

**AS-SUBMITTED EXAMINATION
BRAIDWOOD STATION INITIAL EXAMINATION**

DECEMBER 2007

ADMIN. JPMS

TASK TITLE: Perform Shutdown Margin Calculation

JPM No.: R-103

REV: 20070301

Task No.: R-RK-005

K/A No.: 2.1.25

Objective No.: 4.C.GP-03

K/A IMP: 2.8/3.1

EXAMINEE: _____

RO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 3, 4, 5, 6

APPROX COMPLETION TIME: 20 MINUTES

CRITICAL TIME: 45 minutes

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR

GENERAL REFERENCES:

1. 2BwOSR 3.1.1.1-2, UNIT TWO SHUTDOWN MARGIN SURVEILLANCE DURING OPERATION, Rev. 1.
2. BwCB-2, BRAIDWOOD CURVE BOOK, UNIT 2.
3. CORE OPERATING LIMITS REPORT (COLR) FOR BRAIDWOOD UNIT 2 CYCLE 13.

MATERIALS:

1. Copy of 2BwOSR 3.1.1.1-2, Rev. 1.
2. Copy of BwCB-2.
3. Copy of Braidwood Technical Requirements Manual (TRM)

TASK STANDARDS:

1. Correctly determine total rod worth due to rods.
2. Correctly determine actual reactivity available due to rods.
3. Correctly determine current power defect.
4. Correctly determine shutdown margin is unacceptable for current plant conditions within 45 minutes.

TASK CONDITIONS:

1. **This is a time critical JPM.**
2. You are an extra NSO.
3. Unit 2 is at 100% power with the following conditions:
 - a. Control Bank D is at 215 steps, Unit 2 burn up is 6,500 EFPD, RCS Tave is 587°F and RCS Boron concentration is 950 ppm from a sample obtained one hour ago.
 - b. 15 minutes ago, control rods D-4 and M12 were determined to be inoperable and immovable. The QNE has been informed.

INITIATING CUES:

1. The Unit 2 Unit Supervisor has directed you to perform 2BwOSR 3.1.1.1-2, UNIT TWO SHUTDOWN MARGIN SURVEILLANCE DURING OPERATION, in accordance with Tech Spec 3.1.4. Condition A.
CUE: Hand examinee copy of 2BwOSR 3.1.1.1-2.
2. Inform the Unit 2 Unit Supervisor when you have completed 2BwOSR 3.1.1.1-2.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
	EVALUATOR NOTE: JPM may be performed in plant or in classroom.		
1.	<p>Refer to 2BwOSR 3.1.1.1-2:</p> <p>NOTE: Critical Time begins when examinee understands initiating cue and accepts responsibility for task performance.</p> <p>Record critical time start time:</p> <p>_____</p> <p>CUE: All Prerequisites, Precautions, Limitations and Actions are met.</p>	Refer to 2BwOSR 3.1.1.1-2:	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
2.	Record Present Conditions: (step F.1)	<p>Determine and record the following from initiating cue:</p> <ul style="list-style-type: none"> • Date and Time: <u>Current Date and Time</u> • Core Average Burnup: <u>6,500 EFPH</u> • Core Average Temperature: <u>587°F</u> • Power Level: <u>100%</u> • Present Boron Concentration: <u>950 ppm</u> 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*3.	<p>Determine total worth due to rods (step F.2)</p> <p>CUE: When examinee locates curve book, provide the attached curves.</p> <p>NOTE: Examinee may refer to BwCB-2, Figure 2c for an expanded scale of Figure 2 control bank D rod worth.</p> <p>NOTE: Examinee must refer to correct figure and burn up range. BwCB-2, Figures 2 & 2c are for Hot Full Power and Figures 2a and 2d are for Hot Zero Power. From initiating cue, Unit 2 is at 100% power.</p> <p>NOTE: Record Examinee Value of control bank D inserted worth:</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(10 pcm \pm 10 pcm)</p> <p>NOTE: Record Examinee Value of control bank D total worth:</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(3329.4 pcm)</p> <p>NOTE: Record Examinee Value of control bank D available worth:</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(3319.4 pcm \pm 10 pcm)</p> <p>NOTE: Record Examinee Value of shutdown bank total worth:</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(3458.5 pcm)</p> <p>NOTE: Record Examinee Value of total rod worth:</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(6777.9 pcm \pm 10 pcm)</p>	<p>Determine and record total worth due to rods by performing the following:</p> <ul style="list-style-type: none"> • Record control bank position: <u>Bank D @ 215 steps</u> (from initiating cue). • Determine and record control bank D inserted worth by performing the following: <ul style="list-style-type: none"> • Refer to BwCB-2, Figure 2 for burn up range of 4,850.1 – 7544.6 EFPH. • Record control bank D inserted worth: <u>10 pcm \pm 10 pcm.</u> • Determine and record total available control bank worth by performing the following: <ul style="list-style-type: none"> • Refer to BwCB-2, Table 4-1 for control bank worth for burn up range of 4850.1 - 9449.4 EFPH. • Determine control bank total worth: <u>3329.4 pcm.</u> • Subtract control bank D inserted worth from control bank total worth: <u>3329.4 pcm – 10 pcm (\pm 10 pcm) = 3319.4 pcm (\pm 10 pcm).</u> • Determine and record total worth due to rods by performing the following: <ul style="list-style-type: none"> • Refer to BwCB-2, Table 4-1 for shutdown bank worth for burn up range of 4850.1 - 9449.4 EFPH. • Determine shutdown bank total worth: <u>3458.5 pcm.</u> • Determine total rod worth by performing the following: <ul style="list-style-type: none"> • Add shutdown bank total worth to available control bank worth: <u>3458.5 pcm + 3319.4 pcm (\pm 10 pcm) = 6777.9 pcm (\pm 10 pcm)</u> 	<p>SAT UNSAT N/A</p> <p>Comments:</p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*4.	<p>Determine actual reactivity available due to rods (step F.3)</p> <p>NOTE: Record Examinee Value of number of immovable and/or untrippable control rods:</p> <p>_____</p> <p>(2)</p> <p>NOTE: Record Examinee Value of highest stuck rod worth:</p> <p>_____</p> <p>(966.5 pcm)</p> <p>NOTE: Record Examinee Value of immovable/untrippable rod worth:</p> <p>_____</p> <p>(4000 pcm)</p> <p>NOTE: Record Examinee Value of actual reactivity available due to rods:</p> <p>_____</p> <p>(1811.4 pcm ± 10 pcm)</p>	<p>Determine and record actual reactivity due to rods by performing the following:</p> <ul style="list-style-type: none"> Record the number of immovable and/or untrippable control rods: <u>2</u> (from initiating cue) Determine and record highest stuck rod worth by performing the following: <ul style="list-style-type: none"> Refer to BwCB-2, Table 4-1 for highest stuck rod worth for burn up range of 4850.1 - 9449.4 EFPH. Determine and record highest stuck rod worth: <u>966.5 pcm</u>. Determine immovable/untrippable rod worth by performing the following: <ul style="list-style-type: none"> Multiply the number of immovable or untrippable control rods by 2000pcm: <u>2 X 2000 pcm = 4000 pcm</u>. Determine actual reactivity available due to rods by performing the following: <ul style="list-style-type: none"> Subtract immovable/untrippable rod worth and highest stuck rod worth from total rod worth: <u>6777.9 pcm (± 10 pcm) - 4000 pcm - 966.5 pcm = 1811.4 pcm (± 10 pcm)</u>. 	<p>SAT UNSAT N/A</p> <p>Comments:</p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*6.	<p>Perform Shutdown Margin Verification</p> <p>NOTE: Record Examinee Value of available shutdown margin:</p> <p>_____</p> <p>(78.4 pcm ± 60 pcm)</p> <p>NOTE: Record Examinee Value of minimum required shutdown margin:</p> <p>_____</p> <p>(1300 pcm)</p> <p>78.4 pcm ± 60 pcm < 1300 pcm</p> <p>NOTE: Critical Time ends when examinee completes surveillance or reports unacceptable shutdown margin.</p> <p>Record time that examinee reports unacceptable shutdown margin or completes surveillance: _____</p> <p>Critical time =</p> <p>_____ - _____</p> <p>(end time) (start time)</p> <p>≤ 45 minutes.</p> <p>CUE: As US, acknowledge report of inadequate shutdown margin and/or completion of 2BwOSR 3.1.1.1-2.</p>	<p>VERIFY Shutdown Margin by performing the following:</p> <ul style="list-style-type: none"> • Add total corrected rod worth to power defect: $\frac{1811.4 \text{ pcm } (\pm 10 \text{ pcm}) + -1750 (\pm 50 \text{ pcm})}{\pm 60 \text{ pcm}} = 78.4 \text{ pcm } (\pm 60 \text{ pcm}).$ • Refer to TRM for Unit 2 COLR. • Determine and record the Shutdown Margin Limit for Modes 1 and 2 from the COLR: $\frac{1.3\% \Delta k/k \times 1000 \text{ pcm}}{\% \Delta k/k} = 1300 \text{ pcm}.$ • Determine the available shutdown reactivity is less than the minimum required Shutdown Margin Limit: $\frac{78.4 \text{ pcm } (\pm 60 \text{ pcm})}{1300 \text{ pcm}} < 1$ • Inform US shutdown margin is unacceptable. ○ Inform US 2BwOSR 3.1.1.1-2 is complete. 	<p>SAT UNSAT N/A</p> <p>Comments:</p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

JOB PERFORMANCE MEASURE

ASK CONDITIONS:

1. **This is a time critical JPM.**
2. You are an extra NSO.
3. **Unit 2** is at 100% power with the following conditions:
 - a. Control Bank D is at 215 steps, Unit 2 burn up is 6,500 EFPH, RCS Tave is 587°F and RCS Boron concentration is 950 ppm from a sample obtained one hour ago.
 - b. 15 minutes ago, control rods D-4 and M-12 were determined to be inoperable and immovable. The QNE has been informed.

INITIATING CUES:

1. The Unit 2 Unit Supervisor has directed you to perform 2BwOSR 3.1.1.1-2, **UNIT TWO SHUTDOWN MARGIN SURVEILLANCE DURING OPERATION**, in accordance with Tech Spec 3.1.4. Condition A.
2. Inform the Unit 2 Unit Supervisor when you have completed 2BwOSR 3.1.1.1-2.

TASK TITLE: Review Shutdown Margin Calculation

JPM No.: S-107

REV: 20070301

Task No.: S-AM-123

K/A No.: 2.1.33

Objective No.: 8E.AM-123

K/A IMP: 4.0

EXAMINEE: _____

SRO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 4, 6

APPROX COMPLETION TIME: 30 MINUTES

CRITICAL TIME: 45 minutes

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR

GENERAL REFERENCES:

1. 2BwOSR 3.1.1.1-2, UNIT TWO SHUTDOWN MARGIN SURVEILLANCE DURING OPERATION, Rev. 1.
2. BwCB-2, BRAIDWOOD CURVE BOOK, UNIT 2.
3. CORE OPERATING LIMITS REPORT (COLR) FOR BRAIDWOOD UNIT 2 CYCLE 13.

MATERIALS:

1. Copy of completed 2BwOSR 3.1.1.1-2, Rev. 1.
2. Copy of BwCB-2.
3. Copy of Braidwood Technical Requirements Manual (TRM)

TASK STANDARDS:

1. Determine actual reactivity due to rods incorrectly calculated.
2. Determine shutdown margin incorrectly performed.
3. Determine shutdown margin is unacceptable for current plant conditions within 45 minutes.

TASK CONDITIONS:

1. **This is a time critical JPM.**
2. You are the Unit 2 Unit Supervisor.
3. Unit 2 is at 100% power with the following conditions:
 - a. Control Bank D is at 215 steps, Unit 2 burn up is 6,500 EFPH, RCS Tave is 587°F and RCS Boron concentration is 950 ppm from a sample obtained one hour ago.
 - b. 15 minutes ago, control rods D-4 and M12 were determined to be inoperable and immovable. The QNE has been informed.

INITIATING CUES:

1. The Unit 1 Assist NSO has completed 2BwOSR 3.1.1.1-2, UNIT TWO SHUTDOWN MARGIN SURVEILLANCE DURING OPERATION.
2. The Shift Manager has directed you to perform the supervisory review of 2BwOSR 3.1.1.1-2.
3. Inform the Shift Manager when you have completed the review of 2BwOSR 3.1.1.1-2.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
EVALUATOR NOTE: JPM may be performed in plant or in classroom.			
1.	Refer to 2BwOSR 3.1.1.1-2 NOTE: Critical Time begins when examinee understands initiating cue and accepts responsibility for task performance. Record critical time start time: _____	Refer to 2BwOSR 3.1.1.1-2	SAT UNSAT N/A Comments:
2.	Review Present Conditions: (step F.1)	Review Present Conditions: (from initiating cue) <ul style="list-style-type: none"> • Date and Time: <u>Current Date and Time</u> • Core Average Burnup: <u>6,500 EFPH</u> • Core Average Temperature: <u>587°F</u> • Power Level: <u>100%</u> • Present Boron Concentration: <u>950 ppm</u> 	SAT UNSAT N/A Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
3.	<p>Review total worth due to rods: (step F.2)</p> <p>CUE: When examinee locates curve book, provide the attached curves.</p> <p>NOTE: Examinee may refer to BwCB-2, Figure 2c for an expanded scale of Figure 2 control bank D rod worth.</p>	<p>Review total worth due to rods:</p> <ul style="list-style-type: none"> • Verify control bank position: <u>Bank D @ 215 steps</u> (from initiating cue). • Verify control bank D inserted worth: <ul style="list-style-type: none"> • Refer to BwCB-2, Figure 2 for burn up range of 4,850.1 – 7544.6 EFPH. • Verify control bank D inserted worth correct: <u>10 pcm.</u> • Verify total available control bank worth: <ul style="list-style-type: none"> • Refer to BwCB-2, Table 4-1 for control bank worth for burn up range of 4850.1 - 9449.4 EFPH. • Verify control bank total worth: <u>3329.4 pcm.</u> • Subtract control bank D inserted worth from control bank total worth: <u>3329.4 pcm – 10 pcm = 3319.4 pcm.</u> • Verify total worth due to rods: <ul style="list-style-type: none"> • Refer to BwCB-2, Table 4-1 for shutdown bank worth for burn up range of 4850.1 - 9449.4 EFPH. • Verify shutdown bank total worth: <u>3458.5 pcm.</u> • Verify total rod worth: <ul style="list-style-type: none"> • Add shutdown bank total worth to available control bank worth: <u>3458.5 pcm + 3319.4 pcm = 6777.9 pcm.</u> 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*4.	<p>Review actual reactivity available due to rods: (step F.3)</p> <p>CUE: When examinee discovers incorrect highest stuck rod worth has been recorded, instruct examinee to correct error and proceed with surveillance review.</p> <p>NOTE: Record Examinee Value of highest stuck rod worth:</p> <p>_____</p> <p>(966.5 pcm)</p> <p>CUE: When examinee discovers incorrect reactivity available due to rods (from previously recorded incorrect highest stuck rod worth recorded in step F.3.b), instruct examinee to correct error and proceed with surveillance review.</p> <p>NOTE: Record Examinee Value of actual reactivity available due to rods:</p> <p>_____</p> <p>(1811.4 pcm)</p>	<p>Review actual reactivity due to rods:</p> <ul style="list-style-type: none"> • Verify the number of immovable and/or untrippable control rods: <u>2</u> (from initiating cue) • Verify highest stuck rod worth: <ul style="list-style-type: none"> • Refer to BwCB-2, Table 4-1 for highest stuck rod worth for burn up range of 4850.1 - 9449.4 EFPH. • Determine incorrect highest stuck rod worth (849.8) recorded in step F.3.b. <ul style="list-style-type: none"> ○ Inform NSO of incorrect rod worth entry. • Enter correct highest stuck rod worth: <u>966.5 pcm</u> • Verify immovable/untrippable rod worth: <ul style="list-style-type: none"> • Multiply the number of immovable or untrippable control rods by 2000pcm: <u>2 X 2000 pcm = 4000 pcm.</u> • Verify actual reactivity available due to rods: <ul style="list-style-type: none"> • Subtract immovable/untrippable rod worth and highest stuck rod worth from total rod worth: <u>6777.9 pcm - 4000 pcm - 966.5 pcm = 1811.4 pcm.</u> 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
7.	<p>Determine Tech Spec requirements.</p> <p>NOTE: If examinee does not refer to Tech Specs, provide the following cue:</p> <p>CUE: Shift Manager directs you to review Tech Specs for applicability with current plant conditions.</p> <p>NOTE: Critical Time ends when examinee determines emergency boration must be initiated.</p> <p>Record time that examinee determines emergency boration required: _____</p> <p>Critical time = _____ - _____</p> <p>(end time) (start time)</p> <p>≤ 45 minutes.</p> <p>CUE: As Shift Manager, acknowledge report of Tech Spec entry conditions and applicability.</p>	<p>Perform the following:</p> <ul style="list-style-type: none"> • Determine Tech Spec 3.1.1 entry conditions are met. • Determine Tech Spec 3.1.4, Condition A.1.2 applies for inadequate shutdown margin in mode 1 (initiate emergency boration within 1 hour of discovery of stuck rods) • Notify Shift Manager of Tech Spec entry conditions and applicability. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

JOB PERFORMANCE MEASURE

ASK CONDITIONS:

1. **This is a time critical JPM.**
2. You are the Unit 2 Unit Supervisor.
3. Unit 2 is at 100% power with the following conditions:
 - a. Control Bank D is at 215 steps, Unit 2 burn up is 6,500 EFPH, RCS Tave is 587°F and RCS Boron concentration is 950 ppm from a sample obtained one hour ago.
 - b. 15 minutes ago, control rods D-4 and M12 were determined to be inoperable and immovable. The QNE has been informed.

INITIATING CUES:

1. The Unit 1 Assist NSO has completed 2BwOSR 3.1.1.1-2, UNIT TWO SHUTDOWN MARGIN SURVEILLANCE DURING OPERATION.
2. The Shift Manager has directed you to perform the supervisory review of 2BwOSR 3.1.1.1-2.
3. Inform the Shift Manager when you have completed the review of 2BwOSR 3.1.1.1-2.

ATTACHMENT 1
Predefine Data Package Cover Sheet
Page 1 of 1

Procedure # 2BwOSR 3.1.1.1-2 Unit: 2 PM ID: 123456
Title Unit Two Shutdown Margin Surveillance During Operation

PREDEFINE INFORMATION: Work Order #: N/A
Due Date: N/A Late Date: N/A
Tech Spec: NO YES XX

SIGNATURE AUTHORIZATION/APPROVALS

Opposite Train Operable YES NO (N/A)
Authorization to Start Work Joe Supervisor 15 minutes ago Today
Work Started By John Operator 14 minutes ago Today
Work Completed By John Operator 1 minute ago Today
Surveillance Found Within Acceptance Criteria YES NO
Surveillance Left Within Acceptance Criteria YES NO
Supv Review of Work Complete _____
Signature Time Date

Update Predefine (circle one of the following):
COMPLETE/SAT - COMPLETE/PORCTIONS UNSAT - PARTIAL - FAILED

COMMENTS

REVIEW OF RESULTS

Title Signature Date

US
TODAY

2BwOSR 3.1.1.1-2
Revision 1
Continuous Use

UNIT TWO
SHUTDOWN MARGIN SURVEILLANCE
DURING OPERATION

A. STATEMENT OF APPLICABILITY

This procedure outlines the steps necessary to verify Shutdown Margin in MODE 1 and MODE 2 when the Reactor is critical.

This Procedure SHALL be performed:

1. Within one hour after detection of one or more inoperable shutdown or control rods in MODE 1; and MODE 2 with the reactor critical as directed by LCOAR 2BwOL 3.1.4.
2. Within one hour after detection of one control or shutdown rod not within alignment limits and once per 12 hours thereafter as directed by LCOAR 2BwOL 3.1.4.
3. Within one hour after detection of more than one shutdown or control rod not within alignment limits as directed by LCOAR 2BwOL 3.1.4.
4. Within one hour after detection of one or more shutdown banks not within the insertion limits specified in the COLR as directed by LCOAR 2BwOL 3.1.5.
5. Within one hour after detection of one or more control banks not within the insertion, sequence and overlap limits specified in the COLR in MODE 1; and MODE 2 with the reactor critical as directed by LCOAR 2BwOL 3.1.6.

B. REFERENCES

1. Tech Spec LCO:
 - a. 3.1.4.
 - b. 3.1.5.
 - c. 3.1.6.
2. Technical Requirements Manual TLCO: 3.1.h.
3. Technical Requirements Manual Surveillance Requirements: 3.1.h.1.

B. 4. Station Commitments:

- a. 456-130-98-3.1.1.1-0200, "Specific SAR Commitment" (Regarding factors used in SDM calculation).
- b. 456-130-98-3.1.1.2-0200, "Specific SAR Commitment" (Regarding factors used in SDM calculation).

5. Station Procedures:

- a. BwCB-2, Braidwood Curve Book - Unit Two.
- b. 2BwOS NR-1, Power History Hourly Surveillance.
- c. 2BwOL 3.1.4, LCOAR - Reactivity Control Systems - Rod Group Alignment Limits.
- d. 2BwOL 3.1.5, LCOAR - Reactivity Control Systems - Shutdown Bank Insertion Limits.
- e. 2BwOL 3.1.6, LCOAR - Reactivity Control Systems - Control Bank Insertion Limits.
- f. 2BwOL TRM 3.1.h, LCOAR - Reactivity Control Systems - Shutdown Margin (SDM).
- g. BwVS TRM 3.1.h.1, Core Reload Sequence and Verification.

6. Braidwood Station Core Operating Limits Report, (COLR).

C. PREREQUISITES

Jo Receive permission to perform this surveillance from the Shift Manager or designee prior to performance by having the Data Package Cover Sheet signed and dated.

D. PRECAUTIONS

Jo BwCB Figures are core life dependent. Ensure Figures and Tables used are correct for current core burnup.

E. LIMITATIONS AND ACTIONS

- ① As stated in Tech Spec LCO 3.1.4, 3.1.5, 3.1.6, and TRM TLCO 3.1.h.
- ① In the event the Acceptance Criteria is not met during the performance of this surveillance, IMMEDIATELY notify the Shift Manager to initiate LCOAR procedure 2BwOL TRM 3.1.h.
- * ① The following factors should be considered in calculating SDM:
 - ① Reactor Coolant System boron concentration.
 - ① Control rod position.
 - ① Reactor Coolant System average temperature.
 - ① Fuel burnup based on gross thermal energy generation.
 - ① Xenon concentration.
 - ① Samarium concentration.

F. MAIN BODY

1. Present Conditions:

RECORD the Date/Time of this calculation:

Date: Today Time: 15 minutes ago

RECORD the Core EFPH (Burnup) from 2BwOS NR-1 for the date and time recorded above:

6500 EFPH

RECORD the Core Average Temperature:

587 °F

RECORD the Power Level:

100 %

RECORD the present Boron Concentration:

950 ppm

NOTE

The Shutdown banks must be fully withdrawn when operating with the Reactor critical, therefore, the Shutdown Bank worth is taken from BwCB-2, Table 4-1, Shutdown Bank total Worth (pcm) for the appropriate time in cycle life.

F. Total Worth Due To Rods:

a. RECORD the Control Bank position:

Bank: D Step: 215

NOTE

Select the appropriate graph from either BwCB-2 Figure 2 or Figure-2a based on power level and core burnup.

b. RECORD the inserted worth of the Control Banks from BwCB-2 Figure 2 or Figure 2a using Control Bank position from step F.2.a:

10 pcm

c. SUBTRACT the Control Bank inserted worth (F.2.b) from the Control Bank total worth (from BwCB-2, Table 4-1) to obtain the total available worth due to the Control Bank position:

$$\frac{3329.4}{\text{(BwCB-2, Table 4-1, Total CB Worth)}} \text{ pcm} - \frac{10}{\text{(F.2.b)}} \text{ pcm} = \underline{3319.4} \text{ pcm}$$

d. ADD the Shutdown Bank worth (from BwCB-2, Table 4-1) plus the total available Control Bank worth (F.2.c) and RECORD the total worth due to rods:

$$\frac{3458.5}{\text{(BwCB-2, Table 4-1, Total Shutdown Bank Worth)}} \text{ pcm} + \frac{3319.4}{\text{(F.2.c)}} \text{ pcm} = \underline{6777.9} \text{ pcm}$$

F. 3. Actual Reactivity Available Due To Rods

NOTE

Jo If any inoperable Control Rod(s) is (are) determined to be immovable or untrippable, INFORM a Qualified Nuclear Engineer if continued operations is desired.

NOTE

yo The following step addresses several off normal shutdown and control bank conditions. If there are no known stuck/untrippable rods, enter 0 in step F.3.a and F.3.c.

yoa. RECORD the number of immovable and/or untrippable Control Rods:

2 Rod(s)

yob. RECORD the highest stuck rod worth from BwCB-2, Table 4-1:

849.8 pcm

yoc. MULTIPLY the number of immovable and/or untrippable Control Rods (F.3.a) by 2000 pcm:

2 x 2000 pcm = 4000 pcm
(F.3.a)

yod. PERFORM the following calculation:

Total rod worth (F.2.d) minus worth of immovable/untrippable rod(s) (F.3.c) minus the highest stuck rod worth (F.3.b) = actual reactivity available due to rods:

= 6777.9 pcm - 4000 pcm - 849.8 pcm = 1928.1 pcm
(F.2.d) (F.3.c) (F.3.b)

F. 4. Power defect for present Power Level:

NOTE

The pcm value for Power Defect as used in this procedure will always be a negative number.

Jo a. RECORD Power Defect from BwCB-2 Figure 17A (or proper chart in Table 2-1 for the core age) using Boron Concentration (F.1.e) and Power Level (F.1.d):

(-) 1733 pcm

INDICATE Method used: Figure 17A Table 2-1

φ 5. Shutdown Margin Verification:

Jo

a. ADD the total corrected rod worth (F.3.d) to the Power Defect (F.4):

$$\frac{1928.1}{(F.3.d)} \text{ pcm} + (-) \frac{1733}{(F.4.a)} \text{ pcm} = \phi \underline{3661} \text{ pcm}$$

Jo b.

RECORD the Shutdown Margin Limit for MODES 1 and 2 from the COLR:

$$\frac{1.3}{\text{SDM Limit}} \% \Delta k/k \times 1000 \frac{\text{pcm}}{\% \Delta k/k} = \underline{1300} \text{ pcm}$$

Jo c.

VERIFY that the available shutdown reactivity recorded in step (F.5.a) is greater than or equal to the minimum required Shutdown Margin Limit recorded in step (F.5.b)

$$\frac{3661}{(F.5.a)} \text{ pcm} \geq \frac{1300}{(F.5.b)} \text{ pcm}$$

G. ACCEPTANCE CRITERIA

The available Shutdown Margin must be within the limits specified in the COLR.

TASK TITLE: Perform Mode 5 Shiftly and Daily Operating Surveillance

JPM No.: R-107

REV: 20070301

Task No.: R-AM-064

K/A No.: 2.1.18

Objective No.: 4.C.AM-03

K/A IMP: 2.9/3.0

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 2, 10, 11

APPROX COMPLETION TIME: 20 MINUTES

CRITICAL TIME: N/A

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR

GENERAL REFERENCES:

- 1BwOSR 0.1-5, UNIT ONE MODE 5 SHIFTLY AND DAILY OPERATING SURVEILLANCE, Rev. 9.

MATERIALS:

- Copy of partially completed 1BwOSR 0.1-5.

TASK STANDARDS:

- Determine 1A SI Pump is not correctly aligned for current plant conditions.
- Determine VCT level channel is failed low.
- Determine BDPS is inoperable.

TASK CONDITIONS:

- You are the Unit 1 NSO.
- Unit 1 is in Mode 5.
- 1BwGP 100-1, PLANT HEATUP, is in progress.
- BOTH RH suction relief valves and BOTH PZR PORVs are being utilized as RCS cold overpressure relief paths.
- BOTH RH trains are operable.
- The SHIFT TWO portion of 1BwOSR 0.1-5, MODE 5, SHIFTLY AND DAILY OPERATING SURVEILLANCE, is in progress.
- Another NSO has completed 1BwOSR 0.1-5, data sheets D-2 thru D-4 and D-12 thru D-15.

INITIATING CUES:

- The Unit 1 Unit Supervisor directs you to complete the SHIFT TWO portion of 1BwOSR 0.1-5 by performing data sheets D-5 thru D-11.

CUE: Hand examinee copy of 1BwOSR 0.1-5.

- Inform the Unit 1 Unit Supervisor when you have completed 1BwOSR 0.1-5 data sheets D-5 thru D-11.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwOSR 0.1-5: CUE: All Prerequisites, Precautions, Limitations and Actions are met.	Refer to 1BwOSR 0.1-5:	SAT UNSAT N/A Comments:
*2	Determine 1A SI Pump is not properly aligned: (Data Sheet D-5) NOTE: If examinee asks for status of SI system, provide the following cue: CUE: 1A SI pump breaker is racked in and there are no manual valves closed in the 1A SI pump flowpath. CUE: 1B SI pump breaker is racked out. CUE: As Unit Supervisor, acknowledge report of 1A SI pump alignment, inform examinee LCO 3.4.12 will be implemented and another NSO will realign the 1A SI pump.	Perform the following at 1PM05J: <ul style="list-style-type: none"> ○ Check Pressurizer level channels. ○ Determine Pressurizer level is > 5%. ○ Check YES box on Data Sheet D-5. Perform the following at 1PM06J: <ul style="list-style-type: none"> ● Determine 1A SI Pump status <ul style="list-style-type: none"> ● 1A SI pump breaker is racked in. ● 1A SI pump C/S is in NAT. ● 1A SI pump is aligned for cold leg injection. ● 1A SI pump is capable of injecting to the RCS cold legs. ○ Notify Unit Supervisor 1A SI Pump is not in correct alignment. ○ Check 1B SI Pump status: <ul style="list-style-type: none"> ○ 1B SI pump breaker is R/O. Perform the following at 1PM05J: <ul style="list-style-type: none"> ○ Check 1A CV pump status: <ul style="list-style-type: none"> ○ 1A CV pump is operating. ○ Check 1B CV pump status: <ul style="list-style-type: none"> ○ 1B CV pump breaker is R/O. ○ Determines Data Sheet D-6 is not required to be performed with PZR level > 5%. ○ Record SI and CV Pump status on Data Sheet D-5. 	SAT UNSAT N/A Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
3.	Check RH Pump discharge flow: (Data Sheet D-7)	Perform the following at 1PM06J: <ul style="list-style-type: none"> • Check 1A RH Pump Discharge Flow on 1FI-618. • Record 1A RH Pump Flow on Data Sheet D-7. 	SAT UNSAT N/A <u>Comments:</u>
4.	Check RCS Temperature: (Data Sheet D-7)	Perform the following at 1PM05J: <ul style="list-style-type: none"> • Check Cold Leg 1A-1D WR Temperature Indicators: <ul style="list-style-type: none"> • 1TI-413B. • 1TI-423B • 1TI-433B • 1TI-443B • Record RCS Cold Leg temperatures on Data Sheet D-7. Perform the following at 1PM05J and 1PM6J: <ul style="list-style-type: none"> • Determine lowest RCS temperature indication from RCS loops and operating RH train. • Record lowest RCS temperature on Data Sheet D-7. 	SAT UNSAT N/A <u>Comments:</u>
5.	Check RH System RCS Overpressure Protection: (Data Sheet D-8)	Perform the following at 1PM06J: <ul style="list-style-type: none"> • Check RH System alignment. • Determine BOTH RH suction relief valves being used for RCS Overpressure Protection (from initiating cue) <ul style="list-style-type: none"> • 1RH8701A & B OPEN • 1RH8702A & B OPEN • Check YES box on Data Sheet D-8. 	SAT UNSAT N/A <u>Comments:</u>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
6.	Check RCS level: (Data Sheet D-8)	Perform the following at 1PM05J: <ul style="list-style-type: none"> • Determine RCS NOT in reduced inventory <ul style="list-style-type: none"> • PZR level 28% • RVLIS Head and Plenum 100% • Check NO box on Data Sheet D-8. 	SAT UNSAT N/A <u>Comments:</u>
7.	Check Source Range Instrumentation. (Data Sheet D-9)	Perform the following at 1PM05J: <ul style="list-style-type: none"> • Check Source Range indications: <ul style="list-style-type: none"> • 1NI-31A • 1NI-32A • Determine Source Range indications responding properly. • Check YES boxes on Data Sheet D-9. 	SAT UNSAT N/A <u>Comments:</u>
8.	Check PZR PORVs RCS Overpressure Protection: (Data Sheet D-10)	Perform the following at 1PM05J: <ul style="list-style-type: none"> • Determine BOTH PZR PORVs being used for RCS Overpressure Protection (from initiating cue) <ul style="list-style-type: none"> • 1RY455A C/S in ARM LOW TEMP • 1RY456 C/S in ARM LOW TEMP • Check YES box on Data Sheet D-9. • Determine 4 RCS over pressure protection systems operable (from review of Data Sheets D-8 and D-9). • Check YES boxes on Data Sheet D-10. • Determine RCS is NOT vented through ≥ 2 square inch vent. <ul style="list-style-type: none"> • RCS pressure is 170 psig. • Check NO box on Data Sheet D-10. 	SAT UNSAT N/A <u>Comments:</u>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
9.	Check RCS Loops: (Data Sheet D-10)	Perform the following at 1PM05J: <ul style="list-style-type: none"> • Check RCP Status: <ul style="list-style-type: none"> • Determine 1D RCP is running. • Check 1D box on Data Sheet D-10. • Check Loop Stop Valves open: <ul style="list-style-type: none"> • RCS flow indication. • ESF Isolation Valve light box on 1PM06J. • Check loops 1A – 1D HL and CL boxes on Data Sheet D-10. 	SAT UNSAT N/A <u>Comments:</u>
*10	Determine VCT level channel is inoperable: (Data Sheet D-11) CUE: As Unit Supervisor, acknowledge report of 1LR-185 failure.	Perform the following at 1PM05J: <ul style="list-style-type: none"> • Check VCT Level <ul style="list-style-type: none"> • 1LI-112 • 1LR-185 • Determine 1LR-185 is failed low. ○ Record VCT level on Data Sheet D-11. <ul style="list-style-type: none"> ○ Check YES box next to 1LI-112 on Data Sheet D-11. • Check NO box next to 1LR-185 on Data Sheet D-11. ○ Notify Unit Supervisor VCT Level Channel 1LR-185 is failed. 	SAT UNSAT N/A <u>Comments:</u>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*11.	<p>Determine BDPS is inoperable: (Data Sheet D-11)</p> <p>CUE: As Unit Supervisor, acknowledge report of BDPS inoperability and inform examinee LCO 3.3.9 will be implanted.</p>	<p>Perform the following at 1PM05J:</p> <ul style="list-style-type: none"> ○ Check BDPS Channel Selector Switches. ○ Determine BDPS Channel Selector Switches are BOTH in NORMAL. ○ Check YES boxes on Data Sheet D-11. ● Verify BDPS Operability <ul style="list-style-type: none"> ● Determine < 2 VCT level channels operable. ○ Notify Unit Supervisor BDPS is NOT operable ○ Determine BDPS Channel Selector Switches are BOTH in NORMAL. <ul style="list-style-type: none"> ○ Check NORMAL box on Data Sheet D-11. ○ Determine one RCP running <ul style="list-style-type: none"> ○ Check ≥ 1 box on Data Sheet D-11. ○ Determine all 8 LSIVs are OPEN. <ul style="list-style-type: none"> ○ Check 8 box on Data Sheet D-11. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC-3.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Place Wide Range Iconics and RCS Heat up limitations on 1PM05J CRTs.
- Energize SVAG valves by performing the following:
 - Place 480v feed to Bus 131X1A/X2A C/S to CLOSE
 - Place 480v feed to Bus 132X2A/X4A C/S to CLOSE
- Open 1SI8835, SI Pumps to Cold Legs Isolation Valve
- Place 1A SI Pump in NAT.
- Place C/O cards on 1B CV Pump C/S and 1B SI Pump C/S.
- Insert **IMF CV17 0** to fail VCT Level Channel 1LT-185 LOW.
- Depressurize the SI Accumulators by performing the following:
 - Set monitor item **SIMN2ACC[1] = 0**
 - Set monitor item **SIMN2ACC[2] = 0**
 - Set monitor item **SIMN2ACC[3] = 0**
 - Set monitor item **SIMN2ACC[4] = 0**

COMMENTS:

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. You are the Unit 1 NSO.
2. Unit 1 is in Mode 5.
3. 1BwGP 100-1, PLANT HEATUP, is in progress.
4. BOTH RH suction relief valves and BOTH PZR PORVs are being utilized as RCS cold overpressure relief paths.
5. BOTH RH trains are operable.
6. The SHIFT TWO portion of 1BwOSR 0.1-5, MODE 5, SHIFTLY AND DAILY OPERATING SURVEILLANCE, is in progress.
7. Another NSO has completed 1BwOSR 0.1-5, data sheets D-2 thru D-4 and D-12 thru D-15.

INITIATING CUES:

1. The Unit 1 Unit Supervisor directs you to complete the SHIFT TWO portion of 1BwOSR 0.1-5 by performing data sheets D-5 thru D-11.
2. Inform the Unit 1 Unit Supervisor when you have completed 1BwOSR 0.1-5 data sheets D-5 thru D-11.

TASK TITLE: Hang Worker Tagout (1A FW Pump)

JPM No.: R-201

Task No.: R-AP-017

Objective No.: 4C.AP-04

REV: 20070301

K/A No.: 2.2.12

K/A IMP: 3.6

EXAMINEE: _____

RO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 2, 3, 4, 5, 7

APPROX COMPLETION TIME: 40 MINUTES

CRITICAL TIME: NA

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR

GENERAL REFERENCES:

1. OP-AA-109-101, CLEARANCE AND TAGGING, Rev. 1.

MATERIALS:

1. Copy of partially completed Worker Tagout Form.
2. Worker Tagout cards.
3. Copy of Feedwater System prints.
4. Copy of OP-AA-109-101, Rev. 1.

TASK STANDARDS:

1. Determine wrong component is listed on Worker Tagout (WTO) checklist prior to hanging WTO card on 1A FW pump.
2. Determine the sequence of isolation points for 1A FW pump is incorrect prior to hanging WTO cards on 1A FW pump.
3. Correctly position 1A FW pump components for WTO.
4. Correctly sequence hanging of WTO.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is at 100% power.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to hang Worker Tagout (WTO) P07-100 on the 1A FW Pump.

CUE: Hand examinee copy of Worker Tagout form.

2. Equipment operators have been briefed and have a field copy of the WTO and are standing by in the field to assist you.
3. Inform the Unit 1 Unit Supervisor when you have completed the Worker Tagout.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to Worker Tagout Form Hang/Lift Section:	Refer to Worker Tagout (WTO) Form Hang/Lift Section: <ul style="list-style-type: none"> • Review WTO Hang/Lift Section. • Review Special Instructions. 	SAT UNSAT N/A <u>Comments:</u>
<p>EVALUATOR NOTE: The examinee may determine the clearance sequence is incorrect (JPM step 3) prior to determining the component is incorrect (JPM step 2), or the examinee may discover both errors simultaneously. The examinee must identify both errors to complete critical tasks 2 & 3.</p>			
<p>EVALUATOR NOTE: The JPM contains corrected Worker Tagout checklist to be given to the examinee after the errors are identified.</p> <p>If the examinee first determines the incorrect component is listed on the Worker Tagout checklist prior to determining the incorrect sequence is listed, provide examinee JPM page 7.</p> <p>If the examinee first determines the incorrect sequence is listed on the Worker Tagout checklist, provide examinee JPM page 8.</p> <p>When the examinee has determined BOTH the incorrect component and sequence is listed on the Worker Tagout checklist, provide examinee JPM page 9.</p>			
*2	<p>Determine the incorrect component is listed on the WTO:</p> <p>CUE: Acknowledge as Unit Supervisor and inform examinee the checklist and card will be corrected.</p> <p>CUE: Hand examinee corrected worker tagout fin accordance with the evaluator note above.</p>	<p>Determine the incorrect component is listed on the WTO:</p> <ul style="list-style-type: none"> • 2A FW pump C/S is listed on checklist and card instead of 1A FW pump. ○ Notify Unit Supervisor of component error. 	SAT UNSAT N/A <u>Comments:</u>
*3.	<p>Determine the clearance sequence for 1A FW Pump is incorrect.</p> <p>CUE: Acknowledge as Unit Supervisor and inform examinee the checklist will be corrected.</p> <p>CUE: Hand examinee corrected worker tagout in accordance with the evaluator note above.</p>	<p>Determine the clearance hang sequence for 1A FW Pump is incorrect:</p> <ul style="list-style-type: none"> • Clearance hang is sequenced in lift order. ○ Notify Unit Supervisor of sequencing error. 	SAT UNSAT N/A <u>Comments:</u>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*4.	Hang WTO on 1A FW Pump C/S:	Perform the following at 1PM04J: <ul style="list-style-type: none"> ● Place 1FW01PA, FW Pump 1A, C/S to PULL OUT. ● Hang WTO card on 1FW01PA C/S. ○ Place initials in HUNG BY block. 	SAT UNSAT N/A Comments:
*5.	Hang WTO on 1A FW Pump Aux Oil Pump C/S:	Perform the following at 1PM04J: <ul style="list-style-type: none"> ● Place 1FW01PA-B, FW Pump 1A Aux Oil Pump, C/S to PULL OUT. ● Hang WTO card on 1FW01PA-B C/S. ○ Place initials in HUNG BY block. 	SAT UNSAT N/A Comments:
6.	Hang WTO on 1A FW Pump breakers: CUE: 1A FW Pump Breaker is RACKED OUT, 1A FW Pump Aux Oil Pump Breaker is OFF, and 1A FW Pump Motor Heater breaker is OFF. WTO steps were performed by Don Doe (initials DD).	Perform the following: Dispatch Equipment Operators to: <ul style="list-style-type: none"> ● R/O 1A FW pump breaker. ● Turn off 1A FW Pump Aux Oil Pump Breaker. ● Turn off 1A FW Pump Motor Heater Breaker. ● Hang WTO cards on FW Pump Breakers. ● Places NLOs initials/examinee's initials in HUNG BY block. 	SAT UNSAT N/A Comments:
*7.	Hang WTO on 1A FW Pump Discharge Valve:	Perform the following at 1PM04J: <ul style="list-style-type: none"> ● Place 1FW002A, FW Pump 1A Discharge Valve, C/S to CLOSE. ● Hang WTO card on 1FW002A C/S. ○ Place initials in HUNG BY block. 	SAT UNSAT N/A Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
8.	Hang WTO on 1A FW Pump Recirc Valve	Perform the following at 1PM04J: <ul style="list-style-type: none"> Hang WTO card on 1FW012A C/S. Place initials in HUNG BY block. 	SAT UNSAT N/A Comments:
9.	Hang WTO on 1A FW Pump valves: NOTE: Contact simulator operator to deenergized 1FW002A breaker and provide the following cue: CUE: 1FW027A is closed and 1FW002A breaker is OFF. WTO steps were performed by Don Doe (initials DD).	Perform the following: Dispatch Equipment Operators to: <ul style="list-style-type: none"> Close 1FW027A, FW Pump 1A Recirc Valve Manual Isolation Valve Turn off 1FW002A, 1A FW Pump Discharge Valve, Breaker. Hang WTO cards on 1A FW Pump valves and breakers. 	SAT UNSAT N/A Comments:
10.	Inform Unit Supervisor 1A FW Pump WTO is complete. CUE: As Unit Supervisor, acknowledge report.	Perform the following: <ul style="list-style-type: none"> Inform Unit Supervisor 1A FW Pump WTO is complete. 	SAT UNSAT N/A Comments:

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/performance TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 21, 100% power, steady state, equilibrium xenon.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Verify 1A FW pump is available.
- When examinee dispatches NLO to deenergize 1FW002A, perform the following:
 - Insert **IRF ED091C OFF** to deenergize 1FW002A.

COMMENTS:

ATTACHMENT 14 PART 1
WTO Form Hang/Lift Section
Page 1 of 1

Exceptional WTO:

Mode Dependent:

Condition Dependent:

Production Risk:

WORKER TAGOUT# PO7-100 JOB DESCRIPTION: CHANGE 1A MAIN FEEDWATER PUMP OIL

WORKING DEPARTMENT: MMD W/O OR W/R: 12345 EQUIP. TAG# 1FW01PA

COMPONENT DESCRIPTION: 1A MAIN FEEDWATER PUMP

FIRST APPROVAL: Jim NSO DATE/TIME: Today/10 minutes ago

SECOND APPROVAL: Mike Operator DATE/TIME: Today/8 minutes ago

WTO AUTHORIZATION: Joe Supervisor DATE/TIME Today/2 minutes ago

SPECIAL INSTRUCTIONS: YES: NO: (IF YES SEE ATTACHMENT 14 PART 2)

EQUIP. TAG/EQUIPMENT NAME	SEQ	TAG TYPE	POSITION	HUNG BY	VERIF. BY	SFTY. VERIF.	RTS SEQ	RTS POSITION	RTS BY	VERIF. BY
1FW002A C/S FW PUMP 1A DISCH VALVE C/S (1PM04J)	1	CD	NAC		N/A		5	NAO		N/A
1FW012A C/S FW PUMP 1A RECIRC VALVE C/S (1PM04J)	1	CI	INFO		N/A		1	CLOSED		N/A
1FW027A FW PUMP 1A RECIRC VALVE MANUAL SOL VLV (401 K-11 +20')	2	RD	CLOSED		N/A		2	OPEN		N/A
1FW002A BKR FW PUMP 1A DSCH VLV BKR (133Z2 G3)	2	RD	OFF		N/A		3	ON		N/A
1FW01PA C/S FW PUMP 1A C/S (1PM04J)	3	CD	PTL		N/A		5	NAT		N/A
1FW01PA-B C/S FW PUMP 1A AUX OIL PUMP C/S (1PM04J)	3	CD	PTL		N/A		5	NAT		N/A
1FW01PA BKR FW PUMP 1A BKR (BUS 156 CUB 4)	4	RD	R/O		N/A		4	R/TEST		N/A
1FW01PA-B BKR FW PUMP 1A AUX OIL PUMP BKR (134Z2 CUB F1)	4	RD	OFF		N/A		3	ON		N/A
1FW01PA-A BKR FW PP 1A MOTOR HTR BKR (134Z2 G4)	4	RD	OFF		N/A		3	ON		N/A

WTO PLACED: _____ DATE/TIME: _____

WTL COMPLETED WORK START: _____ DATE/TIME: _____

WTO FINAL CLEAR: WORK CREWMEMBER RELEASE: _____ DATE/TIME: _____

VTO CLEARED: _____ DATE/TIME: _____

(COPIES MAY BE MADE OF THIS FORM FOR ADDITIONAL ISOLATION POINTS)

ATTACHMENT 14 PART 1
WTO Form Hang/Lift Section
Page 1 of 1

Exceptional WTO: Mode Dependent:
Condition Dependent: Production Risk:

WORKER TAGOUT# PO7-100 JOB DESCRIPTION: CHANGE 1A MAIN FEEDWATER PUMP OIL
WORKING DEPARTMENT: MMD W/O OR W/R: 12345 EQUIP. TAG# 1FW01PA
COMPONENT DESCRIPTION: 1A MAIN FEEDWATER PUMP
FIRST APPROVAL: Jim NSO DATE/TIME: Today/10 minutes ago
SECOND APPROVAL: Mike Operator DATE/TIME: Today/8 minutes ago
WTO AUTHORIZATION: Joe Supervisor DATE/TIME: Today/2 minutes ago
SPECIAL INSTRUCTIONS: YES: NO: (IF YES SEE ATTACHMENT 14 PART 2)

EQUIP. TAG/EQUIPMENT NAME	SEQ	TAG TYPE	POSITION	HUNG BY	VERIF. BY	SFTY. VERIF.	RTS SEQ	RTS POSITION	RTS BY	VERIF. BY
2FW01PA C/S FW PUMP 2A C/S (2PM04J)	1	CD	PTL		N/A		5	NAT		N/A
1FW01PA-B C/S FW PUMP 1A AUX OIL PUMP C/S (1PM04J)	1	CD	PTL		N/A		5	NAT		N/A
1FW01PA BKR FW PUMP 1A BKR (BUS 156 CUB 4)	2	RD	R/O		N/A		4	R/TEST		N/A
1FW01PA-B BKR FW PUMP 1A AUX OIL PUMP BKR (134Z2 CUB F1)	2	RD	OFF		N/A		3	ON		N/A
1FW01PA-A BKR FW PP 1A MOTOR HTR BKR (134Z2 G4)	2	RD	OFF		N/A		3	ON		N/A
1FW002A C/S FW PUMP 1A DISCH VALVE C/S (1PM04J)	3	CD	NAC		N/A		5	NAO		N/A
1FW012A C/S FW PUMP 1A RECIRC VALVE C/S (1PM04J)	3	CI	INFO		N/A		1	CLOSED		N/A
1FW027A FW PUMP 1A RECIRC VALVE MANUAL ISOL VLV (401 K-11 +20')	4	RD	CLOSED		N/A		2	OPEN		N/A
1FW002A BKR FW PUMP 1A DSCH VLV BKR (133Z2 G3)	4	RD	OFF		N/A		3	ON		N/A

WTO PLACED: _____ DATE/TIME: _____
WTL COMPLETED WORK START: _____ DATE/TIME: _____
WTO FINAL CLEAR: WORK CREWMEMBER RELEASE: _____ DATE/TIME: _____
WTO CLEARED: _____ DATE/TIME: _____
(COPIES MAY BE MADE OF THIS FORM FOR ADDITIONAL ISOLATION POINTS)

ATTACHMENT 14 PART 1
WTO Form Hang/Lift Section
Page 1 of 1

Exceptional WTO: Mode Dependent:
Condition Dependent: Production Risk:

WORKER TAGOUT# **PO7-100** JOB DESCRIPTION: **CHANGE 1A MAIN FEEDWATER PUMP OIL**

WORKING DEPARTMENT: **MMD** W/O OR W/R: **12345** EQUIP. TAG# **1FW01PA**

COMPONENT DESCRIPTION: **1A MAIN FEEDWATER PUMP**

FIRST APPROVAL: Jim NSO DATE/TIME: Today/10 minutes ago

SECOND APPROVAL: Mike Operator DATE/TIME: Today/8 minutes ago

WTO AUTHORIZATION: Joe Supervisor DATE/TIME Today/2 minutes ago

SPECIAL INSTRUCTIONS: YES: NO: (IF YES SEE ATTACHMENT 14 PART 2)

EQUIP. TAG/EQUIPMENT NAME	SEQ	TAG TYPE	POSITION	HUNG BY	VERIF. BY	SFTY. VERIF.	RTS SEQ	RTS POSITION	RTS BY	VERIF. BY
1FW01PA C/S FW PUMP 1A C/S (1PM04J)	1	CD	PTL		N/A		5	NAT		N/A
1FW01PA-B C/S FW PUMP 1A AUX OIL PUMP C/S (1PM04J)	1	CD	PTL		N/A		5	NAT		N/A
1FW01PA BKR FW PUMP 1A BKR (BUS 156 CUB 4)	2	RD	R/O		N/A		4	R/TEST		N/A
1FW01PA-B BKR FW PUMP 1A AUX OIL PUMP BKR (134Z2 CUB F1)	2	RD	OFF		N/A		3	ON		N/A
1FW01PA-A BKR FW PP 1A MOTOR HTR BKR (134Z2 G4)	2	RD	OFF		N/A		3	ON		N/A
1FW002A C/S FW PUMP 1A DISCH VALVE C/S (1PM04J)	3	CD	NAC		N/A		5	NAO		N/A
1FW012A C/S FW PUMP 1A RECIRC VALVE C/S (1PM04J)	3	CI	INFO		N/A		1	CLOSED		N/A
1FW027A FW PUMP 1A RECIRC VALVE MANUAL ISOL VLV (401 K-11 +20')	4	RD	CLOSED		N/A		2	OPEN		N/A
1FW002A BKR FW PUMP 1A DSCH VLV BKR (133Z2 G3)	4	RD	OFF		N/A		3	ON		N/A

WTO PLACED: _____ DATE/TIME: _____

WTL COMPLETED WORK START: _____ DATE/TIME: _____

WTO FINAL CLEAR: WORK CREWMEMBER RELEASE: _____ DATE/TIME: _____

WTO CLEARED: _____ DATE/TIME: _____

(COPIES MAY BE MADE OF THIS FORM FOR ADDITIONAL ISOLATION POINTS)

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is at 100% power.

INITIATING CUES:

1. The Unit 1 Unit Supervisor has directed you to hang Worker Tagout (WTO) P07-100 on the 1A FW Pump.
2. Equipment operators have been briefed and have a field copy of the WTO and are standing by in the field to assist you.
3. Inform the Unit 1 Unit Supervisor when you have completed the Worker Tagout.

TASK TITLE: Initiate a LCOAR for 1A SI Pump

JPM No.: S-201

Task No.: S-AM-073

Objective No.: 8E.AM-120

REV: 20070301

K/A No.: 2.2.23

K/A IMP: 3.8

EXAMINEE: _____

SRO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 3, 5, 6

APPROX COMPLETION TIME: 10 MINUTES

CRITICAL TIME: NA

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR

GENERAL REFERENCES:

1. 1BwOL 3.5.2, LCOAR – ECCS OPERATING, Rev 5.
2. 1BwVSR 5.5.8.SI.1, ASME SURVEILLANCE REQUIREMENTS FOR THE 1A SI PUMP, Rev. 5.

MATERIALS:

1. Copy of 1BwOL 3.5.2, Rev 5.
2. Completed copy of 1BwVSR 5.5.8.SI.1, Rev. 5.

TASK STANDARDS:

1. Perform safety function determination for 1A SI pump inoperability.
2. Initiate LCOAR for 1A SI pump inoperability.

TASK CONDITIONS:

1. You are the Unit 1 Unit Supervisor.
2. Both units at power.
3. The Engineering staff has notified you that the 1A SI pump has failed surveillance 1BwVSR 5.5.8.SI.1, ASME SURVEILLANCE REQUIREMENTS FOR THE 1A SI PUMP, 10 minutes ago due to high pump vibration.
4. IR # 123456 has been written.
5. No other inoperable equipment exists on either Unit.

INITIATING CUES:

1. The Shift Manager directs you to initiate 1BwOL 3.5.2, LCOAR – ECCS OPERATING, for the
2. 1A SI Pump.
CUE: Hand examinee copy of 1BwOL 3.5.2.
3. Inform the Shift Manager when you have initiated 1BwOL 3.5.2.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	Refer to 1BwOL 3.5.2 NOTE: If examinee requests to review 1BwVSR 5.5.8.SI.1, provide the attached copy.	Refer to 1BwOL 3.5.2	SAT UNSAT N/A Comments:
EVALUATOR NOTE: JPM steps 2 – 4 can be performed in any order.			
2.	Enter present mode and initiating event in Section A of 1BwOL 3.5.2:	Enter present mode and initiating event in Section A of 1BwOL 3.5.2: <ul style="list-style-type: none"> • Present Mode: <u>1</u> • Initiating Event: <u>Failure of 1BwVSR 5.5.8.SI.1 due to high pump vibrations.</u> 	SAT UNSAT N/A Comments:
*3.	Perform Safety Function Determination (step B.1)	Refer to Loss of Safety Function (LOSF) Evaluation, step B.1 (page 2): <ul style="list-style-type: none"> • Determine NO support system or supported system on Train B ECCS is inoperable (from initiating cue) • Check box <u>1A</u>: No – No LOSF exists. On page 1, perform the following: <ul style="list-style-type: none"> • SAFETY FUNCTION DETERMINATION PERFORMED? <u>YES</u>. • Initial next to YES box. • DOES THIS INOPERABILITY INVALIDATE ANY PREVIOUS SFD? <u>NO</u> 	SAT UNSAT N/A Comments:

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
4.	<p>Complete section A, Notification, of 1BwOL 3.5.2</p> <p>NOTE: Underlined phrases or words to that effect are acceptable.</p> <p>CUE: If examinee asks, current Shift Manager is Jon Doe.</p> <p>CUE: If examinee asks, a clearance order is being prepared, but has not been completed yet.</p> <p>CUE: Sign NSO signature as Joe Operator</p>	<p>Complete Section A. Notification, of 1BwOL 3.5.2:</p> <ul style="list-style-type: none"> Name of Shift Manager notified: <u>Jon Doe</u> Time Date: (<u>notification time and today's date</u>) Was an IR written: <u>Yes, 123456</u> Related WRs: <u>None</u> Related C/O(s): <u>No</u> SRO Signature: <u>Examinee's signature</u> Unit NSO signature: (<u>Unit NSO name signed by examiner</u>) 	<p>SAT UNSAT N/A</p> <p>Comments:</p>
*5.	<p>Complete LCOAR Index ECCS Operating</p>	<p>On page 5 of 1BwOL 3.5.2, sign and date Condition A line and refer to page 6:</p> <ul style="list-style-type: none"> Examinee's signature Today's date 	<p>SAT UNSAT N/A</p> <p>Comments:</p>
*6.	<p>Initiate LCOAR 1BwOL 3.5.2</p> <p>CUE: As shift manager, acknowledge report.</p>	<p>On page 6 of 1BwOL 3.5.2, enter time, date and signature in Condition column:</p> <ul style="list-style-type: none"> 10 minutes ago time Today's date Examinee's signature Inform Shift Manager 1BwOL 3.5.2 has been initiated. 	<p>SAT UNSAT N/A</p> <p>Comments:</p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

NOTE: JPM can be performed in any location. If JPM is performed in simulator, perform the following setup instructions, otherwise N/A.

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC-21, BOL 100% Power, Steady State, Equilibrium Xenon.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Verify 1A SI pump not running.

COMMENTS:

JOB PERFORMANCE MEASURE

ASK CONDITIONS:

1. You are the Unit 1 Unit Supervisor.
2. Both units are at power.
3. The Engineering staff has notified you that the 1A SI pump has failed surveillance 1BwVSR 5.5.8.SI.1, ASME SURVEILLANCE REQUIREMENTS FOR THE 1A SI PUMP, **10 minutes ago** due to high pump vibration.
4. IR # 123456 has been written.
5. No other inoperable equipment exists on either Unit.

INITIATING CUES:

1. The Shift Manager (Jon Doe) directs you to initiate 1BwOL 3.5.2, LCOAR – ECCS OPERATING, for the 1A SI Pump.
2. Inform the Shift Manager when you have initiated 1BwOL 3.5.2.

TASK TITLE: Respond to 1PR03J High Radiation Alarm

JPM Number: R-302

Task No.: R-AR-011

Objective No.: 4C.AR-04

Rev. 20070301

K/A No.: 2.3.11

K/A Imp.: 2.7/3.2

EXAMINEE: _____

RO SRO (Circle One)

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

Approx. Completion Time: 15 MINUTES

Critical Elements: (*) 2, 3, 4, 5

Critical Time: N/A

EVALUATION METHOD:

PERFORM

SIMULATE

LOCATION:

IN PLANT

SIMULATOR

GENERAL REFERENCES:

1. BWAR 1-1PR03J, RCFC 1B 1D OUTLET, Rev. 2.

MATERIALS:

1. Copy of BWAR 1-1PR03J, Rev. 2.

TASK STANDARDS:

1. Shutdown 1B & 1D RCFC prior to securing SX flow to 1B & 1D RCFC.
2. Isolate RCFC 1B & 1D effluent release path.
3. **SRO ONLY** – Determine Tech Spec applicability for isolated RCFCs.

TASK CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is at 100% power.

INITIATING CUES:

4. The Unit 1 RM-11 console began alarming 10 seconds ago.
5. The Unit 1 Unit Supervisor directs you to respond to the RM-11 alarm.
6. Inform the Unit 1 Unit Supervisor when you have completed actions in response to the RM-11 alarm.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	<p>Refer to BwAR 1-1PR03J. CUE: After the student locates procedure, provide a copy.</p> <p>CUE: As US, acknowledge report of 1PR03J high alarm condition.</p>	<p>Perform the following at the RM-11 console:</p> <ul style="list-style-type: none"> • Determine 1PR03J is in HIGH alarm. <ul style="list-style-type: none"> • Grid 1 cursor flashing RED on 6 grid display. • 1PR03J flashing RED on GRID 1 display. • Acknowledge 1PR03J alarm: <ul style="list-style-type: none"> ○ Depress GRID 1 key. <ul style="list-style-type: none"> • Select 1PR03J by depressing SEL key. - OR - • Type in 1103 and depress SEL key. ○ Depress STATUS key to access. • Depress ACK key to silence audible alarm. • Notify Unit Supervisor of 1PR03J High Alarm. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*2.	<p>Shutdown 1B RCFC.</p>	<p>Perform the following at 1PM06J:</p> <ul style="list-style-type: none"> • Place 1VP01CB, 1B RCFC High Speed, C/S to TRIP. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>
*3	<p>Shutdown 1D RCFC.</p>	<p>Perform the following at 1PM06J:</p> <ul style="list-style-type: none"> • Place 1VP01CD, 1D RCFC High Speed, C/S to TRIP. 	<p>SAT UNSAT N/A</p> <p><u>Comments:</u></p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*4	Isolate 1B and 1D RCFC SX Inlet Flowpath.	Perform the following at 1PM06J: <ul style="list-style-type: none"> ○ Verify 1B SX Pump is NOT running. ● Place 1SX016B, 1B & 1D RCFC SX Inlet Valve, C/S to CLOSE. 	SAT UNSAT N/A <u>Comments:</u>
*5.	Isolate 1B and 1D RCFC SX Outlet Flowpath. CUE: As US, acknowledge status report of 1B & 1D RCFC. CUE: As chemistry, acknowledge request to sample 1B & 1D RCFC flowpath. CUE: As rad protection, acknowledge request to determine if release occurred via 1B & 1D RCFC flowpath.	Perform the following at 1PM06J: <ul style="list-style-type: none"> ○ Verify 1B and 1D RCFCs are NOT running. ● Place 1SX027B, 1B & 1D RCFC SX Outlet Valve, C/S to CLOSE. ○ Notify Unit Supervisor of status of 1B & 1D RCFC. ○ Notify chemistry to sample RCFC SX outlet flow ○ Notify rad protection to determine if release has occurred via RCFC SX outlet flowpath. 	SAT UNSAT N/A <u>Comments:</u>
EVALUATOR NOTE: During performance of the following step, RO candidates are only required to determine if entry conditions for Tech Spec 3.6.6 are met. SRO candidates are required to determine if entry conditions are met and are required to determine which LCO actions apply.			
6.	Review system lineup for Tech Spec compliance. NOTE: If examinee does not refer to Tech Specs, provide the following cue: CUE: Unit Supervisor directs you to review Tech Specs for applicability with current system alignment. CUE: As Unit Supervisor, acknowledge report of Tech Spec entry conditions and applicability.	Perform the following: <ul style="list-style-type: none"> ● Determine Tech Spec 3.6.6 entry conditions are met. ● (SRO candidates only, N/A for RO candidates) Determine Tech Spec 3.6.6, Condition C applies for 1B and 1D RCFC due to closure of 1SX016B and 1SX027B (will not meet SR 3.6.6.3 due to SX flow < 2660 gpm) ● Notify Unit Supervisor Tech Spec entry conditions and applicability. 	SAT UNSAT N/A <u>Comments:</u>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/performance TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 21, 100% power, steady state, equilibrium xenon.
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Verify 1A SX Pump is running and 1B SX Pump is NOT running.
- Verify 1B and 1D RCFC are running in High Speed.
- Verify 1SX016B and 1SX027B are open.
- Select a grid other than Grid 1 on the RM-11 console.
- Insert **IMF RM04L** 1 0 to cause a high radiation condition on 1PR03J.
- If running the JPM repetitively, perform the following:
 - Verify 1B and 1D RCFC are running in High Speed.
 - Verify 1SX016B and 1SX027B are open.
 - Delete malfunction **RM04L**.
 - Acknowledge 1PR03J on the RM-11 console.
 - Select a grid other than Grid 1 on the RM-11 console.
 - Insert **IMF RM04L** 1 0 to cause a high radiation condition on 1PR03J.

COMMENTS:

JOB PERFORMANCE MEASURE

START CONDITIONS:

1. You are the Unit 1 Assist NSO.
2. Unit 1 is at 100% power.

INITIATING CUES:

1. The Unit 1 RM-11 console began alarming 10 seconds ago.
2. The Unit 1 Unit Supervisor directs you to respond to the RM-11 alarm.
3. Inform the Unit 1 Unit Supervisor when you have completed actions in response to the RM-11 alarm.

TASK TITLE: Prepare and Approve Nuclear Accident Reporting System Form

JPM No.: S-400

REV: 20070301

Task No.: S-ZP-001

K/A No.: 2.4.40

Objective No.: 8F.ZP-001

K/A IMP: 2.3/4.0

EXAMINEE: _____

SRO

EVALUATOR: _____

DATE: _____

The Examinee: PASSED _____ this JPM.
FAILED _____

TIME STARTED: _____

TIME FINISHED: _____

JPM TIME: _____ MINUTES

CRITICAL ELEMENTS: (*) 3, 5, 6, 8

APPROX COMPLETION TIME: 13 MINUTES

CRITICAL TIME: 15 minutes.

EVALUATION METHOD:

LOCATION:

PERFORM

IN PLANT

SIMULATE

SIMULATOR

GENERAL REFERENCES:

1. EP-MW-114-100, MIDWEST REGION OFFSITE NOTIFICATIONS, Rev. 5
2. EP-MW-114-100-F-01, NUCLEAR ACCIDENT REPORTING SYSTEM (NARS) FORM, Rev. B.
3. EP-AA-114-F-01, Rev. B, RELEASE IN PROGRESS DETERMINATION GUIDE.

MATERIALS:

1. Copy of EP-MW-114-100, Rev. 5.
2. Copy of EP-MW-114-100-F-01, Rev. B.
3. Copy of EP-AA-114-F-01, Rev. B.

TASK STANDARDS:

1. Correctly determine Unit 1 release status.
2. Correctly complete NARS Form.
3. Approve NARS Form for transmittal within 15 minutes.

TASK CONDITIONS:

1. **This is a Time Critical JPM.**
2. You are the Shift Emergency Director.
3. A 600 gpm tube rupture has occurred on the 1A SG.
4. Three safety valves are stuck open on 1A SG.
5. 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION, is in progress at step 20.
6. The accident in progress has just been classified as a Site Area Emergency, FS1, due to a loss of the RCS and Containment fission product barriers. (Assume classification time is start time of JPM).

INITIATING CUES:

1. The Emergency Plan requires that you PREPARE AND APPROVE the INITIAL Nuclear Accident Reporting System (NARS) Form for transmittal in accordance with EP-MW-114-100, MIDWEST REGION OFFSITE NOTIFICATIONS.
CUE: Hand examinee copy of EP-MW-114-100 and EP-MW-114-100-F-01.
2. Another operations person will transmit the NARS form once it is prepared and approved.
3. Hand the NARS Form to your evaluator once you have prepared and approved the NARS Form.

RECORD START TIME: _____

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
1.	<p>Refer to EP-MW-114-100.</p> <p>NOTE: JPM page 6 contains a key of a correctly completed NARS form.</p> <p>NOTE: Critical Time begins when examinee understands initiating cue and accepts responsibility for task performance.</p> <p>Record critical time start time: _____</p>	Refer to EP-MW-114-100.	<p>SAT UNSAT N/A</p> <p>Comments:</p>
2.	Complete blocks 1 & 2:.	<p>Complete blocks 1 & 2 by entering the information in bold font below:</p> <p>UTILITY MESSAGE NO.: 1</p> <p>STATE MESSAGE NO. N/A</p>	<p>SAT UNSAT N/A</p> <p>Comments:</p>
*3.	Complete blocks 3 & 4:	<p>Complete blocks 3 & 4 by checking the boxes and entering the information in bold font below:</p> <ul style="list-style-type: none"> ○ STATUS: [1B] DRILL/EXERCISE ○ STATION: [2A] BRAIDWOOD ● ONSITE CONDITION: [3C] SITE AREA EMERGENCY ● ACCIDENT CLASSIFIED: <ul style="list-style-type: none"> ● TIME: JPM start time ● DATE: Today's Date. ● EAL#: FS1. ○ ACCIDENT TERMINATED: Time and Date: N/A. 	<p>SAT UNSAT N/A</p> <p>Comments:</p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*5.	<p>Complete blocks 5 & 6: CUE: When examinee locates procedure, provide copy.</p>	<p>Complete blocks 5 & 6 by performing the following:</p> <ul style="list-style-type: none"> • Determine release is occurring. <ul style="list-style-type: none"> ○ Refer to EP-AA-114-F-01, RELEASE IN PROGRESS DETERMINATION GUIDE. ○ SGTR w/open MS safety valves is release path. • Check the boxes in bold font below: <ul style="list-style-type: none"> • RELEASE STATUS: [5B] OCCURRING. • TYPE OF RELEASE: [6B] GASEOUS 	<p>SAT UNSAT N/A <u>Comments:</u></p>
<p>EVALUATOR NOTE: When recording wind speed in the next step, the examinee may enter wind speed in miler per hour, miles per second, or both. At lease one wind speed must be correctly entered.</p>			
*6.	<p>Complete blocks 7 & 8:</p>	<p>Complete blocks 7 & 8 by performing the following:</p> <ul style="list-style-type: none"> • Record actual data from PPDS or 0PM01J: • Enter the information in bold font below <ul style="list-style-type: none"> • WIND DIRECTION: 270 ± 30 • WIND SPEED: [8A] 4.5 m/s ± 2 m/s. AND/OR [8B] 10 mph ± 5 mph 	<p>SAT UNSAT N/A <u>Comments:</u></p>
7.	<p>Complete blocks 9 & 10:</p>	<p>Complete blocks 3 & 4 by checking the boxes and entering the information in bold font below:</p> <ul style="list-style-type: none"> • RECOMMENDED ACTIONS: [9A] NONE • ADDITIONAL INFORMATION: None 	<p>SAT UNSAT N/A <u>Comments:</u></p>

	PERFORMANCE STEP	STANDARD	CIRCLE APPLICABLE
*8.	<p>Approve the NARS Form: NOTE: If examinee asks for verification of NARS form, provide the following cue: CUE: Verification has been provided by SRO Jon Doe. NOTE: Critical Time ends when examinee approves NARS form and hand it to the evaluator for transmittal. Record critical time stop time: _____ Critical time = _____ - _____ (end time) (start time) ≤ 15 minutes.</p>	<ul style="list-style-type: none"> • Approve the NARS Form by performing the following: <ul style="list-style-type: none"> ○ Obtain verification • Sign the Approved by line. 	<p>SAT UNSAT N/A Comments:</p>

CUE: THIS COMPLETES THIS JPM.

RECORD STOP TIME: _____

COMMENTS:

SIMULATOR SETUP INSTRUCTIONS

- Verify/perform TQ-BR-201-0113, BRAIDWOOD TRAINING DEPARTMENT SIMULATOR EXAMINATION SECURITY ACTIONS CHECKLIST.
- Establish the conditions of IC 21, 100% power, steady state, equilibrium xenon.
- OR -
- Other IC if being performed concurrently with other JPMs. (JPM is not IC dependent)
- Complete items on Simulator Ready for Training Checklist.
- Place simulator in RUN.
- Insert the following remote functions to set wind direction at 270 degrees, and the wind speed at 10 mph:
 - Insert IRF **EP03 10** to set 34' wind speed to 10 mph
 - Insert IRF **EP04 270** to set 34' wind direction to 270 degrees
 - Insert IRF **EP11 12** to set 204' wind speed to 12 mph
 - Insert IRF **EP12 272** to set 204' wind direction to 272 degrees

COMMENTS:

KEY – DO NOT GIVE TO EXAMINEE

UTILITY MESSAGE NO. 1

STATE MESSAGE NO. N/A

1. **STATUS** 2. **STATION**
- [A] ACTUAL [X] BRAIDWOOD [C] CLINTON [E] LASALLE [G] ZION
[X] DRILL/EXERCISE [B] BYRON [D] DRESDEN [F] QUAD CITIES

3. **ONSITE CONDITION** 4. **ACCIDENT CLASSIFIED** **ACCIDENT TERMINATED**
- [A] UNUSUAL EVENT TIME (3[A-E]): JPM start time TIME (3[F]): N/A
[B] ALERT DATE (3[A-E]): Today DATE (3[F]): N/A
[X] SITE AREA EMERGENCY EAL#: FS1
[D] GENERAL EMERGENCY
[E] RECOVERY
[F] TERMINATED

5. **RELEASE STATUS** 6. **TYPE OF RELEASE** 7. **WIND DIR** 8. **WIND SPEED**
- [A] NONE [A] NOT APPLICABLE 270 ± 30 [X] METERS/SEC.: 4.5 ± 2
[X] OCCURRING [X] GASEOUS (DEGREES FROM) [X] MILES/HR.: 10 ± 5
[C] TERMINATED [C] LIQUID

9. **RECOMMENDED ACTIONS**
- UTILITY RECOMMENDATION**
- [X] NONE (UE, Alert and SAE Only)
- (GE Only) -----
- [B] SHELTER ILLINOIS SUB-AREAS: _____
AND ADVISE REMAINDER OF THE EPZ TO MONITOR LOCAL RADIO STATIONS
- [C] SHELTER IOWA SUB-AREAS: _____
AND ADVISE REMAINDER OF THE EPZ TO MONITOR LOCAL RADIO STATIONS
- [D] EVACUATE ILLINOIS SUB-AREAS: _____
AND ADVISE REMAINDER OF THE EPZ TO MONITOR LOCAL RADIO STATIONS
- [E] EVACUATE IOWA SUB-AREAS: _____
AND ADVISE REMAINDER OF THE EPZ TO MONITOR LOCAL RADIO STATIONS

- STATE RECOMMENDATION**
- [F] NONE
- [G] SHELTER SUB-AREAS: _____
- [H] EVACUATE SUB-AREAS: _____
- [I] RECOMMEND POTASSIUM IODIDE (KI) PER PROCEDURES
- [J] COMMENCE RETURN OF PUBLIC
- [K] OTHER _____

10. **ADDITIONAL INFORMATION** "NONE"

Verified With: Jon Doe Approved By: Candidates Signature

11. **TRANSMITTED BY:** **NAME** **PHONE NUMBER**
- TIME/DATE
- [A] EXELON: _____
- [B] STATE: _____
- [C] COUNTY: _____

12. **RECEIVED BY:** **NAME** **ORGANIZATION**
- TIME/DATE

KEY – DO NOT GIVE TO EXAMINEE

JOB PERFORMANCE MEASURE

TASK CONDITIONS:

1. **This is a Time Critical JPM.**
2. You are the Shift Emergency Director.
3. A 600 gpm tube rupture has occurred on the 1A SG
4. Three safety valves are stuck open on 1A SG.
5. 1BwEP-0, REACTOR TRIP OR SAFETY INJECTION, is in progress at step 20.
6. The accident in progress has just been classified as a Site Area Emergency, FS1, due to a loss of the RCS and Containment fission product barriers. (Assume classification time is start time of JPM).

INITIATING CUES:

1. The Emergency Plan requires that you PREPARE AND APPROVE the INITIAL Nuclear Accident Reporting System (NARS) Form for transmittal in accordance with EP-MW-114-100, MIDWEST REGION OFFSITE NOTIFICATIONS.
2. Another operations person will transmit the NARS form once it is prepared and approved.
3. Hand the NARS Form to your evaluator once you have prepared and approved the NARS Form.