

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.1-1 RO & SRO  
2010-08 NRC Exam**

**A.1-1 RO & SRO  
Calculation of values required to raise  
RWST level.**



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2010-08 NRC Exam**

**Tools/Equipment/Procedures Needed:**

The latest revision of SOI-62.02, "Boron Concentration Control."  
Calculator

**NOTE: This JPM is designed to be performed in a classroom with procedures available to the applicant.**

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**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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

**INITIAL CONDITIONS:**

1. RWST level has been reported to be at 371,000 gallons.
2. RWST boron concentration is currently 3100 ppm.
3. A problem in the makeup control circuit is currently limiting the maximum boric acid flow rate to 30 gpm.
4. You are an extra operator assigned to the shift.

**INITIATING CUES:**

1. The Unit Supervisor directs you to determine the amount of primary water and the amount of boric acid needed to raise RWST level to 374,000 gallons while maintaining the current boron concentration.
2. You are to notify Unit Supervisor when you have completed your determination of the amount of primary water and the amount of boric acid needed.

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STEP/STANDARD	SAT/UNSAT
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**START TIME:** \_\_\_\_\_

<p><u>STEP 1:</u> Obtain a copy of the procedure.</p> <p><u>STANDARD:</u> A copy of SOI-62.02, Boron Concentration Control," Section 8.1 is located by the applicant.</p> <p><b>EXAMINER'S CUE:</b> <i>After the applicant has demonstrated the method of obtaining the correct instruction, the examiner will provide a copy of the instruction.</i></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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**NOTE**

**Performance of this Section should be coordinated with performance of 1-TRI-62-3, Boric Acid Flow Paths: Valve Position Verification.**

<p><u>STEP 2:</u> [1] <b>REFER TO</b> one of the following methods to determine amount of Primary Water (PW) &amp; Boric Acid (BA) needed: (<b>N/A</b> method <b>NOT</b> used)</p> <p>[1.1] <b>IF</b> blending at less than 2500 ppm, <b>THEN USE</b> TI-59.</p> <p>[1.2] <b>IF</b> blending at 2500 ppm or greater, <b>THEN USE</b> Appendix B.</p> <p><u>STANDARD:</u></p> <p>Applicant determines from the INITIAL CONDITIONS that the blended solution is greater than 2500 ppm, and enters an N/A in Step 1.1.</p> <p>Applicant locates Appendix B to continue the calculation.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>
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<b>STEP/STANDARD</b>	<b>SAT/UNSAT</b>
<b>NOTE</b> <b>This Appendix should only be used in conjunction with Sections 6.5 or 8.1. Primary water flow must be varied to blend at concentrations greater than 2500 ppm; therefore, blending is only possible when 1-HS-62-140B, VCT MAKEUP MODE is in MANUAL.</b>	
<p><u>STEP 3:</u> From the Table on Page 2 of 2, the applicant locates the row which contains the Desired Blend Concentration of 3100 ppm, and determines Primary Water flow rate to be 48 gpm.</p> <p><u>STANDARD:</u></p> <p>Applicant reads the primary flow rate to be 48 gpm from the row for 3100 ppm.</p> <p><u>COMMENTS:</u></p>	<p>___ SAT</p> <p>___ UNSAT</p>

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STEP/STANDARD	SAT/UNSAT
<p><b>STEP 4:</b> Calculates Required PW flow rate using the formula provided at the bottom of Page 2 of 2 of Appendix B.</p> <p><b>STANDARD:</b></p> <p>Applicant performs the calculation at the bottom of Page 2 of 2, and determines that the Required PW Flow Rate to be used with 30 gpm of Boric Acid Flow rate is 36 gpm.</p> <p>* For Boric Acid flow rates other than 40 gpm the following formula may be used:</p> $\frac{\text{Actual BA flow rate}}{40} = \frac{\text{Required PW flow rate}}{\text{PW flow rate from Table}}$ <p style="text-align: center;">OR</p> $\frac{\text{Actual BA flow rate}}{40} \times \text{PW flow rate from Table} = \text{Required PW flow rate}$ $\frac{30}{40} \times 48 = 36 \text{ gpm}$ <p><b>COMMENTS:</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

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STEP/STANDARD	SAT/UNSAT
<p><b>STEP 5:</b> Calculates the amount of primary water to be entered into the PW integrator, by using the ratio of the primary water flow rate to the total flow rate.</p> <p><b>STANDARD:</b></p> <p>Applicant determines the Total Flow rate to be 66 gpm by adding the primary water and boric acid flow rates together.</p> <p>Applicant determines the total amount of primary water to be added by first calculating the percentage of flow due to primary water by dividing the primary water flow by the total flow, then multiplying the 3000 gallon change by that percentage. This results in 1637 gallons of primary water to be placed in the PW integrator.</p> <p><b>Acceptable value: 1637 ± 5 gallons.</b></p> <p>Total Flow Rate = 36 gpm + 30 gpm = 66 gpm</p> $\frac{36 \text{ gpm}}{66 \text{ gpm}} = 0.54545$ <p>0.54545 X 3000 = 1637 ga. PW</p> <p><b>Could also perform calculation:</b></p> <p><b>3000 gal./66 gpm = 45.45 minutes</b></p> <p><b>36 gpm x 45.45 min. = 1636 gal. of PW</b></p> <p><b>Step is critical since the proper adjustment in primary flow rate is required to ensure proper blended solution is delivered to the RWST.</b></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

# WATTS BAR NUCLEAR PLANT

## JOB PERFORMANCE MEASURE

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STEP/STANDARD	SAT/UNSAT
<p><b>STEP 6:</b> Calculates the amount of boric acid to be entered into the BA integrator, by using the ratio of the boric acid rate to the total flow rate.</p> <p><b>STANDARD:</b></p> <p>Applicant determines the total amount of boric acid to be added by first calculating the percentage of flow due to boric acid by dividing the boric acid flow by the total flow, then multiplying the 3000 gallon change by that percentage. This results in 1363 gallons of boric acid to be placed in the BA integrator.</p> <p><b>Acceptable values: 1363 ± 5 gallons.</b></p> <p>Total Flow Rate = 36 gpm + 30 gpm = 66 gpm</p> $\frac{30 \text{ gpm}}{66 \text{ gpm}} = 0.45455$ <p>0.45455 X 3000 = 1363 gal. BA</p> <p><b>Could also perform calculation:</b></p> <p>3000 gal./66 gpm= 45.45 minutes</p> <p>30 gpm x 45.45 min. = 1364 gal. of PW</p> <p><b>Step is critical since the proper adjustment in boric acid flow rate is required to ensure proper blended solution is delivered to the RWST.</b></p> <p><b>COMMENTS:</b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

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<b>STEP/STANDARD</b>	<b>SAT/UNSAT</b>
<p><u>STEP 10:</u> Notify the Unit Supervisor that the primary water flow rate, amount of boric acid and primary water have been determined.</p> <p><u>STANDARD:</u></p> <p>Applicant informs the Unit Supervisor of the results of the calculations.</p> <p><u>COMMENTS:</u></p> <p><b>END OF TASK</b></p>	<p>___ SAT</p> <p>___ UNSAT</p>

**STOP TIME** \_\_\_\_\_

**Appendix B  
(Page 1 of 2)**

**Blending Greater Than 2500 ppm**

**NOTE**

This Appendix should only be used in conjunction with Sections 6.5 or 8.1. Primary water flow must be varied to blend at concentrations greater than 2500 ppm., therefore, blending is only possible when 1-HS-62-140B, VCT MAKEUP MODE is in MANUAL.

(Table is continued on next page)

<b>Desired Blend Concentration ppm.</b>	<b>Boric Acid flow rate gpm*</b>	<b>1-FC-62-139 BA to Blender [1-M-6] %</b>	<b>Primary Water Flow rate gpm</b>
2500	40	100	69
2550	40	100	67
2600	40	100	65
2650	40	100	63
2700	40	100	61
2750	40	100	59
2800	40	100	57

\* For Boric Acid flow rates other than 40 gpm the following formula may be used:

$$\frac{\text{Actual BA flow rate}}{40} = \frac{\text{Required PW flow rate}}{\text{PW flow rate from Table}}$$

OR

$$\frac{\text{Actual BA flow rate}}{40} \times \text{PW flow rate from Table} = \text{Required PW flow rate}$$

**Appendix B  
(Page 2 of 2)**

(Table is continued from previous page)

Desired Blend Concentration ppm.	Boric Acid flow rate gpm*	1-FC-62-139 BA to Blender [1-M-6] %	Primary Water Flow rate gpm
2850	40	100	56
2900	40	100	54
2950	40	100	52
3000	40	100	51
3050	40	100	49
3100	40	100	48
3150	40	100	47
3200	40	100	45
3300	40	100	43

\* For Boric Acid flow rates other than 40 gpm the following formula may be used:

$$\frac{\text{Actual BA flow rate}}{40} = \frac{\text{Required PW flow rate}}{\text{PW flow rate from Table}}$$

OR

$$\frac{\text{Actual BA flow rate}}{40} \times \text{PW flow rate from Table} = \text{Required PW flow rate}$$

$$\text{Required PW flow rate} = (30 / 40) \times 48 = 36 \text{ gpm}$$

$$\text{Total flow rate} = 30 \text{ gpm} + 36 \text{ gpm} = 66 \text{ gpm}$$

$$\text{Primary Water integrator setting} = (36 \text{ gpm} / 66 \text{ gpm}) = 0.54545$$

$$= 0.54545 \times 3000 \text{ gallons} = 1637 \text{ gallons of primary water}$$

Acceptable value: 1637 +/- 5 gallons.

$$\text{Boric Acid integrator setting} = (30 \text{ gpm} / 66 \text{ gpm}) = 0.45455$$

$$= 0.45455 \times 3000 \text{ gallons} = 1364 \text{ gallons of boric acid solution}$$

Acceptable value: 1364 +/- 5 gallons.

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

## INITIAL CONDITIONS:

1. RWST level has been reported to be at 371,000 gallons.
2. RWST boron concentration is currently 3100 ppm.
3. A problem in the makeup control circuit is currently limiting the maximum boric acid flow rate to 30 gpm.
4. You are an extra operator assigned to the shift.

## INITIATING CUES:

1. The Unit Supervisor directs you to determine the amount of primary water and the amount of boric acid needed to raise RWST level to 374,000 gallons while maintaining the current boron concentration.
2. You are to notify Unit Supervisor when you have completed your determination.

**A.1-2**  
**Determine Personal Protective Equipment**  
**Requirements and Pre-Job Briefing**  
**Requirements.**



**WATTS BAR NUCLEAR PLANT  
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**Tools/Equipment/Procedures Needed:**

The latest revisions of:

TI-300, Electrical Arc Flash Personal Protective Equipment & Protective Boundary Matrices.”  
OPDP-1, “Conduct of Operations.”

Calculator.

**NOTE: This JPM is designed to be performed in a classroom with procedures available to the applicant.**

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.1-2 RO & SRO  
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**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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

**INITIAL CONDITIONS:**

1. Unit 1 is in Mode 3.
2. Electrical Maintenance has requested an AUO to swap the 1A-A SI pump breaker with a spare to support surveillance testing to be conducted later in the shift.

**INITIATING CUES:**

You are to identify:

1. The personal protective equipment/clothing requirements for the AUO performing the breaker swap for the 1A Safety Injection Pump.
2. The pre-job briefing requirements for the breaker swap.

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STEP/STANDARD	SAT/UNSAT
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**START TIME:** \_\_\_\_\_

<p><b><u>STEP 1:</u></b> Determine the personal protective equipment requirements for swapping the 1A Safety Injection Pump breaker.</p> <p><b><u>STANDARD:</u></b></p> <p>Using TI-300, "Electrical Arc Flash Personal Protective Equipment &amp; Protective Boundary Matrices," the applicant determines the requirements to be:</p> <p>ATPV 31 Flash Suit, ATPV 31 Flash Hood, natural fibers, safety glasses, hard hat.</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b><u>STEP 2:</u></b> Determine the pre-job briefing requirements for the breaker swap.</p> <p><b><u>STANDARD:</u></b></p> <p>Applicant determines from the Pre-Job briefing Guidelines contained in OPDP-1 that a brief using SPP-18.001 Appendix C, "NPG Pre-Job Briefing Checklist," is required for the evolution.</p> <p><b><u>COMMENTS:</u></b></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><b>END OF JPM</b></p>	

**STOP TIME** \_\_\_\_\_

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

## INITIAL CONDITIONS:

1. Unit 1 is in Mode 3.
2. Electrical Maintenance has requested an AUO to swap the 1A-A SI pump breaker with a spare to support surveillance testing to be conducted by later in the shift.

## INITIATING CUES:

You are to identify:

- a. The Arc Flash protective clothing requirements for the individual performing the breaker swap for the 1A Safety Injection Pump.
- b. The pre-job briefing requirements for the breaker swap.

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## 5.2 Operations Role in Effective Work Management (continued)

- Shift Managers and Unit Supervisors use discretion when identifying items deemed as emergent work but once identified expect actions, owners and due dates/times for each emergent work item.
- Shift Managers and Unit Supervisors hold all station organizations accountable to implement the schedule as published and ensure that plant conditions are established to support approved schedules. For critical systems/components (On-line: tech spec or maintenance rule. Outage: critical or near critical path) notify the work week manager or outage control center when equipment or systems are removed from service. If not completed according to schedule SM/US expects a recovery plan to ensure timely return to service and sets this as a station priority.
- Shift Managers and Operations Management actively participate in T+1 work week and post-outage critiques, identify lessons learned and takes actions to implement improvements.
- Operations personnel hold all station organizations accountable for safe, error-free work and compliance with procedures. Unit Supervisors are expected to use Attachment 9, Work Authorization Questions, prior to authorizing work to verify that personnel are adequately prepared.

## 5.3 Briefings

A. Briefings are used to ensure communications occur, information is exchanged, individuals are properly focused on upcoming evolutions and that behaviors critical to safe, error free performance are reinforced. During a transient a briefing takes advantage of sharing team knowledge to respond to the transient.

### 1. Pre-Job Briefs and Post-Job Critiques

- Attachment 5 provides guidance in determining Pre-Job Brief requirements. The forms and format from the referenced procedure should be used. The individual responsible for task performance is expected to prepare for the pre-job briefing and to lead the pre-job briefing. Post-Job Critiques should be performed for infrequently performed tasks or where a near miss or performance issue occurred or where the station could benefit from lessons learned in job efficiency and planning. Document lessons learned from Post-Job Critiques in a PER for further evaluation and disposition.

### 2. Exceptions

Repetitive activities performed as part of normal daily functions do not require briefings. The following is a listing of examples of activities that would not require a brief (list is not all inclusive):

- AUO Round(s) (skill of the craft) Activities
- Housekeeping Activities
- Administrative Functions

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### 5.3 Briefings (continued)

#### NOTE

TVA - SPP-18.005 states the Post-job critiques are to be performed following any high hazard job, which is defined as a job that has caused or is likely to cause serious injuries / illness or death if not properly carried out. Refer to TVA - SPP-18.005 for the requirements of performing a Post-job critique under these circumstances.

#### 3. Shift Turnover Brief

Shift briefs are conducted at the beginning and middle of each shift. Shift Management directs the briefs. Personnel participation is required. See Attachment 3 for Beginning of Shift Brief and Mid-Shift Brief.

- If shift activities do not facilitate 100% crew attendance, a crew member knowledgeable of the watchstation status will provide turnover information on that watchstation.

#### 4. Event Based Brief

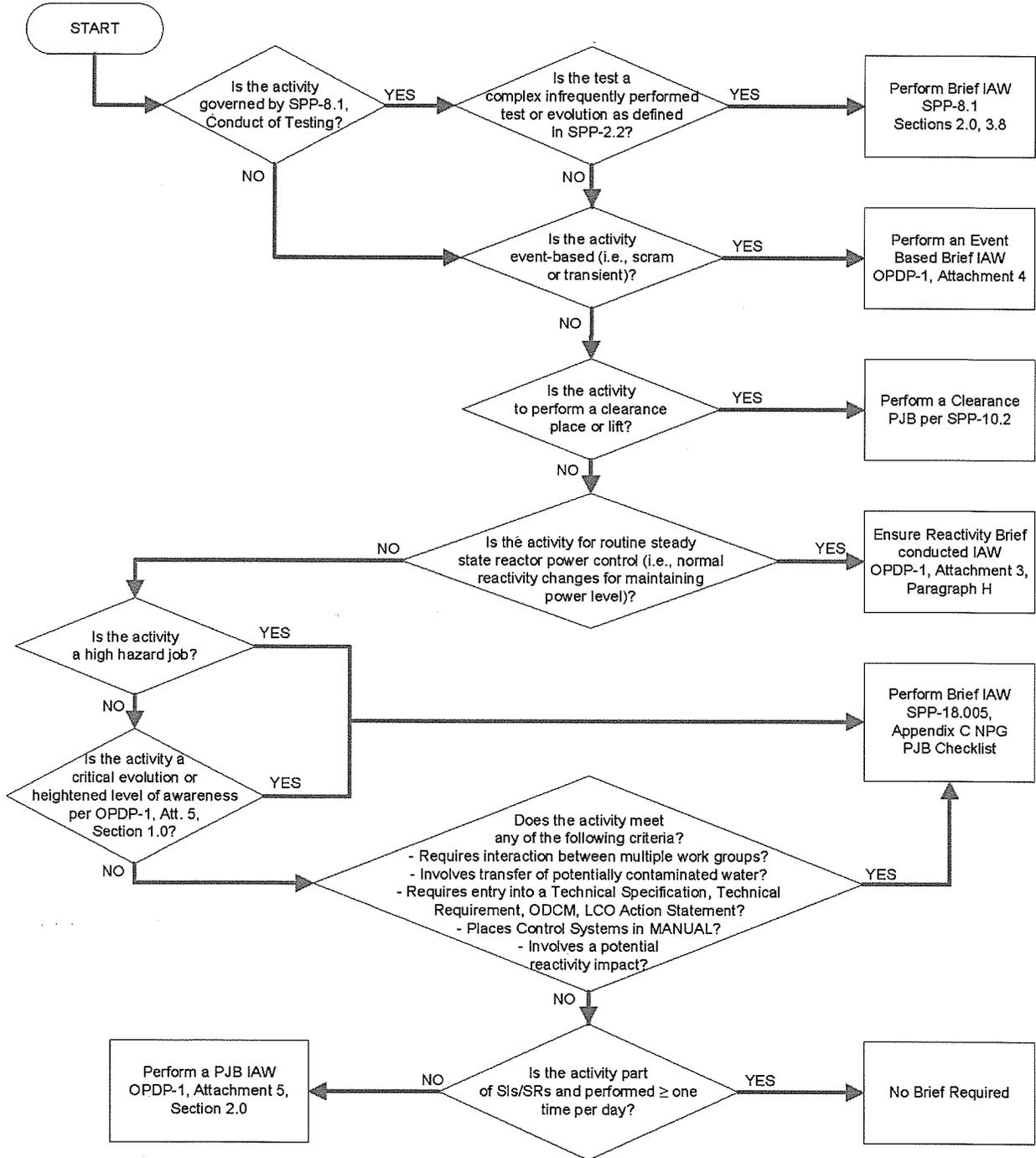
Event Based Briefs are conducted as determined by the Unit Supervisor utilizing a format similar to that contained in Attachment 4. Event based briefs ensure that key information and strategies are communicated in a concise manner and that crew members are given an opportunity to share critical information.

#### 5. Crew Updates

During many conditions the communication of important information to the crew may not need a scripted brief. In these cases the "Crew Update" can be used. If a crew member has information that should be known by the majority of crew members he/she passes this information in a concise manner by:

- Obtaining the crew's attention by stating "crew update" / "crew announcement"
- Ensuring crew members are listening through the use of raised hands or crew members stating "ready."
- Concisely announcing the information and
- Stating "end of update."

**Attachment 5  
(Page 1 of 6)  
Pre-Job Briefing Guidelines**



**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.2 RO  
2010-08 NRC Exam**

**A.2 RO  
Perform 1-SI-0-4, "Monthly Surveillances,"  
for the Auxiliary Control Room.**



**WATTS BAR NUCLEAR PLANT**  
**JOB PERFORMANCE MEASURE**  
**A.2 RO**  
**2010-08 NRC Exam**

**DIRECTIONS 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

**INITIAL CONDITIONS:**

1. The Unit is in Mode 1, with no LCO entries at this time.
2. Portions of the field data have been entered by NAUOs.
3. You are the Unit Operator responsible to perform and review 1-SI-0-4, "Monthly Surveillances."

**INITIATING CUES:**

1. You are to complete 1-SI-0-4, "Monthly Surveillances," Appendix D, pages 5, 6, and 13 for 1-L-10. Another Unit Operator will complete the remainder of Appendix D.
2. When you have finished performing the assigned pages of Appendix D, and addressed any deviations, notify the Unit Supervisor that you have completed your task.

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**SIMULATOR OPERATOR INSTRUCTIONS:**

1. ENSURE NRC Examination Security has been established.
2. Right click on 315, and then select RESET.
3. Enter the password.
4. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
5. ENSURE the following information appears on the Director Summary Screen:

Key	Type	Event	Delay	Inserted	Ramp	Initial	Final	Value
pi-68-336c	O	05350 res pressurizer press	00:00:00	00:00:00	00:00:00		2210	2210
fi-62-93c	O	28180 chg hdr flow cont	00:00:00	00:00:00	00:00:00		79.25	79.244
pi-62-81c	O	28275 let dwn hx press ind	00:00:00	00:00:00	00:00:00		380	379.000

6. Place simulator in RUN and acknowledge any alarms.
7. Place simulator in FREEZE. This JPM is to be conducted on a "dead" board.

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<b>STEP/STANDARD</b>	<b>SAT/UNSAT</b>
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**START TIME:** \_\_\_\_\_

**EXAMINERS CUE:** Provide a marked-up copy of 1-SI-0-4 to the applicant. All data for the main control room panels is filled in (1-M-1 through 1-M-15, 0-M-27A).

**EXAMINERS CUE:** 1-SI-0-4, Appendix D, pages 5, 6 and 13 are attached as the key to this JPM. Values which fall outside the MCD are circled on the key.

**STEP 1:**      **PERFORM 1-SI-0-4, "Monthly Surveillances," Appendix D, Item 4, Steam Generator Pressure, data collection and determine if acceptance criteria are met.**

\_\_\_ SAT

\_\_\_ UNSAT

ITEM NO.	REFERENCE NUMBER	REQUIRED MODE	NOTES	DESCRIPTION	LCC	INST NO	READING	LCC	INST NO	READING	DATA UNITS	MCD		
4	SR 3.3.3.1-25 SR 3.3.4.-4.c SR 3.3.4.1-4.e	1.2.3	(5) (6) (7)	SG 1 Press	1-M-4	1-PI-1-2A	1000	1-L-10	1-PI-1-1C			psig	80 psig	
						1-PI-1-2B	1010							
		SG 2 Press		1-M-4	1.2.3	1-PI-1-9A	1010	1-L-10	1-PI-1-8C					
						1-PI-1-9B	1010							
						1-PI-1-20A	1010							
		SG 3 Press		1-M-4	1.2.3	1-PI-1-20B	1010	1-L-10	1-PI-1-19C					
						1-PI-1-27A	1010							
						1-PI-1-27B	1010							
		SG 4 Press		1-M-4	1.2.3	1-PI-1-27A	1010	1-L-10	1-PI-1-26C					
						1-PI-1-27B	1010							

**STANDARD:**

Applicant obtains current readings for SG Pressure and records them on the data sheet records values on the data sheet, and determines that the values are within their respective Maximum Channel Deviation (MCD) values.

**COMMENTS:**

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STEP/STANDARD											SAT/UNSAT																																			
<p><b>STEP 2.    PERFORM 1-SI-0-4, “Monthly Surveillances,” Appendix D, Item 6, Pressurizer Level, data collection and determine if acceptance criteria are met.</b></p>											<p>___ SAT</p> <p>___ UNSAT</p>																																			
<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8pt;"> <thead> <tr> <th>ITEM NO.</th> <th>REFERENCE NUMBER</th> <th>REQUIRED MODE</th> <th>NOTES</th> <th>DESCRIPTION</th> <th>LOC</th> <th>INST NO</th> <th>READING</th> <th>LOC</th> <th>INST NO</th> <th>READING</th> <th>DATA UNITS</th> <th>MCD</th> </tr> </thead> <tbody> <tr> <td rowspan="3" style="text-align: center;">6</td> <td rowspan="3">SR 3.3.3.1-14 SR 3.3.4.1-3.a</td> <td rowspan="3" style="text-align: center;">1, 2, 3</td> <td rowspan="3" style="text-align: center;">N/A</td> <td rowspan="3" style="text-align: center;">PZR LEVEL</td> <td rowspan="3" style="text-align: center;">1-M-4</td> <td>1-LI-68-339A</td> <td style="text-align: center;">60</td> <td rowspan="3" style="text-align: center;">1-L-10</td> <td>1-LI-68-325C</td> <td></td> <td rowspan="3" style="text-align: center;">%</td> <td rowspan="3" style="text-align: center;">6.0%</td> </tr> <tr> <td>1-LI-68-335A</td> <td style="text-align: center;">60</td> <td>1-LI-68-326C</td> <td></td> </tr> <tr> <td>1-LI-68-320</td> <td style="text-align: center;">58</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">N/A</td> </tr> </tbody> </table>													ITEM NO.	REFERENCE NUMBER	REQUIRED MODE	NOTES	DESCRIPTION	LOC	INST NO	READING	LOC	INST NO	READING	DATA UNITS	MCD	6	SR 3.3.3.1-14 SR 3.3.4.1-3.a	1, 2, 3	N/A	PZR LEVEL	1-M-4	1-LI-68-339A	60	1-L-10	1-LI-68-325C		%	6.0%	1-LI-68-335A	60	1-LI-68-326C		1-LI-68-320	58	N/A	N/A
ITEM NO.	REFERENCE NUMBER	REQUIRED MODE	NOTES	DESCRIPTION	LOC	INST NO	READING	LOC	INST NO	READING	DATA UNITS	MCD																																		
6	SR 3.3.3.1-14 SR 3.3.4.1-3.a	1, 2, 3	N/A	PZR LEVEL	1-M-4	1-LI-68-339A	60	1-L-10	1-LI-68-325C		%	6.0%																																		
						1-LI-68-335A	60		1-LI-68-326C																																					
						1-LI-68-320	58		N/A	N/A																																				
<p><b>STANDARD:</b></p> <p>Applicant obtains current readings for PZR level and records values on the data sheet, and determines that the values are within their respective Maximum Channel Deviation (MCD) values.</p> <p><b>COMMENTS:</b></p>																																														

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STEP/STANDARD										SAT/UNSAT	
<p><b>STEP 4: PERFORM 1-SI-0-4, "Monthly Surveillances," Appendix D, Item 7, Pressurizer Pressure data collection and determine if acceptance criteria are met.</b></p>										<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>	
7	SR 3.3.3.1-5 SR 3.3.4.1-2.a	1, 2, 3	(8)	PZR PRESS	1-M-5	1-PI-68-340A 2235	2235	1-L-10	1-PI-63-336C	psig	50 psig
						1-PI-68-334 2235			1-PI-63-337C		
						1-PI-68-323 2240					
						1-PI-68-322 2235					
			(9)	PZR-COLD CAL PRESS	1-M-5	1-PI-68-342A	2235	1-L-10	1-PI-63-342C	psig	200 psig
			(10)	LOOP 4 HL PRESS		1-PI-68-70	2250		N/A	N/A	
				LOOP 3 HI PRESS	1-M-R	1-PI-68-64	2250	N/A	N/A	N/A	
				LOOP 1 HL PRESS		1-PI-68-62	2250		N/A	N/A	
					Operator's Initials	HAC		Operator's Initials			
<p><b>STANDARD:</b></p> <p>Applicant enters 2150 psig (ACCEPT 2140 -2160 psig) for 1-PI-68-336C.</p> <p>___ Applicant determines that PZR pressure channel 1-PI-68-336C is <b>NOT</b> within Maximum Channel Deviation (MCD) of 50 psig. <b>(Critical).</b></p> <p>Applicant may report that 1-PI-68-336C does not meet MCD limit at this point, or wait until all data is collected.</p> <p><b>Step is critical to ensure that the appropriate Tech Spec Actions are entered.</b></p> <p><b>COMMENTS:</b></p>											

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STEP/STANDARD	SAT/UNSAT																																							
<p><b>STEP 5:      PERFORM 1-SI-0-4, "Monthly Surveillances," Appendix D, Item 25 data collection and determine if acceptance criteria are met.</b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr> <td style="width: 5%;">25</td> <td style="width: 15%;">SR p3.3.4.1-3.b</td> <td style="width: 10%;">1, 2, 3</td> <td style="width: 5%;">(32)</td> <td style="width: 15%;">CHARGING FLOW</td> <td style="width: 5%;">1-M-5</td> <td style="width: 10%;">1-FI-62-93A</td> <td style="width: 5%;">80</td> <td style="width: 5%;">1-L-10</td> <td style="width: 10%;">1-FI-62-93C</td> <td style="width: 5%;"></td> <td style="width: 5%;">gpm</td> <td style="width: 5%;">40 gpm</td> </tr> </table> <p><b>STANDARD:</b></p> <p>Applicant enters 110 gpm (Accept 105 to 115 gpm) for 1-FI-62-93A.</p> <p>Applicant determines that CHARGING FLOW channel 1-FI-62-93A is within Maximum Channel Deviation (MCD) of 40 gpm, but does not meet the 20 gpm requirement given in Note (32).</p> <p>From the Table, the applicant determines that requirement of Note (32) is not met, and requests that a Work Order be prepared to initiate calibration of the flow instrumentation.</p> <p><b>COMMENTS:</b></p>	25	SR p3.3.4.1-3.b	1, 2, 3	(32)	CHARGING FLOW	1-M-5	1-FI-62-93A	80	1-L-10	1-FI-62-93C		gpm	40 gpm	<p>___ SAT</p> <p>___ UNSAT</p>																										
25	SR p3.3.4.1-3.b	1, 2, 3	(32)	CHARGING FLOW	1-M-5	1-FI-62-93A	80	1-L-10	1-FI-62-93C		gpm	40 gpm																												
<p><b>STEP 5:      Perform 1-SI-0-4, "Monthly Surveillances," Appendix D, Items 26 through 28 data collection and determine if acceptance criteria are met.</b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr> <td style="width: 5%;">26</td> <td style="width: 15%;">LCO 3.3.4</td> <td style="width: 10%;">1, 2, 3</td> <td style="width: 5%;">(32)</td> <td style="width: 15%;">CHARGING HDR PRESE</td> <td style="width: 5%;">1-M-5</td> <td style="width: 10%;">1-PI-62-92A</td> <td style="width: 5%;">2370</td> <td style="width: 5%;">1-L-10</td> <td style="width: 10%;">1-PI-62-92C</td> <td style="width: 5%;"></td> <td style="width: 5%;">psig</td> <td style="width: 5%;">150 psig</td> </tr> <tr> <td style="width: 5%;">27</td> <td style="width: 15%;">LCO 3.3.4</td> <td style="width: 10%;">1, 2, 3</td> <td style="width: 5%;">(32)</td> <td style="width: 15%;">EMERG BORATE FLOW</td> <td style="width: 5%;">1-M-5</td> <td style="width: 10%;">1-FI-62-137A</td> <td style="width: 5%;">0</td> <td style="width: 5%;">1-L-10</td> <td style="width: 10%;">1-FI-62-137C</td> <td style="width: 5%;"></td> <td style="width: 5%;">gpm</td> <td style="width: 5%;">7.5 gpm</td> </tr> <tr> <td style="width: 5%;">28</td> <td style="width: 15%;">SR p3.3.4.1-3.b</td> <td style="width: 10%;">1, 2, 3</td> <td style="width: 5%;">(32)</td> <td style="width: 15%;">LETDOWN HX OUTLET TEMP</td> <td style="width: 5%;">1-M-6</td> <td style="width: 10%;">1-TI-62-78</td> <td style="width: 5%;">92</td> <td style="width: 5%;">1-L-10</td> <td style="width: 10%;">1-TI-62-80C</td> <td style="width: 5%;"></td> <td style="width: 5%;">°F</td> <td style="width: 5%;">8°F</td> </tr> </table> <p><b>STANDARD:</b></p> <p>Applicant obtains current readings for charging header pressure, emergency boration flow, letdown heat exchanger outlet temperature and determines that all parameters are within their respective Maximum Channel Deviation (MCD) values.</p> <p><b>COMMENTS:</b></p>	26	LCO 3.3.4	1, 2, 3	(32)	CHARGING HDR PRESE	1-M-5	1-PI-62-92A	2370	1-L-10	1-PI-62-92C		psig	150 psig	27	LCO 3.3.4	1, 2, 3	(32)	EMERG BORATE FLOW	1-M-5	1-FI-62-137A	0	1-L-10	1-FI-62-137C		gpm	7.5 gpm	28	SR p3.3.4.1-3.b	1, 2, 3	(32)	LETDOWN HX OUTLET TEMP	1-M-6	1-TI-62-78	92	1-L-10	1-TI-62-80C		°F	8°F	<p>___ SAT</p> <p>___ UNSAT</p>
26	LCO 3.3.4	1, 2, 3	(32)	CHARGING HDR PRESE	1-M-5	1-PI-62-92A	2370	1-L-10	1-PI-62-92C		psig	150 psig																												
27	LCO 3.3.4	1, 2, 3	(32)	EMERG BORATE FLOW	1-M-5	1-FI-62-137A	0	1-L-10	1-FI-62-137C		gpm	7.5 gpm																												
28	SR p3.3.4.1-3.b	1, 2, 3	(32)	LETDOWN HX OUTLET TEMP	1-M-6	1-TI-62-78	92	1-L-10	1-TI-62-80C		°F	8°F																												

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STEP/STANDARD	SAT/UNSAT												
<p><b>STEP 6: Perform 1-SI-0-4, "Monthly Surveillances," Appendix D, Item 29 data collection and determine if acceptance criteria are met.</b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <tr> <td style="text-align: center;">29</td> <td style="text-align: center;">LCO 3.3.4</td> <td style="text-align: center;">1, 2, 3</td> <td style="text-align: center;">(32)</td> <td style="text-align: center;">LP LETDOWN PRESS</td> <td style="text-align: center;">1-M-6</td> <td style="text-align: center;">1-PI-62-81</td> <td style="text-align: center;">330</td> <td style="text-align: center;">1-L-10</td> <td style="text-align: center;">1-PI-62-81C</td> <td style="text-align: center;">psig</td> <td style="text-align: center;">30 psig</td> </tr> </table> <p><b>STANDARD:</b></p> <p style="margin-left: 40px;">Applicant enters 370 psig (Accept 360-380 psig) for 1-PI-62-81C.</p> <p style="margin-left: 40px;">Applicant determines that LP Letdown Pressure channel 1-PI-62-81C is <b>NOT</b> within Maximum Channel Deviation (MCD) of 30 psig. <b>(Critical).</b></p> <p>From the Table, the applicant determines that LCO 3.3.4 must be entered, and may report that 1-PI-62-81C does not meet MCD limit at this point.</p> <p><b>Step is critical to ensure that the appropriate Tech Spec Actions are entered.</b></p> <p><b>COMMENTS:</b></p>	29	LCO 3.3.4	1, 2, 3	(32)	LP LETDOWN PRESS	1-M-6	1-PI-62-81	330	1-L-10	1-PI-62-81C	psig	30 psig	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
29	LCO 3.3.4	1, 2, 3	(32)	LP LETDOWN PRESS	1-M-6	1-PI-62-81	330	1-L-10	1-PI-62-81C	psig	30 psig		

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STEP/STANDARD											SAT/UNSAT																																																												
<p><b>STEP 7: Perform 1-SI-0-4, "Monthly Surveillances," Appendix D, Items 30 and 31 data collection and determines if acceptance criteria are met.</b></p> <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width:5%;">30</td> <td style="width:15%;">LCO 3.3.4</td> <td style="width:10%;">1, 2, 3</td> <td style="width:5%;">(32)</td> <td style="width:15%;">VCT LEVEL</td> <td style="width:5%;">1-M-6</td> <td style="width:10%;">1-LI-62-129A</td> <td style="width:5%;">28</td> <td style="width:5%;">1-L-10</td> <td style="width:10%;">1-LI-62-129C</td> <td style="width:5%;"></td> <td style="width:5%;">%</td> <td style="width:5%;">6%</td> </tr> <tr> <td rowspan="4" style="vertical-align: top;">31</td> <td rowspan="4" style="vertical-align: top;">LCO 3.3.4</td> <td rowspan="4" style="vertical-align: top;">1, 2, 3</td> <td rowspan="4" style="vertical-align: top;">(32) (33)</td> <td>1A ERCW SUP HDR FLOW</td> <td>0-M-27A</td> <td>1-FI-67-61</td> <td>1390</td> <td>1-L-10</td> <td>1-FI-67-61C</td> <td></td> <td rowspan="4" style="vertical-align: middle;">gpm</td> <td rowspan="4" style="vertical-align: middle;">1000 gpm</td> </tr> <tr> <td>1B ERCW SUP HDR FLOW</td> <td>0-M-27A</td> <td>1-FI-67-62</td> <td>1430</td> <td>1-L-10</td> <td>1-FI-67-62C</td> <td></td> </tr> <tr> <td>2A ERCW SUP HDR FLOW</td> <td>0-M-27A</td> <td>2-FI-67-61</td> <td>8000</td> <td>2-L-10</td> <td>2-FI-67-61C</td> <td></td> </tr> <tr> <td>2B ERCW SUP HDR FLOW</td> <td>0-M-27A</td> <td>2-FI-67-62</td> <td>5150</td> <td>2-L-10</td> <td>2-FI-67-62C</td> <td></td> </tr> <tr> <td colspan="4"></td> <td>Operator's Initials</td> <td></td> <td>HAD</td> <td></td> <td colspan="2">Operator's Initials</td> <td></td> <td></td> </tr> </table>											30	LCO 3.3.4	1, 2, 3	(32)	VCT LEVEL	1-M-6	1-LI-62-129A	28	1-L-10	1-LI-62-129C		%	6%	31	LCO 3.3.4	1, 2, 3	(32) (33)	1A ERCW SUP HDR FLOW	0-M-27A	1-FI-67-61	1390	1-L-10	1-FI-67-61C		gpm	1000 gpm	1B ERCW SUP HDR FLOW	0-M-27A	1-FI-67-62	1430	1-L-10	1-FI-67-62C		2A ERCW SUP HDR FLOW	0-M-27A	2-FI-67-61	8000	2-L-10	2-FI-67-61C		2B ERCW SUP HDR FLOW	0-M-27A	2-FI-67-62	5150	2-L-10	2-FI-67-62C						Operator's Initials		HAD		Operator's Initials				<p>___ SAT</p> <p>___ UNSAT</p>	
30	LCO 3.3.4	1, 2, 3	(32)	VCT LEVEL	1-M-6	1-LI-62-129A	28	1-L-10	1-LI-62-129C		%	6%																																																											
31	LCO 3.3.4	1, 2, 3	(32) (33)	1A ERCW SUP HDR FLOW	0-M-27A	1-FI-67-61	1390	1-L-10	1-FI-67-61C		gpm	1000 gpm																																																											
				1B ERCW SUP HDR FLOW	0-M-27A	1-FI-67-62	1430	1-L-10	1-FI-67-62C																																																														
				2A ERCW SUP HDR FLOW	0-M-27A	2-FI-67-61	8000	2-L-10	2-FI-67-61C																																																														
				2B ERCW SUP HDR FLOW	0-M-27A	2-FI-67-62	5150	2-L-10	2-FI-67-62C																																																														
				Operator's Initials		HAD		Operator's Initials																																																															
<p><b>STEP 10: Applicant reports status of 1-SI-0-4, "Monthly Surveillances."</b></p> <p><b>STANDARD:</b></p> <p>Applicant reports that the following instruments do not meet their MCD limits:</p> <ol style="list-style-type: none"> <li>1. 1-PI-68-336C PZR PRESS - fails to meet SR 3.3.3.1-5 and 3.3.4.1-2.a.</li> <li>2. 1-PI-62-81C LP LETDOWN PRESS – fails to meet LCO 3.3.4.</li> </ol> <p>Applicant reports that 1-FI-62-93C CHARGING FLOW exceeds the 20 gpm limit which requires calibration of the flow instrumentation. Applicant states that a Work Order must be prepared and the number recorded in REMARKS.</p> <p><b>COMMENTS:</b></p>											<p>___ SAT</p> <p>___ UNSAT</p>																																																												

**STOP TIME \_\_\_\_\_**

WBN Unit 1	Monthly Surveillances	1-SI-0-4 Rev. 0024 Page 46 of 74
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**Appendix D**  
**(Page 5 of 15)**  
**Remote Shutdown and PAM Channel Check Data Sheet**

Data Package: Page 5 of 15      Date            Today      Mode 1

**1.0 REMOTE SHUTDOWN AND PAM CHANNEL CHECKLIST (continued)**

ITEM NO.	REFERENCE NUMBER	REQUIRED MODE	NOTES	DESCRIPTION	LOC	INST NO	READING	LOC	INST NO	READING	DATA UNITS	MCD
4	SR 3.3.3.1-25 SR 3.3.4.1-4.c SR 3.3.4.1-4.e	1, 2, 3  1, 2, 3	(5) (6) (7)	SG 1 Press	1-M-4	1-PI-1-2A	1000	1-L-10	1-PI-1-1C	1000	psig	80 psig
						1-PI-1-2B	1010					
				SG 2 Press	1-M-4	1-PI-1-9A	1010	1-L-10	1-PI-1-8C	1020		
						1-PI-1-9B	1010					
5	SR 3.3.3.1-15	1, 2, 3	N/A	SG 3 Press	1-M-4	1-PI-1-20A	1010	1-L-10	1-PI-1-19C	1010	%	N/A
						1-PI-1-20B	1010					
				SG 4 Press	1-M-4	1-PI-1-27A	1010	1-L-10	1-PI-1-26C	980		
						1-PI-1-27B	1010					
				SG 1 WR LEVEL	1-M-4	1-LI-3-43A						
				SG 2 WR LEVEL	1-M-4	1-L-3-56A		N/A	N/A			
				SG 3 WR LEVEL	1-M-4	1-LI-3-98A						
				SG 4 WR LEVEL	1-M-4	1-LI-3-111A						
Operator's Initials						Operator's Initials						

- (5) Verification is performed by reading and recording the indication of the SG press indicators for each SG, two on 1-M-4 and one 1-L-10.
- (6) The SG Pressure indicators are dual scale with pressure on the right and Saturation Temperature on the left. Data for this parameter is to be taken on the right side indication.
- (7) SG press indication on 1-L-10 is used as a dual purpose indicator. It will be used to determine SG Tsat indication as required for SR 3.3.4.1-4e

Remarks: \_\_\_\_\_

Appendix D  
(Page 6 of 15)  
Remote Shutdown and PAM Channel Check Data Sheet

Data Package: Page 6 of 15      Date \_\_\_\_\_ Today      Mode \_\_\_\_\_ 1

**1.0 REMOTE SHUTDOWN AND PAM CHANNEL CHECKLIST (continued)**

ITEM NO.	REFERENCE NUMBER	REQUIRED MODE	NOTES	DESCRIPTION	LOC	INST NO	READING	LOC	INST NO	READING	DATA UNITS	MCD
6	SR 3.3.3.1-14 SR 3.3.4.1-3.a	1, 2, 3	N/A	PZR LEVEL	1-M-4	1-LI-68-339A	60	1-L-10	1-LI-68-325C	61	%	6.0%
						1-LI-68-335A	60		1-LI-68-326C	59		
						1-LI-68-320	58		N/A	N/A		
7	SR 3.3.3.1-5 SR 3.3.4.1-2.a	1, 2, 3	(8)	PZR PRESS	1-M-5	1-PI-68-340A	2235	1-L-10	1-PI-68-336C	2150	psig	50 psig
						1-PI-68-334	2235					
						1-PI-68-323	2240					
						1-PI-68-322	2235					
			(9)	PZR-COLD CAL PRESS	1-M-5	1-PI-68-342A	2235	1-L-10	1-PI-68-342C	2250	psig	200 psig
						1-PI-68-70	2250		N/A	N/A		
						1-PI-68-64	2250		N/A	N/A		
			(10)	LOOP 1 HL PRESS	1-M-6	1-PI-68-63	2250	N/A	N/A			
Operator's Initials						Operator's Initials						Operator's Initials
						1-PI-68-336C exceeds the MCD of 50 psig						

(8) Remote Shutdown requires PZR PRESS or RCS WR RANGE PRESS, but both are NOT required to satisfy SR 3.3.4.1-2.a.  
 (9) PZR-COLD CAL PRESS is to be considered the same as RCS WR RANGE PRESS.  
 (10) If 1-PI-68-70 is out-of-tolerance, MIG is to be notified to perform 1-SI-68-88.

**Appendix D  
(Page 13 of 15)**

**Remote Shutdown and PAM Channel Check Data Sheet**

**Data Package: Page 13 of 15**      **Date** \_\_\_\_\_ Today

**1.0 REMOTE SHUTDOWN AND PAM CHANNEL CHECKLIST (continued)**

1-FI-62-93C does not exceed the MCD of 40 gpm, but does require action to initiate a Work Order to calibrate the flow instrumentation per Note (32).

Mode 1

ITEM NO.	REFERENCE NUMBER	REQUIRED MODE	NOTES	DESCRIPTION	LOC	INST NO	READING	LOC	INST NO	READING	DATA UNITS	MCD
24	SR 3.3.3.1-26	1, 2, 3	N/A	AB/PASSIVE SUMP LEVEL	1-M-15	0-LI-77-134 0-LI-77-135	12 12	N/A	N/A	N/A	in.	4.8 in. WC
25	SR p3.3.4.1-3.b	1, 2, 3	(32)	CHARGING FLOW	1-M-5	1-FI-62-93A	80	1-L-10	1-FI-62-93C	115	gpm	40 gpm
26	LCO 3.3.4	1, 2, 3	(32)	CHARGING HDR PRESS	1-M-5	1-PI-62-92A	2370	1-L-10	1-PI-62-92C	2410	psig	150 psig
27	LCO 3.3.4	1, 2, 3	(32)	EMERG BORATE FLOW	1-M-5	1-FI-62-137A	0	1-L-10	1-FI-62-137C	0	gpm	7.5 gpm
28	SR p3.3.4.1-3.b	1, 2, 3	(32)	LETDOWN HX OUTLET TEMP	1-M-6	1-TI-62-78	92	1-L-10	1-TI-62-80C	92	°F	6°F
29	LCO 3.3.4	1, 2, 3	(32)	LP LETDOWN PRESS	1-M-6	1-PI-62-81	320	1-L-10	1-PI-62-81C	370	psig	30 psig
30	LCO 3.3.4	1, 2, 3	(32)	VCT LEVEL	1-M-6	1-LI-62-129A	28	1-L-10	1-LI-62-129C	28	%	6%
31	LCO 3.3.4	1, 2, 3	(32) (33)	1A ERCW SUP HDR FLOW	0-M-27A	1-FI-67-61	1390	1-L-10	1-FI-67-61C	1500	gpm	1000 gpm
				1B ERCW SUP HDR FLOW	0-M-27A	1-FI-67-62	1430	1-L-10	1-FI-67-62C	1500		
				2A ERCW SUP HDR FLOW	0-M-27A	2-FI-67-61	8000	2-L-10	2-FI-67-61C			
				2B ERCW SUP HDR FLOW	0-M-27A	2-FI-67-62	5150	2-L-10	2-FI-67-62C			
Operator's Initials											Operator's Initials	

(32) MCR indications are recorded for comparison purposes only. The following requirement is applicable to Item 25 (Charging Flow) ONLY: If channel deviation is greater than 20 gpm, action shall be initiated to calibrate the flow instrumentation. WO no. shall be recorded in REMARKS.

(33) Descriptions for the Remote Shutdown board instruments:  
A. 1-TI-67-61C, SUP HDR A FLOW.    B. 1-TI-67-62C, SUP HDR B FLOW.    C. 2-TI-67-61C, SUP HDR A FLOW.    D. 2-TI-67-62C, SUP HDR B FLOW.

1-PI-62-81C exceeds the MCD of 30 psig

Remarks:

# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

## INITIAL CONDITIONS:

1. The Unit is in Mode 1, with no LCO entries at this time.
2. Portions of the field data have been entered by NAUOs.
3. You are the Unit Operator responsible to perform and review 1-SI-0-4, "Monthly Surveillances."

## INITIATING CUES:

1. You are to complete 1-SI-0-4, "Monthly Surveillances," Appendix D, pages 5, 6, and 13 for 1-L-10. Another Unit Operator will complete the remainder of Appendix D.
2. When you have finished performing the assigned pages of Appendix D, and addressed any deviations, notify the Unit Supervisor that you have completed your task.

**A.2 SRO**  
**Determine a Technical Specification**  
**Completion Time Extension**



**WATTS BAR NUCLEAR PLANT**  
**JOB PERFORMANCE MEASURE**  
**A.2 SRO**  
**2010-08 NRC Exam**

**DIRECTIONS 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

**INITIAL CONDITIONS:**

1. The unit is at 100% power.
2. Today's date is July 4, 2010. The time is 0700.
3. On July 2, 2010 at 0700, the 1A-A Safety Injection pump was declared INOPERABLE.
4. LCO Action Statement 3.5.2.A, "One or more trains inoperable AND at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available," was entered at that time.
5. The 1B-B Safety Injection pump was declared INOPERABLE today at 0700, and LCO 3.0.3 was entered.
6. At 0900 on July 4, 2010, the 1A-A Safety Injection pump was declared OPERABLE.

**INITIATING CUE:**

You are to determine the LATEST date and time that Unit must be placed in Mode 4 if the 1B-B Safety Injection pump cannot be restored to OPERABLE STATUS.



# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

## INITIAL CONDITIONS:

1. The unit is at 100% power.
2. Today's date is July 4, 2010. The time is 0700.
3. On July 2, 2010 at 0700, the 1A-A Safety Injection pump was declared INOPERABLE.
4. LCO Action Statement 3.5.2.A, "One or more trains inoperable AND at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available," was entered at that time.
5. The 1B-B Safety Injection pump was declared INOPERABLE today at 0700, and LCO 3.0.3 was entered.
6. At 0900 on July 4, 2010, the 1A-A Safety Injection pump was declared OPERABLE.

## INITIATING CUE:

You to determine the LATEST date and time that Unit must be placed in Mode 4 if the 1B-B Safety Injection pump cannot be restored to OPERABLE STATUS.

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.3 RO & SRO  
2010-08 NRC Exam**

**A.3 RO & SRO  
Calculate Maximum Permissible Stay Time  
Within Emergency Dose Limits**



**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.3 RO & SRO  
2010-08 NRC Exam**

**Tools/Equipment/Procedures Needed:**

EPIP-15, "EMERGENCY EXPOSURE GUIDELINES."  
Calculator.

**NOTE: This JPM is designed to be performed in a classroom with procedures available to the applicant.**

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.3 RO & SRO  
2010-08 NRC Exam**

**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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

**INITIAL CONDITIONS:**

1. A loss of coolant accident is in progress.
2. ECA-1.1, "Loss of RHR Sump Recirculation," has been entered.
3. Automatic swap over to the containment sump has failed to occur.
4. The Auxiliary Building AUO has been dispatched to perform the following tasks:

#	TASK	TIME	DOSE RATE
1	Go to task performance area.	12 minutes	0.5 R/hr
2	Remove cover from enclosure for 1-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT.	54 minutes	9 R/hr
3	Manually open 1-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT.		20 R/hr
4	Return from task performance area.		0.5 R/hr

5. Authorization to exceed occupational dose limits to restore critical safety functions has been approved by the Shift Manager (SED) for the Auxiliary Building AUO.

***NOTE: Assume the time to travel from the task is equal to the time required to arrive at the task location.***

**INITIATING CUES:**

The Auxiliary Building AUO has completed Tasks 1 and 2 in the time listed. You are to determine:

1. The amount of time the AB AUO has to complete Task 3 without exceeding his Emergency Dose Limit.
2. What restrictions, if any, are imposed on the AB AUO after receipt of the emergency exposure?

**WATTS BAR NUCLEAR PLANT**  
**JOB PERFORMANCE MEASURE**  
**A.3 RO & SRO**  
**2010-08 NRC Exam**

STEP/STANDARD	SAT/UNSAT
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**START TIME:** \_\_\_\_\_

<p><u>STEP 1:</u> Applicant reviews EPIP-15, Emergency Exposure Guidelines," Appendix A, "Watts Bar Emergency Exposure Reference," and determines that the exposure limit to be 25 Rem.</p> <p><u>STANDARD:</u> A</p>	<p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 2:</u> Determine dose received performing Tasks 1, 2 and 4.</p> <p><u>STANDARD:</u></p> <p>Applicant calculates dose to complete Task 1 as:  <math>12 \text{ min. } / 60 \text{ min/hr} \times 0.5 \text{ Rem/hr} = 0.1 \text{ Rem}</math></p> <p>Applicant calculates dose to complete Task 2 as:  <math>54 \text{ min. } / 60 \text{ min/hr.} \times 9 \text{ Rem/hr} = 8.1 \text{ Rem}</math></p> <p>Applicant calculates dose to complete Task 4 as:            (SAME CALCULATION AND DOSE AS Task 1, or 0.1 Rem.</p> <p>Total for Tasks 1, 2, and 4 is 8.3</p> <p><b>Step is critical to ensure that the Emergency Exposure Limit is NOT exceeded.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>

**WATTS BAR NUCLEAR PLANT**  
**JOB PERFORMANCE MEASURE**  
**A.3 RO & SRO**  
**2010-08 NRC Exam**

STEP/STANDARD	SAT/UNSAT
<p><u>STEP 3:</u> Determine remaining for the Emergency Exposure Limit.</p> <p><u>STANDARD:</u></p> <p>Applicant subtracts 8.3 Rem from the emergency exposure limit of 25 Rem.</p> <p>25 Rem - 8.3 Rem = 16.7 Rem.</p> <p><b>Step is critical to ensure that the Emergency Exposure Limit is NOT exceeded.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>
<p><u>STEP 4:</u> Determine the time available for the Auxiliary Building AUO to complete Task 3, without exceeding the Emergency Exposure Limit.</p> <p><u>STANDARD:</u></p> <p>Applicant divides the 16.7 Rem by the dose rate of 20 R/hr and calculates that the AUO has a maximum of 0.835 hours or 50 minutes to complete the task of opening 1-FCV-63-8 locally.</p> <p><b>Step is critical to ensure that the Emergency Exposure Limit is NOT exceeded.</b></p> <p><u>COMMENTS:</u></p>	<p><b>CRITICAL STEP</b></p> <p>___ SAT</p> <p>___ UNSAT</p>



# APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

## INITIAL CONDITIONS:

1. A loss of coolant accident is in progress.
2. ECA-1.1, "Loss of RHR Sump Recirculation," has been entered.
3. Automatic swap over to the containment sump has failed to occur.
4. The Auxiliary Building AUO has been dispatched to perform the following tasks:

#	TASK	TIME	DOSE RATE
1	Go to task performance area.	12 minutes	0.5 R/hr
2	Remove cover from enclosure for 1-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT.	54 minutes	9 R/hr
3	Manually open 1-FCV-63-72, CNTMT SUMP TO RHR PMP A SUCT.		20 R/hr
4	Return from task performance area.		0.5 R/hr

5. Authorization to exceed occupational dose limits has been approved by the Shift Manager (SED) for the Auxiliary Building AUO.

*NOTE: Assume the time to travel from the task is equal to the time required to arrive at the task location.*

## INITIATING CUES:

The Auxiliary Building AUO has completed Tasks 1 and 2 in the time listed. You are to determine:

1. The amount of time the AB AUO has to complete Task 3 without exceeding his Emergency Dose Limit.
2. What restrictions, if any, are imposed on the AB AUO after receipt of the emergency exposure?

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.4 SRO  
2010-08 NRC Exam**

**A.4-SRO**

**Determine if conditions warrant a Follow-up Report or Upgrade to General Emergency based on changing conditions.**

**WATTS BAR NUCLEAR PLANT**

**JOB PERFORMANCE MEASURE**

**A.4 SRO**

**2010-08 NRC Exam**

**EVALUATION SHEET**

**Task:** Determine if conditions warrant a Follow-up Report or Upgrade to General Emergency based on changing conditions.

**Alternate Path:** n/a

**Facility JPM #:** Modified

**Safety Function:** n/a **Title:**

**K/A** 2.4.40 Knowledge of SRO responsibilities in emergency plan implementation.

**Rating(s):** 2.7/4.5 **CFR:** 41.10 / 43.5 / 45.11

**Evaluation Method:** Simulator \_\_\_\_\_ In-Plant \_\_\_\_\_ **Classroom**

**References:** EPIP-1 "Emergency Plan Classification Flowpath," Rev. 31.  
EPIP-5 "GENERAL EMERGENCY," Rev. 37.

**Task Number:** SRO-113-EPIP-001 **Title:** Classify emergency events requiring Emergency Plan Implementation.

**Task Standard:** The applicant:  
1) Determines that an upgrade from a Site Area Emergency to a General Emergency is required.  
2) Prepares forms for emergency notification as indicated on the attached key.  
3) Initiates Protective Action Recommendations, Recommendation 2.

**Validation Time:** 15 minutes **Time Critical:** Yes  No \_\_\_\_\_

**Applicant:** \_\_\_\_\_ **Time Start:** \_\_\_\_\_  
NAME Docket No. **Time Finish:** \_\_\_\_\_

**Performance Rating:** SAT \_\_\_\_ UNSAT \_\_\_\_ **Performance Time** \_\_\_\_

**Examiner:** \_\_\_\_\_ / \_\_\_\_\_  
NAME SIGNATURE DATE

**COMMENTS**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.4 SRO  
2010-08 NRC Exam**

**THIS JPM IS PERFORMED IN A CLASSROOM SETTING.**

**REQUIRED MATERIALS:**

EPIP-1 through EPIP-5

**Tools/Equipment/Procedures Needed:**

Copies of the WBN EIPs for each applicant.

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.4 SRO  
2010-08 NRC Exam**

**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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

**INITIAL CONDITIONS:**

1. Unit 1 was at 100% power when a loss of reactor coolant event occurred.
2. A Site Area Emergency has been declared 30 minutes ago for Unit 1, based on a Loss or Potential Loss of any two barriers:
  - a. 1.1 Fuel Clad Barrier - Loss (1.1.2, Primary Coolant Activity Level, RCS sample activity is Greater Than 300  $\mu\text{Ci/gm}$  dose equivalent iodine - 131).
  - b. 1.2 RCS Barrier - Loss (1.2.2, RCS Leakage/LOCA, RCS Leak results in Loss of subcooling (<65°F indicated) [85°F ADV]).
3. EPIP-4, "SITE AREA EMERGENCY," has been performed through Step 15.
4. The Shift Technical Advisor now reports the following conditions exist on Unit 1:
  - a. RVLIS level is 30%, with no RCPs running.
  - b. RCS subcooling is 15°F.
  - c. Containment Radiation monitors 1-RE-90-273 and 1-RE-90-274 both indicate 90R/hr and are slowly trending up.
  - d. Initial wind direction was from 165 and has now shifted to from 180 degrees.
  - e. Wind speed has increased from 5 mph to 12 mph.

**INITIATING CUES:**

1. As the SED, you are to evaluate plant conditions and decide which is warranted:
  - a. completion of Appendix C, SITE AREA EMERGENCY Follow-up Notification Form

OR

  - b. an upgrade in classification and determination of Protective Action Recommendations.
2. Once the decision is made, fill out the appropriate forms to make notifications to appropriate personnel.
3. This JPM contains time critical elements.

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE**

A.4 SRO  
2010-08 NRC Exam

**START TIME:** \_\_\_\_\_

<p><u>STEP 1:</u> Refers to EPIP-1 to determine level of event.</p> <p><u>STANDARD:</u></p> <p>Applicant refers to EPIP-1, Section 1, and "Fission Product Barrier Matrix."</p> <p>Applicant determines that the following conditions exist:</p> <p>1.1.2 Loss, "RCS sample activity is greater than 300 <math>\mu</math>Ci/gm dose equivalent I131"</p> <p>1.2.2 Loss, "RCS Leakage/LOCA, RCS Leak results in Loss of subcooling (&lt;65°F indicated) [85°F ADV]."</p> <p>1.3.5 Potential Loss, "Significant Radioactivity in Containment, VALID Reading increase of Greater Than 108 R/hr on 1-RE-90-271 and 1-RE-90-272 <b>OR</b> 86 R/hr on 1-RE-90-273 and 1-RE-90-274."</p> <p>Based on "Emergency Class Criteria", the applicant determines the need to declare a <b>General Emergency</b>, based on Loss of two barriers and potential loss of the third barrier.</p> <p><b>Criteria to meet the critical step is for the EALs to be correctly identified and the declaration made within 15 minutes.</b></p> <p><b>NOTE TO EXAMINER:</b></p> <p><b>RECORD time that declaration was made:</b> _____</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;"><b>CRITICAL STEP</b></p> <p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
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**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.4 SRO  
2010-08 NRC Exam**

<p><u>STEP 2:</u> Implements EPIP-5, "GENERAL EMERGENCY."</p> <p><u>STANDARD:</u> EPIP-5, GENERAL EMERGENCY, is implemented.</p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
<p>The following steps are from EPIP-5</p>	
<p><u>STEP 3:</u> [1] IF the onsite emergency centers are not staffed, <b>THEN DIRECT</b> Shift Personnel to activate the Emergency Paging System (EPS) to staff the Technical Support Center (TSC) and Operations Support Center (OSC). Shift Personnel should confirm activation and provide the 20 minute printed report to the SM for review.</p> <p>a. IF the EPS system fails, call the ODS, ringdown or (5-751-1700) and <b>DIRECT</b> him to activate the EPS.</p> <p>b. IF the above methods of activating the EPS fail, <b>THEN DIRECT</b> Shift Personnel to use the Watts Bar Nuclear Plant Emergency Response Call-List to staff the TSC and OSC. (This list is located in the EPS Manual near the terminal.)</p> <p><u>STANDARD:</u> Shift Personnel are directed to activate the Emergency Paging System (EPS)</p> <p><b>CUE: When directed state "Emergency paging has been activated."</b></p> <p><u>COMMENTS:</u></p>	<p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>

**WATTS BAR NUCLEAR PLANT  
JOB PERFORMANCE MEASURE  
A.4 SRO  
2010-08 NRC Exam**

<p><b>STEP 4:</b> [2] IF the TSC has <u>not</u> been activated, <b>THEN</b> a. <b>INITIATE</b> Appendix A and B, Initial Notification Form for GENERAL EMERGENCY and Protective Action Recommendations.</p> <p><b>STANDARD:</b> Applicant completes Appendix A and Appendix B, determines Recommendation 2.</p> <p><b>NOTE TO EVALUATOR:</b></p> <p>Completed copies of Appendix A and B for this JPM are included and marked <b>EXAM MATERIAL - KEY</b>.</p> <p><u>COMMENTS:</u></p> <p style="text-align: center;"><b>End of JPM</b></p>	<p style="text-align: center;"><b>CRITICAL STEP</b></p> <p style="text-align: center;">___ SAT</p> <p style="text-align: center;">___ UNSAT</p>
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**TIME STOP:** \_\_\_\_\_

# EXAM MATERIAL - KEY

EPIP-1  
Revision 31  
Page 9A of 47

1.1. Fuel Clad Barrier	
1. Critical Safety Function Status	
LOSS	Potential LOSS
Core Cooling Red (FR-C.1)	Core Cooling Orange (FR-C.2) <b>OR</b> Heat Sink Red (FR-H.1) (RHR <u>Not</u> in Service)
-OR-	
2. Primary Coolant Activity Level	
LOSS	Potential LOSS
RCS sample activity is Greater Than 300 $\mu$ Ci/gm dose equivalent iodine-131	Not applicable
-OR-	
3. Incore TCs Hi Quad Average	
LOSS	Potential LOSS
Greater Than 1200°F	Greater Than 727°F
-OR-	
4. Reactor Vessel Water Level	
LOSS	Potential LOSS
Not Applicable	VALID RVLIS level <33% (No RCP running)
-OR-	
5. Containment Radiation Monitors	
LOSS	Potential LOSS
VALID reading increase of Greater Than: 74 R/hr On 1-RE-90-271 and 272 <b>OR</b> 59 R/hr On 1-RE-90-273 and 274 (see instruction note 5)	Not Applicable
-OR-	
6. Site Emergency Director Judgment	
Any condition that, in the Judgment of the SM/SED, Indicates Loss or Potential Loss of the Fuel Clad Barrier Comparable to the Conditions Listed Above.	

1.2. RCS Barrier	
1. Critical Safety Function Status	
LOSS	Potential LOSS
Not Applicable	Pressurized Thermal Shock Red (FR-P.1) <b>OR</b> Heat Sink Red (FR-H.1) (RHR <u>Not</u> in Service)
-OR-	
2. RCS Leakage/LOCA	
LOSS	Potential LOSS
RCS Leak results in Loss of subcooling (<65°F Indicated), [85°F ADV]	Non Isolatable RCS Leak Exceeding The Capacity of One Charging Pump (CCP) In the Normal Charging Alignment. <b>OR</b> RCS Leakage Results In Entry Into E-1
-OR-	
3. Steam Generator Tube Rupture	
LOSS	Potential LOSS
SGTR that results in a safety injection actuation <b>OR</b> Entry into E-3	Not Applicable
-OR-	
4. Reactor Vessel Water Level	
LOSS	Potential LOSS
VALID RVLIS level <33% (No RCP Running)	Not Applicable
-OR-	
5. Site Emergency Director Judgment	
Any condition that, in the Judgment of the SM/SED, Indicates Loss or Potential Loss of the RCS Barrier Comparable to the Conditions Listed Above.	

# EXAM MATERIAL - KEY

EPIP-1  
Revision 31  
Page 9B of 47

Modes: 1, 2, 3, 4

## INSTRUCTIONS

*NOTE: A condition is considered to be MET if, in the judgment of the Site Emergency Director, the condition will be MET imminently (i.e., within 1 to 2 hours, in the absence of a viable success path). The classification shall be made as soon as this determination is made.*

1. In the matrix to the left, review the **INITIATING CONDITIONS** in all columns and identify which, if any, **INITIATING CONDITIONS** are MET. Circle these **CONDITIONS**.
2. For each of the three barriers, identify if any **LOSS** or Potential **LOSS INITIATING CONDITIONS** have been MET.
3. If a CSF is listed as an **INITIATING CONDITION**; the respective status tree criteria will be monitored and used to determine the **EVENT** classification for the Modes listed on the classification flowchart.
4. Compare the barrier losses and potential losses to the **EVENTS** below and make the appropriate declaration.
5. Containment Radiation Monitors are temperature sensitive and can be affected by temperature induced currents. Following a rapid increase or decrease in containment temperature, testing has shown rad monitors to give unreliable indication for up to 2 minutes.

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1.3. CNTMT Barrier	
1. Critical Safety Function Status	
LOSS	Potential LOSS
Not Applicable	Containment (FR-Z.1) Red <b>OR</b> Actions of FR-C.1 (Red Path) are INEFFECTIVE (i.e.: core TCs trending up)
-OR-	
2. Containment Pressure/Hydrogen	
LOSS	Potential LOSS
Rapid unexplained decrease following initial increase <b>OR</b> Containment pressure or Sump level <b>Not</b> increasing (with LOCA in progress)	Containment Hydrogen Increases to >4% by volume <b>OR</b> Pressure >2.8 PSIG (Phase B) with < One full train of Containment spray
-OR-	
3. Containment Isolation Status	
LOSS	Potential LOSS
Containment Isolation is Incomplete (when required) <b>AND</b> a Release Path to the Environment Exists	Not Applicable
-OR-	
4. Containment Bypass	
LOSS	Potential LOSS
RUPTURED S/G is also FAULTED outside CNTMT <b>OR</b> Prolonged (>4 Hours) Secondary Side release outside CNTMT from a S/G with a SGTL > T/S Limits	Unexplained VALID increase in area or ventilation RAD monitors in areas adjacent to CNTMT (with LOCA in progress)
-OR-	
5. Significant Radioactivity in Containment	
LOSS	Potential LOSS
Not Applicable	VALID Reading increase of Greater Than: 108 R/hr on 1-RE-90-271 and 1-RE-90-272 <b>OR</b> 86 R/hr on 1-RE-90-273 and 1-RE-90-274 (see instruction note 5)
-OR-	
6. Site Emergency Director Judgment	
Any condition that, in the Judgment of the SM/SED, Indicates Loss or Potential Loss of the CNTMT Barrier Comparable to the Conditions Listed Above.	

## EVENTS

<u>UNUSUAL EVENT</u>	<u>ALERT</u>
Loss <b>or</b> Potential LOSS of Containment Barrier	Any LOSS <b>or</b> Potential LOSS of Fuel Clad barrier  <b>OR</b> Any LOSS <b>or</b> Potential LOSS of RCS barrier
<u>SITE AREA EMERGENCY</u>	<u>GENERAL EMERGENCY</u>
LOSS <b>or</b> Potential LOSS of any two barriers	LOSS of any two barriers <b>and</b> Potential LOSS of third barrier

# EXAM MATERIAL - KEY

<b>WBN</b>	<b>GENERAL EMERGENCY</b>	<b>EPIP-5</b>
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## APPENDIX A

(Page 1 of 1)

### TVA INITIAL NOTIFICATION FORM FOR GENERAL EMERGENCY

1.  This is a Drill       This is an Actual Event - Repeat - This is an Actual Event

2. This is Applicant's Name,  
**Watts Bar** has declared a **GENERAL EMERGENCY** affecting Unit 1

3. **EAL Designator(s):** 1.1.2 L OR 1.1.5 L, 1.2.2 L, 1.3.5 PL

4. **Brief Description of the Event:** Loss of Coolant accident with failed fuel, and significant radiation in containment. (or words to this effect)

5. **Radiological Conditions:** (Check one under **both** Airborne and Liquid column.)

<b>Airborne Releases Offsite</b> <input type="checkbox"/> Minor releases within federally approved limits <sup>1</sup> <input type="checkbox"/> Releases above federally approved limits <sup>1</sup> <input checked="" type="checkbox"/> Release information not known <small>(<sup>1</sup>Tech Specs)</small>	<b>Liquid Releases Offsite</b> <input type="checkbox"/> Minor releases within federally approved limits <sup>1</sup> <input type="checkbox"/> Releases above federally approved limits <sup>1</sup> <input checked="" type="checkbox"/> Release information not known <small>(<sup>1</sup>Tech Specs)</small>
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6. **Event Declared:**      Time: Applicant ENTRY      Date: Today

7. **The Meteorological Conditions are:** (Use 46 meter data from the Met Tower)

Wind Direction is FROM: 180 degrees      Wind Speed: 12 m.p.h

8. **Provide Protective Action Recommendation:** (Check either 1, 2 or 3, and mark wind direction.)

	* R E C	WIND FROM ° (Mark)	* R E C	
<input type="checkbox"/> <b>Recommendation 1</b> ⇒EVACUATE LISTED SECTORS (2 mile Radius and 10 miles downwind) ⇒SHELTER remainder of 10 mile EPZ. ⇒CONSIDER issuance of Potassium Iodide in accordance with the State Plan.	1		2	<input checked="" type="checkbox"/> <b>Recommendation 2</b> ⇒EVACUATE LISTED SECTORS (2 mile radius and 5 mile downwind) ⇒SHELTER remainder of 10 mile EPZ. ⇒CONSIDER issuance of Potassium Iodide in accordance with the State Plan.
A-1, B-1, C-1, D-1, C-7, -9, D-2, -4, -5, -6, -7, -8, -9		26-68		A-1, B-1, C-1, D-1, C-7, D-2, -4, -5
A-1, B-1, C-1, D-1, A-3, -4, D-2, -3, -4, -5, -6, -7, -8, -9		69-110		A-1, B-1, C-1, D-1, A-3, D-2, -4, -5
A-1, B-1, C-1, D-1, A-2, -3, -4, -5, -6, -7, D-2, -3, -5, -6		111-170		A-1, B-1, C-1, D-1, A-2, -3, D-2, -5
A-1, B-1, C-1, D-1, A-2, -3, -5, -6, -7, B-2, -3, -4, -5, C-2		171-230	X	A-1, B-1, C-1, D-1, A-2, -3, B-2, -4, C-2
A-1, B-1, C-1, D-1, B-2, -3, -4, -5, C-2, -3,		231-270		A-1, B-1, C-1, D-1, B-2, -4, C-2
A-1, B-1, C-1, D-1, B-2, -3, C-2, -3, -4, -5, -6, -11		271-325		A-1, B-1, C-1, D-1, B-2, C-2, -4, -5,
A-1, B-1, C-1, D-1, C-2, -4, -5, -6, -7, -8, -9, -10, -11, D-4, -9		326-25		A-1, B-1, C-1, D-1, C-2, -4, -5, -7, -8, D-4

**Recommendation 3**  
 ⇒SHELTER all sectors.      ⇒CONSIDER issuance of Potassium Iodide in accordance with the State Plan.

9. Please repeat the information you have received to ensure accuracy.

10. Time and Date this information was provided.      Time: Applicant ENTRY      Date: Today

**\*Action:** When notification complete, FAX form as prescribed in this instruction.

# EXAM MATERIAL - KEY

<b>WBN</b>	<b>GENERAL EMERGENCY</b>	<b>EPIP-5</b>
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## APPENDIX B

(Page 1 of 1)

### PROTECTIVE ACTION RECOMMENDATIONS

Note 1: If conditions are unknown utilizing the flowchart, then answer is NO.

Note 2: A short term release is defined as "a release that does not exceed a 15 minute duration".

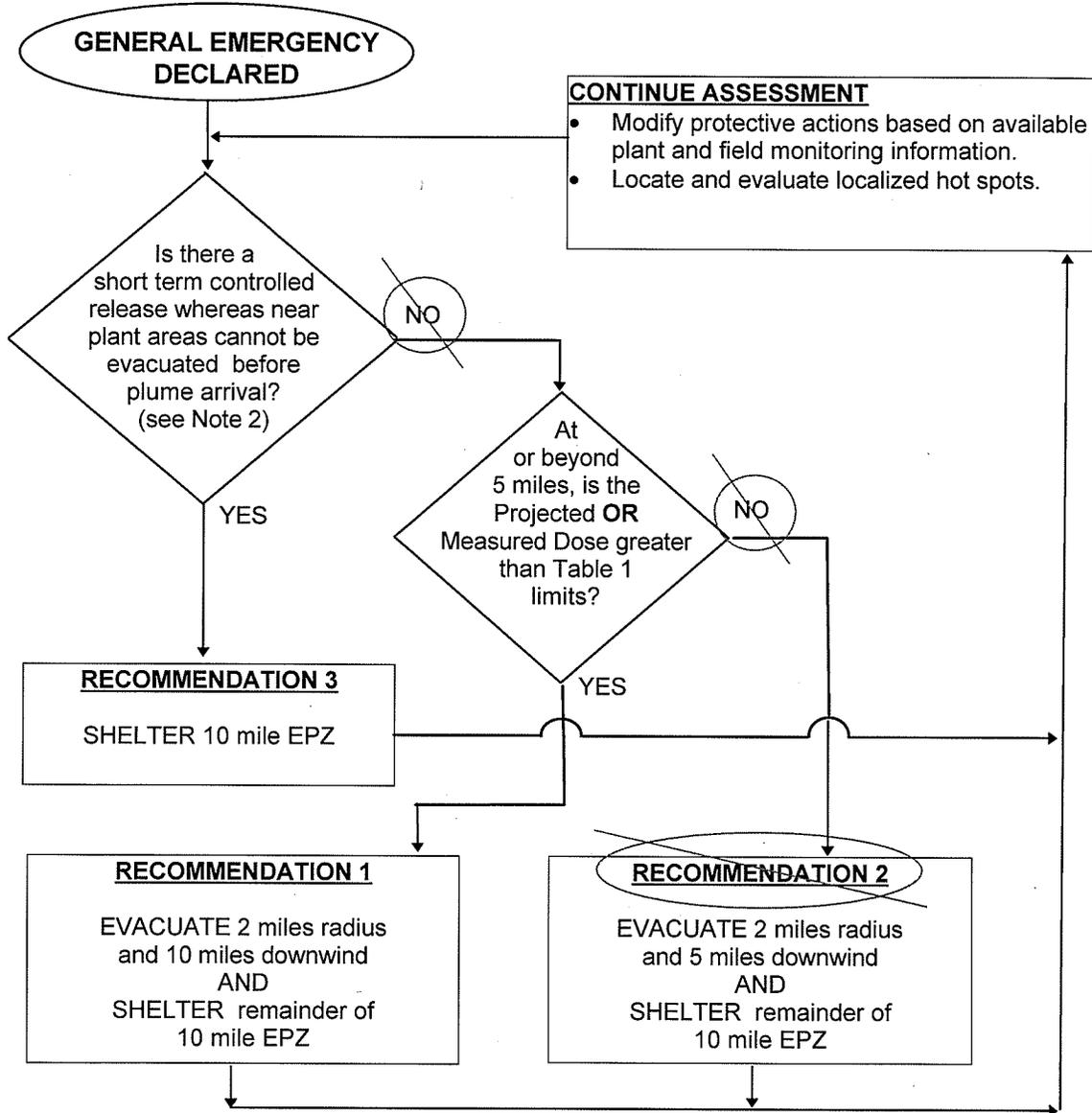


TABLE 1 Protective Action Guides (PAG)	
TYPE	LIMIT
Measured	3.9 E-6 micro Ci/cc of Iodine 131 or 1 REM per hour External Dose
Projected	1 REM TEDE or 5 REM Thyroid CDE

# APPLICANT HANDOUT SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

## 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. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the cue sheet I provided you.

## INITIAL CONDITIONS:

1. Unit 1 was at 100% power when a loss of reactor coolant event occurred.
2. A Site Area Emergency has been declared 30 minutes ago for Unit 1, based on a Loss or Potential Loss of any two barriers:
  - a. 1.1 Fuel Clad Barrier - Loss (1.1.2, Primary Coolant Activity Level, RCS sample activity is Greater Than 300  $\mu\text{Ci/gm}$  dose equivalent iodine - 131).
  - b. 1.2 RCS Barrier - Loss (1.2.2, RCS Leakage/LOCA, RCS Leak results in Loss of subcooling (<65°F indicated) [85°F ADV]).
3. EPIP-4, "SITE AREA EMERGENCY," has been performed through Step 15.
4. The Shift Technical Advisor now reports the following conditions exist on Unit 1:
  - a. RVLIS level is 30%, with no RCPs running.
  - b. RCS subcooling is 15°F.
  - c. Containment Radiation monitors 1-RE-90-273 and 1-RE-90-274 both indicate 90R/hr and are slowly trending up.
  - d. Wind direction has shifted from 165 to 180 degrees.
  - e. Wind speed has increased from 5 mph to 12 mph.

## INITIATING CUES:

1. As the SED, you are to evaluate plant conditions and decide which is warranted:
  - a. completion of Appendix C, SITE AREA EMERGENCY Follow-up Notification Form

OR

  - b. an upgrade in classification and determination of Protective Action Recommendations.
2. Once the decision is made, fill out the appropriate forms to make notifications to appropriate personnel.
3. This JPM contains time critical elements.

A.4-SRO