiller AB		<input type="checkbox"/>	
	• CC-318B CCW Header B Return from Essential Chiller AB		<input type="checkbox"/>	
	• CHW-786B Essential Chiller AB Return Header B Isolation		<input type="checkbox"/>	
	• CHW-132B Essential Chiller AB to CHW Header B Supply Isolation		<input type="checkbox"/>	
6.2	Verify Chill Water Pump B operating.		<input type="checkbox"/>	
6.3	Verify Essential Chiller B operating.		<input type="checkbox"/>	

ATTACHMENT 4 BOP TIME CRITICAL ACTIONS (CONT'D)

NOTE

Door blocks for blocking open respective doors are located in the LCP-43 locker.

PLACEKEEPER			
	START	DONE	N/A
7. Establish H&V Room (Essential Chiller Area) ventilation as follows: [1.5 Hours]	<input type="checkbox"/>	<input type="checkbox"/>	
7.1 Start HVR-MFAN-0024B, RAB +46 HVAC Room Exhaust Fan E-41B, from its local control station.	<input type="checkbox"/>	<input type="checkbox"/>	
7.2 Block open the following doors:	<input type="checkbox"/>	<input type="checkbox"/>	
• Door D087 H&V Room Door at top of stairs		<input type="checkbox"/>	
• Door D043 H&V Room Door at bottom of stairs		<input type="checkbox"/>	
8. <u>WHEN</u> Attachment 4 has been completed, <u>THEN</u> inform the Shift Manager.		<input type="checkbox"/>	

END