WATTS BAR NUCLEAR PLANT
3-OT-JPMA087

LOCAL CONTROL MOTOR DRIVEN AFWP LCV FOR #1 S/G LEVEL PER SOI-3.02

WATTS BAR NUCLEAR PLANT
3-OT-JPMA087

NUCLEAR TRAINING

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	Initial Issue.	8/28/92	ALL	
1	DELETE KNOWLEDGE QUESTIONS, CHANGE VAL TIME, OTHER MINOR CHANGES	4/7/93	3,5,6,8,9	
2	CHANGE WORDING AND SETPOINTS IN JPM STEPS 6,7	12/06/93	7	
3	REFLECT PROCEDURE REV 20	11/1/95	4,6,7,8	Ed Knoblauch
4	Revised K/A values to Rev 2 of NUREG 1122, updated procedure references, revised initiating cues, converted format to NRC format. Added step addressing SG #2 Level Control.	11/7/99	ALL	Albert V. White
5	Incorporated previously made pen & ink changes to update procedure referenced, add gloves to equipment needed, correct typo in step 8. Reworded Examiner's Cues for steps 5, and 7 to provide more detail. No change of intent	9/28/07	ALL	D.L. Hughes

WATTS BAR NUCLEAR PLANT
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Task: Local Control Motor Driven AFWP LCV For #1 S/G Level Per SOI-3.02.

Alternate Path: N/A.

Facility JPM #: 3-OT-JPMA087 Rev 5

K/A Rating(s): 054-AK3.03 [3.8/4.1] 054-AA [4.5/4.4] 2.1.30 [3.9/3.4]

Task Standard: Establish communications with the Control Room Operator and assume local control of #1 S/G level using 1A-A Motor-Driven AFWP LCV.

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator ____ In-Plant __X___ Perform _____ Simulate __X__

References: SOI-3.02 "Auxiliary Feedwater System" Rev. 45

Task Number:: AUO-003-SOI-3.02-008 APPLICABLE FOR: AUO/RO/SRO

10CFR55.45: 7, 8, 9

Validation Time: 13 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN 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, Flashlight, Hearing Protection, Plant Approved Shoes, gloves, and radio.
Latest revision of SOI-3.02.
Ladder Safety since some valves require access from above floor elevation, and ALARA considerations. Auto Start capabilities of the AFW System.

NOTE: **Start this JPM in the MCR.**

EVALUATOR NOTE: **Provide copy of SOI-3.02 Section 8.5 to performer with candidate's cue sheet.**

READ TO OPERATOR

DIRECTION TO TRAINEE:

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:

The Unit is in Mode 3 with the RCS at 557^{O}F and 2235 psig.

The TD AFW Pump is tagged for maintenance.

The Control Room Operator has been experiencing increasing difficulty in maintaining #1 S/G level.

You are the Auxiliary Building AUO and you have already checked out a radio.

INITIATING CUES:

The Unit Supervisor has directed you to establish radio communications with the MCR and then take local control of SG 1 level via 1A-A MD AFWP, per SOI-3.02 Section 8.5.

WATTS BAR NUCLEAR PLANT
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START TIME: _____

STEP 1: Obtain a copy of the procedure. STANDARD: A copy of SOI-3.02 Sect. 8.5.1 has been obtained. **EXAMINER'S CUE: Provide copy of SOI-3.02 Section 8.5 to performer.** COMMENTS:	___ SAT ___ UNSAT
NOTE Direct radio communications with UO required to perform this section.	
STEP 2: Establish communication with the UO. STANDARD: Radio Communication with the MCR has been established. ***CUE: Role play as the MCR / UO. Acknowledge that operator is proceeding with Section 8.5.1 to control feedwater flow to S/G #1.** COMMENTS:	___ SAT ___ UNSAT

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

WATTS BAR NUCLEAR PLANT
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STEP 3: **[Step 1] ENSURE** AFW Pump A-A running. STANDARD: Performer determines that the 1A-A MD AFWP is running by observation or MCR information. ****CUE:*** **If asked, the MCR informs the performer that the 1A-A MD AFWP is in service.** ****CUE:*** **If local indications checked, performer can hear/feel normal pump running sound/vibration, discharge pressure 1150 psig** COMMENTS:	___ SAT ___ UNSAT
Note: Performance steps 4 and 5 are part of the same instruction step and must be performed in sequence.	
STEP 4: **[Step 2] PERFORM** the following to fail CLOSED 1-PCV-3-122, AUX FEEDWATER PMP 1A-A DISCHARGE PRESS CONTROL [A3S/713]: **[2.1] CLOSE** 0-ISV-32-460, ESSENT CNTL AIR ISOL VALVE TO 1-PCV-3-122: STANDARD: 0-ISV-32-460 is manually closed. **Step is critical to allow isolation of air to fail valve closed.** ****CUE:*** **After performer describes how to close valve, state valve handle rotates clockwise until it is snug.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

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STEP 5: **[Step 2.2]** **DEPRESSURIZE** air from regulator on 1-PCV-3-122. STANDARD: Petcock on local pressure regulator on 1-PCV-3-122 located and manually opened to de-pressurize regulator. **Step is critical to allow bleed of air to fail valve closed.** ****CUE:*** **After drain valve is opened, state that air is heard and felt coming from the drain, which then slows down and stops completely.** **IF ASKED about 1-PCV-3-122 response, state that as air was bled off, 1-PCV-3-122 stem moved down and is now completely down indicating closed.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
Note: Performance steps 6 and 7 are part of the same instruction step and must be performed in sequence.	
STEP 6: **[Step 3]** **IF** MANUAL control of SG 1 level is necessary, **THEN PERFORM** the following to fail OPEN 1-LCV-3-164, MD AFW PUMP 1A-A SG 1 LEVEL CONTROL [A3T/737 West Wall]: **[3.1]** **CLOSE** 1-ISV-32-3765, ESSENT CONTROL AIR ISOL VALVE TO 1-LCV-3-164. STANDARD: 1-ISV-32-3765 is manually closed. **Step is critical to allow isolation of air to fail valve open.** ****CUE:*** **After performer describes how to close valve, state valve handle rotates clockwise until it is snug.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

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STEP 7: **[Step 3.2]** **DEPRESSURIZE** air from regulator on 1-LCV-3-164. STANDARD: Petcock on local pressure regulator on 1-LCV-3-164 located and manually opened to de-pressurize regulator. **Step is critical to allow bleed of air to fail valve open.** *****CUE:*** **After drain valve is opened, air is heard and felt coming from the drain, which then slows down and stops completely.** **IF ASKED about 1-LCV-3-164 response, state that as air was bled off, 1-LCV-3-164 stem moved up and is now completely up indicating open.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 8: **[Step 4]** **IF** MANUAL control of SG 2 level is necessary, THEN PERFORM the following to fail 1-LCV-3-156, MD AFW PUMP 1A-A SG 2 LEVEL CONTROL [A3T/737 West Wall]: **[4.1]** **CLOSE** 1-ISV-32-3761, ESSENT CONTROL AIR ISOL VALVE TO 1-LCV-3-156. **[4.2]** **DEPRESSURIZE** air from regulator on 1-LCV-3-156. STANDARD: Performer determines that this step is N/A and proceeds to the next step. *****CUE:*** **If control room contacted, state that manual level control of SG 2 is not required.** COMMENTS:	___ SAT ___ UNSAT

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NOTE: Manual Handwheel on top of 1-PCV-3-122 must be turned CLOCKWISE to OPEN.	
STEP 9: **[Step 5] ADJUST** 1-PCV-3-122, AUX FEEDWATER PMP 1A-A DISCHARGE PRESS CONTROL to establish approx 1200 psid between 1-PI-3-117, AUX FEEDWATER PMP 1A-A SUCTION PRESS, and 1-PI-3-122B, AUX FEEDWATER PMP 1A-A DISCHARGE PRESS [A3S/713]. STANDARD: Manual hand wheel for 1-PCV-3-122 adjusted (clockwise to open) to establish approximately 1200 psid between 1-PI-3-117 and 1-PI-3-122B..**Step is critical to establish flow path to SG 1.** *****CUE:*** **After adjustment of 1-PCV-3-122, indicate that 1-PI-3-117 reads 20 psig and 1-PI-3-122B reads 1200 psig** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 10: **[Step 6] IF** SG 1 level to be controlled, **THEN UNLOCK** and **THROTTLE** 1-ISV-3-828, MD AFW PUMP 1A-A SG 1 LEVEL CONTROL ISOL, per UO instruction [A3T/737 West Wall]. STANDARD: 1-ISV-3-828 is unlocked and manually throttled clockwise to ≈ 50%.. **Step is critical to control flow path to SG 1.** *****CUE:*** **Inform the performer that the lock, if present, is a breakaway type lock.** *****CUE:*** **Respond as control room and request 1-ISV-3-828 be throttled to 50% open position.** *****CUE:*** **After valve is throttled, then respond as control room and state that the Rad Waste AUO will be contacted if additional adjustments are needed.** COMMENTS: **END OF TASK**	**CRITICAL STEP** ___ SAT ___ UNSAT

TIME STOP: _____

*****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

DO NOT OPERATE ANY PLANT EQUIPMENT

INITIAL CONDITIONS:

The Unit is in Mode 3 with the RCS at 557^{O}F and 2235 psig.

The TD AFW Pump is tagged for maintenance.

The Control Room Operator has been experiencing increasing difficulty in maintaining #1 S/G level.

You are the Auxiliary Building AUO and you have already checked out a radio.

INITIATING CUES:

The Unit Supervisor has directed you to establish radio communications with the MCR and then take local control of SG 1 level via 1A-A MD AFWP, per SOI-3.02 Section 8.5.

WATTS BAR NUCLEAR PLANT
3-OT-JPMA049A

1A-A DIESEL GENERATOR IDLE START FOR WARM UP PER SOI-82.01

WATTS BAR NUCLEAR PLANT
3-OT-JPMA049A

NUCLEAR TRAINING
REVISION/USAGE LOG

REV NO.	DESCRIPTION OF REVISION	DATE	PAGES AFFECTED	REVIEWED BY
0	Initial Issue. Used 3-OT-JPMA049and modified	04/29/08	ALL	

WATTS BAR NUCLEAR PLANT
3-OT-JPMA049A

EVALUATION SHEET

Task: 1A-A Diesel Generator Idle Start for Warm Up per SOI-82.01

Alternate Path: To Emergency Stop the EDG due to exceeding Lube Oil Temperature shutdown criteria.

Facility JPM #: 3-OT-JPMA049 Rev 6

K/A Rating(s): 064-A4.01 [4.0/4.3] 064-A4.06 [3.9/3.9] 064-A3.06 [3.3/3.4]
2.1.30 [3.9/3.4]

Task Standard: 1A-A DG is successfully started, brought to idle speed, and then emergency stopped due to excessive lube oil temperature,

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator ____ In-Plant __X__ Perform _____ Simulate __X__

References: SOI-82.01 "Diesel Generator 1A-A" Rev. 61

Task Number:: AUO-082-SOI-82.1-001 APPLICABLE FOR: AUO/RO/SRO
AUO-082-SOI-82.1-002

10CFR55.45: 8

Validation Time: 25 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

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WATTS BAR NUCLEAR PLANT
3-OT-JPMA049A
EVALUATOR INFORMATION SHEET

Tools/Equipment/Procedures Needed:

Hard Hat, Safety Glasses, Hearing Protection, Gloves and Plant Approved Shoes.
Ear Muffs (simulate for double hearing protection required when DG in operation)
SOI-82.01
INSERT EXTRA COPY OF APPENDIX B SOI-82.01 after page 10 of JPM.
Safety considerations: CO2 Protected area; Potential for high noise if DG auto starts.

NOTE: Get Shift Manager's Permission to enter the EDG 1A-A Room
Start this JPM in the MCR.

READ TO OPERATOR

DIRECTION TO TRAINEE:

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.

INITIAL CONDITIONS:

All DGs are in standby alignment.

IA-A DG has been declared INOPERABLE, preventative maintenance on both Engine's Jacket Water Systems has just been completed.

1A-A DG has been rolled one complete revolution four hours ago.

Maint. Crews are on hand to perform required surveillance testing of the 1A-A DG.

You are an AUO assigned to work with Maint. on the 1A-A DG.

INITIATING CUES:

The Control Room Operator directs you to use SOI-82.01 to locally perform an Idle Start for warm up followed by shutdown on the 1A-A DG.

You are to notify the Control Room Operator when you have completed the task and the 1A-A DG is returned to standby alignment.

WATTS BAR NUCLEAR PLANT
3-OT-JPMA049A

START TIME: _____

STEP 1: Obtain a copy of the instruction. STANDARD: A copy of SOI-82.01 section 8.1.1 and 8.1.2 has been obtained. **EXAMINER'S CUE: After the performer has identified correct instruction, the evaluator can provide a copy of the instruction.** **EVALUATOR NOTE: Section 8.1.1 contains prerequisite. Initial conditions for this JPM has the information to meet prerequisites. Prerequisite Steps 1 & 2 are met.** COMMENTS:	___ SAT ___ UNSAT
Note: The following steps are from Section 8.1.2 Idle Start	
STEP 2: **[1] ENSURE** 1-HS-82-18, DG MODE SELECTOR SWITCH, in (UNIT) PULL FOR LOCAL TRANSFER [0-M-26]. STANDARD: Performer contacts the MCR to ensure that 1-HS-82-18 is in PULL FOR LOCAL TRANSFER. **This step is critical to enable local control of DG.** ****CUE:* When contacted, repeat back, then report that 1-HS-82-18 has been placed in PULL FOR LOCAL TRANSFER** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

WATTS BAR NUCLEAR PLANT
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STEP 3: **[2] ENSURE** VOLTAGE SHUT DOWN, red light LIT [1-PNL-82-A, Diesel Engine 1A1/1A2 Control Panel]. STANDARD: Performer ensures that voltage shutdown red light is LIT. ****CUE:*** **When checked, state that light is LIT** COMMENTS:	___ SAT ___ UNSAT
STEP 4: **[3] PRESS** 1-HS-82-22, TRIP TO LOCAL GEN 1A-A, to trip LRX1A relay to LOCAL. [1-ARB-82-A/3 Diesel Generator 1A-A Relay Board]. STANDARD: The performer presses 1-HS-82-22, TRIP TO LOCAL GEN 1A-A. **This step is critical to enable local control of DG.** ****CUE:*** **If asked, state that an audible snap was heard when hand switch was pressed.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 5: **[4] ENSURE** 1-RLY-82-LRX1A, DG 1A-A LOCAL/ REMOTE CONTROL LOCKOUT, in LOCAL. [1-ARB-82-A/1 Diesel Generator 1A-A Relay Board]. STANDARD: The performer ensures that 1-RLY-82-LRX1A, DG 1A-A LOCAL/REMOTE CONTROL LOCKOUT, in LOCAL ****CUE:*** **When LRX1A is checked, STATE that the relay handle is positioned to "LOCAL".** COMMENTS:	___ SAT ___ UNSAT

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3-OT-JPMA049A

STEP 6: **[5] PRESS AND HOLD** 1-HS-18-29/1, FUEL OIL PRIMING PUMPS DSL ENG 1A1 & 1A2 PB [1-PNL-82-A/2], until fuel press gauges indicate greater than 20 psig (1-IPI-18-1000/1, DG ENG 1A1 FUEL OIL PRESS, & 1-IPI-18-1001/1, DG ENG 1A2 FUEL OIL PRESS) [1-PNL-82-A/1, Diesel Engine 1A1/1A2 Control Panel]. STANDARD: 1-HS-18-29/1, FUEL OIL PRIMING PUMPS DSL ENG 1A1 & 1A2 PB, is pressed and held until fuel press gauges are verified >20 psig (1-IPI-18-1000/1 & 1-IPI-18-1001/1). **This step is critical to provide proper prime to fuel injectors.** ***CUE:** **When the pressure gauges are checked, use a pen to simulate that the pressure is 28 psig.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
NOTE: DG-1A-A should reach speed of 450 ± 10 rpm and hold. Speed indication is on 1-PNL-82-A.	
STEP 7: **[6] PRESS** 1-HS-82-25, IDLE START GEN 1A-A, [1-PNL-82-A/2, Diesel Engine 1A1/1A2 Control Panel] to start DG. STANDARD: 1-HS-82-25, IDLE START GEN 1A-A, is pressed. **This step is critical since it starts the DG.** ***CUE:** **After switch is depressed is pushed, state that the diesel generator starts, and if checked engine is at 445 RPM.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

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3-OT-JPMA049A

STEP 8: **[7]** **IF** 1-FCV-67-66, DG HX 1A1/1A2 ERCW SUP HDR 1A ISOL, is NOT OPEN, **THEN OPEN** 1-FCV-67-68, DG HX 1A1/1A2 ERCW SUP HDR 2B ISOL, using 1-HS-67-68D, DSL GEN ENG 1A1/1A2 HTX ERCW HEADER B SUPPLY. [1-PNL-82-A/1]. STANDARD: Performer verifies that 1-FCV-67-66 is open. ****CUE:*** **If MCR contacted, state that there are no indication lights on 1-FCV-67-66. Label indicates that it has power disconnected and is open. If local check is made, use a pen to simulate the local indicator points to open.** COMMENTS:	___ SAT ___ UNSAT
STEP 9: **[8]** **IF** DG startup is for testing, **AND** a "thick black combustion product" emits for more than 5 minutes, **THEN PERFORM** the following: A. **QUICKLY LOAD** DG to 4.4MW to burn excess oil. B. **IF** smoke will NOT clear, **THEN NOTIFY** SRO to evaluate DG shutdown. STANDARD: Performer verifies combustion exhaust is normal. ****CUE:*** **When performer checks exhaust, state that the combustion exhaust is grayish white in color and not excessive.** COMMENTS:	___ SAT ___ UNSAT

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NOTE TO EVALUATOR: The following step refers to intake dampers to the DG room located in the overhead by the north end of the DG. These when checked (when simulating task performance) are normally closed. When performer checks them, asks what position they are in, then give the CUE below:	
STEP 10: **[9]** **MONITOR** all 4 groups of the AIR Intake Damper to the outside plenum are full open, **AND IF** ANY of the 4 groups in the Air Intake Damper fails to fully OPEN, **THEN** **[9.1]** **NOTIFY** the Duty Engineering Manager to perform an evaluation to determine affect on DG operability. **[9.2]** **INITIATE** WO to repair the failed group. WO #_____. STANDARD: Performer verifies that Air Intake Damper 1-FCO-30-443 four groups are fully OPEN. ***CUE:** **When performer checks Air Intake Dampers, state that the dampers are positioned vertical and you can see the room above.** COMMENTS:	___ SAT ___ UNSAT

EVALUATOR NOTE: USE your copy of Appendix B (last page) to assist in indicating to performer the appropriate values.

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STEP 11: **[10] MONITOR** parameters listed on Appendix B during operation.

STANDARD: The performer locates and verifies the parameters as listed in Appendix B.

___ SAT

___ UNSAT

****CUE:** If asked about a parameter AFTER IT IS CHECKED, indicate to performer (use of a pointer, laser, etc.) that the parameter indicates the value listed for the parameter when checked.*

***(Note:** The Candidate may check these parameters in a different order than listed since doing them in sequence is not required. Give these readings on the first engine looked at. The appropriate cue is underlined.)*

Lube Oil Pressure: ***75 psig***
Lube Oil Temp from eng ***255 °F***

***Evaluator Cue:** If asked, the Lube oil pipe from the engine sump is too hot to touch.*
If asked, rumbling, low frequency banging noise coming from engine

Lube Oil Temp to eng **200 °F**
Jacket Water Temp to Eng **175 ° F**

***Evaluator Cue:** If checking Jacket Water Temperature after checking Lube Oil Temperature, the value will be 195 °F and slowly rising, and the Jacket Water Temp Alarm will be in on local EDG alarm panel (buzzer may not be heard over the EDG Engine noise). Otherwise if checked first, it will be 180 °F and slowly rising*

Jacket Water Temp from Eng ***195 °F***

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Fuel Oil Pressure:	***40 psig***
Pressure at outlet of strainers	***38 psig***
Exhaust Cylinder Temps	***All ~ 1200 °F***
Woodward Governor Oil Level	***As actually indicated (> Low Mark)***
Coolant Expansion Tank Level	***1/2 way between Low and Full Mark***
Engine Crankcase Lube Oil Level	***Cue: Indicates slightly greater than the 7 MARK.***
Day Tank Level	***As actually indicated (> 1/2 full)***
JW Hx ERCW flow	**900 gpm (to each engine)**

COMMENTS:

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STEP 12: **[11]** **IF** any parameter not within specified limits, **THEN NOTIFY** SM/Unit SRO to evaluate removing D/G from service.	**CRITICAL STEP**
STANDARD: 1-HS-82-17B, Emergency Stop DG 1A-A Pushbutton is pressed. **This step is critical to the shutdown of the DG.** (The performer has determined that the lube oil temperature is beyond the limit and the 1A-A Diesel Generator should be promptly secured.)	___ SAT ___ UNSAT
(If the Candidate attempts to radio the MCR to have them emergency stop the 1A-A Diesel Generator. Do not respond to the radio call as if the MCR operators are too busy to answer.) (If the Candidate simulates calling the MCR on the phone: ***Cue: The phone is busy.) Once the Emergency Stop pushbutton has been depressed, then: ***CUE: **The diesel can be heard shutting down and coming to a complete stop.** (If speed is checked on local panel 1-PNL-82-A, indicate zero is speed)	
COMMENTS: Note: Go to JPM STEP 15 once the 1A-A DG has been emergency stopped.	

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3-OT-JPMA049A

The candidate may use SOI-82.01, section 8.1.2 step 13 (listed below) to perform a local (non-emergency stop of the 1A-A DG). If the Emergency Stop Pushbutton was depressed, then go straight to STEP 15 of this JPM.	
CAUTION: DG may accelerate for approximately 2 sec after actuating the normal stop handswitch due to the time delay inherent in the DG governor circuit which assumes a full speed condition when the normal stop handswitch is actuated. The time delay was added to allow the DG breaker to open before speed dropped to idle speed from full speed.	
STEP 14: **[13] IF** Idle Start is used for warm up followed by shutdown, **THEN PERFORM** the following: **[13.1] PRESS** 1-HS-82-26, LOCAL NORMAL STOP GEN 1A-A, to initiate shutdown sequence [1-PNL-82-A/2, Diesel Engine 1A1/1A2 Control Panel]. STANDARD: 1-HS-82-26 is pressed. *****CUE:*** **After switch is depressed is pushed, and if checked engine is at 450 RPM.** **EVALUATOR NOTE: Speed indication is on 1-PNL-82-A.** **If Candidate checks Lube oils temperature again,** ****CUE: Lube Oil Temp indicates 265 °F and rising.** **If the Candidate continues to attempt to contact the MCR, do not respond to the radio and/or inform them that the phone is still busy.** **If after 5 minutes the Candidate still hasn't emergency stopped the diesel, then,** ****CUE: The diesel can be heard seizing and coming to a sudden stop.** COMMENTS:	___ SAT ___ UNSAT

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STEP 15: Notify the Control Room Operator that 1A-A DG has been emergency stopped. STANDARD: The performer notifies the MCR that 1A-A DG has been emergency stopped due to lube oil temperatures being beyond limits. ****CUE:*** **When notified, acknowledge the report using repeat back.** COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

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

INITIAL CONDITIONS:

All DGs are in standby alignment.

IA-A DG has been declared INOPERABLE, preventative maintenance on both Engine's Jacket Water Systems has just been completed.

1A-A DG has been rolled one complete revolution four hours ago.

Maint. Crews are on hand to perform required surveillance testing of the 1A-A DG.

You are an AUO assigned to work with Maint. on the 1A-A DG.

INITIATING CUES:

The Control Room Operator directs you to use SOI-82.01 to locally perform an Idle Start for warm up followed by shutdown on the 1A-A DG.

You are to notify the Control Room Operator when you have completed the task and the 1A-A DG is returned to standby alignment.

Comparison Sheet for NRC Evaluator
(Do NOT give this sheet to the Candidate!)

WBN Unit 1	Diesel Generator (DG) 1A-A	SOI-82.01 Rev. 0065 Page 79 of 88

Appendix B
(Page 1 of 1)

DG 1A-A Operating Parameters (Idle)

PARAMETER	MIN	MAX	SHUT-DOWN[1]	
Lube Oil Pressure	25 psig	120 psig	20 psig[1]	75 psig
Lube Oil Temp (from engine) 1-ITI-82-309/1A1,1-ITI-82-307/1A2	85°F	230°F	250°F[1]	255 °F
Lube Oil Temp (to engine) 1-ITI-82-310/1A1,1-ITI-82-308/1A2	85°F	185°F		250 °F
Jacket Water Temp (from engine) 1-ITI-82-304/1A1,1-ITI-82-301/1A2	100°F	190°F	205°F[1]	180 °F *
Jacket Water Temp (to engine) 1-ITI-82-306/1A1,1-ITI-82-303/1A2	110°F	180°F		175 °F
Fuel Oil Pressure	20 psig	N/A	15 psig[1]	40 psig
Pressure at outlet of fuel oil strainers 1-PI-18-69/1 & 1-PI-18-84/1 (Shaft Drive Pmps) 1-PI-18-68/1 & 1-PI-18-83/1 (Priming Pmps)	20 psig	N/A		38 psig
Cylinder Exhaust Temp	N/A	1100°F	1300°F[1]	1000 °F
Woodward Governor Oil Level	Low Mark [2]	--		> Low Mark
Coolant Expansion Tank Level	Run Mark LOW	Run Mark FULL		Mid Range
Engine Crankcase Lube Oil Level	"7" *			9 "
Day Tank Level	≥1/2 (~290 Gals/tank)	full		As indicated
Jacket Water HX ERCW Flow [1-FI-67-69, EMERG DG HX 1A1 ERCW DISCH FLOW, 1-FI-67-277, EMERG DG HX 1A2 ERCW DISCH FLOW].	650gpm (each engine) 1-FCV-67-66 OPEN	1200 gpm (each engine)		900 gpm

NOTE

Parameters may **NOT** be achieved during initial 10 minute idle start.

[1] Exceeding a shutdown parameter may cause extensive damage to the DG. If any parameter exceeds its shutdown limit, it should be immediately reported to the MCR and the DG should be shutdown immediately. Notify System Engineering for assistance.

[2] Governor/Actuator oil level is at or above the indicator line for a single line sightglass or above the lower line of a two line sightglass. Addition/removal of oil should only be done based on oil level at idle.

* A level above the "7" mark on engine lube oil dipstick ensures greater than 287 gallons of lube oil inventory. A level above the "6" mark on the engine lube oil dipstick ensures greater than 267 gallons of lube oil inventory. If oil level is less than "7", SRO must be notified immediately. **REFER TO** Tech Specs.

*** Unless the Candidate is checking this indication after identifying that the DG Lube Oil temp is elevated, then.. **CUE 195 °F and rising.**

WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

TASK TITLE: LOCAL CONTROL OF 1-FCV-62-93 (CHARGING FLOW CONTROL VALVE)

WRITTEN BY: _____

VALIDATED BY: _____

APPROVED BY: _____
(OPERATIONS TRAINING)

CONCURRENCE: _____
(OPERATIONS REPRESENTATIVE)

WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

NUCLEAR TRAINING

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	INITIAL ISSUE REPLACES JPM #010, Revised to reflect procedure rev from Rev 17 to Rev 20 CN-1 of SOI-62.01.	9/12/97	All	
1	Added "You are an AUO on shift" to information sheet, revised K/A's to Rev 2 NUREG 1122, updated procedure reference, reworded some cues.	09/23/98	All	Albert V. White
2	Update procedure reference, revised K/A values to Rev 2 of NUREG 1122, JPM Technical content was not changed.	10/30/01	All	Albert V. White
3	Incorporated pen & ink changes to that corrected handout sheet. Converted to new format, updated procedures referenced. Revised termination cue. Task performance and evaluation were not changed.	07/31/07	All	Albert V. White

WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

EVALUATION SHEET

Task: LOCAL CONTROL OF FCV-62-93 (CHARGING FLOW CONTROL VALVE)

Alternate Path: None

Facility JPM #: 3-OT-JPMA010 Rev 3

K/A Rating(s):				
	004A2.22	[3.2/3.1]	004A1.11	[3.0/3.0]
	2.1.30	[3.9/3.4	2.1.23	[3.9/4.0]

TASK STANDARDS: 1-HIC-62-93B has been placed in manual and Pressurizer Level has been raised to and stabilized at 60% in accordance with SOI-62.01 Section 8.5.

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator ____ In-Plant ___X__ Perform _____ Simulate ___X__

References: SOI-62.01, CVCS - CHARGING AND LETDOWN, (Rev 55)

Task Number: AUO-062-SOI-62.1-006 APPLICABLE FOR: AUO/RO/SRO

10CFR55.45: 8, 9, 10

Validation Time: 11 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

_____

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WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

EVALUATOR INFORMATION SHEET

Tools/Equipment/Procedures Needed:
Hard-hat,
Safety Glasses,
Hearing Protection
Plant Approved Shoes
Gloves
ALARA considerations

Note: Have a copy of SOI-62.01 to give to the performer.
Note: **START THIS JPM AT THE RADWASTE AUO DESK IN THE AUX BLDG,**

READ TO OPERATOR

DIRECTION TO TRAINEE:

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.

INITIAL CONDITIONS:

Unit at 100% RTP

Centrifugal Charging Pump 1A-A is in service.

Pressurizer level is being maintained by 1-FCV-62-93, but the control system is malfunctioning.

Pressurizer level is stable at 55%.

The controller for 1-FCV-62-93 is going to be repaired by IMs.

You are an AUO on shift.

INITIATING CUES:

The Unit Operator has directed you to check out a radio then take local control of 1-FCV-62-93 per procedure and slowly raise the pressurizer level to 60% while maintaining radio contact with the MCR operator (Allowing the MCR operator to adjust the seal flow with 1-FCV-62-89), then return charging flow to normal.

You are to notify the Unit Operator when local flow rate has returned to normal.

WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

START TIME: _____

STEP 1:	Obtain a radio and the proper procedure	
STANDARD:	The performer simulates check out of a radio and obtains a copy of SOI-62.1, section 8.5. **(CUE: Inform the Performer not to actually check out a radio but discuss where/how to check out a radio.)**	___SAT ___UNSAT
COMMENTS:		
EXAMINER'S CUE:	***After the performer has demonstrated the method of obtaining the correct instruction, the evaluator can provide a copy of the instruction.***	
NOTE 1-FCV-62-93, CVCS CHARGING HEADER FLOW/PZR LEVEL CONTROL, fails **OPEN** (power or air.)		
STEP 2:	**[1] ESTABLISH** communication with UO before transfer to manual control.	
STANDARD:	Performer contacts control room prior to transfer control to manual. **(CUE: When notified, acknowledge using repeat back.)**	___SAT ___UNSAT
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

STEP 3:	**[2] ADJUST** 1-HIC-62-93B, CVCS CHARGING HEADER FLOW CTLR [PNL 1-L-112A, el. 692], so the Red indicator (desired) and Black indicator (actual) are MATCHED. (0% is **OPEN**, 100% is **CLOSED**)	**Critical Step**
STANDARD:	1-HIC-62-93B has been located and the red indicator has been matched to the black indicator on 1-HIC-62-93B. **Step is critical to proper alignment for local control.** **(CUE: When CHECKED indicate that the black indicator READS 34% and the red indicator reads 0%. After ADJUSTED, indicate that the red is matched with the black indicator.)**	___SAT ___UNSAT
COMMENTS:		

NOTE
XI-62-93, MANUAL CHARGING FLOW CONTROL [1-M-5], is LIT when HIC-62-93B is in MANUAL.

STEP 4:	**[3] PLACE** 1-HIC-62-93B, CVCS CHARGING HEADER FLOW CTLR, in MANUAL.	**Critical Step**
STANDARD:	The AUTO/MANUAL selector switch on 1-HIC-62-93B has been placed in the MANUAL position. **Step is critical to proper alignment for local control.** **(CUE: If UO contacted, State that XI-62-93 red transfer light is illuminated.)**	___SAT ___UNSAT
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

NOTE
Turning 1-HIC-62-93B clockwise reduces flow, counter-clockwise raises flow (UP is **CLOSED**, **DOWN** is **OPEN** on HIC)

STEP 5:	[4] **ADJUST** 1-HIC-62-93B, CVCS CHARGING HEADER FLOW CTLR, to vary charging flow and to balance Charging/Letdown flow per UO.	**Critical Step**
STANDARD:	Charging flow has been adjusted per UO directions (clockwise reduce flow / counterclockwise raise flow) with performer checking local indications for charging flow/pressurizer level or requesting Unit Operator feedback for appropriate parameters. Note: Initial adjustment is CCW to raise level. **(CUE: When UO contacted, Direct the performer to slowly raise charging from 87 gpm to raise Pressurizer level.)** **(CUE: When checked indicate that charging flow rising as CCW adjustment is made, or reducing as CW adjustment is made.)** **Step is critical to proper control of flow path.**	___SAT ___UNSAT
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMA010

STEP 6:	**[5] MONITOR** Charging flow: **[5.1]** 1-LI-68-335B, PRESSURIZER LEVEL [1-L-369, A6T/692] **[5.2]** 1-FI-62-93B, CVCS CHARGING HEADER FLOW [1-L-112A, A5T/692].	___SAT
STANDARD:	Performer monitors pressurizer level and charging flow or has requested parameters from the control room.	
	(CUE: When checked, or if UO has been requested to report levels/flows inform the performer that PZR level is 60% and direct performer to slowly reduce charging flow back to 87 gpm.)	___UNSAT
	(CUE: When checked indicate that charging flow reducing as CW adjustment is made or rising if CCW adjustment is made and indicate flow is now 87 gpm.)	
COMMENTS:		
STEP 7:	NOTIFY the control room that charging flow has been returned to normal.	
STANDARD:	The MCR operator has been notified that charging flow has been returned to normal.	___SAT
	(CUE: When notified, acknowledge the report using repeat back.)	
	(CUE: Inform the performer that the Rad Waste AUO will take over & maintain charging flow per UO directions. State "This JPM has been completed." "We will stop here."	___UNSAT
COMMENTS:		
	END OF TASK	

TIME STOP: _____

REV. 3

WATTS BAR NUCLEAR PLANT

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

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

INITIAL CONDITIONS:

Unit at 100% RTP

Centrifugal Charging Pump 1A-A is in service.

Pressurizer level is being maintained by 1-FCV-62-93, but the control system is malfunctioning.

Pressurizer level is stable at 55%.

The controller for 1-FCV-62-93 is going to be repaired by IMs.

You are an AUO on shift.

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INITIATING CUES:

The Unit Operator has directed you to check out a radio then take local control of 1-FCV-62-93 per procedure and slowly raise the pressurizer level to 60% while maintaining radio contact with the MCR operator (Allowing the MCR operator to adjust the seal flow with 1-FCV-62-89), then return charging flow to normal.

You are to notify the Unit Operator when local flow rate has returned to normal.

Watts Bar Nuclear Plant
3-OT-JPMR114B1

PLACE MAIN GENERATOR IN SERVICE AND SYNCHRONIZE TO SYSTEM PER SOI-47.02

Watts Bar Nuclear Plant
3-OT-JPMR114B1

NUCLEAR TRAINING
REVISION/USAGE LOG

Rev. #	Description of Changes	Date	Pages Affected	Reviewed By
0	Initial Issue.	04/28/08	All	D.L.Hughes

Watts Bar Nuclear Plant
3-OT-JPMR114B1

EVALUATION SHEET

Task: PLACE MAIN GENERATOR IN SERVICE AND SYNCHRONIZE TO SYSTEM PER SOI-47.02

Alternate Path: None

Facility JPM #: 3-OT-JPMR0114B Rev 0

K/A Rating(s): A4.02 Ability to manually operate and/or monitor in the control room: T/G controls, including breakers [Importance RO/SRO 2.7 / 2.6]

TASK STANDARDS: Turbine Generator synchronized with Grid, generator voltage stable and MEGAVARS slightly outgoing, with voltage being controlled manually.

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X__ Simulate _____

References: SOI-47.02 Turbo-Generator Startup Operation Revision 0058

Task Number: RO-092-AOI-4-001 APPLICABLE FOR: RO/SRO

10CFR55.45: 3, 4, 6, 12

Validation Time: 25 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

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_____

Watts Bar Nuclear Plant
3-OT-JPMR114B1

SIMULATOR OPERATOR INSTRUCTIONS:

1. Initialize to IC # 252
2. Acknowledge all alarms.
3. Ensure MOD's for PCB's 5088 and 5044 are OPEN
4. RESET Core Monitor Alarm, enable Core Monitor Alarm.
5. Freeze simulator until the performer indicates understanding of the task and time is allowed for control board familiarization.
6. NOTE: This JPM has been preshot in IC #252. The following are the setup instructions if needed:
    a) Initialize to IC- 46
    b) Perform SOI-47.02 section 5.4 Placing Generator in Service and Synchronizing with the Exciter Regulator On up to step [10.1] PLACE 1-HS-57-19, EXCITER FIELD BREAKER [1-M-1], in CLOSE.)
    c) Acknowledge all alarms
    d) Place the Simulator in FREEZE.
7. After performer indicates understanding of task, place simulator in run.

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

Watts Bar Nuclear Plant
3-OT-JPMR114B1

EVALUATOR INFORMATION SHEET

Tools/Equipment/Procedures Needed:

Ensure to have a clean marked-up copy of SOI-47.02 Turbo-Generator Startup Operation to give to the performer prior to starting the JPM.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating/operating cues.
Alll Control Room steps shall be performed for this task, including any required communications.
Ensure that you indicate to me when you fully understand your task.

INITIAL CONDITIONS:

- A Unit Startup is in progress and is currently ≈14% RTP.
- SOI-47.02 Turbo-Generator Startup Operation is in progress and has been completed up thru Section 5.4 step [9].
- Switching Orders have been obtained from Northeast Area Dispatcher (NEAD) and Unit One is to be aligned with PCB 5088 & 5044.
- There is an RO controlling the Reactor and another RO controlling the balance of plant.
- You are an extra RO.

INITIATING CUES:

Give performer a marked-up copy of SOI-47.02 Turbo-Generator Startup Operation.

The Unit Supervisor has directed you to synchronize the Main Generator with PCB 5088 IAW SOI-47.02 Turbo-Generator Startup Operation starting at section 5.4 step [10] and performing all applicable steps up thru step [28].

You are to notify the Unit Supervisor when step [28] is complete.

Watts Bar Nuclear Plant
3-OT-JPMR114B

START TIME: _____

STEP 1: STANDARD: COMMENTS:	**[10]** **MONITOR** 1-EI-57-15, GENERATOR VOLTS while performing the following: **[10.1]** **PLACE** 1-HS-57-19, EXCITER FIELD BREAKER [1-M-1], in CLOSE. 1-HS-57-I9 is placed in the CLOSED position.	**CRITICAL STEP** ___SAT ___UNSAT
STEP 2: STANDARD: COMMENTS:	**[10.2]** Slowly **JOG** 1-HS-57-23, EXCITER BASE ADJUSTER [1-M-1], until field flashes as indicated by voltage rise.. 1-HS-57-23 is adjusted to flash generator field as indicated on 1-EI-57-15, Generator Volts.	**CRITICAL STEP** ___SAT ___UNSAT
STEP 3: STANDARD: COMMENTS:	**[10.3]** **ADJUST** 1-HS-57-23, EXCITER BASE ADJUSTER [1-M-1], to adjust voltage to 23.5 kV. 1-HS-57-23, EXCITER BASE ADJUSTER [1-M-1], is adjusted to produce a generator voltage to 23.5 kV.	**CRITICAL STEP** ___SAT ___UNSAT

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 4: STANDARD: COMMENTS:	**[11] VERIFY** 3-phase GENERATOR VOLTS on 1-EI-57-15 using 1-XS-57-15. **1-XS-57-15 / POSITION** METER POT — A-B METER POT — B-C METER POT — C-A VOLT REG POT — A-B VOLT REG POT — B-C VOLT REG POT — C-A 1-XS-57-15 has been selected to check voltages for meter pots and volt reg pots and voltages are ≈ 23.5 kV.	___SAT ___UNSAT
STEP 5: STANDARD: COMMENTS:	**[12] PLACE** SYNC SWITCH for selected PCB, to indicated position (N/A unused blank): **PCB / HANDSWITCH / POSITION** 5088 — 1-HS-57-27, SYNC SWITCH 500KV BUS 2 — SYNC CHK INTLK 5044 — 2-HS-57-27, SYNC SWITCH 500KV BUS 1 — SYNC CHK INTLK 5064 — SYNC SWITCH on ECB 5 for PCB 5064 — ON I-HS-57-27 is placed in "SYNC CHECK INTERLOCK" position for PCB 5088.	**CRITICAL STEP** ___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 6: STANDARD: COMMENTS:	**[13]** Slowly **JOG** I-HS-57-23, EXCITER BASE ADJUSTER, to match INCOMING VOLTAGE (1-EI-57-2), with RUNNING VOLTAGE (1-EI-57-3) [1-M-1]. Generator running voltage is matched to incoming voltage with I-HS-57-23 as observed on 1-EI-57-2 & 1-EI-57-3.	**CRITICAL STEP** ___SAT ___UNSAT
STEP 7: STANDARD: ***Evaluator Cue:*** COMMENTS:	**[14]** **VERIFY** MAIN XFMR COOLER, Preferred Group IN SERVICE, by Red lights above I-HS-57-106 [1-M-1]. I-HS-57-106 is checked to verify Transformer Coolers (Preferred Group) in service. ***If asked as NAUO to verify which Transformer Coolers in service, respond Preferred Group in service.***	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR114B

	[15] PLACE I-HS-57-20, EXCITER REGULATOR [1-M-1], in TEST, and **VERIFY** Amber light LIT, and Green light OUT.	
STANDARD:	Voltage regulator I-HS-57-20 is placed in TEST, and amber light is verified LIT and green light OUT.	___SAT
COMMENTS:		___UNSAT
STEP 9:	**[16] PERFORM** the following: [16.1] **ADJUST** I-HS-57-22, EXCITER VOLTAGE ADJUSTER, to obtain "0" on I-EI-57-12, V REG XFER BAL VOLTS.	**CRITICAL STEP** ___SAT
STANDARD:	I-HS-57-22 is adjusted to null the regulator such that the output meter, I-EI-57-12, reads "O."	
COMMENTS:		___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 10: STANDARD: COMMENTS:	**[16.2] PLACE** I-HS-57-20, EXCITER REGULATOR to ON I-HS-57-20 is placed in the ON position and red light is verified ON and amber light OFF.	**CRITICAL STEP** ___SAT ___UNSAT
STEP 11: STANDARD **EXAMINER CUE:** COMMENTS:	**[17] NOTIFY** Northeast Area Dispatcher (NEAD) that generator is READY to SYNCHRONIZE. **NOTIFY** Northeast Area Dispatcher (NEAD) that generator is READY to SYNCHRONIZE **When notified, acknowledge the report**	 ___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 12: STANDARD: COMMENTS:	**[18] CHECK** VALVE POSITION LIMIT set 15% OPEN. Performer checks/adjusts turbine Valve Position Limiter to 15% open.	___SAT ___UNSAT
STEP 13: STANDARD: COMMENTS:	**[19] COORDINATE** Turbine operation with Operator on feedwater and reactor controls. Performer notifies ATC that the generator is about to be synchronized and loaded to grid. Monitor feedwater and reactor controls	___SAT ___UNSAT
STEP 14: STANDARD: COMMENTS:	**[20] PUSH** TURBINE MODES "OPER AUTO SYNC" button. "OPER AUTO SYNC" push button on EH panel is depressed & Oper Auto Sync light is checked illuminated	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 15: STANDARD: COMMENTS:	**[21] ADJUST** I-HS-57-21, GENERATOR SPEED OPER AUTO SYNC [1-M-1], to obtain SLOWLY moving SYNC-SCOPE (1-XI-57-1 or SYNC PNL 1 on ECB 8 if using PCB 5064 to sync) in the FAST direction (one revolution every 10 -15 seconds). I-HS-57-21 is adjusted to obtain a SLOW SCOPE in the "fast" direction. Rotation of scope once every 10-15 seconds.	___SAT ___UNSAT
STEP 16: STANDARD: COMMENTS:	**[22] ENSURE** 1-EI-57-2, INCOMING VOLTAGE, and 1-EI-57-3, RUNNING VOLTAGE, are EQUAL Incoming voltage is verified to be equal to running voltage.	___SAT ___UNSAT
STEP 17: STANDARD: COMMENTS:	**[23] IF** Unit is to be synchronized using PCB 5044 (or 5064 spared out for 5044), **THEN ENSURE** MOD 6127 is OPEN and MOD 6117 is CLOSED. Performer determines step is not applicable, NAs step and proceeds to next step.	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 18:	**[24]** **CLOSE** MODs for PCB to be used to sync generator (N/A unused blank).	

MOD HANDSWITCH	PCB
5087 & 5089 (ECB 6)	5088
5045 & 5043 (ECB 5)	5044
5065 & 5063 (ECB 5)	5064

		___SAT
STANDARD:	Performer checks MOD 5087 and 5089 CLOSED position by MOD red lights lit for respective MODs.	___UNSAT
COMMENTS:		

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 19:	**[25]** **WHEN** 1-XI-57-1, SYNC-SCOPE or SYNC PNL 1 on ECB 8) reaches 12:00, **THEN PLACE** HS for selected PCB, in CLOSE (N/A unused blank):	**CRITICAL STEP**

HANDSWITCH	PCB
1-HS-57-26	5088
2-HS-57-26	5044
PCB 5064 hand-switch on ECB	5064

STANDARD:	Generator PCB 5088 is CLOSED when synchroscope reaches 12:00 and all three phases are checked to verify loading.	___SAT
Evaluator Note:	***If Performer attempts to close PCB 5088 exactly at 12:00, the PCB may not close. The performer is allowed repeated attempts to close PCB 5088 providing closing attempt are within 5 minutes till noon***	___UNSAT
EXAMINER CUE:	***If asked, cue performer that an additional attempt is to be performed.***	
COMMENTS:		

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 20: STANDARD: COMMENTS:	**[26]** **ENSURE** generator picks up some load on all 3 phases (DO NOT allow generator to motor): | INDICATOR	LOCATION | |---|---| | 1-EI-57-9, A Phase AMPS | 1-M-1 | | 1-EI-57-10, B Phase AMPS | 1-M-1 | | 1-EI-57-11, C Phase AMPS | 1-M-1 | All three phases are checked to verify loading.	___SAT ___UNSAT
STEP 21: STANDARD: COMMENTS:	**[27]** **PLACE** SYNC SWITCH used in Step **[12]** to OFF. 1-HS-57-27, 500 kV Bus is placed in the OFF position.	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR114B

STEP 22:	**[28]** **ENSURE** 1-EI-57-8, MEGAVARS, is slightly outgoing using 1-HS-57-22, EXCITER VOLTAGE ADJUSTER [1-M-1].	___SAT
STANDARD:	The performer should recognize that MEGAVARS, are slightly outgoing.	___UNSAT
COMMENTS:		

TIME STOP: _____

EXAMINEE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- A Unit Startup is in progress and is currently ≈14% RTP.
- SOI-47.02 Turbo-Generator Startup Operation is in progress and has been completed up thru Section 5.4 step [9].
- Switching Orders have been obtained from Northeast Area Dispatcher (NEAD) and Unit One is to be aligned with PCB 5088 & 5044.
- There is an RO controlling the Reactor and another RO controlling the balance of plant.
- You are an extra RO.

INITIATING CUES:

Here is the in-progress working copy of SOI-47.02 Turbo-Generator Startup Operation.

The Unit Supervisor has directed you to synchronize the Main Generator with PCB 5088 IAW SOI-47.02 Turbo-Generator Startup Operation starting at section 5.4 step [10] and performing all applicable steps up thru step [28].

You are to notify the Unit Supervisor when step [28] is complete.

WATTS BAR NUCLEAR PLANT

3-OT-JPMR050B

Establish Manual Makeup to Volume Control Tank (VCT) Per SOI-62

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

REVISION LOG

REVISION LOG	DATE	DESCRIPTION OF CHANGES	PAGES AFFECTED	REVIEWED BY
0	03/10/08	INITIAL ISSUE	ALL	D.L.Hughes

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

Task: Establish Manual Makeup to Volume Control Tank (VCT) Per SOI-62

Alternate Path: When the Manual Makeup quanity has completed, the dilution valves will not close, requiring actions to secure the Primary Water pumps

Facility JPM #: 3-OT-JPMR050B Rev 0

K/A Rating(s): 004 A4.13 Ability to manually operate and/or monitor in the control room: VCT level control and pressure control [Importance: RO/SRO 3.3/2.9]

TASK STANDARDS:

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X__ Simulate _____

References: SOI-62.02 Rev 0047 Boron Concentration Control
AOI-03 Rev 0027 MALFUNCTION OF REACTOR MAKEUP CONTROL

Task Number: RO-062-SOI-62-017 APPLICABLE FOR: RO/SRO

10CFR55.45: 2, 3, 5, 6, 8

Validation Time: 15 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

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_____

_____

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_____

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

SIMULATOR OPERATOR INSTRUCTIONS:

1. Initialize to preshot in IC # 258

2. Acknowledge all alarms.

3. Freeze simulator until the performer indicates understanding of the task and time is allowed for control board familiarization.

4. NOTE: This JPM has been preshot in IC # 258. The following are the setup instructions if needed:
   Initialize to **IC-40**
   Place 1-HS-62-140A in STOP
   Place 1-HS-62-118A in divert until VCT level is 18%.
   Insert IMF CV09 to fail auto makeup to VCT.
   Insert IOR ZDIHS62144 CLOSE
   Insert IOR ZDIHS62143 (e1) OPEN
   Insert IOR ZDIHS62128 (e1) OPEN
   Acknowledge alarms.

5. After performer indicates understanding of task, place simulator in run.

SIMULATOR OPERATOR INSTRUCTIONS:

1. When the performer is at JPM STEP 8, and Primary Water flow has been adjusted, insert Trigger 1 to fail 1-FCV-62-128, and 1-FCV-62-143 OPEN.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

Tools/Equipment/Procedures Needed:
ENSURE clean copies of SOI-62.02 are in all the books on the simulator floor.

READ TO OPERATOR

DIRECTION TO TRAINEE:

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:

- The Unit is at 100% RTP.
- The RCS Cb is at 1020 ppm per Chem Lab report.
- VCT level is stable at 18%, Auto Make-up from the Blender has failed to operate.
- The STA has just completed a REACTW for the desired makeup.

INITIATING CUES:

The Unit Supervisor has directed you to perform a manual makeup to the VCT via 1-FCV-62-128, MAKEUP TO VCT INLET, to increase VCT level to 29-31%.

Notify US when the procedure is complete.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

START TIME: _____

STEP 1: STANDARD: COMMENTS:	Obtain a copy of the procedure. A copy of SOI-62.02 has been obtained	___SAT ___UNSAT
EXAMINER'S CUE:	***After the performer has demonstrated the method of obtaining the correct instruction, the evaluator can provide a copy of the instruction.*** **(CUE:If asked, section 4.2, Field Preparations, have been completed)**	
	CAUTION: **When maintaining VCT level using Manual, level must be monitored closely to avoid charging pump suction auto swapover to RWST.**	

WATTS BAR NUCLEAR PLANT
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Examiner Note:	**The following procedure note requires the batches to be performed in small batches (max 100 gallons at a time). There are 2 REACTW sheets in this JPM. If the performer fails to comply with the 100 gallon requirement and attempts to calculate batch for entire VCT change, give the performer the "232" gallon REACTW sheet. Otherwise give the performer the 97 gallon REACTW sheet.**	
	NOTES: **1) Manual is used when auto makeup is unavailable or if desired due to special operating conditions. As RCS CB is changed during load follow, the Manual blended solution setpoints must be adjusted. Controls are on 1-M-6.** **2) RCS CB may be slightly changed during blended makeup because of the accuracy in flow controller settings. When this occurs small RCS temperature changes will be seen and control rod adjustments may be required to compensate for the temperature change.** **3) Batches to the VCT should be done in several smaller batches rather than one large batch to allow time to evaluate possible reactivity effects between batches. A maximum batch of 100 gallons at a time is allowed.**	
STEP 2: **EXAMINER'S CUE:** STANDARD: COMMENTS:	**[1] PERFORM** Appendix C, Calculation Of Boric Acid And Primary Water Integrator Setting For Manual Makeup OR **USE** Appendix B for Blending at greater than 2500 ppm. ***Give the Performer the appropriate REACTW Sheet.*** ***(If the Candidate comments about the batch being greater than 100 gallon, then give them the "97" gallon REACTW Sheet .)***	___SAT __UNSAT

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

STEP 3: STANDARD: COMMENTS:	**[2] PLACE** controllers in MANUAL, and **CLOSE** the following: **[a]** 1-FC-62-139, BA TO BLENDER **[b]** 1-FC-62-142, PW TO BLENDER 1-FC-62-139 and 1-FC-62-142 controllers placed in the MANUAL position and closed.	___SAT __UNSAT
STEP 4: STANDARD: COMMENTS:	**[3] ADJUST** Batch Counters for the desired quantity of boric acid and primary water using values from Appendix B or C: a. 1-FQ-62-139, BA Batch Counter b. 1-FQ-62-142, PW Batch Counter 1-FQ-62-139 and 1-FQ-62-142 have been reset and adjusted (by thumb wheel) to the desired quantity. If Candidate is using "232" Sheet, then: • BA Batch Counter @ 35 • PW Batch Counter @ 197 If Candidate is using "97" Sheet, then: • BA Batch Counter @ 14 • PW Batch Counter @ 83) ***It is not a failure of the Critical Step if the wrong REACTW sheet is utilized. A failure of the Critical Step occurs if a value is used that is not on either REACTW sheet.***	**CRITICAL STEP** ___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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STEP 5: STANDARD: COMMENTS:	**[4] PLACE** 1-HS-62-140B, VCT MAKEUP MODE, in MAN. 1-HS-62-140B has been placed in the MANUAL position.	___SAT ___UNSAT
STEP 6: STANDARD: COMMENTS:	**[5] TURN** 1-HS-62-140A, VCT MAKEUP CONTROL, to START, and **VERIFY** Red light is LIT. 1-HS-62-140A, Make up Control Switch, has been placed in the START position and Red Light has been verified LIT.	**CRITICAL STEP** ___SAT ___UNSAT
	NOTE: **When blending to VCT through 1-FCV-62-128, Chemistry cannot get a representative sample of the blender outlet.**	

WATTS BAR NUCLEAR PLANT
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STEP 7: STANDARD: COMMENTS:	**[6]** **IF** Borating **OR** Blending, **THEN PERFORM** the following: **[a]** OPEN 1-FCV-62-128, MAKEUP TO VCT INLET 1-HS-62-128, Makeup to VCT Inlet, has been placed in the OPEN position.	**CRITICAL STEP** ___SAT ___UNSAT
STEP 8: STANDARD: ***SIMULATOR OPERATOR*** COMMENTS:	**[6]** **PERFORM** the following: **[b]** **MANUALLY ADJUST** 1-FC-62-139, BA TO BLENDER, and 1-FC-62-142, PW TO BLENDER, to desired flow(s) using blending flowrates from Appendix C, OR Appendix B for Blending at greater than 2500 ppm. • 1-FC-62-139 has been adjusted to approximately 12 (± 0.5) gpm • 1-FC-62-142 has been adjusted to approximately 70 (±5.0) gpm ***When Primary Water flow has been adjusted, insert Trigger 1 to fail 1-FCV-62-128, and 1-FCV-62-143 OPEN.***	**CRITICAL STEP** ___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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	CAUTIONS: **1) 1-FC-62-142 should be maintained above 10% due to potential for controller oscillations.** **2) If 1-FCV-62-128, MAKEUP TO VCT INLET and FCV-62-144, MAKEUP TO VCT OUTLET are NOT closed, boric acid will feed to the VCT through 1-FCV-62-140, BA TO BLENDER**	
	NOTE: **When blending to VCT through 1-FCV-62-128, Chemistry cannot get a representative sample of the blender outlet.**	
STEP 9: STANDARD: COMMENTS:	**[7]** **IF** Diluting, **THEN PERFORM** the following: **[a]** **OPEN** 1-FCV-62-128, MAKEUP TO VCT INLET. **[b]** **ADJUST** 1-FC-62-142, PW TO BLENDER, to desired flow. The performer has determined that this step does not apply.	___SAT ___UNSAT

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

WATTS BAR NUCLEAR PLANT
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STEP 10: STANDARD: COMMENTS:	**[8]** **IF** Alternate Diluting, **THEN PERFORM** the following: **[a]** **OPEN** 1-FCV-62-144, MAKEUP TO VCT OUTLET, and 1-FCV-62-128, MAKEUP TO VCT INLET. **[b]** **ADJUST** 1-FC-62-142, PW TO BLENDER, to desired flow. The performer has determined that this step does not apply.	___SAT ___UNSAT
STEP 11: STANDARD: COMMENTS:	**[9]** **IF** RCS C_B is being changed, **THEN PLACE** 1-HS-68-341H, BACKUP HEATER C [1-M-4], to ON to equalize RCS-Pzr C_B. The performer has determined that this step does not apply.	___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
3-OT-JPMR050B

STEP 12:

[10] **MONITOR** parameters listed below:

Instrument	Location	Parameters
1-PI-62-122	1-M-6	VCT PRESS
1-LI-62-129A	1-M-6	VCT LEVEL
1-FI-62-139	1-M-6	BA TO BLENDER FLOW
1-FQ-62-139	1-M-6	BA BATCH COUNTER
1-FI-62-142	1-M-6	PW TO BLENDER FLOW
1-FQ-62-142	1-M-6	PW BATCH COUNTER
1-LI-62-238	1-M-6	BAT A LEVEL
1-LI-62-242	1-M-6	BAT C LEVEL

___SAT

___UNSAT

STANDARD:

The above listed indicators have been checked periodically during VCT make-up operation.

COMMENTS:

STEP 13:

[11] **IF** 1-LI-62-129A, VCT LEVEL, increases to 63% **THEN ENSURE** 1-FCV-62-118A, LETDOWN DIVERT TO HUT, diverts to the HUT.

___SAT

STANDARD:

1-LI-62-129A, VCT Level, is monitored periodically during VCT make-up operation and is not allowed to reach 63%.

___UNSAT

COMMENTS:

WATTS BAR NUCLEAR PLANT
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STEP 14: STANDARD: COMMENTS:	**[12]** **WHEN** 1-LI-62-129A, VCT LEVEL, is at desired level, **THEN PERFORM** the following: **[a]** **PLACE** 1-HS-62-140A, VCT MAKEUP CONTROL, to STOP. **[b]** **CLOSE** 1-FCV-62-128, MAKEUP TO VCT INLET. 1-LI-62-129A has been checked at 29-31%. 1-HS-62-140A has been placed in STOP position. 1-FCV-62-128 has been placed in the CLOSE postion. **Performer should realize that dilution flow did not stop and that 1-FCV-62-128 and 1-FCV-62-143 did not close.**	___SAT ___UNSAT
Evaluator Note	**The Critical Task is to take actions to stop Primary Water flow in accordance with:** • ***ARI-112E PW to Blender Flow Deviation and AOI-3 Malfunction of Reactor Makeup Control,*** ***OR*** • ***TI-12.04 User's Guide For Abnormal And Emergency Operating Instructions (section2.7 Prudent Operator Actions)*** ***(if Performer takes Prudent Operator action to Stop Primary Water flow, and does not perform ARI-112E, THEN N/A JPM steps 15 – 19 and complete JPM step 20)***	

WATTS BAR NUCLEAR PLANT
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STEP 15:	***ARI 112E actions:*** **Corrective Action:** **[1]** **IF** dilution controls in AUTO, **THEN VERIFY** 1-FCV-62-128 and 1-FCV-62-144 **CLOSE**. **[2]** **ENSURE** VCT makeup control system lined up per SOI-62.02, *BORON CONCENTRATION CONTROL.* **[3]** **IF** manual operation of VCT makeup is required, **THEN GO TO** SOI-62.02 for system alignment and operation. **[4]** **IF** Cause of alarm is Determined to be: Probable Cause #3. "Dilution/Boration in progress coincident with:" **THEN Re-instate** Dilution/Boration activity in progress. **[5]** **REFER TO** AOI-3, *MALFUNCTION OF REACTOR MAKEUP CONTROL*	___SAT ___UNSAT ___N/A
STANDARD:	Performer attempts to perform step 1 above, ensures step 2 (lineup) above is correct, and then goes to AOI-3	
COMMENTS:		

WATTS BAR NUCLEAR PLANT
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STEP 16:

AOI-3 actions:

OPERATOR ACTIONS

Diagnostics

IF	GO TO Subsection
UNEXPLAINED rod insertion, SRM count rate RISING, or T-avg RISING.	3.2
UNEXPLAINED rod withdrawal, SRM count rate DROPPING, or T-avg DROPPING.	3.3
LOSS of one Demin Water Pump or Header while the Primary Water System is in Bypass Mode.	3.4

___SAT

___UNSAT

___N/A

STANDARD: Performer should go to Subsection 3.2

COMMENTS:

STEP 17:

AOI-3 actions:

1.a. **CHECK** PWST in normal alignment (PWST NOT Bypass Mode).

Evaluator Que ***If asked, inform performer that PWST is in normal alignment***

STANDARD: Performer goes to step 1b.

___SAT

___UNSAT

___N/A

COMMENTS:

*****Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.***

WATTS BAR NUCLEAR PLANT
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STEP 18: STANDARD: COMMENTS:	***AOI-3 actions:*** 1.b. **ENSURE** standby primary water pump HS in MAN. Performer ensures that standby primary water pump HS in MAN.	___SAT ___UNSAT ___N/A
STEP 19: STANDARD: ***EVALUATOR NOTE*** COMMENTS:	***AOI-3 actions:*** 1.c. **STOP** the running primary water pump. Performer stops running PW Pump and then verifies that PW flow has stopped. The performer then notifies the SRO. ***If Performer completes JPM step 20, THEN N/A this JPM step.***	**CRITICAL STEP** ___SAT ___UNSAT ___N/A

WATTS BAR NUCLEAR PLANT
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STEP 20: STANDARD: ***EVALUATOR NOTE*** COMMENTS:	***Prudent Operator Action IAW TI-12.04*** The Performer performs one or both of the following: *STOPs both primary water pumps and verifies Primary Water flow has stopped on 1-FI-62-142.* *OR* *Places 1-FC-62-142 in Manual and CLOSES 1-FCV-62-142 and verifies Primary Water flow has stopped on 1-FI-62-142.* The performer then notifies the SRO. ***If Performer has completed JPM step 19, THEN N/A this step.***	**CRITICAL STEP** ___SAT ___UNSAT ___N/A
Examiner cue:	**Acknowledge report, notifiy performer that the task is complete. End task**	

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The Unit is at 100% RTP.
- The RCS Cb is at 1020 ppm per Chem Lab report.
- VCT level is at 18%, Auto Make-up from the Blender has failed to operate.
- The problem has been found and a work request initiated by the previous shift's crew.

INITIATING CUES:

The Unit Supervisor has directed you to use the proper procedure to increase VCT level to 29-31%.

Notify US when the procedure is complete.

NRC Evaluator Sheet A

REACTW - VERS WB3.2]

VCT MAKEUP INTEGRATOR SETTINGS CALCULATION
WATTS BAR UNIT 1 CYCLE 9

Appendix C
(Page 1 of 4)

CALCULATION OF BORIC ACID AND PRIMARY WATER INTEGRATOR SETTING FOR MANUAL MAKEUP TO VCT (RCS)

Date Today **INITIALS**

NOTES

1) Use page 1 of this appendix when using "VCT MAKEUP CALCULATION" program in REACTINW, otherwise use pages 2 and 3 when performing Hand Calculations.
2) The computer code named REACTINW (VCT MAKEUP CALCULATION) when used from the Y: server is a verified and validated program. The methodology used is based on the equations:

$V1C1 + V2C2 = V3C3$ & $V1 + V2 = V3$

Where: V is the volume flow rates of water and acid going into and out of the Boric Acid Blender and C is the boric acid concentration of the flow streams.

1.0 REACTINW "VCT MAKEUP CALCULATION"

[1] **OBTAIN** the following data for input to the REACTINW program:

[1.1]	Current RCS Boric Acid Concentration.	1020	PPM
[1.2]	Current BAT Boric Acid Concentration.	6820	PPM
[1.3]	B-10 Depletion Value from Reactivity Management Briefing Sheet	0	PPM
[1.4]	Current VCT Level	18	%
[1.5]	Desired VCT Level	30	%
		STA	

[2] **RUN** REACTINW calculation "VCT Makeup Calculation". STA

[2.1] **PRINT** the output file:

"VCT MAKUP INTEGRATOR SETTINGS CALCUALTION" STA

[3] **SIGN** and DATE output sheets. STA

[4] **OBTAIN** independent verification by an SRO on output sheets. USN

NRC Evaluator Sheet A

REACTW - VERS WB3.2]

VCT MAKEUP INTEGRATOR SETTINGS CALCULATION
WATTS BAR UNIT 1 CYCLE 9

INPUT DATA

[1]	CURRENT RCS BORIC ACID CONCENTRATION	1020 PPM
[2]	CURRENT BAT BORIC ACID CONCENTRATION	6820 PPM
[3]	B-10 DEPLETION VALUE	0 PPM
[4]	CURRENT VCT LEVEL	18 %
[5]	DESIRED VCT LEVEL	30 %

CALCULATION OUTPUTS

[1]	B-10 CORRECTED BORON CONCENTRATION	1020 PPM
[2]	VCT ADDITION VOLUME	232 GALS
[3]	TOTAL FLOW RATE	82.3 GPM

CALCULATION CHECK

QUANTITIES [1] AND [2] BELOW SHOULD BE APPROXIMATELY THE SAME

[1]	VCT ADDITION VOLUME	232 GALS
[2]	(35 + 197)	
	(BA INTG SETTING + PW INTG SETTING)	
	TOTAL INTEGRATOR SETTING	232 GALS

INPUT DATA

[1]	BA BATCH COUNTER (1-FQ-62-139) [1-M-6]	35 GALS
[2]	BA TO BLENDER (1-FC-62-139) [1-M-6]	30.8 %
[3]	BA TO BLENDER FLOW (1-FI-62-139) [1-M-6]	12.3 GPM
[4]	PW BATCH COUNTER (1-FQ-62-142) [1-M-6]	197 GALS
[5]	PW TO BLENDER (1-FC-62-142) [1-M-6]	35.0%
[6]	PW TO BLENDER FLOW (1-FI-62-142) [1-M-6]	70.0 GPM

STA	Today
PERFORMER	DATE
USN	Today
IV/SRO	DATA

NRC Evaluator Sheet B

REACTW - VERS WB3.2]

VCT MAKEUP INTEGRATOR SETTINGS CALCULATION
WATTS BAR UNIT 1 CYCLE 9

Appendix C
(Page 1 of 4)

CALCULATION OF BORIC ACID AND PRIMARY WATER INTEGRATOR SETTING FOR MANUAL MAKEUP TO VCT (RCS)

Date ~~Today~~ **INITIALS**

NOTES

1) Use page 1 of this appendix when using "VCT MAKEUP CALCULATION" program in REACTINW, otherwise use pages 2 and 3 when performing Hand Calculations.

2) The computer code named REACTINW (VCT MAKEUP CALCULATION) when used from the Y: server is a verified and validated program. The methodology used is based on the equations:

$V1C1 + V2C2 = V3C3$ & $V1 + V2 = V3$

Where: V is the volume flow rates of water and acid going into and out of the Boric Acid Blender and C is the boric acid concentration of the flow streams.

1.0 REACTINW "VCT MAKEUP CALCULATION"

[1] **OBTAIN** the following data for input to the REACTINW program:

[1.1]	Current RCS Boric Acid Concentration.	1020	PPM
[1.2]	Current BAT Boric Acid Concentration.	6820	PPM
[1.3]	B-10 Depletion Value from Reactivity Management Briefing Sheet	0	PPM
[1.4]	Current VCT Level	18	%
[1.5]	Desired VCT Level	23	%
		STA	

[2] **RUN** REACTINW calculation "VCT Makeup Calculation". STA

[2.1] **PRINT** the output file:

"VCT MAKUP INTEGRATOR SETTINGS CALCUALTION" STA

[3] **SIGN** and DATE output sheets. STA

[4] **OBTAIN** independent verification by an SRO on output sheets. USN

NRC Evaluator Sheet B

REACTW - VERS WB3.2]

VCT MAKEUP INTEGRATOR SETTINGS CALCULATION
WATTS BAR UNIT 1 CYCLE 9

INPUT DATA

[1]	CURRENT RCS BORIC ACID CONCENTRATION	1020 PPM
[2]	CURRENT BAT BORIC ACID CONCENTRATION	6820 PPM
[3]	B-10 DEPLETION VALUE	0 PPM
[4]	CURRENT VCT LEVEL	18 %
[5]	DESIRED VCT LEVEL	23 %

CALCULATION OUTPUTS

[1]	B-10 CORRECTED BORON CONCENTRATION	1020 PPM
[2]	VCT ADDITION VOLUME	97 GALS
[3]	TOTAL FLOW RATE	82.3 GPM

CALCULATION CHECK

QUANTITIES [1] AND [2] BELOW SHOULD BE APPROXIMATELY THE SAME

[1]	VCT ADDITION VOLUME	97 GALS
[2]	(14 + 83)	
	(BA INTG SETTING + PW INTG SETTING)	
	TOTAL INTEGRATOR SETTING	97 GALS

INPUT DATA

[1]	BA BATCH COUNTER (1-FQ-62-139) [1-M-6]	14 GALS
[2]	BA TO BLENDER (1-FC-62-139) [1-M-6]	30.8 %
[3]	BA TO BLENDER FLOW (1-FI-62-139) [1-M-6]	12.3 GPM
[4]	PW BATCH COUNTER (1-FQ-62-142) [1-M-6]	83 GALS
[5]	PW TO BLENDER (1-FC-62-142) [1-M-6]	35.0%
[6]	PW TO BLENDER FLOW (1-FI-62-142) [1-M-6]	70.0 GPM

STA	Today
PERFORMER	DATE
USN	Today
IV/SRO	DATA

Watts Bar Nuclear Plant
3-OT-JPMR070

TRANSFER CONTAINMENT SPRAY SUCTION TO RHR CONTAINMENT SUMP PER ES-1.3

Watts Bar Nuclear Plant
3-OT-JPMR070

NUCLEAR TRAINING
REVISION/USAGE LOG

Rev. #	Description of Changes	Date	Pages Affected	Reviewed By
0	Initial Issue. Replaces JPM #ES-1.2-2	8/26/92	ALL	
1	DELETE KNOWLEDGE QUESTIONS REFLECT PROCEDURE REVISION	4/2/93	3, 4	
2	REFLECT PROCEDURE REVISION	11/20/95	4-10	
3	Reflect procedure revision from Rev 6 to Rev 8. Made time without spray flow time critical. Added admin info, changed titles of ASOS to US, added cautions from procedure, provided step numbers from procedure.	9/25/97	ALL	Albert V. White
4	Incorporated pen & ink changes which added information to turnover sheet that RWST level has just reached 8%. Made performance step 12 critical since one valve must be open. Clarified when to begin 120 second time period for critical portion of this JPM. Revised K/A values to Rev 2 of NUREG 1122, updated procedure references, Revised simulator setup instructions.	11/20/99	ALL	Albert V. White
5	Added procedure step numbers to Performance Steps, corrected step number referenced on initial conditions, changed performance step 12 from critical to not critical. Revised procedure step numbers to reflect Rev 10 of ES-1.3.	10/16/01	ALL	Albert V. White
6	Revised JPM to reflect rev 13 of ES-1.3 which deleted one step from JPM and added some step numbers.	08/05/03	ALL	A. V. White
7	Revised JPM to reflect rev of ES-1.3 and changed Time Critical step to begin when CTMT Spray Pumps are secured. Revised K/A reference. Revised initial conditions to have RWST at ~10%, this adds an additional critical step	03/13/08		D.L.Hughes

Watts Bar Nuclear Plant
3-OT-JPMR070
EVALUATION SHEET

Task: TRANSFER CONTAINMENT SPRAY SUCTION TO RHR CONTAINMENT SUMP PER ES-1.3

Alternate Path: N/A

Facility JPM #: 3-OT-JPMR070 Rev 7

K/A Rating(s): 026A4.01 CSS controls [Importance RO/SRO 4.5/4.3]

TASK STANDARDS: Steps 21 through 24 of ES-1.3 have been correctly performed

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X__ Simulate _____

References: ES-1.3, Transfer to RHR Containment Sump (REV.17)

Task Number: RO-113-ES-1.3-001 APPLICABLE FOR: RO/SRO

10CFR55.45: 3, 6, 7, 8

Validation Time: 7 min. **Time Critical:** YES

==========

Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

Watts Bar Nuclear Plant
3-OT-JPMR070

SIMULATOR OPERATOR INSTRUCTIONS:

1. This JPM has been pre-shot in **IC # 254.** Should **IC # 254** be erased or fail to perform as expected then use the following set-up instructions:

    a) Initialize to **IC-50**.
    b) Insert **mfp th01b** @ 100% Severity (Hot Leg Break Loop 2).
    c) Acknowledge all alarms and clear motor trip-out white lights
    d) Stop RCPs.
    e) Perform operator actions IAW E-0, and E-1
    f) Insert **rfi sir14** (Restore power to FCV-63-1).
    g) When required, perform transfer to Containment Sump, steps 1 through 20 of ES-1.3
    h) Open 1-FCV-70-153, and 156 (CCS to RHR Hx).
    i) Close 0-HS-70-197A (SFP HT EXCH Supply) and 1-HS-70-207 (CDWE Supply from HDR 1B)
    j) Ensure CCS flows and pressures stabilize.
    k) Insert **ORP ZAOPDI3042** @ 4
    l) Insert **ORP ZAOPDI3043** @ 4
    m) Insert **ORP ZAOPDI3044** @ 4
    n) Insert **ORP ZAOPDI3045** @ 4
    o) Insert **ORP ZAOPR3045[1]** @ 4
    p) Insert **ORP ZAOPR3045[2]** @ 4
    q) Acknowledge all alarms
    r) Freeze simulator when RWST level reaches ~12% (a minute remains until RWST gets below 8% after going to RUN).

2. After performer indicates understanding of task, place simulator in run.

Watts Bar Nuclear Plant
3-OT-JPMR070

EVALUATOR INFORMATION SHEET

Tools/Equipment/Procedures Needed:

Ensure clean copy ES-1.3, Transfer to RHR Containment Sump is available.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating/operating cues.
Alll Control Room steps shall be performed for this task, including any required communications.
Ensure that you indicate to me when you fully understand your task.

INITIAL CONDITIONS:

- A Large Break LOCA has occurred.
- E-0 was entered, transition made to E-1 and then to ES-1.3, where Step 20 has been completed.
- Both CTMT Spray Pumps are still operating, taking suction from the RWST.
- You are the RO.
- The BOP has commenced Appendix C (ES-1.3), ERCW Operation to aligned ERCW for sump recirc operation.

INITIATING CUES:

The Unit Supervisor directs you to transfer the Containment Spray Pumps to the Containment Sump by performing applicable steps 21 thru 24 of ES-1.3.

Notify Unit Supervisor when Containment Spray has been re-established.

NOTE: PART OF THIS TASK IS TIME CRITICAL.

Watts Bar Nuclear Plant
3-OT-JPMR070

START TIME: _____

STEP 1: STANDARD: COMMENTS: **EXAMINER'S CUE:**	Obtain a copy of the appropriate procedure. STANDARD: A copy of ES-1.3, Transfer to RHR Containment Sump is obtained. ***After the performer has demonstrated the method of obtaining the correct instruction, the evaluator can provide a copy of the instruction.***	___SAT ___UNSAT
STEP 2: STANDARD: COMMENTS:	CAUTION • The containment spray pump MUST stay aligned to the RWST UNTIL the RWST level is less than 8% to ensure sufficient sump inventory for spray pump operation. • If containment pressure is greater than or equal to 2.0 psig, the containment spray pump suction must be aligned and pump restarted within 120 seconds. Performer reads cautions and abides by requirements.	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR070

Simulator Operator ***OR*** ***BOP***	**Commence actions to:** ***ENSURE ERCW aligned for sump recirc operation:*** ***• REFER TO Appendix C (ES-1.3), ERCW Operation.***	
STEP 3: STANDARD: COMMENTS:	**[21] ALIGN** cntmt spray RWST suction: **[21.a] CHECK** spray pumps RUNNING. Containment spray pumps verified to be running by red indicating lights or amp meters.	___SAT ___UNSAT
STEP 4: STANDARD: COMMENTS:	**[21.b] CHECK** RWST level less than 8%. Performer observes that RWST level is not yet less than 8%, goes to E-1.3 step 21.b RNO.	___SAT ___UNSAT

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STEP 5: STANDARD: ***Evaluator Note:*** COMMENTS:	**[21.b RNO]** **WHEN** RWST level less than 8%, **THEN PERFORM** Substep 21c and **ALIGN** cntmt spray pumps to cntmt sump. ** **GO TO** Step 26. Performer monitors RWST level (since it is so close may not go to Step 26), and when level is less than 8%, **THEN PERFORM** Substep 21c ***Critical portion of this JPM step is that the performer waits until RWST level is less than 8% prior to performing Step 21.c***	**Critical Step** ___SAT ___UNSAT
STEP 6: STANDARD: ***Evaluator Note:*** COMMENTS:	**[21.c]** **STOP** both cntmt spray pumps, and **PLACE** in PULL TO LOCK. Control Room Hand switches for A and B Cntmt Spray Pumps in PULL-TO-LOCK position. (1-HS-72-10A & 1-HS-72-27A). ***When the 2nd Cntmt Spray Pump is placed in PTL, begin 120 second timer*** ***Clock Time: _____ min/sec***	**Critical Step** ___SAT ___UNSAT

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STEP 7: STANDARD: COMMENTS:	**[21.d]** **ISOLATE** cntmt spray suction from RWST: • **CLOSE** 1-FCV-72-22. • **CLOSE** 1-FCV-72-21. 1-HS-72-21A and 1-HS-72-22A placed in the closed position and valves indicate closed.	**Critical Step** ___SAT ___UNSAT
STEP 8: ***Evaluator Que:*** STANDARD: COMMENTS:	**[22] ENSURE** ERCW aligned for sump recirc operation: • **REFER TO** Appendix C (ES-1.3), ERCW Operation. ***STATE to the performer that the BOP operator has completed the ERCW system alignment per Appendix C.*** Performer has verified Appendix C of ES-1.3 completed.	___SAT ___UNSAT

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STEP 9: STANDARD: COMMENTS:	**[23]** **ALIGN** cntmt spray sump suction: a. **OPEN** 1-FCV-72-44 cntmt spray suction from cntmt sump. 1-HS-72-44A placed in open and valve indicates open.	**Critical Step** ___SAT ___UNSAT
STEP 10: STANDARD: COMMENTS:	**[23]** **ALIGN** cntmt spray sump suction: b. **OPEN** 1-FCV-72-45 cntmt spray suction from cntmt sump. 1-HS-72-45A placed in open and valve indicates open.	**Critical Step** ___SAT ___UNSAT
STEP 11: STANDARD: COMMENTS:	**[24]** **MONITOR** cntmt press less than 2.0 psig. Performer uses any of the following indications to determine that cntmt press is greater than 2.0 psig, and proceeds to the RNO column of ES-1.3. Step 24 • PDI-30-42 • 1-PDI-30-43 • 1-PDI-30-44 • 1-PDI-30-45 • 1-PR-30-45	 ___SAT ___UNSAT

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

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STEP 12: STANDARD: ***Evaluator Note:*** COMMENTS:	**[25 RNO]** **IF** cntmt press greater than or equal to 2.0 psig, **THEN:** a. **START** cntmt spray pumps. Cntmt spray pumps started with 1-HS-72-27A and 1-HS-72-10A. ***When the 1st Cntmt Spray Pump is started, stop the 120 second timer*** ***Clock Time: _____ min/sec*** ***Critical Step is to have started the 1st Cntmt Spray Pump prior to 120 seconds.***	**Critical Step** ___SAT ___UNSAT
STEP 13: STANDARD: COMMENTS:	**[RNO 25.b]** **OPEN** discharge valves 1-FCV-72-2 and 1-FCV-72-39. Discharge valves verified opened by RED lights on 1-HS-72-2A and 1-HS-72-39A.	___SAT ___UNSAT
STEP 14: STANDARD: COMMENTS:	**[RNO 25.c]** **ENSURE** spray flow on 1-FI-72-34 and 1-FI-72-13. Performer ensures spray flow indicated on 1-FI-72-34 and 1-FI-72-13.	___SAT ___UNSAT

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STEP 15:	**[13]** Notify Unit Supervisor that Containment Spray has been transferred to Containment Sump..	
EXAMINER CUE:	**When notified, acknowledge the report, notify performer that the task is complete. End task**	___SAT
COMMENTS:		___UNSAT
	END OF TASK	

TIME STOP: _____

EXAMINEE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- A Large Break LOCA has occurred.
- E-0 was entered, transition made to E-1 and then to ES-1.3, where Step 20 has been completed.
- Both CTMT Spray Pumps are still operating, taking suction from the RWST.
- You are the RO.
- The BOP has commenced Appendix C (ES-1.3), ERCW Operation to aligned ERCW for sump recirc operation.

INITIATING CUES:

The Unit Supervisor directs you to transfer the Containment Spray Pumps to the Containment Sump by performing applicable steps 21 thru 24 of ES-1.3.

Notify Unit Supervisor when Containment Spray has been re-established.

NOTE: PART OF THIS TASK IS TIME CRITICAL.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

RAISE COLD LEG ACCUMULATOR LEVEL PER SOI-63.01

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

NUCLEAR TRAINING
REVISION/USAGE LOG

Rev #	Date	Description of changes	Pages Affected	Reviewed By
0	10/16/01	Initial Issue.	ALL	A. V. White
1	11/01/01	Revised format, made changes to reflect rev 28 of SOI-63.01. Revised simulator setup instructions and turnover information.	ALL	A. V. White
2	11/04/02	Updated procedures referenced, corrected typo, revised task assignment sheet, and removed cue from JPM step 3 which was not needed.	2, 3, 5, 6, 13, 15	A. V. White
3	08/03/07	Incorporated pen & ink change that corrected minor wording change due to procedure revision. Added EIN to evaluation sheet. Updated procedures referenced which changed substep numbers but did not change task performance or its evaluation.	ALL	A. V. White
4	03/20/08	Incorporated pen & ink change that corrected minor wording issues. Changed substep numbers but did not change task performance or its evaluation.	ALL	D.L.Hughes

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

EVALUATION SHEET

Task: Raise Cold Leg Accumulator Level Per SOI-63.01

Alternate Path: N/A

Facility JPM #: 3-OT-JPMR027A Rev 4

K/A Rating(s): 006-A4.01 [4.1/3.9] 006-A1.13 [3.5/3.7] 2.2.21 [3.1/3.2]

Task Standard: Cold Leg Accumulator #1 water level raised to normal level (Annunciator Window 131-A Dark) and system lineup re-established per SOI-63.01.

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X____ Simulate _____

References: SOI-63.01 "Safety Injection System" Rev.42.

Task Number:: RO-063-SOI-63-001 APPLICABLE FOR: RO/SRO

10CFR55.45: 3, 4, 6, 7

Validation Time: 14 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

SIMULATOR OPERATOR INSTRUCTIONS:

1. Initialize to **259**

2. Acknowledge all alarms. Ensure Source Range Audible Count is audible in horse shoe.

3. Place the Simulator in FREEZE.

4. Place the Simulator to RUN when the performer indicates an understanding of the task.

5. This JPM has been pre-shot in **IC #259.** Should **IC # 259** be erased or fail to perform as expected then use the following set-up instructions:

   Initialize to **IC-129**, go to RUN, cooldown the RCS in accordance with GO-6 to establish conditions where RCS is approximately 1400 psig and temperature 500 °F with CLA's in service.

   Ensure Source Range Audible Count audible in horse shoe.
   To lower level in CLA-1 to below level alarm setpoint:

   - Enter REMOTE FUNCTION **rfp sir10** to **OPEN** drain to RCDT 63-618.
   - Manually **OPEN** 1-63-130A on 1M6.
   - When either the CLA #1 Low level alarm 131-A Alarms or CLA #1 Low pressure 131-B Alarms then **CLOSE** 1-63-130A.

   Ensure 1-HS-63-23, 71A, 84, and 64A in the **CLOSE** position.

   Freeze simulator until performer indicates understanding of task.

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

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Tools/Equipment/Procedures Needed:

Ensure clean copy of SOI-63.01 in the simulator copies on the Simulator Floor.

READ TO OPERATOR

DIRECTION TO TRAINEE:

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:

Unit is Mode 3, RCS Heatup is in progress.

Cold Leg Accumulator # 1 Pressure Hi/Lo and Level annunciation are lit.

You are the Operator at the Controls.

INITIATING CUES:

The Unit Supervisor directs you to perform the proper instruction to return CLA #1 water level to normal, utilizing the 1A Safety Injection Pump.

SOI-63.01 Section 5.1 to fill and vent 1A Safety Injection Pump is complete.

You are to notify the Unit Supervisor when the instruction is complete.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

START TIME: _____

STEP 1: Obtain a copy of the procedure. STANDARD: A copy of SOI-63.01 Section 8.3.1 has been obtained. **EXAMINER'S CUE:** ***After the performer has demonstrated the method of obtaining the correct instruction, the evaluator can provide a copy of the instruction.*** COMMENTS:	___ SAT ___ UNSAT
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 2: **[STEP 1] ENSURE** Sect **5.1**, To Fill & Vent SI Pmps and Piping, COMPLETE. STANDARD: No action required. (Performer proceeds to next step) COMMENTS: Fill & Vent completion is identified on the candidate cue sheet.	___ SAT ___ UNSAT
STEP 3: **[STEP 2] IF** RCS pressure is ≤ 1000 psig, **THEN ENSURE** 1-FCV-63-118, CL ACCUM 1 OUTLET, CLOSED. STANDARD: Performer determines that step in Not Applicable and proceeds to the next step. COMMENTS:	___ SAT ___ UNSAT

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

CAUTION If RCS is 1650 psig or less, ALL SIP injection 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 4:	**[STEP 3] IF** RCS 1650 psig or less, AND SIP A is to be used to fill CLA 1, **THEN CLOSE** 1-FCV-63-152, SI PMP A TO CL 1-2-3-4 [1-M-6].	**CRITICAL STEP**
STANDARD:	1-HS-63-152A is placed to the close position and green valve position indicating light is verified ON, red valve position light OFF on respective valve hand switch. **Step is critical to prevent injection to RCS when SI pump is started.**	___ SAT ___ UNSAT
COMMENTS:		

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 5:	**[STEP 4] IF** in Mode 4, 5, 6 with SIP 1A-A is to be used with Rx Vessel Head ON, **THEN** **[4.1]** **ENSURE** 1-FCV-63-156, SI PMP A TO HL 1 & 3 [1-M-6], is CLOSED. **[4.2]** **ENSURE** 1-BKR-63-156, SI PUMP 1A-A HOT LEG 1 & 3 INJECTION [1A1-A, C/13A], is OFF & TAGGED. **[4.3]** **ENSURE** 1-BKR-63-152, SIP 1A-A COLD LEG INJ FLOW CNTL [1A1-A, C/12E], is OFF & TAGGED. **[4.4]** **ENSURE** SAFETY INJECTION PUMP 1A-A [6.9kV SD Bd 1A-A/C15], Breaker racked UP and Closing Spring CHARGED.	___ SAT ___ UNSAT
STANDARD:	No action required. Unit is in Mode 3. The performer N/As the step.	
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

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 6:	**[STEP 5] IF** in Mode 4, 5, 6 with SIP 1B-B is to be used with Rx Vessel Head ON, **THEN** **[5.1]** **ENSURE** 1-FCV-63-22, SI PUMPS CL Injection is CLOSED. **[5.2]** **VERIFY** 1-BKR-63-22, (1B1-B, C/11D) Tagged OPEN with Hold Tag. **[5.3]** **ENSURE** 1-FCV-63-156, SI PUMP 1A HL injection CLOSED. **[5.4]** **VERIFY** 1-BKR-63-156, (1A1-A, C/13A) Tagged OPEN with Hold Tag. **[5.5]** **ENSURE** 1-FCV-63-157, SI PUMP 1B HL injection CLOSED. **[5.6]** **VERIFY** 1-BKR-63-157, (1B1-B, C/13B) Tagged OPEN with Hold Tag. **[5.7]** **ENSURE** 1-FCV-63-152, SI PUMP A TO CL 1-2-3-4 OPEN. **[5.8]** **ENSURE** 1-FCV-63-153, SI PUMP B TO CL 1-2-3-4 OPEN. **[5.9]** **ENSURE** SAFETY INJECTION PUMP 1B-B [6.9kV SD Bd 1B-B/C15], Breaker racked UP and Closing Spring CHARGE.	___ SAT ___ UNSAT
STANDARD:	No action required. Unit is in Mode 3. The performer N/As the step.	
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

STEP 7: **[STEP 6] PERFORM** the following:

CRITICAL STEP

NOMENCLATURE	LOCATION	POSITION	UNID
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

STANDARD: Hand switches (1-HS-63-71A,1-HS-63-187, &1-HS-63-23) for each of the above listed valves have been placed in the OPEN position. **Step is critical to establish flow path to #1 Accumulator.**

___ SAT

___ UNSAT

COMMENTS:

CAUTION If 1-FCV-63-152 was closed in step 8.3.1[3], then SI Pmp 1A-A is the only pump that can be used to fill CLA. (JPM Step 4)

STEP 8: **[STEP 7] ENSURE** the following (N/A pump not selected)

NOMENCLATURE	LOCATION	POSITION	UNID
SI PMPS RECIRC HDR TO RWST	1-M-6	OPEN	1-FCV-63-3
SI PMP A RECIRC TO RWST	1-M-6	OPEN	1-FCV-63-4
SI PMP B RECIRC TO RWST	1-M-6	OPEN	1-FCV-63-175
RWST TO SI PMPS SUCTION	1-M-6	OPEN	1-FCV-63-5
SI PMP A SUCTION	1-M-6	OPEN	1-FCV-63-47
SI PMP B SUCTION	1-M-6	OPEN	1-FCV-63-48

STANDARD: The hand switches (1-HS-63-3A, 1-HS-63-4A, 1-HS-63-5A, & 1-HS-63-47A red valve position indicating lights are verified on.

___ SAT

___ UNSAT

COMMENTS:

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

STEP 9: **[STEP 8] PERFORM** the following (N/A pump not selected):

CRITICAL STEP

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

STANDARD: Hand switch 1-HS-63-10A has been placed to START position and 1A-A pump started. **Step is critical to provide flow to Accumulator.**

___ SAT

EVALUATOR NOTE: **Starting of the pump should be announced on P.A.**

If asked as an AUO for local condition of the pump, state that the pump is ready for a start and all personnel are clear.

___ UNSAT

COMMENTS:

STEP 10: **[Step 9] OPEN** 1-FCV-63-115, MAKEUP TO CL ACCUM 1, [1-M-6].

CRITICAL STEP

STANDARD: 1-HS-63-115A has been placed in the OPEN position**. Step is critical to establish flow path to accumulator.**

___ SAT

COMMENTS:

___ UNSAT

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

NOTE 1-LI-63-129, CLA 1 LEVEL [1-M-6], is preferred to monitor level due to faster response than 1-LI-63-119.

STEP 11: **[STEP 10] WHEN** CLA is at desired level (Alarm 131-A, CL ACCUM 1 LEVEL HI/LO, not LIT), **THEN PERFORM** the following:

CRITICAL STEP

NOMENCLATURE	LOCATION	POSITION	UNID
MAKEUP TO CL ACCUM 1	1-M-6	CLOSED	1-FCV-63-115
CKV TEST LINE TO HUT	1-M-6	CLOSED	1-FCV-63-71
TEST LINE (1-XS-63-100) ISOL	1-M-6	CLOSED	1-FCV-63-187
CLA FILL FROM SI PMPS	1-M-6	CLOSED	1-FCV-63-23

STANDARD: The level has been increased until neither HI/LO alarm on Annunciator 131-A is LIT, THEN 1-HS-63-115A, 1-HS-63-71A, 1-HS-63-187, & 1-HS-63-23 have been placed in the CLOSED position. **This step is critical isolate flow path to accumulator**

___ SAT

___ UNSAT

EVALUATOR NOTE: Annunciator level alarm setpoints are HI 7970 gal, LO 7660 gal and pressure alarms Hi 660 psig, Lo 610 psig

COMMENTS:

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

STEP 12: **[STEP 11] ENSURE** SI pump has operated for greater than 20 minutes, **THEN PERFORM** the following (N/A pump not selected):

CRITICAL STEP

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

STANDARD: Hand switch 1-HS-63-10A has been placed to STOP position and 1A-A SI pump is Stopped. **This step is critical to return SI pump to normal after fill.**

***CUE:** **After performer has determined time to take pump off, state that the time period has elapsed.**

___ SAT

___ UNSAT

COMMENTS:

NOTE Step 8.3.1**[12]** or 8.3.1**[13]** may be N/A'd based on SIPs operability requirements. (JPM steps 13 & 14.)

STEP 13: **[STEP 12] ENSURE** the following (**N/A** pump **NOT** selected):

CRITICAL STEP

NOMENCLATURE	LOCATION	POSITION	UNID
SI PMP 1A-A (ECCS)	1-M-6	A AUTO	1-HS-63-10A
SI PMP 1B-B (ECCS)	1-M-6	A AUTO	1-HS-63-15A

STANDARD: Hand switch 1-HS-63-10A has been placed to A AUTO position. **This step is critical to assure ES Standby lineup.**

___ SAT

___ UNSAT

COMMENTS:

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

STEP 14: **[STEP 13] PERFORM** the following (**N/A** pump **NOT** selected):

NOMENCLATURE	LOCATION	POSITION	UNID
SI PMP 1A-A (ECCS)	1-M-6	PULL-TO-LOCK	1-HS-63-10A
SI PMP 1B-B (ECCS)	1-M-6	PULL-TO-LOCK	1-HS-63-15A

STANDARD: Performer N/As this step.

COMMENTS:

___ SAT

___ UNSAT

STEP 15: **[STEP 14] IF** 1-FCV-63-152, was closed in step 8.3.1**[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: 1-HS-63-152A is placed to the open position and red valve position indicating light is verified ON, green valve position indicating light is verified OFF. **Step is critical to realign SI flow path to RCS.**

COMMENTS:

CRITICAL STEP

___ SAT

___ UNSAT

STEP 16: **[STEP 15] IF** 1-FCV-63-118 was closed in step 8.3.1**[2], THEN OPEN** 1-FCV-63-118, CL ACCUM 1 OUTLET if desired.

STANDARD: No action required. Valve was not closed. The performer N/As the step.

COMMENTS:

___ SAT

___ UNSAT

WATTS BAR NUCLEAR PLANT
3-OT-JPMR027A

NOTE CLA 1 press can be read on 1-PI-63-126 or 128.	
STEP 17: **[STEP 16] VERIFY** CLA pressure in desired range (Alarm 131-B, CL ACCUM 1 PRESS HI/LO, not LIT). STANDARD: The CLA pressure has been checked to be between > 610 psig AND < 660 psig. ****CUE:* If pressure >660 psig and performer mentions, acknowledge and state that the CLA will be vented following completion of this procedure.** **EVALUATOR NOTE: Annunciator alarm setpoints are HI 660 psig, LO 610 psig)** COMMENTS:	___ SAT ___ UNSAT
STEP 18: Notifies Unit Supervisor that fill of CLA #1 has been completed. STANDARD: Performer notifies Unit Supervisor that CLA #1 has been filled. ****CUE:* As Unit Supervisor acknowledge report using repeat back.** COMMENTS: **END OF TASK**	___ SAT ___ UNSAT

TIME STOP: _____

REV. 4

WATTS BAR NUCLEAR PLANT

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit is Mode 3, RCS Heatup is in progress.

Cold Leg Accumulator # 1 Pressure Hi/Lo and Level annunciation are lit.

You are the Operator at the Controls.

INITIATING CUES:

The Unit Supervisor directs you to perform the proper instruction to return CLA #1 water level to normal, utilizing the 1A Safety Injection Pump.

SOI-63.01 Section 5.1 to fill and vent 1A Safety Injection Pump is complete.

You are to notify the Unit Supervisor when the instruction is complete.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

TASK TITLE: ESTABLISH RCS BLEED PATHS PER FR-H.1

WRITTEN BY: _____

VALIDATED BY: _____

APPROVED BY: _____
(OPERATIONS TRAINING)

CONCURRENCE: _____
(OPERATIONS REPRESENTATIVE)

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093
NUCLEAR TRAINING
REVISION/USAGE LOG

Rev #	Date	Description of changes	Pages Affected	Reviewed By
0	10/11/96	Initial Issue. Initial issue replaces JPM #093, reflects procedure rev 11	ALL	
1	09/25/97	Added Cues and standard to Perf Step 6 for removing Hold Notices from valves, updated procedure reference, removed termination cue.	2, 4, 7, 8	
2	11/08/99	Revised K/A Values to reflect Rev 2 of NUREG 1122, updated procedure references, corrected typos, reworded JPM Step 9 to reflect procedure wording. No intent changes were made.	2, 3, 4, 7, 8	A. V. White
3	10/17/01	Minor changes to simulator setup instructions to remove and reinstall hold order tags, added start/stop time slots, added caution statement prior to step 18 of FR-H.1, changed font.		A. V. White
4	03/26/02	Revised due to Rev 14 of FR-H.1 which added several steps. Revised Cue concerning HPFP Spool Pieces and when Cue is given. Shortened estimated completion time from 19 minutes to 15 minutes.	All	A. V. White
5	08/05/03	Revised to reflect Rev 15 of FR-H.1.	ALL	A. V. White
6	07/17/06	Revised to current format. No change of intent made.	All	D. Rector
7	08/08/07	Revised to incorporate Rev 16 and 17 of FR-H.1 which changed order of task performance.	All	A. V. White
8	04/29/08	Revised to add Loss of Offsite and Loss of 1B 6.9 Kv Shutdown Board to change to an Alternate Path JPM.		

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

EVALUATION SHEET

Task: Establish RCS Bleed path per FR-H.1

Alternate Path: Yes. Failure of one of the two PORVs to open requires use of the Reactor Vessel Head Vent System to create adequate vent of RCS as bleed path.

Facility JPM #: 3-OT-JPMR093 Rev 7

K/A Rating(s):

054AK3.05	[4.6/4.7]	054AK3.04	[4.4/4.6]
E05 EA1.1	[4.1/4.0]	E05EA2.2	[3.7/4.3]

TASK STANDARDS: Bleed and feed cooling of the RCS is established per Steps 18 through 20 of FR-H.1.

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X__ Simulate _____

References: FR-H.1 Revision 17

Task Number: RO-113-FR-H.1-001 APPLICABLE FOR: RO/SRO

10CFR55.45: 3, 4, 6, 7, 8

Validation Time: 15 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

SIMULATOR OPERATOR INSTRUCTIONS:

Initialize to IC #269 and over ride switch check for Pzr PORV 68-340.
Acknowledge all alarms
Freeze simulator until the performer indicates understanding of the task and time is allowed for control board familiarization.
When asked to restore power to RV Head Vents, **rfp rcr06**

Note: This JPM had been preshot in IC #269. The following steps are the setup instructions if needed:
Initialize the simulator in IC #50.
Place 1A-A and 1B-B AFW pumps in P-T-L.
IMF FW07A 1A MDAFW Pump Trip
IMF FW07B 1B MDAFW Pump Trip
IMF ED01 Loss of Offsite Power
IMF ED06B 1B 6.9 Kv Shutdown Board Trip
mrf fwr27 (Overspeed Trip of TDAFWP)
ior zdihs68HS340A CLOSE -- Keeps PZR PORV from opening.
Perform E-0 through Appendix A.
Stop one hotwell pump.
Close High Pressure Feedwater Heater Outlet Isolation Valves.
Perform FR-H.1 through step 17
Allow simulator to run until all S/G levels < 26% wide range.
Then freeze simulator.

After JPM performance Place Hold Order Tags on 1-HIC-68-394 & 395.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093
SIMULATOR OPERATOR INSTRUCTIONS:

Tools/Equipment/Procedures Needed:

Clean copies of FR-H.1 in all ERG books on simulator floor.

READ TO OPERATOR

DIRECTION TO TRAINEE:

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:

A Loss of Offsite Power has occurred.

The unit was at 100% RTP when a MFW line break caused a Rx trip.

A loss of 1B 6.9Kv Shutdown Board also occurred.

All AFW pumps were removed due to cavitation, operators have been dispatched.

Wide range levels on all SGs are < 26%.

Maintenance has been notified to install spool pieces to #3 and #4 S/Gs per MI-17.18 and AOI-7.06 is in progress.

You are the Operator at the Controls

INITIATING CUES:

The Unit Supervisor directs you to establish bleed and feed per FR-H.1 Step 18 through 20.

You are to notify the US when the steps have been completed.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

START TIME: _____

STEP 1: STANDARD: **EXAMINER'S CUE:** COMMENTS:	Obtain the appropriate procedure. FR-H.1 is obtained. ***After the performer has demonstrated the method of obtaining the correct instruction, the evaluator can provide a copy of the instruction***	___SAT ___UNSAT
CAUTION:	**Steps 18 through 20 must be performed quickly in order to establish RCS heat removal by RCS bleed and feed.**	
STEP 2: STANDARD: COMMENTS:	**18. ACTUATE** SI. Safety Injection is initiated by 1-HS-63-133A or 1-HS-63-133B **Step is critical to ensure necessary equipment running for inventory control of the RCS.**	**CRITICAL STEP** ___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

STEP 3:	**19. ESTABLISH** at least one of the following RCS feed paths: • At least one charging pump injecting thru BIT, OR • At least one SI pump running with its injection valves open.	___SAT ___UNSAT
STANDARD:	At least one charging pump is checked to be running and 1-FI-63-170 is determined to indicate flow or At least one SI pump is checked to be running and injection valve open by red light on 1-HS-63-22A	
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

CAUTION	• **When the reactor vessel head vent block valve is opened, the throttle valve will cycle open and closed.** • **Slowly opening (5 seconds stroke time) the head vent valve will prevent water hammer and pipe damage.**	
STEP 4:	**20. ENSURE** adequate RCS bleed path: a. **ENSURE** all pzr PORVs and Both pzr PORV block valves OPEN.	**Critical Step**
STANDARD:	PORV Block valves are verified to be open by observing red indicating lights lit on 1-HS-68-332A and 1-HS-68-333A **AND** Performer: 1) opens PORV 1-68-334 with 1-HS-68-334A 2) determines that PORV 1-68-340 will **NOT open** by green indicating light on 1-HS-68-340A and 3 **transitions to the RNO** column. **Step is critical because the relief capacity of one PORV is inadequate to pass sufficient fluid to depressurize the RCS and allow adequate core cooling via inventory addition. Transition to RNO establishes alternate/ additional depressurization path.**	___SAT ___UNSAT
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

Note: **RFP RCR06** to ON must be inserted by simulator operator after request is made to place power on the Rx Head Vent valves in next step. Console operator must remove hold notices from 1-HS-68-394, -395, and 1-HIC-68-396, -397)

NOTE To Evaluator: The following steps 5 through 8 are RNO for Step 20.

		CRITICAL STEP
STEP 5:	**RNO 20. PERFORM** the following: **1) RESTORE** power to head vents: • **PLACE** 1-SW-68-394-A disconnect switch to ON [125V Vital Batt Bd Rm I]. • **PLACE** 1-SW-68-395-B disconnect switch to ON [125V Vital Batt Bd Rm II].	
STANDARD:	US/AUO is requested to place power on reactor vessel head vent valves. Tagging Supervisor is contacted to lift hold notices from hand switches 1-HS-68-394 & 395, and from controllers 1-HIC-68-396 & 397. **CUE: Role play as Tagging Supervisor and acknowledge request to lift or pick up hold notice notices from Rx Vessel Head Vent Blocks and Controllers.** **CUE: Role play as US/AUO and acknowledge request, then report back that power is restored to the head vents.** **Step is critical because power will not be restored without the request being made. Unless power is restored, the valves cannot be opened and no bleed path can be established.**	___SAT ___UNSAT
COMMENTS:		

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

		Critical Step
STEP 6:	**2) OPEN** all reactor vessel head vent and block valves.	
STANDARD:	The performer opens the vent isolation valves by using 1-HS-68-394 & 1-HS-68-395 and the vent control valves by using 1-HIC-68-396 & 1-HIC-68-397. **Opening the vent valves establishes the RCS bleed path and is therefore critical.**	___SAT ___UNSAT
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

NOTE TO EVALUATOR: Give the following cue before performer performs the next step:

CUE: Spool piece installation has been completed per MI-17.18 for SG SG #3 and SG #4.

		Critical Step
STEP 7:	3) **OPEN** ERCW valves to AFW pump suction, **OR** **ALIGN** HPFP to at least one Intact S/G USING the following: • AOI-7.06, Alignment of HPFP Water to the Steam Generators. • MI-17.18, Flood Preparation HPFP System Spool Pieces.	___SAT ___UNSAT
STANDARD:	1-HS-3-116A/A, 1-HS-3-126A/A, and either 1-HS-3-136A/A, 1-HS-3-179A/A or both are turned to the open position or Performer refers to AOI-7.06 for alignment of HPFP water to the Steam Generators. **Step is critical to ensure a source of water is established to at least one intact S/G.** **CUE: When performer refers to AOI-7.06, state that another operator will complete AOI-7.06 for establishing flow to SGs #3 and #4.**	
COMMENTS:		

WATTS BAR NUCLEAR PLANT
3-OT-JPMR093

STEP 8: STANDARD: COMMENTS:	4) **DEPRESSURIZE** at least one Intact S/G to atmospheric press with S/G PORV. The PORV on at least ONE steam generator is opened by placing hand switch to open or PIC to 100% to depressurize the S/G to atmospheric pressure. **Step is critical because it ensures at least one S/G which can be filled from a low pressure source to supply a heat sink for the RCS.**	**CRITICAL STEP** ___SAT ___UNSAT
STEP 9: STANDARD: COMMENTS:	Notify the Unit Supervisor that bleed and feed has been established. The Unit Supervisor is notified that bleed and feed has been established. **Cue: Acknowledge the report using repeat back. State we will stop here.** **END OF TASK**	___SAT ___UNSAT

TIME STOP: _____

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A Loss of Offsite Power occurred.

The unit was at 100% RTP when a MFW line break caused a Rx trip.

A loss of 1-B 6.9 Kv Shutdown Board Has also occurred.

All AFW pumps were removed due to cavitation, operators have been dispatched.

Wide range levels on all SGs are < 26%.

Maintenance has been notified to install spool pieces to #3 and #4 S/Gs per MI-17.18 and AOI-7.06 is in progress.

You are the Operator at the Controls.

INITIATING CUES:

The Unit Supervisor directs you to establish bleed and feed per FR-H.1 Step 18 through 20.

You are to notify the Unit Supervisor when the steps have been completed.

Watts Bar Nuclear Plant
3-OT-JPMR174

CALIBRATE POWER RANGE NUCLEAR INSTRUMENTATION

WRITTEN BY: _____

VALIDATED BY: _____

APPROVED BY: _____
(OPERATIONS TRAINING)

CONCURRENCE: _____
(OPERATIONS REPRESENTATIVE)

Watts Bar Nuclear Plant
3-OT-JPMR174

NUCLEAR TRAINING
REVISION/USAGE LOG

Rev. #	Description of Changes	Date	Pages Affected	Reviewed By
0	New revision created from SQN JPM 22-AP2.	04/25/08	All	DW LeGrand

Watts Bar Nuclear Plant
3-OT-JPMR174

EVALUATION SHEET

Task: Calibrate Power Range Nuclear Instrumentation

Alternate Path: None

Facility JPM #: 3-OT-JPMR174 Rev 0

K/A Rating(s): A1.01 (3.5 – 3.8); A4.02 (3.9 - 3.9)

TASK STANDARDS:
1) Each channel of Power Range instrumentation (on the respective Power Rang 'A' /drawer) will indicate within acceptance criteria tolerances of the calorimetric.
2) The unit is not tripped by a Power Range neutron flux rate trip.

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X___ Simulate _____

References: 1-SI-92-1, NIS Daily Comparison
Task Number: APPLICABLE FOR: RO/SRO

10CFR55.45: 3, 4, 6, 7, 8

Validation Time: 25 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

Watts Bar Nuclear Plant
3-OT-JPMR174
SIMULATOR OPERATOR INSTRUCTIONS:

1. Initialize to IC #271.

2. Acknowledge all alarms.

3. Ensure that all PRNIs are reading within the ranges prescribed in 4.c. and 4.d.

4. Ensure that all PRNIs potentiometers are locked.

5. NOTE: This JPM has been preshot in a 75% RTP IC. The following are the setup instructions if needed:
   a. Initialize to IC for 75% RTP.
   b. Check ICS computer that U1127TM is between 74.5% and 75.0% RTP value.
   c. Ensure PRNI-42 and 44 are between 75% and 75.5%.
   d. Ensure PRNI-41 and 43 are between 76.8% and 77.5%.
   e. Adjust the indications to ensure that the Power Range Channel Deviation annunciator is not lit.
   f. Acknowledge all alarms.

4. Freeze simulator until the performer indicates understanding of the task and time is allowed for control board familiarization.

5. After performer indicates understanding of task, place simulator in run.

SIMULATOR OPERATOR INSTRUCTIONS:

No specific instructions are provided.

Watts Bar Nuclear Plant
3-OT-JPMR174

EVALUATOR INFORMATION SHEET

Tools/Equipment/Procedures Needed:

Provide a marked-up copy of 1-SI-92-1 (NIS Daily Comparison) to pre-brief the Section 3.0 (Precautions and Limitations), Section 4.0 (Prerequisite Actions) and Section 5.0 (Acceptance Criteria) prior to entering the simulator. The candidate should return the marked-up copy to the evaluator. The copy will be provided to the candidate on entry to the simulator for the task performance.

READ TO OPERATOR

DIRECTION TO TRAINEE:

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:

The unit is at steady state conditions with all NIS channels and LEFM operable. Reactor power and RCS temperature have been stable for 30 minutes.

INITIATING CUES:

You are the CRO and the US has directed you to perform 1-SI-92-1.

Section 4.0 of 1-SI-92-1 has been completed.

Notify the US when the SI has been completed.

Watts Bar Nuclear Plant
3-OT-JPM174

START TIME: _____

STEP 1: STANDARD: COMMENTS: **EXAMINER'S CUE:**	Obtain the appropriate procedure Operator goes to section 6.0 of 1-SI-92-1. ***The evaluator can provide a copy of the instruction.***	___SAT ___UNSAT
STEP 2: STANDARD: COMMENTS:	**ENSURE** Precautions and Limitations in Section 3.0 have been reviewed. Operator reviews Section 3.0 and initials step [1].	___SAT ___UNSAT
STEP 3: STANDARD: COMMENTS:	**ENSURE** Prerequisite Actions in Section 4.0 have been met. Operator reviews Section 4.0 and initials step [2].	___SAT ___UNSAT
STEP 4: STANDARD: COMMENTS:	**ENSURE** T_{AVG} changing less than $\pm$ 0.5 ^{o}F in a 15 minute period. Operator verifies no change in last 15 minutes. Operator may use the turnover paper provided, or may use a graph or ICS trend to verify T_{AVG} has not changed.	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPM174

STEP 5:	**ENSURE** T_{AVG}/T_{REF} mismatch is less than $\pm$ 0.5 °F (i.e., T_{AVG} is $\pm$ 0.5 °F of program).	___SAT
STANDARD:	Operator verifies mismatch is less than $\pm$ 0.5 °F.	
COMMENTS:	Operator may use the turnover paper provided, or may use a graph or ICS trend to verify T_{AVG}/T_{REF} has not changed.	___UNSAT

Evaluator NOTE: Procedure contains a Note that showed be reviewed for content. There may be some confusion over 1) that states to perform steps 6.2[1] through 6.2[4] concurrently. The intent is to perform the steps consecutively in a timely manner.

STEP 6:	**DETERMINE** calorimetric power percent by ONE of the methods below: A. U1127TM the 10 minute average calorimetric power (based on LEFM calorimetric and 3459 MWth). Calorimetric power (%) = 74.65 % B. U1254 the 10 minute average calorimetric power (based on Venturi calorimetric and 3411 MWth). Calorimetric power (%) = N/A % C. TI-6.001, 'Board Calorimetric' performance. Calorimetric power (%) = N/A % D. RCS Delta Temperature (i.e. primary 'calorimetric') from the 10 minute average percent core thermal power U1127TM when below 15% RTP or from U0485TM. Calorimetric power (%) = N/A % **AND RECORD** as calorimetric power in STep 6.2[3].	**CRITICAL STEP** ___SAT ___UNSAT
STANDARD:	Operator determines calorimetric power percent between 74.5% and 74.7% using U1127TM. Operator N/A steps B., C., and D. Operator records the calorimetric power in the appropriate column of Step 6.2[3] for each PRNI.	
COMMENTS:	Operator should use [1]A based on the information provided that the LEFM is operable. Operator may incorrectly choose [1]B, [1]C, or [1]D. This will lead to an erroneous adjustment of Power Range NIs. P&L 3.0L. requires the use of U1127TM when LEFM is available.	

Watts Bar Nuclear Plant
3-OT-JPM174

STEP 7: **RECORD** "as-found" NIS power from the A Channel drawers for each operable NIS Power Range Channel in Step 6.2[3].

OR USE the average reading each NIS PR Channel from TI-6.001. (**N/A** inoperable channel.)

STANDARD: Operator records the as-found NIS power in the appropriate column for each PRNI.

COMMENTS: TI-6.001 would be used if a PRNI channel were inoperable.

CRITICAL STEP

___SAT

___UNSAT

STEP 8: **CALCULATE** the "as found difference" **AND CHECK** whether or **NOT** the difference is within 2% **AND INDICATE** by circling "YES" or "NO" below:

STANDARD: Operator records the as found difference in the appropriate column for each PRNI.

Operator circles YES for the differences that are less than 2% and NO for the differences that are greater than 2%.

COMMENTS: The operator should identify that N-41 and N-43 are greater than 2% and circle NO.

The operator should identify that N-42 and N-44 are less than 2% and circle YES.

CRITICAL STEP

___SAT

___UNSAT

POWER RANGE CHANNEL	AS-FOUND NIS POWER (%)	CALORIMETRIC POWER (%)	AS FOUND DIFFERENCE (%)	≤ ± 2% CIRCLE ONE
N-41 (1-IDWR-92-N41A)	77.0	74.65	2.35	YES (NO)
N-41 (1-IDWR-92-N41A)	75.5	74.65	0.85	(YES) NO
N-41 (1-IDWR-92-N41A)	77.5	74.65	2.85	YES (NO)
N-41 (1-IDWR-92-N41A)	75.5	74.65	0.85	(YES) NO

Initials

Watts Bar Nuclear Plant
3-OT-JPM174

Evaluator NOTE: Procedure contains a Note that showed be reviewed by the candidate.

The Note requires an adjustment when an NIS indicated power is 2% greater than calorimetric indicated power. Two of the channels are required to be adjusted by the operator.

The Note allows adjustments when an NIS indicated power is greater than calorimetric indicated power. The channels less than 2% above calorimetric channel may be adjusted by the operator.

STEP 9:	**IF** an adjustment is needed, **THEN**, **PROCEED TO** Section 6.3 to adjust the needed NIS Power Range Channel(s); **OTHERWISE,** **PROCEED TO** Section 6.4 when no adjustments needed.	___SAT
STANDARD:	Operator determines adjustment is needed to N-41 and N-43.	___UNSAT
COMMENTS:	The operator may choose to adjust N-42 and N-44 based on Section 3.0 Precautions and Limitations, step O.	

Evaluator NOTE: Procedure contains a Note that showed be reviewed by the candidate. This note is exactly the same as the previous note with one additional note at the end.

STEP 10:	**OBTAIN** SM's Approval to adjust the channels before adjusting:	**CRITICAL STEP**
	N-41 □ Adjust DO **NOT** Adjust □	___SAT
	N-42 □ Adjust DO **NOT** Adjust □	
	N-43 □ Adjust DO **NOT** Adjust □	
	N-44 □ Adjust DO **NOT** Adjust □	___UNSAT
	EVALUATOR NOTE: When asked, provides cue to candidate that SM approves adjusting NIs as identified.	
STANDARD:	Operator obtains SM's approval prior to adjustment.	
COMMENTS:	The operator determines that adjustment shall be made on N-41 and N-42 and checks the Adjust boxes. The operator may choose to adjust N-42 and N-44 and checks the Adjust boxes for them or may check the DO NOT Adjust boxes.	

Watts Bar Nuclear Plant
3-OT-JPM174

STEP 11: STANDARD: COMMENTS:	**VERIFY** reactor power has remained constant (± 0.5%) for at least 10 to 15 minutes **AND** **NOTIFY** the Unit Operator to maintain STABLE reactor power while adjusting NIS. Operator verifies reactor power has remained constant and notifies the unit operator.	___SAT ___UNSAT
STEP 12: STANDARD: COMMENTS:	**PLACE** ROD BANK SELECT switch (1-RBSS), in MANUAL or BANK SELECT. Operator places rod bank select switch in manual or bank select. Rod bank select switch should be removed from AUTO to prevent inadvertent control rod operation during NIS Power Range Channel adjustments.	___SAT ___UNSAT
Evaluator NOTE: Procedure contains a Note that showed be reviewed by the candidate. This note limits the operator actions to one NIS channel as a time. The note ensures the operator reviews the caution prior to making adjustments that could cause a rate trip to occur.		
STEP 13: STANDARD: COMMENTS:	**IF** rate trip exists on any NIS channel, **THEN** **ATTEMPT TO CLEAR** all channels' rate trip signals (momentarily set RATE MODE switch to RESET position) and the annunciator on panel 1-XA-55-6A-115E "POWER RANGE FLUX RATE HI" before proceeding to the next step. Operator resets any rate trip signals as necessary prior to proceeding. There are no rate trips present, requiring no action to reset rate trips. However, during NIS Power Channel adjustments, a rate trip may occur due to potentiometer sensitivity. **In the event a rate trip is caused on two NIS channels that are not reset and result in a reactor trip, then this task becomes a critical step.**	**CRITICAL STEP** ___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPM174

Evaluator NOTE: Procedure contains a Caution that showed be reviewed by the candidate. This caution warns that adjusting a channel too quickly may cause an inadvertent rate trip.

Evaluator NOTE: Procedure contains a Note that showed be reviewed by the candidate. This note directs the operator to ensure that the indicated NIS power is to remain equal to or above the calorimetric power.

STEP 14:	**UNLOCK** AND **ADJUST** the gain potentiometer (on the Power Range B drawer) for the NIS channel being adjusted to match calorimetric power **AND** **LOCK** the gain potentiometer. Adjustment Performed / N/A Channel N-41: □ □ Channel N-42: □ □ Channel N-43: □ □ Channel N-44: □ □	**CRITICAL STEP** ___SAT ___UNSAT
STANDARD:	Operator adjusts the gain potentiometer to match calorimetric power and locks the gain potentionmeter on completion.	
COMMENTS:	This action is critical for each NIS channel that is being adjusted. NIS channels that are not adjusted are marked N/A.	

Watts Bar Nuclear Plant
3-OT-JPM174

STEP 15:	**IF** the gain potentiometer does **NOT** provide enough gain to satisfy the adjustment requirements above, **THEN** **PERFORM** Appendix A, COURSE GAIN ADJUSTMENT OF PR NIS. Adjustment Performed / N/A Channel N-41: □ / ☑ Channel N-42: □ / ☑ Channel N-43: □ / ☑ Channel N-44: □ / ☑	___SAT ___UNSAT
STANDARD:	Operator determines that gain potentiometer provides enough gain to satisfy the adjustment requirements.	
COMMENTS:	Each channel is marked N/A.	
STEP 16:	**IF** additional NIS channels require adjustment, **THEN RETURN** to Step 6.3[3].	___SAT
STANDARD:	Operator determines that no additional adjustments are required.	
COMMENTS:		___UNSAT

Watts Bar Nuclear Plant
3-OT-JPM174

STEP 17: **WHEN** NIS channel adjustments have been completed, **THEN**

ENSURE gain potentiometers have been LOCKED **AND**

RECORD the current value of Calorimetric Power and the power level from each NIS Power Range channel.

CRITICAL STEP

___SAT

___UNSAT

POWER LEVEL INDICATION	**Calorimetric Power %**
U11227TM [√] OR U1254 (Venturi) □ OR TI-6.001 □	94.65 %
POWER RANGE CHANNEL	**NIS POWER (%)**
N-41 (1-IDWR-92-N41A)	%
N-42 (1-IDWR-92-N42A)	%
N-43 (1-IDWR-92-N43A)	%
N-44 (1-IDWR-92-N44A)	%

STANDARD: Operator records the current values for U1127TM and all NIS channels.

Operator ensures the gain potentiometers are locked.

COMMENTS: Indications should be read from U1127TM computer point and from each NIS Power Range channel.

STEP 18: **CONTINUE** to Section 6.4.

___SAT

STANDARD: Operator initials and continues.

COMMENTS:

___UNSAT

Watts Bar Nuclear Plant
3-OT-JPM174

STEP 19: 6.4[1]	**VERIFY** all operable NIS Power Range Channels agree within 2% of calorimetric power (%) recorded in 6.4[1.1] **OR** 6.4[1.2] below: [1.1] Step 6.2[3] **(Acc Crit A)** [1.2] Section 6.3[8] **(Acc Crit A & C)**	**CRITICAL STEP** ___SAT ___UNSAT
STANDARD:	Operator determines that acceptance criteria A and C are met.	
COMMENTS:	Operator N/As step [1.1] and initials step [1.2] that the four NIS Power Range Channels agree within 2% of calorimetric power (%).	
Examiner cue:	**Notify performer that the task is complete.** **End task**	

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The unit is at steady state conditions with all NIS channels and LEFM operable.

INITIATING CUES:

You are the CRO and the US has directed you to perform 1-SI-92-1.

Section 4.0 of 1-SI-92-1 has been completed.

Notify the US when the SI has been completed.

Give marked up copy of 1-SI-92-1 to the candidate.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR 101a

Restore Normal Charging and Letdown Per SOI-62.01

WATTS BAR NUCLEAR PLANT
3-OT-JPMR 101a

REVISION LOG

REVISION LOG	DATE	DESCRIPTION OF CHANGES	PAGES AFFECTED	REVIEWED BY
0	03/9/08	Initial issue for NRC Exam	ALL	D.L.Hughes

WATTS BAR NUCLEAR PLANT
3-OT-JPMR 101a

Task: Restore Charging and Letdown Per SOI-62.01

Alternate Path: 1-HIC-62-78A, **LETDOWN** HX OUTLET TEMP TCV-70-192 CNTL, will malfunction and will not maintain temperature less than 127°F, after being placed in Auto, requiring operator action to take the controller to manual and control letdown temperature. In addition, the VCT Temperature Divert Valve, 1-TCV-62-79, will not auto divert, it will require manual action.

Facility JPM #: **3-OT-JPMR 101a Rev0**

K/A Rating(s): A 4.05 Letdown pressure and temperature control valves(Importance RO/SRO 3.6/ 3.1

TASK STANDARDS: Charging and Letdown in service with letdown temperature being controlled manually

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X__ Simulate _____

References: SOI-62.01 Rev 0056 CVCS-Charging and Letdown

Task Number: RO-062-SOI-62-006 APPLICABLE FOR: RO/SRO

10CFR55.45: 1, 2, 5

Validation Time: 20 min. **Time Critical:** No

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Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

WATTS BAR NUCLEAR PLANT
3-OT-JPMR 101a

SIMULATOR OPERATOR INSTRUCTIONS:

Initialize to preshot in IC # 255 or perform the following:

1. Reset to any Mode 1 (recommend IC-40, 50, or 60) with PCS temperature >525° F.
2. All PCPs running.
3. Using SOI 62.01, remove Charging and Letdown per section 8.1 and place Excess Letdown in service per section 8.3.
4. ior zaihic6278A (e1) 0.01 15 (insert overide for 1-HIC-62-78 to fail to 1% demand, ramped over 15 seconds from event trigger entry)
5. imf cv 60 VCT Temperature Divert Valve, 1-TCV-62-79, failure to auto divert
6. Allow PZR Level to stabilize and freeze the simulator.
7. Have a working copy of SOI 62.01 for examiner to provide.

After performer indicates understanding of task, place simulator in run.

When performer places 1-HIC-62-79A in P-Auto, (step 23 of JPM) insert Trigger 1 to fail the automatic temperature control.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR 101a

Tools/Equipment/Procedures Needed:
ENSURE clean copies of SOI-62.01 are in all the books on the simulator floor.

READ TO OPERATOR

DIRECTION TO CANDIDATE:

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:

Excess letdown was placed in service 1 hour ago due to an air line fitting vibrating loose on 1-PCV-62-81. The air leak was just repaired and 1-PCV-62-81 has been tested.

Another Operator is being briefed to remove Excess Letdown from service when you have completed yor task.

INITIATING CUES:

The Control Room Supervisor has directed you to restore normal charging with the 1A CCP running, and 75 gpm Letdown Orifice "B" by performing Section 8.2 of SOI 62.01 CVCS- Charging and Letdown. (Consider the plant operating in Cycle 9)

Notify US when the procedure is complete.

WATTS BAR NUCLEAR PLANT
3-OT-JPMR 101a

START TIME: _____

<table>
<tr><td>STEP 1:

STANDARD:
COMMENTS:</td><td>Obtain a copy of the procedure.

A copy of SOI-62.01 has been obtained</td><td rowspan="2">___SAT

___UNSAT</td></tr>
<tr><td>EXAMINER'S CUE:</td><td>After the performer has demonstrated the method of obtaining the correct instruction, the evaluator can provide a copy of the instruction.</td></tr>
<tr><td></td><td>CAUTION:

Charging and Letdown must be in service together.
If Letdown isolates or Charging is lost, the other must be isolated.</td><td></td></tr>
<tr><td>STEP 2:

STANDARD:

COMMENTS:</td><td>[8.2.1]
[1] ENSURE all letdown orifices CLOSED:

<table>
<tr><th>NOMENCLATURE</th><th>LOCATION</th><th>UNID</th><th>PERF INITIAL</th></tr>
<tr><td>LETDOWN ORIFICE A 45 GPM (CIV-ØA)</td><td>1-M-6</td><td>1-HS-62-72A</td><td></td></tr>
<tr><td>LETDOWN ORIFICE B 75 GPM (CIV-ØA)</td><td>1-M-6</td><td>1-HS-62-73A</td><td></td></tr>
<tr><td>LETDOWN ORIFICE C 75 GPM (CIV-ØA)</td><td>1-M-6</td><td>1-HS-62-74A</td><td></td></tr>
<tr><td>LETDOWN ORIFICE 5 GPM (CIV-ØA)</td><td>1-M-6</td><td>1-HS-62-76</td><td></td></tr>
</table>

All letdown orifices CLOSED:</td><td>___SAT

__UNSAT</td></tr>
</table>

WATTS BAR NUCLEAR PLANT
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STEP 3: STANDARD: COMMENTS:	**[2] CLOSE** 1-HIC-62-89A, CHARGING HEADER RCP SEALS FLOW CONTROL. 1-FCV-62-89 is closed	___SAT __UNSAT
STEP 4: STANDARD: COMMENTS:	**[3] IF** NO Charging Pump is IN SERVICE, **THEN PERFORM** the following: Step is N/A, since "A" CCP is operating	___SAT ___UNSAT
STEP 5: STANDARD: COMMENTS:	**[4] ADJUST** 1-HIC-62-93A, CHARGING FLOW PZR LEVEL CONTROL, to between 8 and 13 gpm per RCP. Seal flow is between 8 - 13 gpm per RCP	___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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STEP 6: STANDARD: COMMENTS:	**[5] ENSURE** 1-HS-62-84A, AUX SPRAY TO PZR [1-M-6], **CLOSED.** 1-FCV-62-84 is closed	___SAT ___UNSAT
STEP 7: STANDARD: SIMULATOR OPERATOR COMMENTS:	**[6] PLACE** 1-HS-62-79A, LTDN HI TEMP DIVERT, in VCT. 1-HS-62-79A, LTDN HI TEMP DIVERT,is in VCT	___SAT ___UNSAT
	CAUTION **Pressure surges can cause 1-RFV-62-662, CVCS LETDOWN HEADER RELIEF, to open. If relief sticks open or leaks after closing, the tailpipe temperature may alarm, and the Pzr Relief/Safety tailpipe temperature may rise and alarm.**	

WATTS BAR NUCLEAR PLANT
3-OT-JPMR 101a

<table>
<tr>
<td>STEP 8:

STANDARD:

COMMENTS:</td>
<td>[7] ENSURE the following:

<table>
<tr><th>NOMENCLATURE</th><th>LOCATION</th><th>POSITION</th><th>UNID</th><th>PERF INITIAL</th></tr>
<tr><td>RCS LETDOWN FRM LOOP 3 IN CNTMT</td><td>1-M-6</td><td>OPEN</td><td>1-HS-62-69A</td><td></td></tr>
<tr><td>RCS LETDOWN FRM LOOP 3 IN CNTMT</td><td>1-M-6</td><td>OPEN</td><td>1-HS-62-70A</td><td></td></tr>
<tr><td>LP LETDOWN ISOL CIV-ØA</td><td>1-M-6</td><td>OPEN</td><td>1-HS-62-77A</td><td></td></tr>
</table>

1-FCV-92-69, 1-FCV-92-70, 1-FCV-92-77 are OPEN,</td>
<td>CRITICAL STEP

___SAT

___UNSAT</td>
</tr>
<tr>
<td>STEP 9:

STANDARD:

COMMENTS:</td>
<td>[8] ENSURE 1-HIC-62-78A, LETDOWN HX OUTLET TEMP TCV-70-192 CNTL, in MANUAL and set between 20 and 25% OPEN.

TCV-70-192 CNTL, is in MANUAL and set between 20 and 25% OPEN.</td>
<td>CRITICAL STEP

___SAT

___UNSAT</td>
</tr>
</table>

WATTS BAR NUCLEAR PLANT
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STEP 10: STANDARD: COMMENTS:	**[9] ENSURE** CCS in service to LDHX (1-FI-70-190) [0-M-27B]. CCS is verified to be in service to LDHX on 1-FI-70-190.	___SAT ___UNSAT
	NOTES: **1) If 1-PCV-62-81 is unavailable, it may be necessary to use the bypass valve per Section 8.15.** **2) It may be necessary to manually control 1-HIC-62-81A, LETDOWN PRESS CONTROL, to prevent letdown pressure from exceeding 600 psig and causing 1-RFV-62-662, CVCS LETDOWN HEADER RELIEF, to OPEN.**	
STEP 11: STANDARD: COMMENTS:	**[10] ENSURE** 1-HIC-62-81A, **LETDOWN** PRESS CONTROL, in MANUAL and set between 40 and 50% **OPEN** if using 75 gpm orifice (20-30% **OPEN** if using 45 gpm orifice). **LETDOWN** PRESS CONTROLLER, is in MANUAL and set between 40 and 50% **OPEN**	**CRITICAL STEP** ___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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STEP 12:

[11] **ENSURE** the following:

NOMENCLATURE	LOCATION	POSITION	UNID	PERF INITIAL	VERIFIER INITIAL
CHARGING LINE ISOLATION	1-M-6	OPEN	1-HS-62-90A		IV
CHARGING LINE ISOLATION	1-M-6	OPEN	1-HS-62-91A		IV

STANDARD: 1-FCV-62-90 and 1FCV-62-91 are OPEN

COMMENTS:

CRITICAL STEP

___SAT

___UNSAT

NOTE:
To minimize possible transient effects on either RCS charging penetration, 1-FCV-62-85 is preferred for use during odd numbered fuel cycles, and 1-FCV-62-86 is preferred for use during even numbered fuel cycles. 1-SI-0-8 provides transient monitoring.

STEP 13:

[12] **OPEN** one charging valve (**N/A** valve **NOT** opened):

NOMENCLATURE	LOCATION	UNID	PERF INITIAL	VERIFIER INITIAL
NORM CHARGING TO LOOP 1	1-M-6	1-FCV-62-85A		IV
ALT CHARGING TO LOOP 4	1-M-6	1-FCV-62-86A		IV

STANDARD: Performer refers to Initial Conditions and determines that 1-FCV-62-85 is used during odd fuel cycles (cycle 9), therefore 1-FCV-62-85 is opened

COMMENTS:

CRITICAL STEP

___SAT

___UNSAT

WATTS BAR NUCLEAR PLANT
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	CAUTIONS: **1) 1-HIC-62-89A, CHARGING HEADER RCP SEALS FLOW CONTROL, must be opened slowly to avoid thermal shock to Regenerative HX.** **2) When operating at a minimum charging flow rate, letdown flow must be cooled below 380°F. If NOT, charging and letdown flow should be raised by opening an additional letdown orifice flow path.**	
	NOTE **Letdown flow should be established promptly after Charging flow is established via 1-FCV-62-89.**	
STEP 14: STANDARD: COMMENTS:	**[13] ADJUST** 1-HIC-62-89A, CHARGING HEADER RCP SEALS FLOW CONTROL, and 1-HIC-62-93A, CHARGING FLOW PZR LEVEL CONTROL, to establish charging flow greater than 55 gpm (to ensure cooling to Regen Hx), and **MAINTAIN** between 8 and 13 gpm RCP Seal flow. Performer establishes Charging greater than 55 gpm with Seal injection flow 8 – 13 gpm per RCP and abides by Caution and Note prior to step.	**CRITICAL STEP** ___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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STEP 15: STANDARD: COMMENTS:	**[14] MONITOR** 1-TI-62-71, REGEN HX OUT LTDN TEMP, to maintain letdown temperature less than 380°F. Performer monitors Letdown temperature now and in subsequent steps.	___SAT ___UNSAT
STEP 16: STANDARD: COMMENTS:	**[15] OPEN** 1-HS-62-76A, **LETDOWN** ORIFICE (5 GPM). Performer **OPENs** 1-HS-62-76A, monitors Letdown flow and temperature.	___SAT ___UNSAT
STEP 17: Evaluator Cue: STANDARD: COMMENTS:	[16] **IF** Letdown was isolated for more than 8 hrs **AND** RCS is 350°F or more, **THEN** **If the performer ask how long it has been since letdown has been isolated, inform them that it has been 1 hour 20 minutes** Performer determines that there is no need to hold in this configuration	___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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CAUTION:
Pressure surges can cause 1-RFV-62-662, CVCS LETDOWN HEADER RELIEF, to open.

STEP 18:

[17] **WHEN** letdown pressure and temperature stabilize, **THEN OPEN** 1-HS-62-72A, CVCS LETDOWN ORIFICE A ISOLATION(45 GPM, CIV-ØA), **OR**

IF 75 gpm letdown is desired, **THEN**

PERFORM the following:

[17.1] **OPEN** one of the following (**N/A** orifice **NOT** selectec

NOMENCLATURE	LOCATION	UNID
LETDOWN ORIFICE B 75 GPM CIV-ØA	1-M-6	1-HS-62-73A
LETDOWN ORIFICE C 75 GPM CIV-ØA	1-M-6	1-HS-62-74A

[17.2] **ENSURE** 1-HS-62-72A, LETDOWN ORIFICE A ISOLATION (45 GPM), is **CLOSED**.

CRITICAL STEP

___SAT

___UNSAT

STANDARD:

Performer allows letdown pressure and temperature to stabilize, and then OPENS Letdown Orfice B, using 1-HS-62-73A.
Performer also verifies 1-HS-62-72A, Letdown Orfice A Isolation, CLOSED

COMMENTS:

Critical step aspect is to open a 75 gpm orifice.

WATTS BAR NUCLEAR PLANT
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STEP 19: STANDARD: COMMENTS:	**[18] CLOSE** 1-HS-62-76A, **LETDOWN** ORIFICE 5 GPM CIV-(A. 1-FCV-62-76 IS CLOSED	___SAT ___UNSAT
STEP 20: STANDARD: COMMENTS:	[19] ADJUST 1-HIC-62-81A, LETDOWN PRESS CONTROL, to maintain between 320 and 350 psig, AND PLACE in AUTO. 1-HIC-62-81A, LETDOWN PRESS CONTROL, is in AUTO and controlling between 320 and 350 psig.	CRITICAL STEP ___SAT ___UNSAT
	NOTE: During periods of high river water temperature, river water temperature will limit the ability of TCV-70-192 to control letdown temperature at lower temperatures. Refer to P & L 3.0C.	

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STEP 21: STANDARD: COMMENTS:	**[20] ADJUST** 1-HIC-62-78A, **LETDOWN** HX OUTLET TEMP TCV-70-192 CNTL, to maintain less than 127°F, **AND MAINTAIN** 1-TCV-70-192 less than full open. **LETDOWN** HX OUTLET TEMP TCV-70-192 CNTL, is less than full open and Letdown Temperature is less than 127 ° F	**CRITICAL STEP** ___SAT ___UNSAT
STEP 22: STANDARD: COMMENTS:	**[21] PLACE** 1-HIC-62-78A in AUTO. Performer places 1-HIC-62-78A in Auto, and monitors Letdown Temperature on 1-TI-62-78 [1-M-6],	___SAT ___UNSAT
STEP 23: STANDARD: **Simulator Operator CUE** COMMENTS:	**[22] PLACE** 1-HS-62-79A, **LETDOWN** HI TEMP DIVERT, to DEMIN, then to P-AUTO. 1-HS-62-79A, is in P-AUTO. ***When performer places 1-HIC-62-79A in Auto, insert Trigger 1 to fail temperature control***	___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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Evaluator Note:

Performer should observe letdown temperature on 1-TI-62-78 [1-M-6], not being controlled, and that letdown flow is still going to the demineralizers.

The following steps are associated with *alarm response "ARI 110D LTDN TO DEMINS TEMP HI "*

If the performer realizes the temperature control problem and takes the following 2 prudent actions, IAW TI-12.04, then the remaining Critical Steps would have been accomplished.

1. ***Take manual action to divert letdown flow from CVCS demineralizers with 1-HIS-62-79A.***
2. ***Take manual control of 1-HIC-62-78A and control letdown temperature to less than 127°F.***

STEP 24:	**ARI 110D Step 1** **IF** letdown temperature is greater than 137.5° F on 1-TI-62-78 [1-M-6], **THEN ENSURE** CVCS demineralizers bypassed (lights above 1-HS-62-79 [1-M-6]).	**CRITICAL STEP** ___SAT
STANDARD:	Manual action is performed to place 1-HS-62-79A, in Divert, since letdown temperature got greater than 137.5° F	___UNSAT
COMMENTS:		

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STEP 25: STANDARD: COMMENTS:	**ARI 110D Step 2** **ENSURE** letdown flow is 45 gpm to 120 gpm on 1-FI-62-82 [1-M-6]. Letdown Flow is 75 gpm	___SAT ___UNSAT
STEP 26: STANDARD: COMMENTS:	**ARI 110D Step 3** **ENSURE** charging flow is 57 gpm to 132 gpm on 1-FI-62-93A [1-M-5]. Charging Flow is 57 gpm to 132 gpm	___SAT ___UNSAT

WATTS BAR NUCLEAR PLANT
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STEP 27: STANDARD: COMMENTS:	**ARI 110D Step 4** **ADJUST** 1-HIC-62-78A to maintain letdown temperature less than 127° F on 1-TI-62-78. 1-HIC-62-78A is placed in Manual and Letdown temperature controlled to less than 127°F	**CRITICAL STEP** ___SAT ___UNSAT
STEP 28: **Evaluator Cue** COMMENTS:	Performer informs SRO that Charging and Letdown are in service with 1-HIC-62-78A is placed in Manual controlling Letdown temperature ***Acknowledge report, notifiy performer that the task is complete. End task Inform performer that another operator will take the task from this point.*** **End of Task**	___SAT ___UNSAT

TIME STOP: _____

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Excess letdown was placed in service 1 hour ago due to an air line fitting vibrating loose on 1-PCV-62-81. The air leak was just repaired and 1-PCV-62-81 has been tested.

Another Operator is being briefed to remove Excess Letdown from service when you have completed yor task.

INITIATING CUES:

The Control Room Supervisor has directed you to restore normal charging with the 1A CCP running, and 75 gpm Letdown Orifice "B" by performing Section 8.2 of SOI 62.01 CVCS- Charging and Letdown. (Consider the plant operating in Cycle 9)

Notify US when the procedure is complete.

Watts Bar Nuclear Plant
3-OT-JPMR173A

START UP UPPER CONTAINMENT PURGE PER SOI-30.02

Watts Bar Nuclear Plant
3-OT-JPMR173A

NUCLEAR TRAINING REVISION/USAGE LOG				
Rev. #	Description of Changes	Date	Pages Affected	Reviewed By
0	Initial Issue.		All	D.L.Hughes

Watts Bar Nuclear Plant
3-OT-JPMR173A
EVALUATION SHEET

Task: START UP UPPER CONTAINMENT PURGE PER SOI-30.02

Alternate Path: N/A

Facility JPM #: 3-OT-JPMR173A Rev0

K/A Rating(s):

- 029A2.03 Startup operations and the associated required valve lineups. [Importance: RO/SRO 2.7 / 3.1]
- 029A4.01 Containment purge flow rate [Importance: RO/SRO 2.5 / 2.5]
- 2.2.2 Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels. [Importance: RO/SRO 4.6 /4.1]

TASK STANDARDS: Upper Containment Purge is in service

Preferred Evaluation Location: **Preferred Evaluation Method:**

Simulator __X__ In-Plant _____ Perform __X__ Simulate _____

References: SOI-30.02 Containment Purge System Rev 0051.

Task Number: RO-030-SOI-30-007 APPLICABLE FOR: RO/SRO

10CFR55.45: 1, 3, & 7

Validation Time: 20 min. **Time Critical:** No

==========

Candidate: _____ _____ Time Start: _____
NAME SSN/EIN Time Finish: _____

Performance Rating: SAT ____ UNSAT ____ Performance Time ___

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

Watts Bar Nuclear Plant
3-OT-JPMR173A

SIMULATOR OPERATOR INSTRUCTIONS:

1. Initialize to any Mode 1 IC that does not have Containment Purge in service.
2. Acknowledge all alarms.
3. After performer indicates understanding of task, place simulator in run.
4. There are no malfunctions, overrides, or booth communications needed for the administration of this JPM

Watts Bar Nuclear Plant
3-OT-JPMR173A

EVALUATOR INFORMATION SHEET

Tools/Equipment/Procedures Needed:

Ensure clean copy of SOI-30.02 Containment Purge System in the books on the Simulator Floor.

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating/operating cues.
Alll Control Room steps shall be performed for this task, including any required communications.
Ensure that you indicate to me when you fully understand your task.

INITIAL CONDITIONS:

The Unit is in Mode 1.
You are the BOP.

INITIATING CUES:

The Unit Supervisor has directed you to place "B" train Upper Containment Purge in service, utilizing 1-FCV-30-9 & 53 and 1-FCV-30-10 & 52.

Section 4.0, Prerequisite Actions are complete.

You are to notify the Unit Supervisor when your task is complete.

Watts Bar Nuclear Plant
3-OT-JPMR173

START TIME: _____

STEP 1: STANDARD: COMMENTS: **EXAMINER'S CUE:**	Obtain a copy of the appropriate procedure. A copy of SOI-30.02 has been obtained. ***After the performer has demonstrated the method of obtaining the correct instruction, the evaluator can provide a copy of the instruction.***	 ___SAT ___UNSAT
STEP 2: STANDARD: COMMENTS:	**[1]** **ENSURE** Section 4.0, Prerequisite Actions, COMPLETE. Performer determines from turnover sheet that Section 4.0, Prerequisite Actions, COMPLETE	 ___SAT ___UNSAT

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

Watts Bar Nuclear Plant
3-OT-JPMR173

STEP 3: STANDARD: COMMENTS:	[2] **PERFORM** the following prior to moving irradiated fuel with containment open to ABSCE spaces: (N/A if in Modes 1-4 or if in Modes 5 & 6 with containment isolated) Performer determines that the step is N/A.	___SAT ___UNSAT
STEP 4: STANDARD: COMMENTS:	**[3] OBTAIN** SRO approval. Performer determines that Unit Supervisor's permission was given in the initial conditions.	___SAT ___UNSAT
STEP 5: **EXAMINER'S CUE:** STANDARD: COMMENTS:	[4] **OBTAIN** Release Permit from Chemistry Countroom. **Inform performer that Unit Supervisor has obtained Release Permit from Chemistry Countroom.** Performer determines that Release Permit from Chemistry Countroom is obtained.	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR173

STEP 6: **EXAMINER'S CUE:** STANDARD: COMMENTS:	[5] **ENSURE** appropriate heating/cooling water to Containment Purge Supply per SOI-44.01/SOI-31.03 (**N/A** if **NOT** desired). **Inform performer that heating/cooling water to Containment Purge Supply is not desired.** Step is N/Aed	___SAT ___UNSAT
STEP 7: **EXAMINER'S CUE:** STANDARD: COMMENTS:	[6] **ENSURE** Section 5.10 of SOI-90.02, Gaseous Process Radiation Monitors, has been completed for specific train(s) of containment purge to be placed in service. **If asked, inform performer that Section 5.10 of SOI-90.02, Gaseous Process Radiation Monitors, has been completed for "B" train of upper containment purge to be placed in service.** Performer initials step as complete.	___SAT ___UNSAT

Watts Bar Nuclear Plant
3-OT-JPMR173

STEP 8: STANDARD: COMMENTS:	[7] **INDICATE** which Train(s) will be used • Train A Containment Purge • Train B Containment Purge • Both Trains A and B Containment Purge Performer reviews initiating cues, and selects "train B".	___SAT ___UNSAT
STEP 9: STANDARD: COMMENTS:	[8] **IF** Wafer Vlv, 1-ISV-78-600, OPEN in Mode 6 WITH SFP & Rx Cavity Full, **THEN…** Performer N/As step since plant is in Mode 1	___SAT ___UNSAT
STEP 10: STANDARD: COMMENTS:	**[9] IF** aligning for 2-Train operation, **THEN CHECK A** Train ABGTS is **NOT** running. Performer N/As step since plant is only 1 train operation is desired.	___SAT ___UNSAT

Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.

Watts Bar Nuclear Plant
3-OT-JPMR173

STEP 11:

[10] **CLOSE** Containment vent filter flowpath:

NOMENCLATURE	LOCATION	POSITION	UNID
LWR CNTMT PURGE EXH PRESS RLF	1-M-9	CLOSED	1-HS-30-37
LWR CNTMT PURGE EXH PRESS RLF	1-M-9	CLOSED	1-HS-30-40

CRITICAL STEP

STANDARD: Performer closes:

- 1-HS-30-37
- 1-HS-30-40

___SAT

COMMENTS:

___UNSAT

STEP 12:

[11] **OPEN** Selected Supply Fan(s) Disch damper **(N/A** if **NOT** selected):

NOMENCLATURE	LOCATION	POSITION	UNID
PURGE SUP FAN 1A DISCH	1-M-9	OPEN	1-HS-30-2
PURGE SUP FAN 1B DISCH	1-M-9	OPEN	1-HS-30-5

CRITICAL STEP

___SAT

STANDARD: Performer only OPENS:

- 1-HS-30-5

COMMENTS:

___UNSAT

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

Watts Bar Nuclear Plant
3-OT-JPMR173

STEP 13:

[12.1] **IF** Train A will be run, **THEN**

PERFORM the following:

NOMENCLATURE	LOCATION	POSITION	UNID
PURGE EXH FAN 1A TO SHIELD BLDG VNT	1-M-9	OPEN	1-HS-30-213
PURGE EXH FAN 1B TO SHIELD BLDG VNT	1-M-9	CLOSED	1-HS-30-216

[12.2] **IF** Train B will be run, **THEN**

PERFORM the following:

NOMENCLATURE	LOCATION	POSITION	UNID
PURGE EXH FAN 1A TO SHIELD BLDG VNT	1-M-9	CLOSED	1-HS-30-213
PURGE EXH FAN 1B TO SHIELD BLDG VNT	1-M-9	OPEN	1-HS-30-216

[12.3] **IF** Both Train A and B will be run, **THEN**

PERFORM the following:

NOMENCLATURE	LOCATION	POSITION	UNID
PURGE EXH FAN 1A TO SHIELD BLDG VNT	1-M-9	OPEN	1-HS-30-213
PURGE EXH FAN 1B TO SHIELD BLDG VNT	1-M-9	OPEN	1-HS-30-216

CRITICAL STEP

___SAT

___UNSAT

STANDARD: The Performer (NA steps [12.1] &[12.3]) AND .

- **VERIFY CLOSED** 1-HS-30-213
- **OPENS** 1-HS-30-216

COMMENTS:

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

Watts Bar Nuclear Plant
3-OT-JPMR173

<table>
<tr>
<td>STEP 14:

STANDARD

COMMENTS:</td>
<td>[13] OPEN the FCVs in 5.1[13.1] & 5.1[13.2], or 5.1[13.3] & 5.1[13.4] [1-M-9] (N/A set NOT used):

[13.1] UPR CNTMT PURGE 1-FCV-30-7 & 51 with 1-HS-30-7.

[13.2] UPR CNTMT PURGE 1-FCV-30-8 & 50 with 1-HS-30-8.

OR

[13.3] UPR CNTMT PURGE 1-FCV-30-9 & 53 with 1-HS-30-9.

[13.4] UPR CNTMT PURGE 1-FCV-30-10 & 52 with 1-HS-30-10.

Performer reviews JPM initiating que and ONLY OPENS:
• FCV-30-9 & 53 with 1-HS-30-9
• 1-FCV-30-10 & 52 with 1-HS-30-10</td>
<td>CRITICAL STEP

___SAT

___UNSAT</td>
</tr>
<tr>
<td>STEP 15:

STANDARD:

COMMENTS:</td>
<td>[14] START Selected Purge Sup & Exh Fan(s) (N/A if NOT selected):

<table>
<tr><th>NOMENCLATURE</th><th>LOCATION</th><th>POSITION</th><th>UNID</th></tr>
<tr><td>CNTMT PURGE SUP & EXH FANS 1A AND FCO-30-1A & 1B</td><td>1-M-9</td><td>START</td><td>1-HS-30-1A</td></tr>
<tr><td>CNTMT PURGE SUP & EXH FANS 1B AND FCO-30-4A & 4B</td><td>1-M-9</td><td>START</td><td>1-HS-30-4A</td></tr>
</table>

Performer ONLY starts 1B Fans and dampers with 1-HS-30-4A.</td>
<td>CRITICAL STEP

___SAT

___UNSAT</td>
</tr>
</table>

Watts Bar Nuclear Plant
3-OT-JPMR173

STEP 16:

[15] **PERFORM** the following (**N/A** if **NOT** selected):

NOMENCLATURE	LOCATION	POSITION	UNID
PURGE EXH FAN A SUCT	1-M-9	OPEN	1-HS-30-61
PURGE EXH FAN B SUCT	1-M-9	OPEN	1-HS-30-62

STANDARD: The performer ONLY OPENS 1-HS-30-62.

COMMENTS:

CRITICAL STEP

___SAT

___UNSAT

STEP 17:

[16] **ENSURE** the following (**N/A** Train **NOT** used):

NOMENCLATURE	LOCATION	POSITION	UNID
PURGE SUP SUCT ISOL DAMPER 1-XI-30-294	1-M-9	OPEN	FCO-30-294
PURGE SUP SUCT ISOL DAMPER 1-XI-30-295	1-M-9	OPEN	FCO-30-295
Train A			
DAMPER 1-XI-30-1A	1-M-9	OPEN	FCO-30-1A
DAMPER 1-XI-30-1B	1-M-9	OPEN	FCO-30-1B
Train B			
DAMPER 1-XI-30-4A	1-M-9	OPEN	FCO-30-4A
DAMPER 1-XI-30-4B	1-M-9	OPEN	FCO-30-4B

STANDARD: The performer **ENSURES OPEN**:

- FCO-30-294
- FCO-30-295
- FCO-30-4A
- FCO-30-4B

COMMENTS:

CRITICAL STEP

___SAT

___UNSAT

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STEP 18: STANDARD: COMMENTS:	[17] **CHECK** flow on 1-FI-90-400, SHIELD BLDG VT FLOW [1-M-9] **(N/A** if FI **NOT** available**).** The performer verifies flow on 1-FI-90-400, SHIELD BLDG VT FLOW.	___SAT ___UNSAT
STEP 19: STANDARD: COMMENTS:	[18] **IF** FI-90-400 is **NOT** available, **THEN ENSURE** Flow being estimated per 1-SI-0-2, Shift & Daily Log. The performer N/As this step.	___SAT ___UNSAT
STEP 20: STANDARD: **EXAMINER CUE:** COMMENTS:	[19] **NOTIFY** the Chemistry Countroom of the purge start date and time. The performer informs Chemistry Countroom of the purge start date and time. **When notified, acknowledge the report.**	___SAT ___UNSAT

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STEP 21:	[20] **IF** containment pressure approaches or exceeds Tech Spec value (+0.27 psid in Modes 1-4), **THEN PERFORM** Section 7.1, SHUT DOWN Upper Containment Purge.	___SAT
STANDARD:	The performer monitors Containment pressure on 1-PDI-30-133 and verifies it is less than Tech Spec value. Performer notifies Unit Supervisor that "B" train Upper Containment Purge in service	___UNSAT
EXAMINER CUE:	**When notified, acknowledge the report, notify performer that the task is complete. End task**	
COMMENTS:		
	END OF TASK	

TIME STOP: _____

***Italicized Cues Are To Be Used Only If JPM Performance Is Being Simulated.**

EXAMINEE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The Unit is in Mode 1.
You are the BOP.

INITIATING CUES:

The Unit Supervisor has directed you to place "B" train Upper Containment Purge in service, utilizing 1-FCV-30-9 & 53 and 1-FCV-30-10 & 52.

Section 4.0, Prerequisite Actions are complete.

You are to notify the Unit Supervisor when your task is complete.