B.1.a
Perform a Minor Dilution.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.a
2010-08 NRC Exam
EVALUATION SHEET

Task: Perform a Minor Dilution.

Alternate Path: After the minor dilution is started, 1-FCV-62-143, PW TO BLENDER and 1-FCV-62-128, MAKEUP TO VCT INLET fail open and cannot be closed. 1-FC-62-143, PW TO BLENDER FCV-62-143 CONTROL fails, causing primary water flow rate to go to maximum.

Facility JPM #: JPM 021 (Modified)

Safety Function: 1 **Title:** Reactivity Control

K/A 004 A4.07 Ability to manually operate and/or monitor in the control room: Boration/Dilution.

Rating(s): 3.9/3.7 **CFR:** 41.7/45.5 to 45.8

Evaluation Method: Simulator **X** In-Plant _____

References: SOI-62.02, "Boron Concentration Control," Rev. 50.
AOI-3, "Malfunction of Reactor Makeup Controls," Rev. 27.

Task Number: RO-062-AOI-3-001 **Title:** Respond to an inadvertent dilution at power.

Task Standard: The applicant:

1.) Aligns the CVCS system to accomplish a 35 gallon primary water addition using SOI-62.02, Boron Concentration Control," Section 6.6, "Minor Dilution."

2.) After the controls fail, terminates the dilution by placing 1-HS-81-3A PRIMARY WATER PMP A in the STOP position per AOI-3.

Validation Time: 8 minutes **Time Critical:** Yes _____ No **X**

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

_____

_____

_____

_____

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
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SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.

2. RESET to Initial Condition 307 by performing the following actions:

   a. Select ICManager on the THUNDERBAR menu (right hand side of Instructor Console Screen).

   b. Locate IC# 307.

   c. Right "click" on IC# 307.

   d. Select Reset on the drop down menu.

   e. Right "click" on RESET.

   f. Enter the password for IC# 307.

   g. Select "Yes" on the INITIAL CONDITION RESET pop-up window.

   h. Perform SWITCH CHECK.

3. ENSURE the following information appears on the Director Summary Screen:

	Key		Type	Event	Delay	Inserted	Ramp	Initial	Final	Value
	hs-62-128	hs-62-128 boric acid blender to vct inlet sw		20	00:00:00		00:00:00		open	00:00:00
	hs-62-143	hs-62-143 primary water to boric acid blender valv		20	00:00:00		00:00:00		open	00:00:00
	fc-62-143	fc-62-143 primary water flow controller		20	00:00:00		00:00:00		open	00:00:00

4. Insert NRC Exam Flash Drive. Open "B.1.a NRC Exam JPM.evt" to load the correct event file.

5. Place simulator in RUN and acknowledge any alarms.

6. ENSURE the laminated copy of SOI-62.02, "Boron Concentration Control," Section 6.6, "Minor Dilution," has been cleaned to remove any marks.

7. **ENSURE "Extra Operator" is present in the simulator.**

8. **Place simulator in FREEZE until Examiner cue is given.**

SIMULATOR CONTINGENCY ACTIONS:

IF INITIAL CONDITION 307 is unavailable for any reason, the following actions must be taken to reconstruct the IC.

1. **Initialize to IC 40, 100% power BOL.**
2. **Perform switch check.**
3. **Enter the following using the DIRECTOR function.**

	Key		Type	Event	Delay	Inserted	Ramp	Initial	Final	Value
	hs-62-128	hs-62-128 boric acid blender to vct inlet sw		20	00:00:00		00:00:00		open	00:00:00
	hs-62-143	hs-62-143 primary water to boric acid blender valv		20	00:00:00		00:00:00		open	00:00:00
	fc-62-143	fc-62-143 primary water flow controller		20	00:00:00		00:00:00		open	00:00:00

4. **Create the following event using the EVENT function:**

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.a
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 dilution of 35 gallons is required for Tavg control.**

2. **You are an extra Control Room Operator.**

INITIATING CUES:

1. **The Unit Supervisor directs you perform SOI-62.02,"Boron Concentration Control," Section 6.6, "Minor Dilution."**

2. **You are to notify Unit Supervisor when you have completed Section 6.6.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

NOTES

1) Section 6.6, Minor Dilution, may be reproduced, laminated, displayed, reused, etc. as desired.

2) Minor Dilution is defined as the addition of Primary Water done several times each shift to compensate for fuel burn-up, and maintain Tavg on program.

STEP 1: [1] **ENSURE** 1-HS-68-341H, BACKUP HEATER C, is ON, to equalize Pzr-RCS CB.

STANDARD:

Applicant locates 1-HS-68-341H, BACKUP HEATER C on panel 1-M-5 and rotates the handswitch to the right to the "ON" position. Applicant verifies that the RED indicating light is LIT and the GREEN indicating light is DARK.

COMMENTS:

___ SAT

___ UNSAT

STEP 2: [2] **ADJUST** 1-FQ-62-142, PW BATCH COUNTER, for required quantity.

STANDARD:

Applicant determines that the required quantity of primary water is 35 gallons from the INITIAL CONDITIONS.

_____Applicant depresses the black pushbutton, and then lifts the red cover and enters "000035" in the display on 1-FQ-62-142. **(Critical).**

Step is critical to ensure proper control of reactivity is maintained

COMMENTS:

CRITICAL STEP

___ SAT

___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 3: [3] **PLACE** 1-HS-62-140B, VCT MAKEUP MODE in DIL. STANDARD: _____Applicant rotates 1-HS-62-140B to the right, from the "AUTO" position to the "DIL" position **(Critical).** **Step is critical since this action enables the proper interlocks for the dilution flowpath.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 4: [4] **TURN** 1-HS-62-140A, VCT MAKEUP CONTROL, to START. [4.1] **CHECK** Red light is LIT. STANDARD: _____Applicant rotates 1-HS-62-140A, VCT MAKEUP CONTROL, to the right to the START position **(Critical).** Applicant checks the RED indicating light is LIT and the GREEN indicating light is DARK. **Step is critical since this action initiates the dilution.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
EXAMINER: When 1-HS-62-140A, VCT MAKEUP CONTROL, is placed to START, 1-FCV-62-143 will fail to the full open position. This will cause dilution flow rate to go to its maximum value. The applicant will be unable to manually close 1-FCV-62-128, 1-FCV-62-143 or to manually reduce flow using 1-FC-62-143 from panel 1-M-6.	
EXAMINER: Since the automatic control circuit associated with the dilution has failed the applicant may take manual actions to close the affected valves and stop the running primary water pump prior to entering AOI-3, Malfunction of Makeup Control."	

STEP/STANDARD	SAT/UNSAT
STEP 5: Applicant attempts closure of 1-FCV-62-128 and 1-FCV-62-143 to terminate the dilution. STANDARD: Applicant attempts to close 1-FCV-62-128, 1-FCV-62-143 by placing handswitches in the CLOSE position. Applicant determines that neither 1-FCV-62-128 nor 1-FCV-62-143 will close and continues to the next step. COMMENTS:	___ SAT ___ UNSAT
STEP 6: Refers to AOI-3, "MALFUNCTION OF REACTOR MAKEUP CONTROL," for actions. STANDARD: Applicant refers to AOI-3,"Malfunction of Reactor Makeup Control" for actions. COMMENTS:	___ SAT ___ UNSAT
EXAMINER: The following actions are taken from AOI-3, "Malfunction of Reactor Makeup Control," Section 3.2, "Inadvertent Dilution."	

STEP/STANDARD	SAT/UNSAT
STEP 7: 1. **PERFORM** the following: a. **CHECK** PWST in normal alignment (PWST NOT in Bypass Mode). b. **ENSURE** standby primary water pump HS in MAN. c. **STOP** the running primary water pump. d. **STOP** the waste gas compressors by placing Handswitches in STOP/ PULL-TO-LOCK. STANDARD: Applicant contacts an AUO to determine PWST alignment. **CUE: If requested, report as the AUO that the primary water system is in normal alignment** Applicant determines that the standby primary water pump HS is in MANUAL. 1-HS-81-7A is pushed in and GREEN indicating light is LIT, RED indicating light is DARK. _____Applicant rotates 1-HS-81-3A, PRIMARY WATER PMP A to the left to the STOP position. **(Critical).** Applicant verifies GREEN indicating light is LIT, RED indicating light is DARK. Applicant notifies the Auxiliary Building AUO to place the waste gas compressor switches in STOP, PULL-TO-LOCK position. **CUE: When requested, the console operator will acknowledge the request to place the Waste Gas Compressors in STOP-PULL LOCK.** **Stopping the running primary water pump is critical since this action terminates primary water flow.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 8: **2. ENSURE** primary water flow to blender isolated: **a. CLOSE** 1-FCV-62-143, PW To Blender. **b. CHECK** 1-FI-62-142, PW To Blender Flow, ZERO. STANDARD: Applicant determines that 1-FCV-62-143 has remained open and enters the **RESPONSE NOT OBTAINED** column for actions. COMMENTS:	___ SAT ___ UNSAT
STEP 9: **2. RESPONSE NOT OBTAINED:** Locally **CLOSE** 1-ISV-62-933, CVCS BA Blender PW Supply Isol [A3V/713]. STANDARD: Applicant dispatches an AUO to close 1-ISV-62-933 locally. **CUE: When requested, the console operator will close 1-ISV-62-933 and report back that the valve has been closed.** After the request is made to locally close 1-ISV-62-933, inform the applicant that another operator will complete the actions of AOI-3. Applicant reports the status of the plant to the Unit Supervisor. COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

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. **A dilution of 35 gallons is required for Tavg control.**

2. **You are Control Room Operator.**

INITIATING CUES:

1. **The Unit Supervisor directs you perform SOI-62.02,"Boron Concentration Control," Section 6.6, "Minor Dilution."**

2. **You are to notify Unit Supervisor when you have completed Section 6.6.**

B.1.b
Fill Cold Leg Accumulator 4

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.b
2010-08 NRC Exam
EVALUATION SHEET

Task: Fill Cold Leg Accumulator 4.

Alternate Path: n/a

Facility JPM #: 3-OT-JPMR027 (Modified to pressure less than 1650 psig, requiring additional procedure steps to be performed).

Safety Function: 2 **Title:** Reactor Coolant System Inventory Control

K/A 006 A4.07 Ability to manually operate and/or monitor in the control room: ECCS pumps and valves

Rating(s): 4.4/4.4 **CFR:** 41.7 / 45.5 to 45.8

Evaluation Method: Simulator **X** In-Plant _____

References: SOI-63.01, "Safety Injection System," Rev. 44.

Task Number: RO-063-SOI-63-001 **Title:** Add water to cold leg accumulators while in service.

Task Standard: Applicant adds water to the cold leg accumulator using 1A-A Safety Injection pump, in accordance with SOI-63.01, Safety Injection System, Section 8.3.4, "Add Water to CLA 4," until 134-A, CL ACCUM 4 LEVEL HI/LO is DARK.

Validation Time: 18 minutes **Time Critical:** Yes _____ No **X**

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. RESET to Initial Condition 309 by performing the following actions:
   a. Select ICManager on the THUNDERBAR menu (right hand side of Instructor Console Screen).
   b. Locate IC# 309.
   c. Right "click" on IC# 309.
   d. Select Reset on the drop down menu.
   e. Right "click" on RESET.
   f. Enter the password for IC# 309.
   g. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
   h. Perform SWITCH CHECK.
4. ENSURE the following annunciator windows are LIT:
   a. 134-A, CL ACCUM 4 LEVEL HI/LO
   b. 134-B CL ACCUM 4 PRESS HI/LO
5. Place simulator in RUN and acknowledge any alarms.
6. ENSURE copies of SOI-63.01, Section 8.3.4 are available for the Examiner.
7. ENSURE "Extra Operator" is present in the simulator.
8. Place simulator in FREEZE until Examiner cue is given.

SIMULATOR CONTINGENCY ACTIONS:

IF INITIAL CONDITION 309 is unavailable for any reason, the following actions must be taken to reconstruct the IC.

1. **Initialize to.**
2. **Perform switch check.**
3. **Enter the following using the DIRECTOR function.**

	Key		Type	Event	Delay	Inserted	Ramp	Initial	Final	Value
	hs-62-128	hs-62-128 boric acid blender to vct inlet sw		20	00:00:00		00:00:00		open	00:00:00
	hs-62-143	hs-62-143 primary water to boric acid blender valv		20	00:00:00		00:00:00		open	00:00:00
	fc-62-143	fc-62-143 primary water flow controller		20	00:00:00		00:00:00		open	00:00:00

4. **Create the following event using the EVENT function:**

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.b
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 is in Mode 3, with a plant heatup/startup in progress.**
2. **Annunciator window 134-A, CL ACCUM 4 LEVEL HI/LO is LIT.**
3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to fill Cold Leg Accumulator (CLA) 4 using SOI-63.01, "Safety Injection System," Section 8.3.4, "Add Water to CLA 4," using the 1A-A Safety Injection pump.**
2. **SOI-63.01, "Safety Injection System," Section 5.1, "Fill & Vent SI Pumps and Piping from RWST" is complete.**
3. **Inform the Unit Supervisor when CLA 4 has been filled and window 134-A, CL ACCUM 4 LEVEL HI/LO has cleared.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

CAUTION

Adding water to more than one CLA at a time while they are required to be operable places the plant outside design basis. This section is to be used to add water to any selected single CLA. If more than one CLA needs water, separate evolutions must be performed.

STEP 1: [1] **ENSURE** Sect 5.1, to Fill & Vent SI Pmps and Piping, **COMPLETE**. STANDARD: Applicant determines from INITIATING CUES that Section 5.1 is complete.	___ SAT ___ UNSAT
STEP 2: [2] **IF** RCS pressure is ≤ 1000 psig, **THEN ENSURE** 1-FCV-63-67, CL ACCUM 4 OUTLET, CLOSED. STANDARD: Applicant determines that RCS pressure is greater than 1000 psig, at approximately 1520 psig. Applicant determines that this step in not applicable and marks it "N/A." COMMENTS:	___ SAT ___ UNSAT

CAUTION

If RCS is 1650 psig or less, ALL SIP flow paths must be disabled to prevent inadvertent RCS injection. If 1-FCV-63-152 is closed, then SI Pmp A is the only pump that can be used to fill CLA.

STEP/STANDARD	SAT/UNSAT
STEP 3: [3] **IF** RCS 1650 psig or less, AND SIP A is to be used to fill CLA 4, **THEN CLOSE** 1-FCV-63-152, SI PMP A TO CL 1-2-3-4 [1- M-6]. STANDARD: _____Applicant determines the RCS pressure IS less than 1650 psig (approximately 1520 psig) and that 1-FCV-63-152, "SI PMP A TO CL 1-2-3-4" must be closed **(Critical).** _____Applicant rotates handswitch 1-HS-63-152 to the left to the CLOSE position **(Critical).** Applicant determines that the valve is CLOSED by observing the RED light is DARK and GREEN light is LIT. **Indicated steps are critical to prevent injection of water into the RCS from the safety injection pump.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
CAUTION **In Mode 4, 5, 6 with the Rx Vessel Head ON, before starting SI Pmp A, 1-FCV-63-152 and 156 must be closed, with Hold tags on the handwheels and breakers (Refer to T.S. 3.4.12).**	
STEP 4: [4] **IF** in Mode 4, 5, or 6 and SIP A is to be used with Rx Vessel Head ON, **THEN....** STANDARD: Applicant determines from the IINITIAL CONDITIONS that the Unit is in Mode 3 so Step 4 and its sub steps are not applicable. The applicant marks step 4 "N/A." COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
CAUTION **1-FCV-63-22, 156, 157 MUST be closed with Hold Tags on handwheels and bkrs in Modes 4, 5, 6 with vessel head on when running SIP B. (See T.S. 3.4.12).**	
STEP 5: [5] **IF** in Mode 4, 5, or 6 and SIP B is to be used with Rx Vessel Head ON **THEN: ...** STANDARD: Applicant determines from the INITIAL CONDITIONS that the 1A Safety Injection pump will be used to fill the accumulator so Step 5 and its sub steps are not applicable. The applicant marks step 5 "N/A." COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT

STEP 6: [6] **PERFORM** the following:

NOMENCLATURE	LOC	POSITION	UNID	PERF INITIAL
TEST LINE (1-XS-63-100) ISOL	1-M-6	OPEN	1-FCV-63-187	
CKV TEST LINE TO HUT	1-M-6	OPEN	1-FCV-63-71	
CLA FILL FROM SI PMPS	1-M-6	OPEN	1-FCV-63-23	

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

_____Applicant depresses pushbutton 1-HS-30-187 on the CKV LEAK TEST panel **(Critical).**
Applicant verifies GREEN light for 1-HS-30-187 is DARK and RED light for 1-HS-30-187 is LIT.

_____Applicant rotates handswitch 1-HS-63-71A to the right to the OPEN position **(Critical).**
Applicant verifies GREEN light for 1-HS-63-71A is DARK and the RED light for 1-HS-63-71A is LIT.

_____Applicant rotates handswitch 1-HS-63-23A to the right to the OPEN position **(Critical).**
Applicant verifies GREEN light for 1-HS-63-23A is DARK and the RED light for 1-HS-63-71A is LIT.

Indicated steps are critical to establish a flowpath to the accumulator to be filled.

COMMENTS:

CAUTION

If 1-FCV-63-152 was closed in step 8.3.4[3], then SI Pmp A is the only pump that can be used to fill CLA.

STEP/STANDARD	SAT/UNSAT

STEP 7: [7] **ENSURE** the following (**N/A** pump **NOT** selected):

NOMENCLATURE	LOC	POSITION	UNID	PERF INITIAL
SI PMPS RECIRC HDR TO RWST	1-M-E	OPEN	1-FCV-63-3	
SI PMP A RECIRC TO RWST	1-M-E	OPEN	1-FCV-63-4	
SI PMP B RECIRC TO RWST	1-M-E	OPEN	1-FCV-63-175	
RWST TO SI PMPS SUCTION	1-M-E	OPEN	1-FCV-63-5	
SI PMP A SUCTION	1-M-E	OPEN	1-FCV-63-47	
SI PMP B SUCTION	1-M-E	OPEN	1-FCV-63-48	

STANDARD:

Applicant determines 1-HS-63-3 is OPEN by observing GREEN light for 1-HS-63-3 is DARK and RED light for 1-HS-63-3 is LIT.

Applicant determines 1-HS-63-4 is OPEN by observing GREEN light for 1-HS-63-4 is DARK and RED light for 1-HS-63-4 is LIT.

Applicant enters N/A for 1-FCV-63-175, since 1A SI pump will be used for filling the #4 CLA.

Applicant determines 1-HS-63-5 is OPEN by observing GREEN light for 1-HS-63-5 is DARK and RED light for 1-HS-63-5 is LIT.

Applicant determines 1-HS-63-47 is OPEN by observing GREEN light for 1-HS-63-47 is DARK and RED light for 1-HS-63-47 is LIT.

Applicant enters N/A for 1-FCV-63-48, since 1A SI pump will be used for filling the #4 CLA.

COMMENTS:

___ SAT

___ UNSAT

STEP/STANDARD	SAT/UNSAT

STEP 8: [8] **PERFORM** the following (**N/A** pump **NOT** selected):

NOMENCLATURE	LOC	POSITION	UNID	PERF INITIAL
SI PMP A (ECCS)	1-M-6	START	1-HS-63-10A	
SI PMP B (ECCS)	1-M-6	START	1-HS-63-15A	

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

_____Applicant rotates handswitch 1-HS-63-10A to the right to the START position (**Critical).**
Applicant verifies GREEN lights for 1-HS-63-10A is DARK and the RED light for 1-HS-63-10A is LIT.

Applicant observes amps for the 1A SI Pump on 1-EI-63-12A, rising.

Applicant observes discharge pressure for the 1A SI Pump on 1-PI-63-150, rising.

Applicant enters N/A for 1-HS-63-15A, SI PMP B (ECCS).

Step is critical since the 1A SI pump provides flow from the RWST to fill CLA 4.

COMMENTS:

STEP/STANDARD	SAT/UNSAT
STEP 9: [9] **OPEN** 1-FCV-63-70, MAKEUP TO CL ACCUM 4, [1-M-6]. STANDARD: _____Applicant rotates handswitch 1-HS-63-70A to the right to the OPEN position **(Critical).** Applicant verifies GREEN light for 1-HS-63-70A is DARK and the RED light for 1-HS-63-70A is LIT. **Step is critical since opening 1-FCV-63-10 completes the flow path for filling CLA 4.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

NOTE

1-LI-63-82, CLA 4 LEVEL [1-M-6], is preferred to monitor level due to faster response than 1-LI-63-60.

STEP/STANDARD	SAT/UNSAT

STEP 10: [10] **WHEN** CLA is at desired level (Alarm 134-A, CL ACCUM 4 LEVEL HI/LO, NOT LIT), **THEN PERFORM** the following:

CRITICAL STEP

___ SAT

___ UNSAT

NOMENCLATURE	LOC	POSITION	UNID	PERF INITIAL	VERIF INITIAL
MAKEUP TO CL ACCUM 4	1-M-6	CLOSED	1-FCV-63-70		IV
CKV TEST LINE TO HUT	1-M-6	CLOSED	1-FCV-63-71		IV
TEST LINE (1-XS-63-100) ISOL	1-M-6	CLOSED	1-FCV-63-187		IV
CLA FILL FROM SI PMPS	1-M-6	CLOSED	1-FCV-63-23		IV

STANDARD:

When accumulator level has increased to the point where Alarm 134-A is clear (greater than 7660 gallons) then

_____Applicant rotates handswitch 1-HS-63-70A to the left to the CLOSED position **(Critical).**
Applicant verifies GREEN lights for 1-HS-63-70A is LIT and the RED light for 1-HS-63-71A is DARK.

Applicant rotates handswitch 1-HS-63-71A to the left to the CLOSED position.
Applicant verifies GREEN light for 1-HS-63-71A is LIT and the RED light for 1-HS-63-71A is DARK.

Applicant depresses pushbutton 1-HS-30-187 on the CKV LEAK TEST panel.
Applicant verifies GREEN light for 1-HS-30-187 is LIT and RED light for 1-HS-30-187 is DARK.

Applicant rotates handswitch 1-HS-63-23A to the left to the CLOSED position.
Applicant verifies GREEN light for 1-HS-63-23A is LIT and the RED light for 1-HS-63-23A is DARK.

Step is critical since action will terminate flow to CLA 4 accumulator, preventing possible overfill of CLA 4.

COMMENTS:

STEP/STANDARD	SAT/UNSAT

STEP 11: [11] **ENSURE** SI pump has operated for greater than 20 minutes, **THEN PERFORM** the following (**N/A** pump **NOT** selected):

NOMENCLATURE	LOC	POSITION	UNID	PERF INITIAL
SI PMP A (ECCS)	1-M-6	STOP	1-HS-63-10A	
SI PMP B (ECCS)	1-M-6	STOP	1-HS-63-15A	

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

_____Applicant rotates handswitch 1-HS-63-10A to the left to the STOP position **(Critical).**
Applicant verifies GREEN light for 1-HS-63-10A is LIT and the RED light for 1-HS-63-10A is DARK.

Applicant enters N/A for 1-HS-63-15A, SI PMP B (ECCS).

Step is critical to returning the safety injection system to standby configuration.

CUE: After applicant addresses the requirement to run the safety injection pump for 20 minutes, inform the applicant that 20 minutes have elapsed.

COMMENTS:

NOTE

Step 8.3.4[12] or 8.3.4[13] may be N/A'd based on SIPs operability requirements.

STEP/STANDARD	SAT/UNSAT

STEP 12: [12] **ENSURE** the following (**N/A** pump not selected):

NOMENCLATURE	LOC	POSITION	UNID	PERF INITIAL	VERIF INITIAL
SI PMP A (ECCS)	1-M-6	A AUTO	1-HS-63-10A		IV
SI PMP B (ECCS)	1-M-6	A AUTO	1-HS-63-15A		IV

STANDARD:

Applicant observes handswitch 1-HS-63-10A, SI PMP A (ECCS) in the A-AUTO position (mid position on handswitch).

Applicant enters N/A for 1-HS-63-15A, SI PMP (ECCS).

COMMENTS:

___ SAT

___ UNSAT

STEP 13: [13] **ENSURE** the following (**N/A** pump not selected):

NOMENCLATURE	LOC	POSITION	UNID	PERF INITIAL	VERIF INITIAL
SI PMP A (ECCS)	1-M-6	PULL-TO-LOCK	1-HS-63-10A		IV
SI PMP B (ECCS)	1-M-6	PULL-TO-LOCK	1-HS-63-15A		IV

STANDARD:

Applicant enters N/A for Step 13, since the safety injection pumps are required to be in the A-AUTO position to support ECCS standby alignment.

COMMENTS:

___ SAT

___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 14: [14] **IF** 1-FCV-63-152 was closed in Step 8.3.4[3], **THEN OPEN** 1-FCV-63-152, SI PMP A TO CL 1-2-3-4 [1-M-6] (**N/A** in Mode 4, 5, 6). STANDARD: _____Applicant rotates 1-HS-63-152 handswitch to the right to the OPEN position and determines that the valve is open by observing the RED light is LIT and GREEN light is DARK. **Step is critical since opening 1-FCV-63-152 aligns 1A safety injection pump discharge to cold legs 1 through 4.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 15: [15] **IF** 1-FCV-63-67 was closed in Step 8.3.4[2], **THEN OPEN** 1-FCV-63-67, CL ACCUM 4 OUTLET if desired. STANDARD: Applicant enters N/A for Step 15, since 1-FCV-63-67 was not closed. COMMENTS:	___ SAT ___ UNSAT
NOTE **CLA 4 press can be read on 1-PI-63-61 or 62.**	

STEP/STANDARD	SAT/UNSAT
STEP 16: [16] **VERIFY** CLA PRESS in desired range (Alarm 134-B, CL ACCUM 4 PRESS HI/LO, **NOT** LIT). STANDARD: Applicant determines that cold leg accumulator pressure is in the desired range (alarm 134-B DARK). COMMENTS:	___ SAT ___ UNSAT
STEP 17: Applicant reports that Cold Leg Accumulator 4 has been filled. STANDARD: Applicant informs the Unit Supervisor that Cold Leg Accumulator 4 has been filled. COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

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 handout sheet I provided you.

INITIAL CONDITIONS:

1. **Unit 1 is in Mode 3, with a plant heatup/startup in progress.**
2. **Annunciator window 134-A, CL ACCUM 4 LEVEL HI/LO is LIT.**
3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to fill Cold Leg Accumulator (CLA) 4 using SOI-63.01, "Safety Injection System," Section 8.3.4, "Add Water to CLA 4," using the 1A-A Safety Injection pump.**
2. **SOI-63.01, "Safety Injection System," Section 5.1, "Fill & Vent SI Pumps and Piping from RWST" is complete.**
3. **Inform the Unit Supervisor when CLA 4 has been filled and window 134-A, CL ACCUM 4 LEVEL HI/LO has cleared.**

B.1.c
Perform ES-1.3, "Transfer to Containment Sump."

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
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EVALUATION SHEET

Task: Perform ES-1.3, "Transfer to Containment Sump."

Alternate Path: During performance of ES-1.3, Transfer to Containment Sump," the applicant will be unable to reposition 1-FCV-63-3 and 1-FCV-63-11, requiring compensatory actions to be taken.

Facility JPM #: 3-OT-JPM 021

Safety Function: 3 **Title:** Reactor Pressure Control

K/A EA1.11 Ability to operate and monitor the following as they apply to a Large Break LOCA: Long-term core cooling.

Rating(s): 4.2/4.2 **CFR:** 41.7 / 45.5 / 45.6

Evaluation Method: Simulator **X** In-Plant _____

References: ES-1.3, "Transfer to Containment Sump," Rev. 17.

Task Number: RO-113-ES-1.3-001 **Title:** Perform transfer to Containment sump.

Task Standard: Applicant performs aligns the ECCS pumps for containment sump recirculation using ES-1.3, "Transfer to Containment Sump."

Validation Time: 15 minutes **Time Critical:** Yes _____ No **X**

==========

Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

_____

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. RESET to Initial Condition 308 by performing the following actions:
   a. Select ICManager on the THUNDERBAR menu (right hand side of Instructor Console Screen).
   b. Locate IC# 308.
   c. Right "click" on IC# 308.
   d. Select Reset on the drop down menu.
   e. Right "click" on RESET.
   f. Enter the password for IC# 308.
   g. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
   h. Perform SWITCH CHECK.
3. ENSURE the following information appears on the Director Summary Screen:

	Key		Type	Event	Delay	Inserted	Ramp	Initial	Final	Value
	th02c	loca – cold leg loop 3	M		00:00:00	00:00:00	00:00:00		80	80
	hs-63-3a	hs-63-3a sip recirc to rwst isolation valve sw	O		00:00:00		00:00:00		open	00:00:00
	hs-63-11a	hs-63-11a rhr heat exch b discharge to ccp suction	O		00:00:00		00:00:00		open	00:00:00

4. Place simulator in RUN and acknowledge any alarms.
5. ENSURE a marked-up copy of ES-1.3, "Transfer to Containment Sump," is available for the Examiner.
6. ENSURE the "Extra Operator" is present in the simulator.
7. Place simulator in FREEZE until Examiner cue is given.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.c
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 large break loss-of-coolant event occurred 22 minutes ago.**

2. **The crew responded using E-1, "Loss of Reactor or Secondary Coolant," and transitioned to ES-1.3, "Transfer to Containment Sump."**

3. **ES-1.3, "Transfer to Containment Sump," has been performed through Step 9.**

INITIATING CUES:

1. **The Unit Supervisor directs you to complete transfer of the Emergency Core Cooling Pump (ECCS) suctions using ES-1.3, Transfer to Containment Sump," by performing steps 10 through 20.**

2. **Inform the Unit Supervisor when step 20 is complete.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

CAUTION If a valve fails during the transfer sequence, any corrective action should be postponed UNTIL transfer is complete, EXCEPT as required to satisfy each step.

NOTE Each transfer sequence action is identified by a number on the control board (e.g. #1).

STEP 1: 10. (#1) **ISOLATE** SI pump miniflow:

- **CLOSE** 1-FCV-63-3.
- **CLOSE** 1-FCV-63-175.
- **CLOSE** 1-FCV-63-4.

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

Applicant rotates handswitch 1-HS-63-3 left to the CLOSE position

Applicant identifies the valve will **NOT** CLOSE by observing the RED light has remained LIT and GREEN light is DARK.

_____Applicant rotates handswitch 1-HS-63-175 to the left to the CLOSE position **(Critical).**
Applicant determines that the valve is CLOSED by observing the RED light is DARK and GREEN light is LIT.

_____Applicant rotates handswitch 1-HS-63-4 to the left to the CLOSE position **(Critical).**
Applicant determines that the valve is CLOSED by observing the RED light is DARK and GREEN light is LIT.

_____Applicant determines that the RESPONSE NOT OBTAINED column must be entered based on the failure of 1-FCV-63-3 to close **(Critical).**

Steps are critical since closure of the recirculation valves prevents radioactive sump water from being pumped to the RWST.

COMMENTS:

STEP/STANDARD	SAT/UNSAT
STEP 2: 10. **RESPONSE NOT OBTAINED:** **ENSURE** either: a. 1-FCV-63-3 CLOSED, OR b. 1-FCV-63-4 and 1-FCV-63-175 CLOSED. STANDARD: Applicant determines that 1-FCV-63-4 and 1-FCV-63-175 are CLOSED by observing GREEN indicating lights LIT on each handswitch. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 3: 11. (#2) **ISOLATE** RHR crossties: • **CLOSE** 1-FCV-74-33. • **CLOSE** 1-FCV-74-35. STANDARD: _____Applicant rotates handswitch 1-HS-74-33 left to the CLOSE position **(Critical).** Applicant identifies the valve is CLOSED by observing the RED light is DARK and GREEN light is LIT. _____Applicant rotates handswitch 1-HS-74-35 to the left to the CLOSE position **(Critical).** Applicant determines that the valve is CLOSED by observing the RED light is DARK and GREEN light is LIT. **Step is critical to provide complete separation of the two low-head SI cold leg injection headers. Also, by closing these valves, a desirable increase in the total system resistance is obtained should only one RHR pump be available, since it would deliver to only two RHR branch lines while simultaneously delivering to the suction of the operating charging and SI pumps.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 4: 12. (#3) **ALIGN** charging pump and SI pump supply from RHR: • **OPEN** 1-FCV-63-6. • **OPEN** 1-FCV-63-7. • **ENSURE** 1-FCV-63-177 OPEN. STANDARD: _____Applicant rotates handswitch 1-HS-63-6 right to the OPEN position **(Critical).** Applicant identifies the valve is OPEN by observing the RED light is LIT and GREEN light is DARK. _____Applicant rotates handswitch 1-HS-63-7 right to the OPEN position **(Critical).** Applicant identifies the valve is OPEN by observing the RED light is LIT and GREEN light is DARK. Applicant determines 1-HS-63-177 is OPEN observing the RED light is LIT and GREEN light is DARK. **Step is critical since this alignment is required to support long-term cooling from the containment sump.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
NOTE 1-FCV-63-8 and 1-FCV-63-11 are interlocked with the SI pump miniflows being full closed.	

STEP/STANDARD	SAT/UNSAT
STEP 5: 13. (#4) **ALIGN** RHR discharge to charging pump and SI pump suction: a. **OPEN** 1-FCV-63-8. STANDARD: _____Applicant rotates handswitch 1-HS-63-8 right to the OPEN position **(Critical).** Applicant identifies the valve is OPEN by observing the RED light is LIT and GREEN light is DARK. **Step is critical since this alignment is required to support long-term cooling from the containment sump.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 6: 13. (#4) **ALIGN** RHR discharge to charging pump and SI pump suction: b. **OPEN** 1-FCV-63-11. STANDARD: _____Applicant rotates handswitch 1-HS-63-11 right to the open position. Applicant identifies the valve will **NOT** OPEN by observing the RED light has remained DARK and GREEN light is LIT. _____Applicant determines that the RESPONSE NOT OBTAINED column must be entered based on the failure of 1-FCV-63-11 to OPEN. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 7: 13.b **RESPONSE NOT OBTAINED:** **ENSURE** Train A RHR operation: • Train A RHR pump RUNNING. • 1-FCV-63-8 OPEN. • Either 1-FCV-63-6 or 1-FCV-63-7 OPEN. STANDARD: Applicant determines that the 1A RHR pump is running by observing motor amps on 1-EI-74-5A, discharge pressure on 1-PI-74-13. Applicant determines that 1-FCV-63-8, "RHR PMP A TO CHARGING PMPS SUCT" is OPEN by observing RED light is LIT and GREEN light is DARK. Applicant determines that 1-HS-63-6 is OPEN by observing the RED light is LIT and GREEN light is DARK. Applicant determines that 1-HS-63-7 is OPEN observing the RED light is LIT and GREEN light is DARK. COMMENTS:	___ SAT ___ UNSAT
STEP 8: 14. **DO NOT CONTINUE** this Instruction UNTIL Steps 10 thru 13 complete. STANDARD: Applicant determines that all steps or related contingency actions have been completed and continues to Step 15. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
CAUTION If RCS press is greater than 1350 psig, the SI pumps should NOT be restarted because the recirc path is isolated.	
STEP 9: 15. **RESTART** any charging pumps and SI pumps as necessary. STANDARD: Applicant determines that all charging and SI pumps are running. COMMENTS:	___ SAT ___ UNSAT
CAUTION If offsite power is lost after SI reset, manual action will be required to restart the SI pumps and RHR pumps due to loss of SI start signal.	
STEP 10: 16. (#5) **RESET** SI, and **CHECK** the following: • SI ACTUATED permissive DARK. • AUTO SI BLOCKED permissive LIT. STANDARD: Applicant depresses each SI reset pushbutton on panel 1-M-6 and observes the SI ACTUATED permissive light DARK, and the AUTO SI BLOCKED light is LIT. **Step is critical since the valves to be operated in subsequent steps cannot be repositioned until the SI signal is reset.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 11: 17. **IF** offsite power is lost, **THEN:** a. **PLACE** charging pumps in PULL TO LOCK. b. **RESTART** RHR pumps. c. **RESTART** charging pumps. d. **IF** RCS press less than 1350 psig, **THEN RESTART** SI pumps. STANDARD: Applicant acknowledges information in the step, and since power has not been lost, continues to the next step. COMMENTS:	___ SAT ___ UNSAT
CAUTION ECCS pump discharge flow and motor amps should be monitored WHILE closing the RWST suction valves.	

STEP/STANDARD	SAT/UNSAT
STEP 12: 18. (#6) **ISOLATE** charging pump suction from RWST: a. **CLOSE** 1-LCV-62-135. b. **CLOSE** 1-LCV-62-136. c. **ENSURE** 1-HS-62-135A in A-AUTO (pushed in). d. **ENSURE** 1-HS-62-136A in A-AUTO (pushed in). STANDARD: _____Applicant pushes 1-HS-62-135 handswitch in, and then rotates the handswitch to the left to the CLOSED position **(Critical).** Applicant identifies the valve is closed by observing the RED light is DARK and GREEN light is LIT. _____Applicant pushes 1-HS-62-136 handswitch in, and then rotates the handswitch to the left to the CLOSED position **(Critical).** Applicant identifies the valve is closed by observing the RED light is DARK and GREEN light is LIT. _____Applicant determines that the handswitch for 1-HS-62-135 has remained in the "pushed-in" position **(Critical).** . _____Applicant determines that the handswitch for 1-HS-62-136 has remained in the "pushed-in" position **(Critical).** **Step is critical to complete the alignment of ECCS pumps to establish and maintain long term core cooling.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 13: 19. (#7) **ISOLATE** SI pump suction from RWST: • **CLOSE** 1-FCV-63-5. STANDARD: _____Applicant rotates handswitch 1-HS-63-5A to the left to the CLOSED position **(Critical).** Applicant identifies the valve is closed by observing the RED light is DARK and GREEN light is LIT. **Step is critical to complete the alignment of ECCS pumps to establish long term core cooling.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 14: 20. (#8) **ISOLATE** RHR suction from RWST: a. **ENSURE** power restored to1-FCV-63-1 USING Appendix A (ES-1.3), 1-FCV-63-1 Breaker Operation. b. **CLOSE** 1-FCV-63-1. STANDARD: Applicant determines from the INITIAL CONDITIONS that power has been restored to 1-FCV-63-1, "RWST TO RHR ECCS SUCTION." ___Applicant rotates handswitch 1-HS-63-1A to the left to the CLOSED position **(Critical).** Applicant identifies the valve is closed by observing the RED light is DARK and GREEN light is LIT. **Step is critical to complete the alignment of ECCS pumps to establish long term core cooling.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 15: Notify the Unit Supervisor that transfer to the RHR containment sump is complete. STANDARD: Applicant notifies the Unit Supervisor that ECCS pumps are aligned to the containment sump, and reports portions of the system that failed to operate as expected (1-FCV-63-3 failed to close; 1-FCV-63-11 failed to open.) COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

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 handout sheet I provided you.

INITIAL CONDITIONS:

1. **A large break loss-of-coolant event occurred 22 minutes ago.**

2. **The crew responded using E-1, "Loss of Reactor or Secondary Coolant," and transitioned to ES-1.3, "Transfer to Containment Sump."**

3. **ES-1.3, "Transfer to Containment Sump," has been performed through Step 9.**

INITIATING CUES:

1. **The Unit Supervisor directs you to complete transfer of the Emergency Core Cooling Pump (ECCS) suctions using ES-1.3, Transfer to Containment Sump," by performing steps 10 through 20.**

2. **Inform the Unit Supervisor when step 20 is complete.**

B.1.d
Respond to RHR Pump Trip per AOI-14.

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EVALUATION SHEET

Task: Respond to RHR Pump Trip Per AOI-14.

Alternate Path: n/a

Facility JPM #: 3-OT-JPMR164

Safety Function: 4P **Title:** Heat Removal From Reactor Core

K/A 025 AA1.09 Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System: LPI pump switches, ammeter, discharge pressure gauge, flow meter, and indicators.

Rating(s): 3.2/3.1 **CFR:** 41.7 / 45.5 / 45.6

Evaluation Method: Simulator ___X___ In-Plant _____

References: SOI-74.01, "Residual Heat Removal System," Rev. 55.
AOI-14 "Loss Of RHR Shutdown Cooling" Rev. 36.

Task Number: RO-074-AOI-14-002 **Title:** During RHR pump operation, respond to an RHR pump trip.

Task Standard: The applicant responds to the trip of 1A RHR pump in accordance with AOI-14, "Loss of RHR Shutdown Cooling," Section 3.5, "RHR Pump 1A-A Trip" and places the 1B RHR pump in service.

Validation Time: 25 minutes **Time Critical:** Yes _____ No ___X___

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

_____

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.

2. RESET to Initial Condition 310 by performing the following actions:

   a. Select ICManager on the THUNDERBAR menu (right hand side of Instructor Console Screen).

   b. Locate IC# 310.

   c. Right "click" on IC# 310.

   d. Select Reset on the drop down menu.

   e. Right "click" on RESET.

   f. Enter the password for IC 310.

   g. Select "Yes" on the INITIAL CONDITION RESET pop-up window.

   h. Perform SWITCH CHECK.

3. SELECT Director on the THUNDERBAR menu (right hand side of Instructor Console Screen).

4. ENSURE the following information appears on the Director Screen:

	Key	Description	Type	Event	Delay	Inserted	Ramp	Initial	Final	Value
	csr03	containment spray pump a power	R		00:00:00	00:00:00	00:00:00		off	off
	csr04	containment spray pump b power	R		00:00:00	00:00:00	00:00:00		off	off
	sir08	si pump a power	R		00:00:00	00:00:00	00:00:00		off	off
	sir09	si pump b power	R		00:00:00	00:00:00	00:00:00		off	off
	csr05	power to cntmt spray valves fcv-72-2, 39.	R		00:00:00	00:00:00	00:00:00		off	off
	cvr03	power removal centrifugal charge pump b	R		00:00:00	00:00:00	00:00:00		off	off
	rhr12	rhr spray hdr a isolation valve power, fcv-72-40	R		00:00:00	00:00:00	00:00:00		off	off
	rhr13	rhr spray hdr b isolation valve power, fcv-72-41	R		00:00:00	00:00:00	00:00:00		off	off
	hs-72-40a-1	01150 hr spray hdr a isol vlv sw(green)	O		00:00:00	00:00:00	00:00:00		off	off
	hs-72-40a-2	01150 hr spray hdr a isol vlv sw(red)	O		00:00:00	00:00:00	00:00:00		off	off
	hs-72-41a-1	01160 hr spray hdr b isol vlv sw(green)	O		00:00:00	00:00:00	00:00:00		off	off

	Key	Description	Type	Event	Delay	Inserted	Ramp	Initial	Final	Value
	hs-72-41a-2	01160 hr spray hdr b isol vlv sw(red)	O		00:00:00	00:00:00	00:00:00		off	off
	hs-30-38a-1	01010 air return fans a-a on/off(green)	O		00:00:00	00:00:00	00:00:00		off	off
	hs-30-39a-1	01010 air return fans b-b on/off(green)	O		00:00:00	00:00:00	00:00:00		off	off
	rh01a	rhr pump a trip	M	1	00:00:00		00:00:00		Active	InActive

5. **Place simulator in RUN and acknowledge any alarms.**

6. **Place Hold Order Tags on the following components:**
   - **1-HS-72-27A, Cntmt Spray Pmp A**
   - **1-HS-72-10A, Cntmt Spray Pmp B**
   - **1-HS-63-10A, SI Pmp A**
   - **1-HS-63-15A, SI Pmp B**
   - **1-HS-62-104A, CCP B-B**
   - **Air Return Fan A-A 1-HS-30-38A**
   - **Air Return Fan B-B 1-HS-30-39A**
   - **1-HS-63-26A, BIT Outlet**
   - **1-HS-63-25A, BIT Outlet**
   - **1-HS-72-40A, RHR Spray Header A to Cntmt**
   - **1-HS-72-41A, RHR Spray Header B to Cntmt**
   - **1-HS-63-72A, Cntmt Sump to RHR Pmp A Suction**
   - **1-HS-63-73A, Cntmt Sump to RHR Pmp B Suction**
   - **1-HS-72-44A, Cntmt Sump to CS Pmp A Suction**
   - **1-HS-72-45A, Cntmt Sump to CS Pmp B Suction**
   - **1-HS-72-39A, Cntmt Spray Hdr A to Cntmt**
   - **1-HS-72-2A, Cntmt Spray Hdr B to Cntmt**
   - **1-HS-63-8A, RHR Pmp A to Charging Pmp Suction**
   - **1-HS-63-11A, RHR Pmp B to SI Pmp Suction**
   - **1-HS-3-116A/A, ERCW to AFWP A-A Suction From Hdr A**
   - **1-HS-3-126 A/A, ERCW to AFWP B-B Suction From Hdr B**
   - **1-HS-3-136 A/A, ERCW to TD AFWP Suction From Hdr A**
   - **1-HS-3-179 A/A, ERCW to TD AFWP Suction From Hdr B**

8. **ENSURE "Extra Operator" is present in the simulator.**

9. **Place simulator in FREEZE until Examiner cue is given.**

ENSURE that 1-FCV-74-37 is closed (Display Residual Heat Removal System on Thunderview Screen)

	Simulator Event No.	Description/Role Play
	1	1A-A RHR Pump trip. ***ROLE PLAY: When CB AUO contacted, state that pump tripped on Instantaneous over current.*** ***When AB AUO contacted state that there is evidence of cable damage to the motor pigtail, there is an order of burnt insulation but there is no smoke or fire.***
	2	AUO is dispatched to close 1-HCV-74-36 ***ROLE PLAY: When contacted to close 1-HCV-74-36, repeat back request. Enter Event 2, which will enter remote function rh06 to close. Report back that 1-HCV-74-36 is closed.***
	3	AUO is dispatched to open 1-HCV-74-37 ***ROLE PLAY: When contacted to open1-HCV-74-37, repeat back request. Enter Event 3, which will enter remote function rh07 to open. Report back that 1-HCV-74-37 is open.***
	4	AUO is dispatched to close 1-SPV-74-530 ***When requested, use rhr03 to close (1-SPV-74-530 to close)*** ***ROLE PLAY: When contacted to close 1-SPV-74-530, repeat back request. Enter Event 4, which will enter remote function rh03 to close. Report back that 1-SPV-62-530 is closed.***
	5	AUO is dispatched to open 1-HCV-74-36 ***ROLE PLAY: When contacted to open 1-SPV-74-531, repeat back request. Enter Event 5, which will enter remote function rh04 to open. Report back that 1-SPV-74-36 is open.***

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 5.**
2. **Unit 1 has been cooled down.**
3. **1A-A RHR train is in service.**
4. **1B-B RHR pump is available, and was in service 12 hours ago.**
5. **CVCS is in service.**
6. **RHR to CVCS Letdown is in service from Heat Exchanger A outlet.**
7. **You are the Operator at the Controls.**

INITIATING CUES:

1. **You are to monitor the control board as the OAC and respond to events using appropriate procedure.**
2. **You are to inform the Unit Supervisor when the appropriate procedure has been completed.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

EXAMINER: After the applicant has stated that the task is understood, cue the Console Operator enter Event 1 to trip the 1A-A RHR pump on instantaneous overcurrent.

EXAMINER: The following actions are taken from AOI-14, "Loss of RHR Shutdown Cooling," Section 3.5, "RHR Pump 1A-A trip."

STEP 1: 1. **CHECK** BOTH RHR pumps stopped. STANDARD: Applicant placed 1-HS-74-10A in STOP PULL-TO-LOCK in response to 14-E, M-1 THRU M-6 MOTOR TRIPOUT, which was received when the 1A-A RHR pump tripped. Applicant checks 1-HS-74-20A RHR pump 1B-B stopped. ***CUE: If CB AUO contacted, state that pump tripped on Instantaneous over current. If AB AUO contacted state that there is evidence of cable damage to the motor pigtail, there is an odor of burnt insulation but there is no smoke or fire.*** COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 2: 2. **CHECK** RCS temp less than 235°F. STANDARD: Applicant determines that RCS temperature is less than 235°F by checking the following temperature recorders (Applicant may also use plasma displays or plant computer): • 1-TR-74-14 RHR Hx A Temp °F • 1-TR-74-25 RHR Hx B Temp °F COMMENTS:	___ SAT ___ UNSAT
STEP 3: 3. **ADJUST** charging and letdown to maintain RCS level and press. STANDARD: Applicant may adjust 1-HIC-62-83 RHR LETDOWN FLOW CONTROL closed and 1-FCV-62-93 CHARGING HEADER FLOW PZR LEVEL CONTROL to minimum to slow increase in pressurizer level as observed on PZR COLD CAL Level 1-LI-68-321. Applicant may also adjust 1-FCV-62-89. COMMENTS:	___ SAT ___ UNSAT
CAUTION If the running RHR pump tripped due to inadequate suction supply or alignment problems, then do NOT attempt to start standby pump until adequate supply and alignment is ensured.	

STEP/STANDARD	SAT/UNSAT
STEP 4: 4. **CHECK** RHR pump 1B-B available. STANDARD: Applicant determines that 1B-B RHR pump is available (given in the instructions to the Applicant). COMMENTS:	___ SAT ___ UNSAT
STEP 5: 5. **OPEN** 1-FCV-70-153, CCS to RHR HX B. STANDARD: Applicant determines that 1-FCV-70-153 is open by checking 1-HS-70-153A is tagged with Power Disconnected Off (PDO) tag. Applicant may check flow through heat exchanger on 1-EI-70-155 RHR Hx B Flow. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 6: 6. **ENSURE** RCS HL to RHR suction OPEN: • 1-FCV-74-1 and 1-FCV-74-2, OR • 1-FCV-74-8 and 1-FCV-74-9. STANDARD: Applicant determines 1-FCV-74-1 and -2 are OPEN by checking respective control board hand switch RED light LIT and GREEN light DARK on 1-HS-74-1A and 1-HS-74-2A. COMMENTS:	___ SAT ___ UNSAT
STEP 7: 7. **OPEN** 1-FCV-74-21, RHR pump 1B-B suction. STANDARD: The applicant determines 1-FCV-74-21 open by checking RED light LIT and GREEN light DARK on hand switch 1-HS-74-21. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 8: 8. **CLOSE** RHR Hx outlets and bypass: • 1-FCV-74-16, RHR Hx A outlet. • 1-FCV-74-28, RHR Hx B outlet. • 1-FCV-74-32, RHR Hx bypass. STANDARD: _____Applicant closes 1-FCV-74-16 by rotating CCW to 0% using 1-HIC-74-16A. **(Critical).** _____Applicant closes 1-FCV-74-32 by rotating CCW to 0% using 1-HIC-74-32A. **(Critical).** _____Applicant checks closed 1-FCV-74-28 by rotating CCW to 0% using 1-HIC-74-28A. **This step is critical to flow path preparatory to starting 1B-B RHR pump trip.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 9: 9. **ALIGN** RHR pump 1B-B discharge: a. **OPEN** 1-FCV-63-94, RHR B to CL 1 & 4. b. **OPEN** 1-FCV-74-35, RHR Hx B outlet xtie. c. **CLOSE** 1-FCV-74-33, RHR Hx A outlet xtie. d. **CLOSE** 1-FCV-63-93, RHR A to CL 2 & 3. STANDARD: _____Applicant rotates 1-HS-63-94 to the right to the OPEN position **(Critical).** Applicant observes GREEN light is DARK and RED light is LIT. _____Applicant rotates 1-HS-74-35 to the right to the OPEN position **(Critical).** Applicant observes GREEN light is DARK and RED light for LIT. _____Applicant rotates 1-HS-74-33 to the left to the CLOSED position **(Critical).** Applicant observes GREEN light is LIT and RED light is DARK. _____Applicant rotates 1-HS-63-93 to the left to the CLOSED position **(Critical).** Applicant observes GREEN light is LIT and RED light is DARK. **This step is critical to establish proper flow path prior to start of 1B-B RHR pump, and to isolate the flow path from the 1A-A RHR pump.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 10: 10. **START** RHR pump 1B-B. STANDARD: _____Applicant rotates 1-HS-74-20A to the right to the START position **(Critical)**. Applicant verifies GREEN light is DARK and the RED light LIT. Applicant observes amps for the 1B-B RHR pump on 1-EI-74-17A, rising. Applicant observes discharge pressure for the 1B-B RHR pump on 1-PI-74-26, rising. **This step is critical to starting 1B-B RHR pump and re-establishing RHR shutdown cooling.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 11: 11. **ADJUST** 1-FCV-74-28 to establish RHR flow. STANDARD: _____Applicant adjusts RHR flow through 1-FCV-74-28 by rotating CW from 0% using 1-HIC-74-28A and observing rising flow on 1-FI-63-92A, RHR TO CL 1&4 NR FLOW. **This step is critical to re-establishing RHR shutdown cooling.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 12: 12. **ALIGN** RHR Hx bypass flow: a. **CLOSE** 1-HCV-74-36, RHR Hx A bypass isol. b. **OPEN** 1-HCV-74-37, RHR Hx B bypass isol. c. **ADJUST** 1-FCV-74-32, RHR Hx bypass FCV. STANDARD: _____Applicant contacts AUO to close 1-HCV-74-36. **(Critical to contact the local operator to close valve).** _____Applicant contacts AUO to open 1-HCV-74-37. **(Critical to contact the local operator to open valve).** _____Applicant adjusts 1-FCV-74-32 with 1-HIC-74-32A to stabilize RCS temperature as observed on 1-TR-74-25 RHR Hx B Temp °F. **(Critical).** **This step is critical to establish proper flow path after start of 1B-B RHR pump and control of RCS temperature.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 13: 13. **WHEN** RHR flow greater than 1400 gpm, **THEN ENSURE** 1-FCV-74-24, RHR pump B mini-flow CLOSED. STANDARD: Applicant checks mini flow valve 1-FCV-74-24 closed by checking GREEN light LIT on 1-HS-74-24A when flow greater than 1400 gpm as determined by Window 113-C RHR PUMP DISCH PRESS HI/MINI FLOW CONDITION clearing. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
CAUTION Rapid changes in letdown flow and RCS pressure may occur during RHR letdown realignment. The following steps should be coordinated to allow MCR adjustments as local alignments are performed especially if PZR is water solid.	
STEP 14: 14. **ALIGN** RHR pump 1B-B to CVCS: a. **CLOSE** 1-SPV-74-530, Tr A [1A Hx rm/722]. b. **OPEN** 1-SPV-74-531, Tr B [1B Hx rm/722]. STANDARD: _____Applicant contacts AUO to close 1-SPV-74-530. **(Critical to contact the local operator to close valve).** _____Applicant contacts AUO to open 1-SPV-74-531. **(Critical to contact the local operator to open valve).** **This step is critical to establish proper flow path to CVCS after start of 1B-B RHR pump.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 15: 15. **OPEN** 1-FCV-62-83, RHR letdown FCV. STANDARD: Applicant opens or checks open 1-FCV-62-83 with 1-HIC-62-83A. **CUE: After the applicant has demonstrated how to open 1-FCV-62-83, state that "another operator will complete AOI-14 actions."** COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

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 5**
2. **Unit 1 has been cooled down.**
3. **1A-A RHR train is in service.**
4. **1B-B RHR pump is available.**
5. **CVCS is in service**
6. **RHR to CVCS Letdown is in service from Heat Exchanger A outlet.**
7. **You are the Operator at the Controls.**

INITIATING CUES:

1. **You are to monitor the control board as the OAC and respond to events using appropriate procedure.**
2. **You are to inform the Unit Supervisor when the appropriate procedure has been completed.**

B.1.e
Respond to PRT High Pressure Alarm.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.e
2010-08 NRC Exam
EVALUATION SHEET

Task: Respond to PRT High Pressure alarm.

Alternate Path: While the applicant is reducing PRT pressure, 1-PCV-68-334 fails open when PRT pressure drops to less than 8 psig. Applicant responds by attempting to close 1-HS-68-334 PZR PORV 334 and by closing 1-HS-68-332 BLOCK VALVE FOR PORV 334.

Facility JPM #: 3-OT-JPMR129B

Safety Function: 5 **Title:** Containment Integrity

K/A 007 A4.10 Ability to manually operate and/or monitor in the control room: Recognition of leaking PORV/code safety.

Rating(s): 3.6/3.8 **CFR:** 41.7/45.5 to 45.8

Evaluation Method: Simulator **X** In-Plant _____

References: ARI 88-C, "PRT PRESS HI," Rev. 19
ARI 91-A, "PZR PORV/SAFETY OPEN," Rev. 19.

Task Number: RO-068-SOI-68-023 **Title:** Perform an alignment of the Pressurizer Relief Tank.

Task Standard: The applicant:

1. Performs actions of ARI 88-C, PRT PRESS HI and reduces pressure to clear the PRT high pressure alarm.

2. Diagnoses the failure of PZR PORV 1-68-334 open, and terminates the depressurization by placing 1-HS-68-332A BLOCK VALVE FOR PORV 334 in the CLOSED position.

Validation Time: 8 minutes **Time Critical:** Yes _____ No **X**

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

_____

_____

_____

_____

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.
2. Right click on 311 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
	rc07a	pzr porv pcv-68-334 fail to any position	M	23	00:00:05		00:00:00		25	0

6. Ensure NRC EXAM flash drive is loaded into the simulator computer, and that the file "NRC_Exam_Events.evt" is opened.
7. Place simulator in RUN and acknowledge any alarms.
8. ENSURE a marked-up copy of ARI 88-C, "PRT PRESS HI" corrective actions signed off (circled-and-slashed) through Step 7.
9. ENSURE "Extra Operator" is present in the simulator.
10. Place simulator in FREEZE until Examiner cue is given.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.e
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. **Window 88-C, "PRT PRESS HI" is LIT.**
2. **The Operator at the Controls (OAC) has performed ARI 88-C, "PRT PRESS HI" corrective actions through Step 8.a.**
3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to continue with the performance of ARI 88-C, "PRT PRESS HI" actions, beginning at Step 8.b.**
2. **Inform the Unit Supervisor when actions have been completed and Window 88-C, "PRT PRESS HI," is reset.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

EXAMINER: ARI- 88-C Step [8] [a] is included for cueing purposes, if the applicant requests current vent header pressure and status of the Waste Gas compressors.

STEP 1: **[8] REDUCE** PRT pressure to approximately 6.5 psig as follows: **[a] STATION** Operator at panel 0-L-2 to monitor vent header pressure and start Waste Gas Compressor if necessary. STANDARD: Applicant determines from the INITIAL CONDITIONS that an AUO has been stationed at panel 0-L-2, and is monitoring vent header pressure. **CUE: AUO stationed at 0-L-2 reports vent header pressure is 1.5 psig and stable.** COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 2: **[8] REDUCE** PRT pressure to approximately 6.5 psig as follows: **[b] HOLD** 1-HS-68-301A in the OPEN position as long as the following conditions exist: • Vent Header pressure is less than 2 psig • PRT pressure is greater than 6.5 psig STANDARD: _____Applicant rotates 1-HS-68-301A, PRT VENT TO WDS VENT HDR to the right to the OPEN position **(Critical).** Applicant observes GREEN light DARK, RED light LIT. Applicant observes a decreasing trend on1-PI-68-301, PRT PRESS. **CUE: If contacted to monitor vent header pressure, repeat back request and inform the applicant that Vent Header pressure is at approximately 1.5 psig, and slowly rising.** **Step is critical since PRT pressure will not be reduced until the vent path is aligned.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 2: **[8] REDUCE** PRT pressure to approximately 6.5 psig as follows: **[c] ENSURE** 1-HS-68-301A in the CLOSED position. STANDARD: _____When 88-C, PRT PRESS HI clears, the applicant rotates 1-HS-68-310A, PRT VENT TO WDS VENT HDR to the left to the CLOSE position. Applicant observes GREEN light LIT, RED light DARK. **Step is critical since to ensure that a discharge to the PRT is isolated from the vent header to ensure damage to the vent header will not occur.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
EXAMINER: When 88-C, PRT PRESS HI clears, malfunction rc07a will be automatically entered after a 5 second time delay. This will cause 1-PCV-68-334 PZR PORV to open to 25%. The applicant will receive alarm 91-A, PZR PORV/SAFETY OPEN, and take actions contained in the alarm response procedure.	
STEP 3: **[1] CHECK** PZR pressure to determine if PZR PORV/Safety should be open. STANDARD: Applicant determines from RCS pressure below 2335 psig that the PZR PORVs and Safety Valves should be closed. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 4: **[2] CHECK** other indications to determine if PZR PORV or Safety is open: • Windows 89-A and 89-B • 1-TI-68-330 [1-M-4] - Safety • 1-TI-68-329 [1-M-4] - Safety • 1-TI-68-328 [1-M-4] - Safety • 1-TI-68-331 [1-M-4] - PORV STANDARD: Applicant observes sharp rise in temperature indicated on 1-TI-68-331, PORV 340A & 334 TAILPIPE TEMPS. Applicant observes that neither the RED nor GREEN indicating lights are lit on 1-HS-68-334A, which is an indication that the PORV is partially open. Applicant observes that the GREEN indicating light is LIT on 1-HS-68-340. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 5: **[3] ENSURE** PZR PORV and Safeties CLOSED when PZR pressure is below lift setpoint. STANDARD: Applicant determines from redundant indications that PORV 334 has remained PARTIALLY OPEN and should have automatically closed when RCS pressure dropped below 2315 psig. Applicant may rotate 1-HS-68-334, PZR PORV 334, to the left to the CLOSED position. Applicant then determines that the valve is not closed based on the continued drop in pressurizer pressure, and/or lack of indicating lights. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 6: **[4] IF** PZR PORV is NOT closed when PZR pressure is below lift setpoint, **THEN**: **[a] CLOSE** associated PZR PORV block valve. **[b] NOTIFY** SRO. **[c] REFER TO** Tech Specs. STANDARD: Applicant observes that neither the RED nor GREEN indicating lights are lit on 1-HS-68-334A, indicating that the PORV is partially open. _____Applicant rotates 1-HS-68-332A, BLOCK VALVE FOR PORV 334 to the left, to the CLOSED position **(Critical).** Applicant determines that 1-HS-68-332A lights indicate that the valve is CLOSED (RED light DARK, GREEN light LIT). **CUE: If the applicant refers to Technical Specifications, inform the applicant that the Shift Manager will evaluate Technical Specifications.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 7: Applicant informs the Unit Supervisor that 1-PCV-68-334 PZR PORV opened and would not close manually. Applicant informs the Unit Supervisor that the block valve for PORV 68-334 is closed. STANDARD: Applicant informs the Unit Supervisor of the PORV and PORV block valve configurations in order for the Unit Supervisor to correctly apply Technical Specifications. **CUE: Another operator will continue from here.** COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

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 handout sheet I provided you.

INITIAL CONDITIONS:

1. **Window 88-C, "PRT PRESS HI" is lit.**

2. **The Operator at the Controls (OAC) has performed ARI 88-C corrective actions through Step 7.**

3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to continue with the performance of ARI 88-C, "PRT PRESS HI" actions, beginning at Step 8.**

3. **Inform the Unit Supervisor when actions have been completed and Window 88-C, "PRT PRESS HI," is reset.**

B.1.f
Shutdown of DG from Main Control Room

NOTE: This JPM may be conducted on the Simulator OR in the Main Control Room

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.f
2010-08 NRC Exam
EVALUATION SHEET

Task: Shutdown of DG from Main Control Room.

Alternate Path: During diesel generator shutdown, a high crankcase pressure alarm is received, requiring the applicant to initiate an emergency stop of the 1B-B Diesel Generator.

Facility JPM #: 3-OT-JPMR072A

Safety Function: 6 **Title:** Electrical

K/A 064 A4.01 Ability to manually operate and/or monitor in the control room: Local and remote operation of the ED/G

Rating(s): 4.0/4.3 **CFR:** 41.7 / 45.5 to 45.8

Evaluation Method: Simulator ___X___ In-Plant _____ Control Room ___X___

References: SOI-82.02, "Diesel Generator (DG) 1B-B," Rev. 68.
ARI 203-D, "CRANKCASE PRESS HI," Rev.13.

Task Number: RO-082-SOI-82-003 **Title:** Shutdown the Diesel Generator from the Main Control Room.

Task Standard: The applicant determines that an emergency stop of the diesel generator is required upon receipt of annunciator 203-D, "CRANKCASE PRESS HI" and performs an emergency stop of the 1B-B Diesel Generator.

Validation Time: 10 minutes **Time Critical:** Yes _____ No ___X___

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

_____

_____

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_____

SIMULATOR OPERATOR INSTRUCTIONS:

IF CONDUCTED IN THE SIMULATOR, THEN PERFORM THE FOLLOWING:

1. ENSURE NRC Examination Security has been established.
2. RESET to Initial Condition 312 by performing the following actions:
   a. Select ICManager on the THUNDERBAR menu (right hand side of Instructor Console Screen).
   b. Locate IC# 312.
   c. Right "click" on IC# 312.
   d. Select Reset on the drop down menu.
   e. Right "click" on RESET.
   f. Enter the password for IC# 312.
   g. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
   h. Perform SWITCH CHECK.
3. Place simulator in RUN and acknowledge any alarms.
4. ENSURE 1B-B Diesel Generator is running and loaded to approximately 4 MW with approximately 1 MVAR outgoing.
5. ENSURE copies of SOI-82.02, "Diesel Generator (DG) 1B-B" are available for the Examiner.
6. ENSURE "Extra Operator" is present in the simulator.
7. Place simulator in FREEZE until Examiner cue is given.

IF CONDUCTED IN THE MAIN CONTROL ROOM, THEN:

Tools/Equipment/Procedures Needed:

ENSURE that a copy of SOI-82.02, "Diesel Generator (DG) 1B-B," is available to the EXAMINER, marked as "EXAM MATERIAL, FOR TRAINING ONLY," for each applicant.

Begin the JPM at the Shift Manager's Desk.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.f
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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 at 100% power.**
2. **1B-B Diesel Generator is running and loaded to 4 MW, and 1 MVAR.**
3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to shut down the 1B-B Diesel Generator using SOI-82.02, "Diesel Generator (DG) 1B-B," Section 7.1,"Shutdown of DG from Main Control Room."**
2. **Inform the Unit Supervisor when the 1B-B Diesel Generator has been shutdown.**

STEP/STANDARD	SAT/UNSAT

EXAMINER: USE PAGES 6 through 9 if conducting JPM on the Simulator.

SIMULATOR PERFORMANCE

START TIME: _____

CAUTION

If load is lowered to zero or below zero, a reverse power trip is possible.

STEP 1: [1] **ADJUST** Generator Output as follows: [1.1] **PLACE** 1-HS-57-74 DG SYNC SWITCH to SYN. STANDARD: Applicant rotates handswitch 1-HS-57-74 DG SYNC SWITCH to the right from the OFF to the SYN position. **Step is critical to enable controls to reduce load on the diesel generator in subsequent steps.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

EXAMINER: When 1B-B Diesel Generator megawatts are reduced below 2 MWe, Window 203-D, "CRANKCASE PRESS HI" will be received.

STEP/STANDARD	SAT/UNSAT
STEP 2: [1] **ADJUST** Generator Output as follows: [1.2] **REDUCE** megawatts (1-EI-82-40A) using 1-HS-82-43, SPEED CONTROL, and megavars (1-EI-82-41A), using 1-HS-82-42, VOLTAGE REGULATOR to near zero. STANDARD: Applicant rotates handswitch 1-HS-82-43 to the left to the LOWER position to reduce megawatts, and periodically adjusts megavars using 1-HS-82-42 VOLTAGE REGULATOR. COMMENTS:	___ SAT ___ UNSAT
EXAMINER: The following actions are taken from ARI 203-D,"CRANKCASE PRESS HI."	

STEP/STANDARD	SAT/UNSAT
STEP 3: **[1] IF** DG running with NO emergency start present, **THEN ENSURE** DG shut down by Emergency Stop: • Remote - Depress 1-HS-82-47A, EMERGENCY STOP pushbutton on 0-M-26. • Local - Depress EMERGENCY STOP pushbutton on DG Control Board. STANDARD: ____Applicant determines that the 1B-B Diesel Generator is running with NO emergency start signal **(Critical).** ____Applicant depresses 1-HS-82-37A, EMERGENCY STOP pushbutton on 0-M-26 to stop the 1B-B Diesel Generator **(Critical).** Applicant determines that the diesel is tripped by observing the following: • Window 206-A, DG RUNNING clearing. • Window 202-A, DG AUTO START LOCKED OUT in alarm. • GREEN DG RUN indicating light is LIT, RED DG RUN light is DARK. **Step is critical to STOP the diesel generator with a high crankcase pressure condition, to prevent further damage to the machine.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 8: Notifies the Unit Supervisor that the 1B-B Diesel Generator was shutdown using 1-HS-82-47A, EMERGENCY STOP pushbutton on 0-M-26, due to a high crankcase pressure alarm. STANDARD: Performer notifies the Unit Supervisor that an emergency stop of the 1B-B Diesel Generator was performed due to high crankcase pressure, in accordance with ARI 203-D, CRANKCASE PRESSURE HI. COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

STOP TIME _____

STEP/STANDARD	SAT/UNSAT

EXAMINER: USE PAGES 10 through 13 if conducting JPM in the Main Control Room.

MAIN CONTROL ROOM PERFORMANCE

START TIME _____

CAUTION

If load is lowered to zero or below zero, a reverse power trip is possible.

STEP 1: [1] **ADJUST** Generator Output as follows:

[1.1] **PLACE** 1-HS-57-74 DG SYNC SWITCH to SYN.

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

Applicant indicates that handswitch 1-HS-57-74 DG SYNC SWITCH will be rotated to the right from the OFF to the SYN position **(Critical).**

CUE: A "click" was heard when 1-HS-57-74 DG SYNC SWITCH was moved.

CUE: After the applicant has demonstrated correct placement, if asked state that meter deflection was seen on INCOMING VOLTAGE, RUNNING VOLTAGE, INCOMING FREQUENCY, and RUNNING FREQUENCY.

If applicant requests a reading, ask the applicant to identify expected readings.

Step is critical to enable controls to reduce load on the diesel generator in subsequent steps.

COMMENTS:

STEP/STANDARD	SAT/UNSAT
STEP 2: [1] **ADJUST** Generator Output as follows: [1.2] **REDUCE** megawatts (1-EI-82-40A) using 1-HS-82-43, SPEED CONTROL, and megavars (1-EI-82-41A), using 1-HS-82-42, VOLTAGE REGULATOR to near zero. STANDARD: Applicant identifies handswitch 1-HS-82-43 and indicates that the switch is rotated to the left to the LOWER position to reduce megawatts on 1-EI-82-40A. Applicant indicates that the expected response to the lowering of megawatts is a rise in megavars. Periodic adjustments to megavars on 1-EI-82-41A will be made to maintain megavars less than 1 megavar outgoing using 1-HS-82-42 VOLTAGE REGULATOR. **CUE: After applicant has demonstrated proper switch manipulations, state that Window 203-D is in alarm.** COMMENTS:	___ SAT ___ UNSAT
EXAMINER: The following actions are taken from ARI 203-D,"CRANKCASE PRESS HI."	

STEP/STANDARD	SAT/UNSAT
STEP 3: **[1] IF** DG running with NO emergency start present, **THEN ENSURE** DG shut down by Emergency Stop: • Remote - Depress 1-HS-82-47A, EMERGENCY STOP pushbutton on 0-M-26. • Local - Depress EMERGENCY STOP pushbutton on DG Control Board. STANDARD: ____Applicant determines that the 1B-B Diesel Generator is running with NO emergency start signal **(Critical).** ____Applicant depresses 1-HS-82-37A, EMERGENCY STOP pushbutton on 0-M-26 to stop the 1B-B Diesel Generator **(Critical).** **CUE: After applicant has demonstrated how to initiate an emergency stop provide the following feedback AS REQUESTED:** • **Window 206-A, DG RUNNING is DARK.** • **Window 202-A, DG AUTO START LOCKED OUT is LIT.** • **GREEN DG RUN indicating light above the DG 1A-A mimic is LIT, RED DG RUN light is DARK.** **Step is critical to STOP the diesel generator with a high crankcase pressure condition, to prevent further damage to the machine.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 8: Notifies the Unit Supervisor that the 1B-B Diesel Generator was shutdown using 1-HS-82-47A, EMERGENCY STOP pushbutton on 0-M-26, due to a high crankcase pressure alarm. STANDARD: Applicant notifies the Unit Supervisor that an emergency stop of the 1B-B Diesel Generator was performed due to high crankcase pressure, in accordance with ARI 203-D, CRANKCASE PRESSURE HI. **CUE: When requested repeat back information provided by the applicant. State that another operator will continue from this point.** COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

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 handout sheet I provided you.

INITIAL CONDITIONS:

1. **Unit 1 is at 100% power.**
2. **1B-B Diesel Generator is running and loaded to 4 MW, and 1 MVAR.**
3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to shut down the 1B-B Diesel Generator using SOI-82.02, "Diesel Generator (DG) 1B-B," Section 7.1,"Shutdown of DG from Main Control Room."**
2. **Inform the Unit Supervisor when the 1B-B Diesel Generator has been shutdown.**

B.1.g
Return Failed RCS Temperature Channel to Service

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.g
2010-08 NRC EXAM
EVALUATION SHEET

Task: Return Failed RCS Temperature Channel to Service.

Alternate Path: When rod control is returned to AUTO, a continuous rod withdrawal begins, requiring the applicant to trip the reactor.

Facility JPM #: New

Safety Function: 7 **Title:** Instrumentation

K/A 016 A4.01 Ability to manually operate and/or monitor in the control room: NNI channel select controls.

Rating(s): 2.9/2.8 **CFR:** 41.7/ 45.4 to 45.8

Evaluation Method: Simulator **X** In-Plant _____

References: AOI-2, "Malfunction of Reactor Control System," Rev. 37

Task Number: RO-085-AOI-2-002 **Title:** During control rod operations, respond to a continuous control rod withdrawal in accordance with AOI-2, 'Malfunction of Reactor Control System.

Task Standard: The applicant:

1.) Returns Loop 2 RCS Tavg and ΔT inputs to the rod control system, using AOI-2, "Malfunction of Reactor Control System."

2.) Initiates a manual reactor trip upon diagnosis of the continuous rod bank withdrawal of Control Bank D.

Validation Time: 8 minutes **Time Critical:** Yes _____ No **X**

==========

Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

_____

SIMULATOR OPERATOR INSTRUCTIONS:

1. ENSURE NRC Examination Security has been established.

2. RESET to Initial Condition 313 by performing the following actions:

   a. Select ICManager on the THUNDERBAR menu (right hand side of Instructor Console Screen).

   b. Locate IC# 313.

   c. Right "click" on IC# 313.

   d. Select Reset on the drop down menu.

   e. Right "click" on RESET.

   f. Enter the password for IC# 313.

   g. Select "Yes" on the INITIAL CONDITION RESET pop-up window.

   h. Perform SWITCH CHECK.

3. ENSURE that 1-XS-68-2D, ΔT CHANNEL DEFEAT, and 1-XS-68-2M, TAVG CHANNEL DEFEAT, are selected to Loop 2 and the handswitches are in the PULLED OUT position.

4. Place simulator in RUN and acknowledge any alarms.

5. ENSURE a marked-up copy of AOI-2, "Malfunction of Reactor Control System" is available to the Examiner.

6. ENSURE "Extra Operator" is present in the simulator.

7. Place simulator in FREEZE until Examiner cue is given.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.g
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 is operating at 100% power.**
2. **Loop 2 RCS temperature channel failed high during the previous shift.**
3. **The channel was removed from service per AOI-2, "Malfunction of Reactor Control System," Sub Section 3.2, "Continuous Rod Insertion/Withdrawal."**
4. **AOI-2, Sub Section 3.2 has been completed through Step 11.**
5. **Work Control has just informed the Unit Supervisor that repairs have been completed.**
6. **Rod Control is in MANUAL.**
7. **You are the OAC.**

INITIATING CUES:

1. **The Unit Supervisor has directed you return Loop 2 RCS temperature loop to service using AOI-2, "Malfunction of Reactor Control System," Sub Section 3.2, Continuous Rod Insertion/Withdrawal," Steps 12 and 13.**
2. **Inform the Unit Supervisor when Steps 12 and 13 are complete.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

EXAMINER: Step 12 has been broken into 2 separate JPM steps since each action accomplished is unique and critical.

STEP 1: 12. **IF** loop ΔT and loop Tavg channels were defeated due to Tavg channel failure, and Tavg channel has been repaired, **THEN PUSH IN** 1-XS-68-2D, ΔT CHANNEL DEFEAT, and 1-XS-68-2M, TAVG CHANNEL DEFEAT, and select away from all ΔT and Tavg channels.

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

____Applicant pushes 1-XS-68-2D, ΔT CHANNEL DEFEAT switch IN and then rotates the switch from the "Loop 2" position to the "OFF" position.

Step is critical to restore the Loop 2 ΔT input to normal.

COMMENTS:

STEP/STANDARD	SAT/UNSAT
STEP 2: 12. **IF** loop ΔT and loop Tavg channels were defeated due to Tavg channel failure, and Tavg channel has been repaired, **THEN PUSH IN** 1-XS-68-2D, ΔT CHANNEL DEFEAT, and 1-XS-68-2M, TAVG CHANNEL DEFEAT, and select away from all ΔT and Tavg channels. STANDARD: ____Applicant pushes 1-XS-68-2M, TAVG CHANNEL DEFEAT switch IN and then rotates the switch from the "Loop 2" position to the "OFF" position. **Step is critical to restore the Loop 2 Tavg input to normal.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 3: 13. **WHEN** conditions allow auto rod control, **THEN**: a. **ENSURE** T-avg and T-ref within 1°F. b. **ENSURE** zero demand on control rod position indication [1-M-4]. c. **PLACE** rods in AUTO. STANDARD: Applicant determines that T-avg and T-ref are within 1°F. Applicant observes zero demand on CERPI display 1-MON-5000/1 OR 1-MON-5000/2, PASSIVE SUMMER ROD DEMAND Indicator. Applicant rotates RBSS-1 Rod Bank Selector to the right from **MAN** to **AUTO.** **CUE: If requested by the applicant, state that 5 minutes have elapsed since restoring Loop 2 ΔT and loop Tavg channels.** COMMENTS:	___ SAT ___ UNSAT
STEP 4: Continuous rod bank withdrawal occurs. STANDARD: Applicant diagnoses the continuous bank withdrawal, rotates RBSS-1 Rod Bank Selector from **AUTO** to **MAN.** COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 5: Applicant determines that Control Bank D, Group 1 rods continue to withdraw at 72 steps/minute and trips the reactor. STANDARD: Once MANUAL has been selected and rod motion continues, the applicant initiates a manual reactor trip. **When applicant initiates the reactor trip, state "Another operator will perform E-0 Immediate Action Steps."** COMMENTS: **END OF TASK**	**CRITICAL STEP** ___ SAT ___ UNSAT

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 operating at 100% power.**
2. **Loop 2 RCS temperature channel failed high during the previous shift.**
3. **The channel was removed from service per AOI-2, "Malfunction of Reactor Control System," Sub Section 3.2, "Continuous Rod Insertion/Withdrawal."**
4. **AOI-2, Sub Section 3.2 has been completed through Step 11.**
5. **Work Control has just informed the Unit Supervisor that repairs have been completed.**
6. **Rod Control is in MANUAL.**
7. **You are the OAC.**

INITIATING CUES:

1. **The Unit Supervisor has directed you return Loop 2 RCS temperature loop to service using AOI-2, "Malfunction of Reactor Control System," Sub Section 3.2, Continuous Rod Insertion/Withdrawal," Steps 12 and 13.**
2. **Inform the Unit Supervisor when Steps 12 and 13 are complete.**

B.1.h
Shutdown Instrument Room Purge

NOTE: This JPM may be conducted on the Simulator OR in the Main Control Room

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.h
2010-08 NRC Exam
EVALUATION SHEET

Task: Shutdown Instrument Room Purge.

Alternate Path: n/a

Facility JPM #: New

Safety Function: 8 **Title:** Plant Service Systems

K/A 029 A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the Containment Purge System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:
Startup operations and the associated required valve lineups.

Rating(s): 2.7/3.1 **CFR:** 41.5 / 43.5 / 45.3 / 45.13

Evaluation Method: Simulator ___X___ In-Plant _____ Control Room ___X___

References: SOI-30.02, "Containment Purge System," Rev. 54

Task Number: RO-030-SOI-30-009 **Title:** Purge the incore instrument room.

Task Standard: The applicant shuts down the instrument room purge using SOI-30.02, "Containment Purge System," Section 7.6, "SHUTDOWN of Instrument Room Purge," through Step 4.

Validation Time: 12 minutes **Time Critical:** Yes _____ No ___X___

==========

Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

IF CONDUCTED IN THE SIMULATOR, THEN PERFORM THE FOLLOWING:

1. ENSURE NRC Examination Security has been established.
2. RESET to Initial Condition 314 by performing the following actions:
   a. Select ICManager on the THUNDERBAR menu (right hand side of Instructor Console Screen).
   b. Locate IC# 314.
   c. Right "click" on IC# 314.
   d. Select Reset on the drop down menu.
   e. Right "click" on RESET.
   f. Enter the password for IC# 314.
   g. Select "Yes" on the INITIAL CONDITION RESET pop-up window.
   h. Perform SWITCH CHECK.
3. Place simulator in RUN and acknowledge any alarms.
4. ENSURE that a purge of the incore instrument room is in progress based on the damper and fan alignment on 1-M-10.
5. ENSURE copies of SOI-30.02, "Containment Purge System" are available for the Examiner.
6. ENSURE "Extra Operator" is present in the simulator.
7. Place simulator in FREEZE until Examiner cue is given.

IF CONDUCTED IN THE MAIN CONTROL ROOM, THEN:

Tools/Equipment/Procedures Needed:

IF CONDUCTED IN THE MAIN CONTROL ROOM, THEN:

ENSURE that a copy of SOI-30.02, "Containment Purge System," is available to the EXAMINER, marked as "EXAM MATERIAL, FOR TRAINING ONLY," for each applicant.

Begin the JPM at the Shift Manager's Desk.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.h
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 is at 100% power.**
2. **A purge of the Instrument Room is in progress.**
3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to shutdown the Instrument Room purge by performing Steps 1 through 4 of SOI-30.02, "Containment Purge System," Section 7.6, "SHUTDOWN Instrument Room Purge."**
2. **Inform the Unit Supervisor when Step 4 is complete.**

STEP/STANDARD	SAT/UNSAT

EXAMINER: USE PAGES 6 through 10 if conducting JPM on the Simulator.

SIMULATOR PERFORMANCE

START TIME: _____

STEP 1: [1] **ENSURE** FCV-30-5, PURGE SUP FAN 1B DISCH, is CLOSED. STANDARD: _____Applicant rotates 1-HS-30-5 to the left to the CLOSE position **(Critical).** Applicant verifies GREEN light for 1-FCV-30-5 is LIT; RED light for 1-FCV-30-5 is DARK. **Step is critical to support realignment of the purge system.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 2: [2] **STOP** INSTR RM PURGE SUP & EXH FANS AND FCO-30-11A&11B: **THEN PLACE** 1-HS-30-11A in STOP P-T-L [1-M-9]. STANDARD: _____Applicant rotates 1-HS-30-11A to the left to the STOP position, and then pulls the handswitch out to lock the fan control in the STOP position **(Critical).** Applicant verifies GREEN lights labeled SUP and EXH are LIT; RED lights labeled SUP and EXH are DARK. **Step is critical to support realignment of the purge system.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT

STEP 3: [3] **ENSURE** the following:

NOMENCLATURE	LOCATION	POSITION	UNID	PERF INITIAL
DAMPER 1-XI-30-11A	1-M-9	CLOSED	FCO-30-11A	
DAMPER 1-XI-30-11B	1-M-9	CLOSED	FCO-30-11B	
PURGE SUP SUCT ISOL DAMPER 1-XI-30-294	1-M-9	CLOSED	FCO-30-294	
PURGE SUP SUCT ISOL DAMPER 1-XI-30-295	1-M-9	CLOSED	FCO-30-295	

STANDARD:

Applicant determines damper position:

FCO-30-11A CLOSED by observing Damper 1-XI-30-11A GREEN light LIT, RED light DARK.

FCO-30-11B CLOSED by observing Damper 1-XI-30-11B GREEN light LIT, RED light DARK.

FCO-30-294 CLOSED by observing Damper 1-XI-30-294 GREEN light LIT, RED light DARK.

FCO-30-295 CLOSED by observing Damper 1-XI-30-295 GREEN light LIT, RED light DARK.

COMMENTS:

___ SAT

___ UNSAT

STEP/STANDARD	SAT/UNSAT

STEP 4: [4] **ENSURE** the following:

NOMENCLATURE	LOCATION	POSITION	UNID	PERF INITIAL
INSTR RM PURGE 1-FCV-30-19 & 58	1-M-9	CLOSED	1-HS-30-19	
INSTR RM PURGE 1-FCV-30-20 & 59	1-M-9	CLOSED	1-HS-30-20	
PURGE EXH FAN 1A SUCT	1-M-9	CLOSED	1-HS-30-61	
PURGE EXH FAN 1A TO SHIELD BLDG VNT	1-M-9	CLOSED	1-HS-30-213	

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

_____Applicant rotates 1-HS-30-19 to the left to the CLOSE position **(Critical).**
Applicant verifies GREEN lights for 1-FCV-30-19 and for 1-FCV-30-58 are LIT; RED lights for 1-FCV-30-19 and for 1-FCV-30-58 are DARK.

_____Applicant rotates 1-HS-30-20 to the left to the CLOSE position **(Critical).**
Applicant verifies GREEN lights for 1-FCV-30-20 and for 1-FCV-30-59 are LIT; RED lights for 1-FCV-30-20 and for 1-FCV-30-59 are DARK.

_____Applicant rotates 1-HS-30-61 to the left to the CLOSE position **(Critical).**
Applicant verifies GREEN light for 1-FCV-30-61 is LIT; RED light for 1-FCV-30-61 is DARK.

_____Applicant rotates 1-HS-30-213 to the left to the CLOSE position **(Critical).**
Applicant verifies GREEN light for 1-FCV-30-213 is LIT; RED light for 1-FCV-30-213 is DARK.

Identified step elements are critical to support realignment of the purge system.

COMMENTS:

STEP/STANDARD	SAT/UNSAT
STEP 7: Notifies the Unit Supervisor that Instrument Room purge has been shutdown. STANDARD: Applicant notifies the Unit Supervisor that instrument room purge has been shutdown, and that containment vent has been restored. COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

STOP TIME _____

STEP/STANDARD	SAT/UNSAT

EXAMINER: USE PAGES 11 through 17 if conducting JPM on the Main Control Room.

MAIN CONTROL ROOM PERFORMANCE

START TIME: _____

STEP 1: [1] **ENSURE** 1-FCV-30-5, PURGE SUP FAN 1B DISCH, is CLOSED. STANDARD: _____Applicant locates 1-HS-30-5 and indicates that the handswitch will be rotated to the left to the CLOSE position **(Critical).** Applicant indicates that the GREEN light for 1-FCV-30-5 will be LIT; RED light for 1-FCV-30-5 will be DARK. **CUE: After applicant has demonstrated proper switch manipulation, state that 1-HS-30-5 is in the CLOSE position, GREEN light are LIT, and RED light are DARK.** **Step is critical to support realignment of the purge system.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 2: [2] **STOP** INSTR RM PURGE SUP & EXH FANS AND FCO-30-11A&11B: **THEN PLACE** 1-HS-30-11A in STOP P-T-L [1-M-9].	**CRITICAL STEP**
STANDARD:	___ SAT
_____Applicant locates 1-HS-30-11A and indicates that the handswitch will be rotated to the left to the STOP position, and then pulled out to lock the fan control in the STOP position **(Critical).**	___ UNSAT
Applicant indicates that the GREEN lights labeled SUP and EXH will be LIT; RED lights labeled SUP and EXH will be DARK.	
CUE: After applicant has demonstrated proper switch manipulation, state that 1-HS-30-11A is in the STOP position with the handswitch pulled out, GREEN lights are LIT, and RED lights are DARK.	
Step is critical to support realignment of the purge system.	
COMMENTS:	

STEP/STANDARD	SAT/UNSAT

STEP 3: [3] **ENSURE** the following:

NOMENCLATURE	LOCATION	POSITION	UNID	PERF INITIAL
DAMPER 1-XI-30-11A	1-M-9	CLOSED	FCO-30-11A	
DAMPER 1-XI-30-11B	1-M-9	CLOSED	FCO-30-11B	
PURGE SUP SUCT ISOL DAMPER 1-XI-30-294	1-M-9	CLOSED	FCO-30-294	
PURGE SUP SUCT ISOL DAMPER 1-XI-30-295	1-M-9	CLOSED	FCO-30-295	

STANDARD:

Applicant locates and indicates the proper damper position:

FCO-30-11A CLOSED by observing Damper 1-XI-30-11A GREEN light LIT, RED light DARK.

FCO-30-11B CLOSED by observing Damper 1-XI-30-11B GREEN light LIT, RED light DARK.

FCO-30-294 CLOSED by observing Damper 1-XI-30-294 GREEN light LIT, RED light DARK.

FCO-30-295 CLOSED by observing Damper 1-XI-30-295 GREEN light LIT, RED light DARK.

CUE: After applicant locates each damper position indicator and indicates the expected position of each of the dampers, indicate that GREEN lights are LIT, and RED lights are DARK.

COMMENTS:

___ SAT

___ UNSAT

STEP/STANDARD	SAT/UNSAT

STEP 4: [4] **ENSURE** the following:

CRITICAL STEP

___ SAT

___ UNSAT

NOMENCLATURE	LOCATION	POSITION	UNID	PERF INITIAL
INSTR RM PURGE 1-FCV-30-19 & 58	1-M-9	CLOSED	1-HS-30-19	
INSTR RM PURGE 1-FCV-30-20 & 59	1-M-9	CLOSED	1-HS-30-20	
PURGE EXH FAN 1A SUCT	1-M-9	CLOSED	1-HS-30-61	
PURGE EXH FAN 1A TO SHIELD BLDG VNT	1-M-9	CLOSED	1-HS-30-213	

STANDARD:

_____Applicant locates 1-HS-30-19 and states that the handswitch will be rotated to the left to the CLOSE position **(Critical)**.

Applicant indicates that the GREEN lights for 1-FCV-30-19 and for 1-FCV-30-58 are LIT; RED lights for 1-FCV-30-19 and for 1-FCV-30-58 are DARK. Applicant may also indicate that Purge Dampers Mimic GREEN indicating lights for 1-FCV-30-19 and for 1-FCV-30-58 are LIT and RED lights for 1-FCV-30-19 and for 1-FCV-30-58 are DARK.

CUE: After applicant has demonstrated proper switch manipulation, state that 1-HS-30-19 is in the CLOSE position, GREEN lights are LIT, and RED lights are DARK.

_____Applicant locates 1-HS-30-20 and states that the handswitch will be rotated to the left to the CLOSE position **(Critical)**.

Applicant indicates that the GREEN lights for 1-FCV-30-20 and for 1-FCV-30-59 are LIT; RED lights for 1-FCV-30-20 and for 1-FCV-30-59 are DARK. Applicant may also indicate that Purge Dampers Mimic GREEN indicating lights for 1-FCV-30-20 and for 1-FCV-30-59 are LIT and RED lights for 1-FCV-30-20 and for 1-FCV-30-59 are DARK.

CUE: After applicant has demonstrated proper switch manipulation, state that 1-HS-30-20 is in the CLOSE position, GREEN lights are LIT, and RED lights are DARK.

EXAMINER: The actions of Step 4 are continued on the next page.

STEP/STANDARD	SAT/UNSAT
STEP 4: [4] **ENSURE** the following: *(Continued from previous page)* _____Applicant locates 1-HS-30-61 and states that the handswitch will be rotated to the left to the CLOSE position **(Critical)**. Applicant indicates that the GREEN light for 1-FCV-30-61 is LIT; RED light for 1-FCV-30-61 is DARK. **CUE: After applicant has demonstrated proper switch manipulation, state that 1-HS-30-61 is in the CLOSE position, GREEN light LIT, and RED light DARK.** _____Applicant locates 1-HS-30-213 and states that the handswitch will be rotated to the left to the CLOSE position **(Critical)**. Applicant indicates that the GREEN light for 1-FCV-30-213 is LIT; RED light for 1-FCV-30-213 is DARK. **CUE: After applicant has demonstrated proper switch manipulation, state that 1-HS-30-213 is in the CLOSE position, GREEN light LIT, and RED light DARK.** **Identified step elements are critical to support realignment of the purge system.** COMMENTS:	

STEP/STANDARD	SAT/UNSAT
STEP 17: Notifies the Unit Supervisor that Instrument Room purge has been shutdown. STANDARD: Applicant notifies the Unit Supervisor that instrument room purge has been shutdown, and that containment vent has been restored. COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

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 at 100% power.**
2. **A purge of the Instrument Room is in progress.**
3. **You are an extra operator assigned to the shift.**

INITIATING CUES:

1. **The Unit Supervisor directs you to shutdown the Instrument Room purge by performing Steps 1 through 4 of SOI-30.02, "Containment Purge System," Section 7.6, "SHUTDOWN Instrument Room Purge."**
2. **Inform the Unit Supervisor when Step 4 is complete.**

B.1.i
Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for local control.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.i
2010-08 NRC Exam - 1

EVALUATION SHEET

Task: Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for local control.

Alternate Path: n/a

Facility JPM #: 3-OT-JMPA156

Safety Function: 2 **Title:** Reactor Coolant System Inventory Control.

K/A 004 A1.11 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CVCS controls including: Letdown and charging flows.

Rating(s): 3.0/3.0 **CFR:** 41.5 / 45.5

Evaluation Method: Simulator _____ In-Plant **X**

References: SOI-62.01 "CVCS- Charging and Letdown" Rev. 58

Task Number: AUO-062-SOI-62.1-015 **Title:** Bypass 1-PCV-62-81, CVCS Letdown Heat Exchanger Pressure Control, for local control.

Task Standard: The applicant has manually bypassed PCV-62-81, LETDOWN PRESS CONTROL in accordance with SOI-62.01 Section 8.15," Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for Local Control."

Validation Time: 10 minutes **Time Critical:** Yes _____ No **X**

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

Tools/Equipment/Procedures Needed:

Hard Hat, Safety Glasses, Hearing Protection, Plant Approved Shoes, Gloves.
SOI-62.01 latest revision.
ALARA considerations.

Start this JPM at the Rad Waste Operators Desk.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.i
2010-08 NRC Exam - 1

READ TO APPLICANT

DIRECTION TO APPLICANT:

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating/operating cues.

NO MANIPULATION OF PLANT EQUIPMENT SHALL OCCUR DURING THIS JPM. SIMULATE ALL MANIPULATIONS.

When you complete the task successfully, the objective for this job performance measure will be satisfied.

Ensure that you indicate to me when you fully understand your task.

To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

1. **Unit 1 is at 100% power.**
2. **Centrifugal charging pump 1A-A is in service.**
3. **Letdown pressure control valve 1-PCV-62-81 has been operating in a sluggish manner, causing swings in letdown pressure.**
4. **Work Control has been contacted and has requested that 1-PCV-62-81 be bypassed to permit further investigation of the pressure control valve.**

INITIATING CUES:

1. **The Unit Operator has directed you to bypass 1-PCV-62-81, for local control of Letdown Heat Exchanger Pressure using SOI-62.01 "CVCS- Charging And Letdown," Section 8.15," Bypassing 1-PCV-62-81, CVCS LETDOWN HX PRESS CNTL, for Local Control," while maintaining radio contact with the MCR operator (Allowing the MCR operator to provide direction and control of letdown pressure).**
2. **You are to notify the Unit Operator when you have bypassed 1-PCV-62-81.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

STEP 1: Obtain a copy of the procedure. STANDARD: Applicant describes how to obtain a copy of the procedure. **EXAMINER'S CUE:** ***After the performer has identified how to obtain the correct instruction, the evaluator provides a copy of the instruction.*** COMMENTS:	___ SAT ___ UNSAT
STEP 2: [1] **ESTABLISH** communications with personnel at the Main Control Room (or Aux Control Room) and Aux Bldg el 737 Outside the letdown heat exchanger room. STANDARD: Applicant establishes communication with control room. **CUE: When notified, acknowledge using repeat back.** COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 3: [2] **PLACE** 1-HIC-62-81A, **LETDOWN** PRESS CONTROL in MANUAL. STANDARD: Control room has been contacted to place valve controller in manual. NOTE: This could have been accomplished prior to leaving the control room. **CUE:** ***When UO contacted, acknowledge, then state that 1-HIC-62-81A is in MANUAL.*** COMMENTS:	___ SAT ___ UNSAT
STEP 4: [3] **THROTTLE CLOSED** 1-ISV-62-673, CVCS **LETDOWN** HEADER ISOLATION [A5U/737] until pressure rise indicated in MCR or Aux Cntl Rm. STANDARD: Applicant establishes contact with control room and throttles closed 1-ISV-62-673 per MCR direction by operating valve hand wheel in clockwise direction. **Step is critical for establishing proper flow path for bypassing 1-PCV-62-81.** **CUE:** **After applicant states how to CLOSE valve, then state that valve hand wheel rotates in clockwise direction. IF control room contacted to monitor letdown pressure, then after several turns state that pressure rise is observed.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT

NOTE

The next step will cause a pressure swing in the letdown header. The MCR operator and local operator should coordinate actions to minimize the pressure swings.

STEP 5: [4] **THROTTLE OPEN** 1-BYV-62-672, CVCS **LETDOWN** PCV-62-81 BYPASS [A5U/737] while CLOSING 1-ISV-62-673, CVCS LETDOWN HEADER ISOLATION.

CRITICAL STEP

___ SAT

___ UNSAT

STANDARD:

Letdown line pressure has been controlled per UO directions (counter clockwise on 1-BYV-62-672 and clockwise on 1-ISV-62-673) until 1-ISV-62-673 is fully closed.

Step is critical for establishing proper flow path for bypassing 1-PCV-62-81.

CUE: If UO contacted, state that letdown pressure lowers as 1-BYV-62-672 is OPENED and rises as 1-ISV-62-673 is CLOSED.

COMMENTS:

STEP/STANDARD	SAT/UNSAT
STEP 6: [5] **ADJUST** 1-BYV-62-672, CVCS **LETDOWN** PCV-62-81 BYPASS [A5U/737] to maintain desired letdown press. STANDARD: Letdown line pressure has been controlled per UO directions (clockwise on 1-BYV-62-672 to raise pressure and counter clockwise on 1-BYV-62-672 to lower pressure). **CUE: If UO contacted, state that letdown pressure needs to be raised slightly.** **CUE: As operator operates 1-BYV-62-672 clockwise state that letdown pressure has risen enough and then state that Rad Waste AUO will be contacted to control the 1-BYV-62-672 if additional adjustments are required.** **CUE: As Unit Operator state that Rad Waste AUO will monitor the operation of 1-BYV-62-672.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 7: [6] **WHEN** desired to return 1-PCV-62-81 to service, **THEN PERFORM** the following: STANDARD: Applicant determines that this step is not applicable at this time. COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 13: Notify the Unit Supervisor 1-PCV-62-81 has been bypassed and that letdown pressure is stable. STANDARD: Applicant notifies the Unit Supervisor that 1-PCV-62-81 has been bypassed and that letdown pressure is stable. **CUE: Repeat back information provided by the applicant.** COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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When you complete the task successfully, the objective for this job performance measure will be satisfied.

Ensure that you indicate to me when you fully understand your task.

To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

1. **Unit 1 is at 100% power.**
2. **Centrifugal charging pump 1A-A is in service.**
3. **Letdown pressure control valve 1-PCV-62-81 has been operating in a sluggish manner, causing swings in letdown pressure.**
4. **Work Control has been contacted and has requested that 1-PCV-62-81 be bypassed to permit further investigation of the pressure control valve.**

INITIATING CUES:

1. **The Unit Operator has directed you to bypass 1-PCV-62-81, for local control of Letdown Heat Exchanger Pressure per procedure while maintaining radio contact with the MCR operator (Allowing the MCR operator to provide direction and control of letdown pressure).**
2. **You are to notify the Unit Operator when you have bypassed 1-PCV-62-81.**

B.1.j
Transfer 250v DC TURB BLDG DIST BD #1 from Normal to Alternate.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.j
2010-08 NRC Exam
EVALUATION SHEET

Task: Transfer 250v DC TURB BLDG DIST BD #1 from Normal to Alternate.

Alternate Path: n/a

Facility JPM #: 3-OT-JPMA123

Safety Function: 6 **Title:** Electrical Systems

K/A 063 K4.02 Knowledge of DC electrical system design feature(s) and/ or interlock(s) which provide for the following: Breaker interlocks, permissives, bypasses and cross-ties.

Rating(s): 2.9/3.2 **CFR:** 41.7

Evaluation Method: Simulator _____ In-Plant **X**

References: SOI-239.01, "250V Battery Board 1," Rev. 12.

Task Number: AUO-239-SOI-239.1-08 **Title:** Transfer a 250V DC Turbine Building Distribution Board.

Task Standard: The applicant transfers the 250V DC Turbine Building Distribution Board #1 from its Normal to Alternate supply per SOI-239.01, "250V Battery Board 1," Section 8.7.1, "Transfer from Normal to Alternate."

Validation Time: 15 minutes **Time Critical:** Yes _____ No **X**

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

Tools/Equipment/Procedures Needed:

Hard Hat, Gloves, Safety Glasses and Plant Approved Shoes.
Procedure SOI-239.01 Section 8.7.1, Transfer from Normal to Alternate."

References:

SOI-239.01, "250V Battery Board 1,"Rev. 12.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.j
2010-08 NRC Exam
READ TO APPLICANT

DIRECTION TO APPLICANT:

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To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

1. **The Unit is in MODE 5.**
2. **Maintenance is required that will cause 250V DC Battery Board #1 to be de-energized.**
3. **You are an AUO on shift.**

INITIATING CUES:

1. **You have been instructed to transfer the 250V DC Turbine Building Distribution Board #1 to its alternate supply per the SOI-239.01.**

2. **You are to notify the Unit 1 US/SRO when the board has been transferred.**

STEP/STANDARD	SAT/UNSAT

START TIME: _____

STEP 1: Obtain a copy of the procedure. STANDARD: Applicant describes how to obtain a copy of the procedure. **EXAMINER:** ***After the performer has identified how to obtain the correct instruction, provide a copy of the instruction.*** COMMENTS:	___ SAT ___ UNSAT
NOTE **The Turbine Bldg Dist Bd will auto transfer on a complete loss of DC with no time delay, or if voltage drops to 188 volts for 4 seconds. Return to normal is manual only.**	
STEP 2: [1] **OBTAIN** SRO approval prior to performing this Section. STANDARD: SRO approval is obtained prior to performing the section. ***CUE:*** ***After SRO is asked, state approval granted.*** COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 3: [2] **CHECK** at least 267 volts indicated on 250 V BATTERY BOARD 2 VOLTMETER on 0-DPL-239-1 250V DC TURB BLDG DIST BD 1. STANDARD: Applicant observes 250V BOARD 2 VOLTMETER on 0-DPL-239-1 and Voltage is verified to be at least 267 volts using 250V Battery Board 2 voltmeter. ***CUE: Indicate 270 volts on 250V BOARD 2 VOLTMETER on 0-DPL-239-1.*** COMMENTS:	___ SAT ___ UNSAT
STEP 4: [3] **PLACE** AUTO/MANUAL SUPPLY XFER SWITCH CS-101, to the MAN position. STANDARD: Applicant locates CS-101 and indicates that the transfer switch must be rotated to the left to MAN position. ***CUE: After applicant has demonstrated the proper positioning of CS-101, indicate that CS-101 is in MAN.*** **Step is critical to ensure that the transfer from Alternate to Normal can be accomplished.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 5: [4] **CLOSE** and **HOLD** ALT SUPPLY FROM 250V BATTERY BD 2, control switch until transfer is complete. STANDARD: Applicant locates ACB 102 and indicates that the breaker switch must be rotated to the right to the CLOSE position and held there UNTIL after the normal supply switch is placed in the TRIP position and transfer is verified. **Step is critical to ensure that the transfer from Alternate to Normal is accomplished without power interruption.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 6: [5] **PLACE** NORM SUPPLY FROM 250V BATTERY BD 1, control switch in the TRIP position. STANDARD: Applicant locates ACB 103 and indicates that the breaker switch must be rotated to the left to the TRIP position and HELD there UNTIL the transfer is verified. **Step is critical to ensure that the transfer from Alternate to Normal is accomplished without power interruption.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 7: [6] **ENSURE** breakers transferred. STANDARD: Applicant ensures ACB 102 is closed (verbalizes that a RED target is expected on ACB 102) and ACB 103 is open (verbalizes that a GREEN target is expected on ACB 103.) ***CUE: After checked, if asked confirm that ACB 102 has red target and ACB 103 has green target.*** COMMENTS:	___ SAT ___ UNSAT
STEP 8: [7] **VERIFY** between 267 and 283 volts indicated on 250 V BATTERY BOARD 2 VOLTMETER on 0-DPL-239-1 250V DC TURBINE BLDG DISTRIBUTION BOARD 1. STANDARD: Applicant observes 250V BOARD 2 VOLTMETER on 0-DPL-239-1 and Voltage is verified to be at least 267 volts using 250V Battery Board 2 voltmeter. ***CUE: Indicate 270 volts on 250V BOARD 2 VOLTMETER on 0-DPL-239-1.*** **Step is critical to ensure that sufficient voltage exists after transfer from Normal to Alternate.** COMMENTS:	___ SAT ___ UNSAT

STEP/STANDARD	SAT/UNSAT
STEP 9: [8] **ENSURE** AUTO/MANUAL SUPPLY XFER SWITCH CS-101, in MAN position. STANDARD: Applicant ensures that CS-101 is in the MAN position, which is the position that was selected during Step 3 of the procedure. COMMENTS:	___ SAT ___ UNSAT
STEP 10: Notify the Unit Supervisor that the transfer is complete. STANDARD: The US/SRO is notified that the transfer is complete. ***CUE: Acknowledge the report using repeat back.*** COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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To indicate that you have completed your assigned task return the cue sheet I provided you.

To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

4. **The Unit is in MODE 5.**
5. **Maintenance is required that will cause 250V DC Battery Board #1 to be de-energized.**
6. **You are an AUO on shift.**

INITIATING CUES:

3. **You have been instructed to transfer the 250V DC Turbine Building Distribution Board #1 to its alternate supply per the SOI-239.01.**

4. **You are to notify the Unit 1 US/SRO when the board has been transferred.**

B.1.k
Local Restart of C&SS Air Compressors

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.k
2010-08 NRC Exam
EVALUATION SHEET

Task: Local Restart of C&SS Air Compressors.

Alternate Path: Compressor "A" has high discharge air temperature and high oil temperature indication lights. Compressor "A" fails to auto load.

Facility JPM #: 3-OT-JPMA001C Rev 5

Safety Function: 8 **Title:** Plant Service Systems

K/A 065 AK3.08 Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Actions contained in EOP for loss of instrument air.

Rating(s): 3.7/3.9 **CFR:** 41.5,41.10 / 45.6 / 45.13

Evaluation Method: Simulator _____ In-Plant **X**

References: AOI-10 "Loss of Control Air" Rev. 39

Task Number: AUO-032-AOI-010-002 **Title:** Perform Attachment 1 of AOI-10, Local Restart of Control and Station Service Air Compressors.

Task Standard: The applicant has aligned and started "A" and "B" Air Compressors using AOI-10, "Loss of Control Air," Attachment 1, "Local Restart of C&SS Air Compressors." Control Air (Non-Essential) pressure has been re-established.

Validation Time: 15 minutes **Time Critical:** Yes _____ No **X**

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Applicant: _____ _____ Time Start: _____
NAME Docket No. Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

_____

_____

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Tools/Equipment/Procedures Needed:

Hard Hat, Safety Glasses, Hearing Protection, Gloves and Plant Approved Shoes.
AOI-10 Attachment 1.
High Noise Area; energized rotating equipment that can auto start.

EVALUATOR NOTE: Provide a copy of AOI-10 Attachment 1 to performer with candidate's cue sheet.

WATTS BAR NUCLEAR PLANT
JOB PERFORMANCE MEASURE
B.1.k
2010-08 NRC Exam

READ TO APPLICANT

DIRECTION TO APPLICANT:

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Ensure that you indicate to me when you fully understand your task.

To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

1. **A Station Blackout has occurred.**
2. **The Diesel Generators have started and are feeding the SD Bds.**
3. **The Control and Service Air compressors were aligned normal with "C" air compressor in the lead prior to the Blackout.**
4. **A loss of Non-essential and Service air has occurred (Air pressure is at 75 psig decreasing).**
5. **Essential Air is being supplied by the Aux. Air compressors.**
6. **The 480V Auxiliary Building Common Board does not have voltage available on its normal or alternate supply.**
7. **Local control power is available to the air compressors.**
8. **You are a support AUO on shift.**

INITIATING CUES:

1. **The Unit Operator has dispatched you with a copy of Attachment 1 of AOI-10 with instructions to perform steps 2 through 10.**
2. **Notify the Unit Operator when you have completed the task.**

START TIME: _____

STEP 1: 2. Locally **CHECK** 0-PCV-33-4, SERVICE AIR SUPPLY ISOLATION, CLOSED [T7M/708]. STANDARD: The applicant locates and describes how to check that 0-PCV-33-4 is in the closed position by either the green local indicating light or the stem down on the valve. ***CUE:*** ***When the valve is checked, state that green light is ON, Red light is OFF, and Stem is down, with the indicator at "C".*** COMMENTS:	___ SAT ___ UNSAT
STEP 2: 3. **CHECK** local control station alarm DARK [Panel 0-L-240, T7M/708]. STANDARD: The applicant locates the local control station (Panel 0-L-240) alarms and indicates how to check the alarms. ***CUE:*** ***When checked, indicate that Compressor "A" high discharge air temp and high oil temp lights are illuminated.*** The applicant proceeds to RNO column after discovery of the high discharge air temp and high oil temp on "A" compressor being LIT. COMMENTS:	___ SAT ___ UNSAT

STEP 3: 3. **RESPONSE NOT OBTAINED:** **IF** local control station alarm LIT, **THEN PERFORM** the following for each air compressor in alarm: **a. RESET** high air temp at each compressor (0-TS-32-41, -36,-31). STANDARD: Applicant locates and describes how to depress the High Air Temp reset push button, 0-TS-32-41, (on west side of "A" air compressor). ***CUE:*** ***When checked, and after applicant indicates how to depress pushbutton for 0-TS-32-41, state that "the pushbutton is as you see it (reset)."*** **Step is critical because "A" compressor cannot be started with the alarm switch NOT reset.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 4: 3. **RESPONSE NOT OBTAINED:** **IF** local control station alarm LIT, **THEN PERFORM** the following for each air compressor in alarm: **b. RESET** high oil temp switches at each air compressor (0-TS-32-40, -35, -30). STANDARD: Applicant locates and describes how to depress the High oil Temp reset push button, 0-TS-32-40, (on east side of "A" air compressor). ***CUE:*** ***When checked, and after applicant indicates how to depress pushbutton for 0-TS-32-40, state that "the pushbutton is as you see it (reset)."*** **Step is critical because "A" compressor cannot be started with the alarm switch NOT reset.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 5: 3. **RESPONSE NOT OBTAINED:** **IF** local control station alarm LIT, **THEN PERFORM** the following for each air compressor in alarm: **c. RESET** Common Alarm using 0-HS-32-25B, COMPRESSOR A, B, C RESET [0-L-240, yellow PB]. STANDARD: Applicant locates and describes how to depress 0-HS-32-25B COMPRESSOR A, B, C RESET pushbutton. ***CUE:*** ***When checked, and after applicant indicates how to depress pushbutton for 0-TS-32-40, state that "the pushbutton is as you see it (reset)."*** **Step is critical because "A" compressor cannot be started without using pushbutton to reset trip logic.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 6: 3. **RESPONSE NOT OBTAINED:** **IF** local control station alarm LIT, **THEN PERFORM** the following for each air compressor in alarm: **d. CHECK** common and all compressor local alarms DARK. STANDARD: The applicant locates the alarms and requests the status of each alarm on panel. ***CUE:*** ***After high air temp and high oil temp, reset push buttons at compressor "A", and 0-HS-32-25B has been pushed, indicate to the applicant that all alarms lights on panel are dark.*** COMMENTS:	___ SAT ___ UNSAT
STEP 7: 4. **PLACE** the following C&SS Compressors to HAND [0-L-240]: • A, 0-HS-32-25D. • B, 0-HS-32-26A. STANDARD: Applicant locates and describes how to place 0-HS-32-25D for "A" Compressor and 0-HS-32-26A for "B" Compressor to the HAND position. ***CUE:*** ***Indicate that both handswitches point to HAND.*** **Step is critical because the hand switches enable the respective local start pushbuttons.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 8: 5. **PLACE** 0-HS-32-25A, STATION AIR COMPRESSOR SEQUENCE CONTROL, to Position 1. STANDARD: Applicant locates and describes how to rotate 0-HS-32-25A, Station Air Compressor Sequence Selector Control, to select Position 1. ***CUE: Indicate that Sequence Selector is in position 3 before operation, and indicate that Sequence Selector is in position 1 after operation.*** COMMENTS:	___ SAT ___ UNSAT
STEP 9: 6. **START** Compressor A by pushing 0-HS-32-25E. STANDARD: Applicant locates and describes how to depress 0-HS-32-25E manual start push button. ***CUE: If JPM Steps 4, 5, 6, and 8 were SAT, then when PB is depressed, if asked, state that an air compressor start was heard. If JPM Steps 4, 5, 6, or 8 were UNSAT, if asked, state that compressor start was not heard.*** **Step is critical to start air compressor.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 10: 7. **CHECK** Compressor A loads automatically. STANDARD: The applicant describes how to determine that air compressor "A" is loaded, by observing the loading solenoids, or by the sound changing at Compressor "A". ***CUE: When checked, state that the air compressor sound indicates that it has NOT loaded, state that air pressure is NOT rising (several local gauges), or, if both solenoids are checked to be magnetized, state that they are de-energized.*** Applicant proceeds to RNO column after being cued to the failure of "A" compressor to load. COMMENTS:	___ SAT ___ UNSAT
STEP 11: 7. **RESPONSE NOT OBTAINED:** **IF** Compressor A does **NOT** Auto load, **THEN PLACE** 0-HS-32-43A and -43B to ON (Local 0-JB-291-226). STANDARD: _____Applicant locates and describes how to place 0-HS-32-43A and 0-HS-32-43B to the ON positions. ***CUE: After hand switches have been placed to the ON position and when checked, state that the air compressor sound indicates that it has not loaded, the air pressure is dropping, or, if both solenoids are checked to be magnetized, state that they are de-energized.*** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 12: 7. **RESPONSE NOT OBTAINED:**

IF Compressor A does **NOT** load from local panel, **THEN**:

a. CLOSE 0-ISV-32-578, STATION AIR COMPR A UNLOADING HDR ISOL.

b. **VENT** 0-TV-32-579, STATION AIR COMPR A UNLOADING HDR TEST.

STANDARD:

_____Applicant locates and describes how to close 0-ISV-32-578 by stating that the valve handwheel must be rotated clockwise.

CUE: After Valve 0-ISV-32-578 has been located and closed state that valve handwheel rotated clockwise until snug and valve stem moved into valve body.

_____Applicant locates and describes how to open 0-TV-32-579 by stating that the valve handwheel must be rotated counter-clockwise.

CUE: After Valve 0-TV-32-579 has been located and opened state that valve handwheel rotated counterclockwise until snug (state that air was heard venting from end of valve if asked).

The applicant indicates how to determine air compressor "A" is has loaded after 0-TV-32-579 is open.

CUE: IF asked and when checked state that compressor sound indicated it has loaded and when checked, the air compressor sound indicates that it has loaded, the air pressure is rising.

Steps are critical to bleed air to force compressor to load.

COMMENTS:

CRITICAL STEP

___ SAT

___ UNSAT

STEP 13: 8. **START** Compressor B by pushing, 0-HS-32-26B. STANDARD: _____Applicant locates and describes how to depress 0-HS-32-26B manual start push button. ***CUE: If JPM Step 8 was SAT, then when PB is depressed, if asked state that an air compressor start was heard. If JPM Step 8 was UNSAT, if asked, state that compressor start was not heard.*** **Step is critical to start air compressor.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 14: 9. **CHECK** Compressor B loads automatically. STANDARD: The applicant describes how to determine that air compressor "B" is loaded, by observing the loading solenoids, or by the sound changing at Compressor "B". ***CUE: When checked, state that the air compressor sound indicates that it has loaded or, if both solenoids are checked to be magnetized, state that they are energized.*** COMMENTS:	___ SAT ___ UNSAT

STEP 15: 10. **MONITOR** Compressor operation: • Oil press 25-30 psig on A, B, and C. • Cooling water flow. • Compressors auto-loading. STANDARD: Applicant locates oil pressure indicators (Compressor A, 0-PI-32-40; Compressor B, 0-PI-32-35) and states that oil pressure on both compressors should be 25-30 psig. Applicant locates discharge drains and states that cooling water flow should be seen at the drain points. Applicant determines from previous steps that Compressor A Compressors was manually loaded, and that Compressor B automatically loaded. Applicant states that Compressor C is shutdown due to the loss of power. ***CUE: After the applicant has described the status of Compressor A and B, state that "another operator will continue Attachment 1 performance from this point."*** Applicant notifies the Unit Operator that AOI-10, "Loss of Control Air," Attachment 1 "Local Restart of C&SS Air Compressors" is complete through Step 10. COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

STOP TIME _____

APPLICANT CUE SHEET

(RETURN TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO APPLICANT:

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NO MANIPULATION OF PLANT EQUIPMENT SHALL OCCUR DURING THIS JPM. SIMULATE ALL MANIPULATIONS.

When you complete the task successfully, the objective for this job performance measure will be satisfied.

Ensure that you indicate to me when you fully understand your task.

To indicate that you have completed your assigned task return the cue sheet I provided you.

INITIAL CONDITIONS:

1. **A Station Blackout has occurred.**
2. **The Diesel Generators have started and are feeding the SD Bds.**
3. **The Control and Service Air compressors were aligned normal with "C" air compressor in the lead prior to the Blackout.**
4. **A loss of Non-essential and Service air has occurred (Air pressure is at 75 psig decreasing).**
5. **Essential Air is being supplied by the Aux. Air compressors.**
6. **The 480V Auxiliary Building Common Board does not have voltage available on its normal or alternate supply.**
7. **Local control power is available to the air compressors.**
8. **You are a support AUO on shift.**

INITIATING CUES:

1. **The Unit Operator has dispatched you with a copy of Attachment 1 of AOI-10 with instructions to perform steps 2 through 10.**
2. **Notify the Unit Operator when you have completed the task.**