

JOB PERFORMANCE MEASURE APPROVAL SHEET

I JPM Title: Manual Makeup to the VCT

ID Number: JPM-S1

Revision: 0

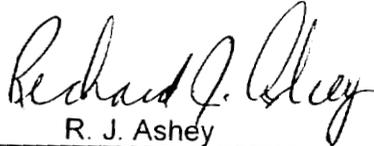
II. Initiated:



Daniel A. Pantalone
Developer

1/21/2005
Date

III. Reviewed:



R. J. Ashley
Technical Reviewer

1/26/05
Date

IV. Approved:

NA

User Department Supervisor

Date



Nuclear Training Supervisor

1/26/05
Date

JOB PERFORMANCE MEASURE WORKSHEET

JPM Number: JPM-S1

Rev. 0

Initiating Cues:

- The Unit Supervisor has directed you to perform a manual blended makeup to the VCT and raise VCT level by 2% while maintaining the PMW and Boric Acid flow controllers in the "AUTO" mode of operation.
- When makeup is completed, return the system lineup to normal.
- The examiner will act as the US.

Initial Conditions:

- RCS boron concentration is 573 ppm
- In-service Boric Acid Storage Tank concentration is 5,943 ppm
- No manual leak rate is in progress.

Simulator Requirements:-

Initialize at any IC with charging, letdown, and makeup to the VCT available.
Verify RCS boron (Cb) = 573 on the simulator.
Verify "A" BAST pp selected to 'lead' (C-O2)
Verify "A" BAST concentration = 5943 ppm
Verify VCT level \leq 82%

***** NOTES TO EXAMINER *****

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S1

TITLE: Manual Makeup to the VCT

START TIME: _____

STEP 1 Performance Steps: Refer to Section 4.20, "Maintaining VCT Level and Pressure During Normal Operation," and Perform applicable actions.

GRADE Standards: *The examinee refers to Section 4.20 and determines no steps in this section need to be taken.*

Cue
:

Comments:

~~~~~

STEP 2        X        Performance Steps:              Ensure PMW is available and at least one charging pump operating.

GRADE          Standards:              *Examinee observes red indicating lights lit on C-02 for*

  X  

- *PMW pumps*
- *and charging pumps.*

Cue  
:

Comments:  
  
~~~~~

STEP 3 X Performance Steps: Determine the required ratio of Boric Acid flow to PMW flow.

GRADE X Standards: *Examinee uses either OP 2208 or PPC to determine that the ratio of Boric Acid to PMW flow is 1 gallon to 9.37gallons, respectively.*

Cue
:

Comments: PMW value does not have to be calculated to the decimal points if done by hand.

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S1

TITLE: Manual Makeup to the VCT

Comments: Any ratio of approximately 1 gal. BA to 9.37 gal. PMW is acceptable (i .e. 10 gals. BA to 94-100 gals. PMW, etc.). Controllers are normally in "AM" mode.

~~~~~

STEP 9     X     Performance Steps:             Place "Makeup Mode Selector Switch" in "MANUAL".

GRADE \_\_\_     X     Standards:             *Examinee places the "Makeup Mode Selector Switch" in "MANUAL" position on C-04.*

Cue  
:

Comments:

~~~~~

STEP 10 X Performance Steps: Start one boric acid pump.

GRADE ___ X Standards: *Examinee starts the selected (by indicated switch position) "A" B.A. pump by:*

- X *- placing its hand switch to the "START" position,*
- ___ *- checks red light lit,*
- ___ *- and checks indicated discharge pressure is at least 98 psig.*

Cue
:

Comments: The selected BA pump must be from the BAST used to determine VCT blend. (The "A" is the selected pump and should be used)

~~~~~

STEP 11     X     Performance Steps:             Open Makeup Stop Valve, CH-512.

GRADE \_\_\_     X     Standards:             *Examinee places CH-512 switch to "OPEN" on C-04 and ensures red light only is lit.*

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S1

TITLE: Manual Makeup to the VCT

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Cue  
:

Comments: Examinee may check that the "M" of "AM" extinguishes on the makeup controllers.

~~~~~

STEP 12 ___ Performance Steps: Ensure flows have stabilized at setpoints of the flow controllers.

GRADE ___ ___ Standards: *Examinee watches flow controllers on C-04 to ensure flow begins and then stabilizes at the calculated setpoints.*

Cue
:

Comments: The flow values may vary depending upon how many GPM of BA are used.

~~~~~

STEP 13    \_\_\_    Performance Steps:            Monitor VCT level and pressure as indicated on PI-225 and LI-226.

GRADE \_\_\_    \_\_\_    Standards:            *Examinee observes indications on C-02 or PPC.*

Cue  
:

Comments:

~~~~~

STEP 14 ___ Performance Steps: When desired VCT level is reached Close "Makeup Vlv Stop" CH-512, on C-04

GRADE ___ ___ Standards: *Examinee observes that:*

- 2% level has been added to the VCT
- and closes CH-512.
- Observes green light lit for valve and flow stops.

Cue
:

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S1

TITLE: Manual Makeup to the VCT

-
- | | |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u> </u>
<u> </u>
<u> X</u> | <ul style="list-style-type: none">- Presses the "R/L" button to transfer to the "L" mode.- Presses the "SEL" button and holds until "FC-210X" or FIC-210Y is displayed.- Verifies the "AM" light is lit.- Checks that total volume added is consistent with volume calculated in step 4.9.6 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Cue

Comments: The volume added may be slightly more or less than the 2% calculated.

~~~~~

STEP 18       Performance Steps:        Notify the US that the makeup has been completed.

GRADE          Standards:        *Examinee notifies the US that the blended makeup has been completed as indicated by no flow on FC-210X & Y and VCT level change of 2%.*

Cue

Comments: **After this step is completed, the JPM is considered complete.**

~~~~~

STOP TIME: _____

VERIFICATION OF JPM COMPLETION

Job Performance Measure No. JPM-S1

Rev. 0

Date Performed:

Operator:

Evaluator(s):

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes _____ No X

Validated Time (minutes): _____ 10 _____

Actual Time to Complete (minutes): _____

Result of JPM: _____ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

EXAMINEE HANDOUT

JPM ID Number: S1

Initiating Cues:

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- When makeup is completed, return the system lineup to normal.
- The examiner will act as the US.
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Initial Conditions:

- RCS boron concentration is 573 ppm
- In-service Boric Acid Storage Tank concentration is 5,943 ppm

Attachment 4
Manual Calculations With PPC Not Available
(Sheet 1 of 1)

Blended Makeup Flowrate Determination Formula:

PMW flowrate = "K" x (boric acid flowrate)

Where, "K" =
$$\frac{5943 \text{ ppm boron in BAST} - 573 \text{ ppm boron in makeup}}{573 \text{ ppm boron in makeup}} = \frac{9.77 \text{ PMW}}{1 \text{ B.A.}}$$

Boration and Dilution Formulas:

NOTE

The boration and dilution formulas used in this worksheet assume the RCS is at 532°F, 2,250 psia, and pressurizer level is at 40%.

BAST Boron Concentration (C_{BAST}) <div style="text-align: center; font-size: 1.2em;">5943</div> ppm	Initial RCS Boron Concentration (C_I) <div style="text-align: center; font-size: 1.2em;">573</div> ppm
RCS T _{AVG} <div style="text-align: center; font-size: 1.2em;">572</div> °F	Desired Final RCS Boron Concentration (C_F) <div style="text-align: center; font-size: 1.2em;">573</div> ppm

Boration Formula ($C_F > C_I$):

$$\text{Volume of boric acid (gal)} = 62,490 \times \text{Ln} \left[\frac{(C_I - C_{BAST})}{(C_F - C_{BAST})} \right]$$

Dilution Formula ($C_F < C_I$):

$$\text{Volume of PMW (gal)} = 62,490 \times \text{Ln} \frac{(C_I)}{(C_F)}$$

Natural Logarithmic Values for Selected Points		
Ln 1.0 = 0.000	Ln 1.5 = 0.405	Ln 2.0 = 0.693
Ln 1.1 = 0.095	Ln 1.6 = 0.470	Ln 2.1 = 0.742
Ln 1.2 = 0.182	Ln 1.7 = 0.531	Ln 2.2 = 0.788
Ln 1.3 = 0.262	Ln 1.8 = 0.588	Ln 2.3 = 0.833
Ln 1.4 = 0.336	Ln 1.9 = 0.642	Ln 2.4 = 0.875

Level of Use Information

STOP THINK ACT REVIEW

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Attachment 4
Manual Calculations With PPC Not Available
 (Sheet 1 of 1)

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Where, "K" = $\frac{(\text{ppm boron in BAST}) - (\text{ppm boron in makeup})}{\text{ppm boron in makeup}}$

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Attachment 4
Manual Calculations With PPC Not Available
 (Sheet 1 of 1)

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Where, "K" = $\frac{(\text{ppm boron in BAST}) - (\text{ppm boron in makeup})}{\text{ppm boron in makeup}}$

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RCS T _{AVG} °F	Desired Final RCS Boron Concentration (C_F) ppm

Boration Formula ($C_F > C_I$):

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Dilution Formula ($C_F < C_I$):

$$\text{Volume of PMW (gal)} = 62,490 \times \text{Ln} \frac{(C_I)}{(C_F)}$$

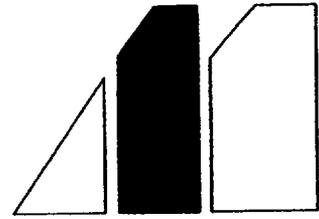
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**Level of Use
Information**

STOP THINK ACT REVIEW

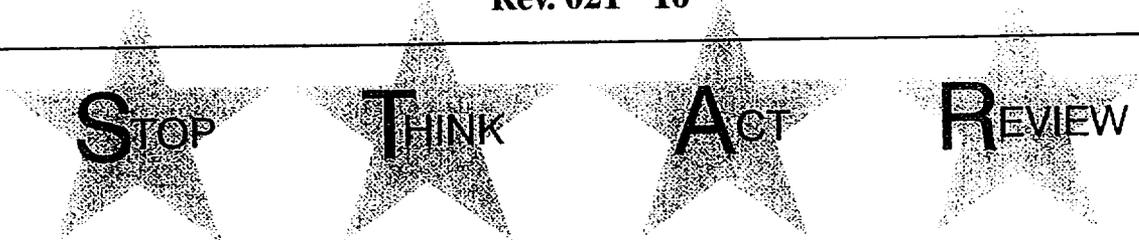
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MILLSTONE POWER STATION
SYSTEM OPERATING PROCEDURE



**Make Up (Boration and Dilution) Portion of
CVCS**

OP 2304C
Rev. 021-10



Approval Date: 11-29-04

Effective Date: 12-2-04

Level of Use
Continuous

9/7/04
Approval Date

9/15/04
Effective Date

Procedure Action Request

Document No.: OP 2304C	Writer: R. Webber Initiator	Rev. No. 021	Minor Rev. ⁸⁹ 13
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Title: Make UP (Boration and Dilution) Portion of CVCS

For New Documents: Document is QA DH Title:

Revision Minor Revision Cleanup Revision Biennial Review
 Cancel Void (Do Not Use) Expire Superseded By: _____

Comments: Administrative Correction FLS: _____

TS Amendment 283, changed pump testing to TS 4.0.5 and relocated boric acid to the TRM.
Changed TS to TRM.

Added valve lineup OP 2304C-002, derived from and replaces SP 2601B-001 and 2601E-001

Associated ARs

Reviews	Print	Sign	Date	Department	
<input type="checkbox"/>					
<input type="checkbox"/>					
<input type="checkbox"/>					
<input type="checkbox"/>					
Engineering	<input checked="" type="checkbox"/>			Site Engineering	
WC 9 Att 3 Req. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/>	R. Webber	11/05/04	SPG	
Licensing Basis / RCD (50.59/72.48 Screen Req. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)	<input checked="" type="checkbox"/>	TS Amendment 283	R. Webber	11/05/04	SPG
Tech Independent	<input checked="" type="checkbox"/>	R. Beal	11/11/04	OPS 2	

Validation	<input type="checkbox"/> None	<input type="checkbox"/> Field - Use MP-05-DC-SAP01-004	<input type="checkbox"/> Simulated Performance - Use MP-05-DC-SAP01-004	<input type="checkbox"/> Table Top and Walk-through	<input checked="" type="checkbox"/> Comparison
(minimum of two)	Print	Sign	Date	Dept	
Coordinator	R. L. Beal	R. Beal	11/11/04	OPS 2	
Member					

Training: None Nuclear Training Briefing Familiarization

SQR Review and Approval

SORC Review and Approval

Department Head Review and Approval

Approval Disapproval

N/A
(1) Department Head Sign/Date

N/A
(1) Department Head Approval Sign

9/16/04 11/12/04
(1) SQR Sign/Date

(2) SORC Meeting Number

(2) Department Head Approval Sign

(3) SORC Approval Sign

Approval Date: 11-29-04

Effective Date: 12/2/04

**Millstone Unit 2
System Operating Procedure**

Make Up (Boration and Dilution) Portion of CVCS

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OP 2304C-001, "Placing the Boric Acid System in Operation"

OP 2304C-002, "Boric Acid Valve Lineup"

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1. PURPOSE

1.1 Objective

This procedure provides instructions for the various modes of operation of the RCS Make Up (Boric Acid and PMW) System.

1.2 Discussion

The boric acid system is used during normal plant operations to provide a means of maintaining the required boron concentration in the RCS for reactivity control.

The boric acid system is capable of bringing the reactor to COLD SHUTDOWN conditions any time in core life, *without* movement of CEAs.

When required, the boric acid system provides a means of emergency borating the RCS or raising SHUTDOWN MARGIN.

The boric acid system provides a means of supplying borated water to the RWST.

The boric acid system provides a source of borated water to the charging pumps during post accident conditions. This enables the charging pumps to supplement the HPSI pumps during a small break LOCA by injecting at least 40 gpm to the RCS.

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2. PREREQUISITES

2.1 **General**

- _____ 2.1.1 The Volume Control System is operable and available to provide a make up flow path to the RCS as specified in OP 2304A, "Volume Control Portion of CVCS."
- _____ 2.1.2 120 VAC vital instrument power is available.
- _____ 2.1.3 120 VAC instrument power is available.
- _____ 2.1.4 125 VDC control power is available.
- _____ 2.1.5 MCCs B51 and B61 are energized and available for the following:
- _____ 2.1.6 "A" and "B" boric acid pumps
- _____ 2.1.7 Motor operated boric acid valves
- _____ 2.1.8 Boric acid pipe heat tracing (limited)
- _____ 2.1.9 Boric acid tank heaters (available, *not* used)
- _____ 2.1.10 PMW is available for blended make up or dilution.
- _____ 2.1.11 Instrument Air is available for air operated valves.
- _____ 2.1.12 Boric Acid system valves are lined up as specified in the following:
- OP 2304C-001, "Placing the Boric Acid System in Operation"
 - OP 2304C-002, "Boric Acid Valve Lineup" | ⑩
- _____ 2.1.13 Clean Liquid Radwaste System is available to accept letdown flow when VCT level is high (88%).
- _____ 2.1.14 Sample System is available to ensure boron concentration of the VCT and RCS.

2.2 **Documents**

- _____ 2.2.1 OP 2208, "Reactivity Calculations"

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_____ 2.2.2 OP 2304A, "Volume Control Portion of CVCS"

_____ 2.2.3 AOP 2558, "Emergency Boration"

_____ 2.2.4 TRM, Figure 3.1-1

| ⑩

2.3 Personnel

_____ 2.3.1 Chemistry department personnel perform boric acid concentration sampling.

3. PRECAUTIONS

_____ 3.1 All boration and dilution evolutions shall be conducted in a deliberate and carefully controlled manner, while closely monitoring the response of the reactor[Ref. 6.2].

_____ 3.2 Anytime boron dilution operations are being performed with the reactor subcritical, criticality should be anticipated.

_____ 3.3 When an RCS boron concentration change of 50 ppm or greater is initiated, the pressurizer spray valves, RC-100E or RC-100F, should be operated to equalize the pressurizer and RCS boron concentrations to within 10 ppm (C-03).

_____ 3.4 To ensure adequate mixing during boron dilution, a minimum of one RCP or 1 LPSI pump operating in shutdown cooling mode with core flow greater than or equal to 1,000 gpm, must be running.

_____ 3.5 When RCS boron concentration is being changed, exceeding the PDIL alarm point must be avoided.

_____ 3.6 If the PDIL alarm point is reached when the reactor is critical, emergency boration must be *immediately* started as specified in AOP 2558, "Emergency Boration."

_____ 3.7 Effects of boration or dilution on reactor power and T_{AVG} should be closely monitored. If response is *not* in the proper direction, boration or dilution must be *immediately* stopped.

_____ 3.8 VCT pressure must be monitored during make up operations. VCT pressure should rise when making up to the VCT. VCT pressure lowering with a constant VCT level may indicate a level instrument problem. VCT must be vented to the waste gas header prior to reaching 35 psig.

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_____ 3.9 If it is desired to perform a planned (i.e. *not* an emergency), boration to the RCS with *no* RCPs operating in MODE 5, to prevent a potential dilution event, the RCS must *first* be drained to at least 17 inches above the centerline of the hot leg (drains SG u-tubes) [Ref. 6.1].

_____ 3.10 If charging pumps are to be aligned to take a suction from the RWST, a suction path from the RWST exists and the following valves are open:

- RWST HDR B ISOL, 2-CS-13.1B
- RWST to CVCS Stop, 2-CS-028
- RWST Outlet Header "B" Isolation, 2-CS-13B

_____ 3.11 If a manual RCS leak rate determination is in progress and totalizers for PMW and BA controllers, FC-210X and FC-210Y are being used to track RCS makeup, values must be recorded on OPS Form 2602A-1 prior to resetting totalizers to zero.

_____ 3.12 The Boric Acid Storage Tank Level Indicators use an existing 12 inch dip tube inside the tanks for the instrument taps. If the bottom of the dip tube is uncovered at 0% or less, the indication is erroneous until backfilled. ⑦

_____ 3.13 Letdown flow should be monitored when shifting "LTDN DIVERT, CH-500" between "VCT" and "RWS" positions. If an unexpected drop in letdown flow is observed, "LTDN DIVERT, CH-500" should be immediately returned to its initial position. ⑧

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4.9 Manual Blended Make Up to VCT

4.9.1 Refer To Section 4.20, "Maintaining VCT Level and Pressure During Normal Operation," and PERFORM applicable actions. ⑧

CAUTION

1. Manual make up must be monitored closely as there is *no* automatic shutoff on a high level in the VCT.
2. When calculating the amount of boric acid required for reactivity change, the amount and effects of PMW in the pipe must be considered.

4.9.2 ENSURE the following (C-02):

- PMW is available (indicating lights for PMW transfer pumps).
- WHEN blend will be injected into the RCS, at least *one* charging pump running.

NOTE

The volume of the piping from the blending tee to the charging pump suction is 39 gallons and from the blending tee to the VCT is 26 gallons. This piping may contain PMW or boric acid.

4.9.3 Refer To OP 2208, "Reactivity Calculations" or PPC and DETERMINE required ratio of boric acid flow to PMW flow.

4.9.4 ENSURE the following are closed:

- "MAKEUP VLV STOP, CH-512" (C-04)
- "VCT MAKEUP BYPASS, CH-196" (C-02)
- "RWST ISOL, CH-192" (C-02)

4.9.5 DETERMINE desired VCT level change in % level.

4.9.6 DETERMINE *total* gallons required to make desired level change as follows:

$$\text{Desired level change in \%} \times \frac{34 \text{ gallons}}{1\% \text{ level}} = \text{Total gallons for make up}$$

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4.9.7 RESET "PRI MAKEUP WTR FLOW, FC-210X" and "BORIC ACID FLOW, FC-210Y" to 0 total gallons by performing the following (C-04):

- a. CHECK "R/L" light indicates "L."
- b. IF a manual leak rate determination is in progress AND flow controller totalizers are being used to track RCS makeup, PERFORM the following:
 - 1) PRESS "SEL" button until "PMW TOTAL" or "BA TOTAL" is displayed.
 - 2) OBSERVE total gallons added.
 - 3) Refer To SP 2602A-001 and RECORD total gallons added.
- c. PRESS "SEL" button and HOLD until display indicates "TOTAL RST."
- d. PRESS "R/L" button to transfer to "R" mode to reset totalizer.
- e. PRESS "R/L" button to transfer to "L" mode.
- f. PRESS "SEL" button and HOLD until controller number (FC-210X or FC-210Y) is displayed.

4.9.8 START PPC trend of VCT level (L226).

NOTE

Boric acid flow rates of greater than 30 gpm is achievable, but are not to be exceeded.

9

4.9.9 ADJUST automatic setpoint of "PRI MAKEUP WTR FLOW, FC-210X" and "BORIC ACID FLOW, FC-210Y" as follows (C-04):

- a. ENSURE "AM" is lit.
- b. PRESS "SEL" button until cursor appears above setpoint (left hand bar graph).

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_____ c. Using “▲” and “▼” buttons, ADJUST setpoint to desired flow rate.

_____ 4.9.10 PLACE “MAKEUP MODE SEL” in “MANUAL” (C-04).

_____ 4.9.11 START *one* boric acid pump (C-02).

_____ • “BA PP A, P-19A”

_____ • “BA PP B, P-19B”

_____ 4.9.12 ENSURE the following:

_____ • Boric acid pump starts (C-02)

_____ • Boric acid pump develops discharge pressure of at least 98 psig, indicated “PP A DIS PRES, PI-206” or “PP B DIS PRES, PI-208” (C-02/PPC)

NOTE

When “MAKEUP VLV STOP, CH-512” is opened, the “M” part of the “AM” light will extinguish, indicating the controller is activated.

_____ 4.9.13 OPEN “MAKEUP VLV STOP, CH-512” (C-04).

_____ 4.9.14 ENSURE flows have stabilized at setpoint of flow controllers (C-04).

_____ 4.9.15 MONITOR VCT level and pressure as indicated on the following: (C-02 or PPC).

_____ • “VCT PRES, PI-225”

_____ • “VCT LVL, LI-226”

_____ 4.9.16 IF level change is *not* as expected, CLOSE “MAKEUP VLV STOP, CH-512,” and INVESTIGATE cause of discrepancy (C-04).

_____ 4.9.17 WHEN discrepancy is resolved, OPEN “MAKEUP VLV STOP, CH-512,” and CONTINUE make up to VCT (C-04).

_____ 4.9.18 WHEN desired VCT level is reached, CLOSE “MAKEUP VLV STOP, CH-512” (C-04). | ⑧

Level of Use
Continuous



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4.9.19 STOP boric acid pump (C-02).

• “BA PP A, P-19A”

• “BA PP B, P-19B”

4.9.20 PLACE “MAKEUP MODE SEL” in “DILUTE” (C-04).

4.9.21 OBSERVE *total* gallons added and RESET “PRI MAKEUP WTR FLOW, FC-210X” and “BORIC ACID FLOW, FC-210Y” as follows (C-04):

a. PRESS “SEL” button until “PMW TOTAL” or “BA TOTAL” is displayed.

b. OBSERVE total gallons added.

c. IF a manual RCS leak rate determination is in progress AND flow controller totalizers are being used to track RCS makeup, Refer To SP 2602A-001, and RECORD total gallons.

d. PRESS “SEL” button and HOLD until display indicates “TOTAL RST.”

e. PRESS “R/L” button to transfer to “R” mode to reset totalizer.

f. PRESS “R/L” button to transfer to “L” mode.

g. PRESS “SEL” button and HOLD until controller number (FC-210X or FC-210Y) is displayed.

h. ENSURE “AM” lamp is lit.

i. CHECK *total volume* added is consistent with volume calculated in step 4.9.6

4.9.22 IF necessary, BORATE or DILUTE to maintain proper RCS boron concentration.

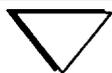
– End of Section 4.9 –

Level of Use
Continuous



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4.20 Maintaining VCT Level and Pressure During Normal Operation



CAUTION



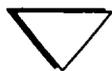
1. VCT pressure must be monitored during makeup operations and the VCT must be vented to the waste gas header prior to reaching 35 psig.
2. VCT pressure lowering with a constant VCT level may indicate a level instrument problem. VCT pressure should rise and fall with VCT level.

NOTE

1. This section should be performed as required in conjunction with sections 4.2 through 4.10. It may also be used anytime it is desired to adjust VCT level or pressure.
2. Normal VCT level is 72% to 86%.
3. Normal VCT pressure is 15 psig to 30 psig.
4. A pressure of 13 psig to 25 psig hydrogen in the VCT at 120°F maintains a concentration of 25 cc/kg to 35 cc/kg hydrogen in the RCS.

4.20.1 IF desired to raise VCT level and pressure, Go To Section 4.4, 4.6, or 4.9.

4.20.2 IF desired to reduce VCT level and pressure, PERFORM the following:



CAUTION



Letdown flow should be monitored when shifting "LTDN DIVERT, CH-500" between "VCT" and "RWS" positions. If an unexpected drop in letdown flow is observed, "LTDN DIVERT, CH-500" should be immediately returned to its initial position.

- a. PLACE "LTDN DIVERT, CH-500" IN "RWS" (C-02).
- b. ENSURE "LTDN DIVERT, CH-500" shifts to "RWS" (C-02).
- c. WHEN desired VCT level is reached PLACE "LTDN DIVERT, CH-500" in "VCT" or "AUTO" (C-02).

Level of Use
Continuous

STOP

THINK

ACT

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d. ENSURE "LTDN DIVERT, CH-500" shifts to "VCT" (C-02).



CAUTION



1. VCT pressure must be monitored during makeup operations and the VCT must be vented to the waste gas header prior to reaching 35 psig.
2. VCT pressure lowering with a constant VCT level may indicate a level instrument problem. VCT pressure should rise and fall with VCT level.

NOTE

1. Normal VCT pressure is 15 psig to 30 psig.
2. A pressure of 13 psig to 25 psig hydrogen in the VCT at 120°F maintains a concentration of 25 cc/kg to 35 cc/kg hydrogen in the RCS.
3. Hydrogen is normally added in 5 and 10 cubic foot increments which will raise pressure approximately 3 psig and 6 psig, respectively. One revolution of the integrator is 5 cubic feet.

4.20.3 IF desired to raise VCT hydrogen pressure, PERFORM the following:

- a. NOTIFY an operator of the quantity of hydrogen to be added.
- b. THROTTLE open hydrogen outlet from flow totalizer, 2-GAH-31 (TB 14'6").
- c. WHEN the required amount of hydrogen has been added, CLOSE hydrogen outlet from flow totalizer, 2-GAH-31.
- d. NOTIFY Control Room of completion of hydrogen addition.

4.20.4 IF desired to reduce VCT pressure, PERFORM the following:

- a. NOTIFY Health Physics of intent to vent VCT to the Waste Gas System.
- b. SEND plant page alerting personnel that radiation levels will be changing in the Waste Gas Area.

⑧

Level of Use
Continuous

STOP

THINK

ACT

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- c. CLOSE equipment drain sump tank to waste gas system, 2-LRR-39. (AB, -45'6").
- d. OPEN "VCT VENT, CH-513" (C-02).
- e. WHEN desired VCT pressure is reached, CLOSE "VCT VENT, CH-513" (C-02).
- f. OPEN equipment drain sump tank to waste gas system, 2-LRR-39 (AB, -45'6").

- End of Section 4.20 -

Level of Use
Continuous

STOP THINK ACT REVIEW

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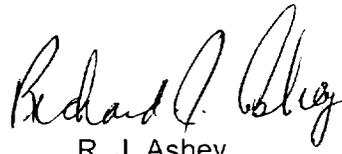
JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Filling #1 Safety Injection Tank

ID Number: JPM-S2

Revision: 0

II. Initiated:



R. J. Ashe

Developer

1/24/05

Date

III. Reviewed:



Technical Reviewer

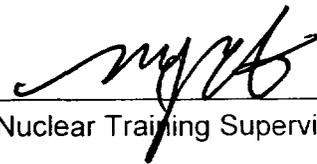
1/26/05
Date

IV. Approved:

NA

User Department Supervisor

Date



Nuclear Training Supervisor

1/27/05
Date

SUMMARY OF CHANGES

A/I & Date	DESCRIPTION	REV/CHANGE
01/18/2005	Develop new JPM using 23060.	0

JOB PERFORMANCE MEASURE WORKSHEET

JPM Number: JPM-S2

Rev. 0

Initiating Cues:

- You are the PPO.
- The Unit Supervisor has directed you to fill the #1 SIT using the "A" HPSI Pump per OP-2306O. "Safety Injection Tanks, RCS > 1750 psia".
- The examiner will act as the Unit Supervisor and/or PEO.

Initial Conditions:

- The plant is at 100% power, NOP/NOT.
- No equipment is out of service.
- Bus 24E is aligned to Bus 24C.
- A PEO is available at the "A" HPSI Pump.
- The "A" HPSI has been checked and is ready to start.

Simulator Requirements:

Initialize at a normal 100% power (IC-94) with #1 SIT at the low level alarm, above 200 psig, and enter the following:

- SI04A on BT 48 ("A" HPSI Pump >20 amps) "A" HPSI Pp Trip
- I/O on Annunciator A-1 ("A" HPSI Pump Overload/Trip) on C-01 on BT 49 ("A" HPSI Pump >2 amps)
- IDT SIMT39(1) set to 7.3e4 (#1 SIT at 55.2%)

Pressurize #1 SIT to approximately 218 psig.

**** NOTES TO EXAMINER ****

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S2

TITLE: Fill #1 Safety Injection Tank

START TIME: _____

STEP 1 _____ Performance Steps: DETERMINE desired SIT(s) level using one of the following criteria:

- IF sampling is required, do not fill greater than 59.6% (PPC high alarm 59.7%), the following alarms are excepted (C-01):
 - SAFETY INJECTION TANK 1 LEVEL HI" (A-10)
 - SAFETY INJECTION TANK 2 LEVEL HI" (A-11)
 - SAFETY INJECTION TANK 3 LEVEL HI" (A-12)
 - SAFETY INJECTION TANK 4 LEVEL HI" (A-13)
- IF sampling is not required, do not fill greater than the following:
 - 59.6% (PPC high alarm 59.7%) for SIT 1
 - 58.8% (alarm C-01 59%) for SITs 2, 3, and 4

GRADE ____ Standards: *Per precaution 3.1, the examinee should know that a sample is not required because the SIT is being filled from the RWST, > 1720 ppm; therefore, he/she determines that the desired level is NOT greater than 59.6%*

Cue: **If asked, as the US inform the examinee that a sample is NOT required.**

Comments:

~~~~~

STEP 2      \_\_\_\_\_ Performance Steps: WHEN HPSI pump is started, CHECK the following (C-01):

- Motor amperage 20 to 30 amps
- Nominal discharge pressure 1250 to 1300 psig

GRADE \_\_\_\_ Standards: *The examinee states he/she will check motor amps between 20 and 30 amps and discharge pressure of the "A" HPSI Pump between 1250 and 1300 psig on C-01.*

Cue:

Comments:

~~~~~


PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S2 TITLE: Fill #1 Safety Injection Tank

STEP 4 ___ Performance Steps: Refer to the following LCOs and determine applicability:

- TRM 3.1.2.1
- Tech Spec 3.5.2
- Tech Spec 3.5.3

GRADE ___ Standards: *The examinee informs the US to determine applicability of TRM 3.1.2.1 and TS 3.5.2 and 3.5.3*

Cue: **Report as the US that you will check the TS applicability.**

Comments: This action is directed in ARP 2590A-001 "HPSI Pp. 'A' Overload/Trip"

~~~~~

STEP 5        \_\_\_      Performance Steps:

- Refer to OP 2308, High Pressure Safety Injection System, and place "B" HPSI Pp. on Facility 1.
- Determine the cause of the pump trip and submit a trouble report.

GRADE \_\_\_      Standards:

- *The examinee refers to OP 2308, High Pressure Safety Injection System, Section 4.1.*
- *The examinee requests the US to have a CR/TR written and have the cause of the trip determined.*

Cue:

- **The US acknowledges the request.**
- **When asked, provide the examinee with OP 2308, High Pressure Safety Injection System, Section 4.1**

Comments:

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S2

TITLE: Fill #1 Safety Injection Tank

STEP 6 X Performance Steps: If shifting from "A" pump to "B" pump, perform the following:

- Verify "B" HPSI aligned to Facility 1 per OP 2343.
- Enter TSAS 3.5.2
- Place P41A, "HPSI PP A," in PTL
- Remove P41B, "HPSI PP B," from PTL.
- Exit TSAS 3.5.2

GRADE Standards:

- *The examinee references OP 2343 to determine if the "B" HPSI is aligned to Facility 1 or he/she determines that "B" HPSI is aligned to Facility 1 because Bus 24E is aligned to Bus 24C.*
- *Per OP 2308, the examinee will:*
 - *Inform the US to log into TSAS 3.5.2*
 - *On C-01, place the "A" HPSI Pump handswitch in Pull-To-Lock.*
 - *On C-01, remove the "B" HPSI Pump from Pull-To Lock.*
 - *Inform the US to log out of TSAS 3.5.2.*

 X
 X

Cue:

- **If asked, provide the examinee with OP 2343, 4160 Volt Electrical System.**
- **If the examinee begins to verify all the steps to align the 'B' HPSI to Facility 1, as the US inform the examinee the 'B' HPSI is aligned and the steps in 2343 are complete.**
- **If examinee asks for a PEO to check "B" HPSI Pump, report that the pump is ready to start.**

Comments: The above guidance is in 2308 step 4.1

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S2      TITLE: Fill #1 Safety Injection Tank

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STEP 7      \_\_\_      Performance Steps: WHEN HPSI pump is started, CHECK the following (C-01):

- Motor amperage 20 to 30 amps
- Nominal discharge pressure 1250 to 1300 psig

GRADE \_\_\_      Standards:      *The examinee states he/she will check motor amps between 20 and 30 amps and discharge pressure of the "B" HPSI Pp between 1250 and 1300 psig on C-01.*

Cue:

Comments: This step may or may NOT be repeated by the examinee.

~~~~~

STEP 8 X Performance Steps: IF filling SIT 1, PERFORM the following (C-01):

- a. VERIFY open "SI-611, FILL & DRN."
- b. IF required, START one of the following HPSI pumps:
 - "P-41A, HPSI PP A"
 - "P-41B, HPSI PP B"
 - "P-41C, HPSI PP C"

GRADE Standards: *The examinee performs the following:*

___ X • *On C-01, examinee opens (or ensures open) SI-611, Fill and Drain, and observes the red light is lit.*

___ X • *Places the "B" HPSI Pump. handswitch on C-01 to start and observes the proper indications on the "B" HPSI Pump.*

Cue: **If requested, as the PEO, report that the pump is running with NO abnormal indications.**

Comments: The examinee must realize that she/he must return to 2306O and commence with step 4.1.3.

~~~~~



**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S2 TITLE: Fill #1 Safety Injection Tank

---

STEP 11 X Performance Steps: When filling is complete, Stop the "B" HPSI Pump.

GRADE     X Standards: *Examinee stops the "B" HPSI Pump.*

Cue:

Comments: This JPM is complete when the examinee stops the "B" HPSI Pump. The examinee does NOT have to wait for Safety Injection to Loop 1A and 2B to lower to between 225 and 275 psig.

STOP TIME: \_\_\_\_\_

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-S2

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

|                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| For examinee to achieve a satisfactory grade, <b><u>ALL</u></b> critical steps must be completed correctly. If task is Time Critical, it <b><u>MUST</u></b> be completed within the specified time to achieve a satisfactory grade. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Time Critical Task? Yes \_\_\_\_\_ No \_\_\_\_\_

Validated Time (minutes): 25

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM Number:                     JPM-S2                    

Rev.                     0                    

### Initiating Cues:

- You are the PPO.
- The Unit Supervisor has directed you to fill the #1 SIT using the "A" HPSI Pump per OP-2306O, "Safety Injection Tanks, RCS > 1750 psia".
- The examiner will act as the Unit Supervisor and/or PEO.

### Initial Conditions:

- The plant is at 100% power, NOP/NOT.
- No equipment is out of service.
- Bus 24E is aligned to Bus 24C.
- A PEO is available at the "A" HPSI Pump.
- The "A" HPSI has been checked and is ready to start.

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Start 4<sup>th</sup> RCP

ID Number: JPM-S3

Revision: 0

II. Initiated:



Daniel A. Patalone  
Developer

01/18/05  
Date

III. Reviewed:



Duffy Ashley  
Technical Reviewer

1/26/05  
Date

IV. Approved:

NA

User Department Supervisor

Date



Nuclear Training Supervisor

1/26/05  
Date

**SUMMARY OF CHANGES**

| A/I & Date          | DESCRIPTION            | REV/CHANGE |
|---------------------|------------------------|------------|
| 10/27/2005<br>(DAP) | Developed this new JPM | 0          |
|                     |                        |            |
|                     |                        |            |



## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:           JPM-S3          

Rev.           0          

Initiating Cues:           The US has directed you to start the 'A' RCP in accordance with OP 2301C, Reactor Coolant Pumps, section 4.1.

Initial Conditions:       A plant heat-up is in progress following an outage for unplanned maintenance.

- The RCS is at normal pressure and Tc is > 500°F.
- Three RCPs are running.
- All parameters for the 'A' RCP are normal for this condition.
- OP-2301C, section 4.1 is complete up to step 4.1.10.

Simulator Requirements:   Initialize at zero power, ARI. (IC-93) then trip rods.

- 'A' RCP is secured.
- RCS is at ~ 505 °F.
- Plant is stable.

A malfunction to lower the level in the Upper Oil Reservoir will be inserted after the "A" RCP is started.

---

**\*\*\*\*\* NOTES TO EXAMINER \*\*\*\*\***

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S3

TITLE: Start 4<sup>th</sup> RCP

---

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

STEP 1        Performance Steps: Observe controlled bleedoff flow on PPC or PR-150A (C-04R) between 0.75 and 2.0 gpm.

GRADE         Standards:        *Examinee displays and monitors "A" RCP bleedoff flow on the PPC, or on C-04R.*

Cue:

Comments:

~~~~~

STEP 2 X Performance Steps: Place "RCP-A LIFT PPS" switch to "START" (C-03)

GRADE X Standards: *Examinee places the 'A' RCP Lift Pump switch to start and observes the red light lit.*

Cue: **When the examinee indicates that the lift pump must run for 2 minutes, inform the examinee that 2 minutes have elapsed.**

Comments: Annunciator AB-18 on C-02/3, RCP A ANTIREV ROT FLOW LO, will reset.

~~~~~







**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-S3

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

|                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| For examinee to achieve a satisfactory grade, <b><u>ALL</u></b> critical steps must be completed correctly. If task is Time Critical, it <b><u>MUST</u></b> be completed within the specified time to achieve a satisfactory grade. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Time Critical Task? Yes \_\_\_\_\_ No \_\_\_\_\_

Validated Time (minutes): 15

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID Number: JPM-S3

Initiating Cues: The US has directed you to start the 'A' RCP in accordance with OP 2301C, Reactor Coolant Pumps, section 4.1.

Initial Conditions: A plant heat-up is in progress following an outage for unplanned maintenance.

- The RCS is at normal pressure and Tc is > 500°F.
- Three RCPs are running.
- All parameters for the 'A' RCP are normal for this condition.
- OP-2301C, section 4.1 is complete up to step 4.1.10.

**IC-93      Low Power JPMs**

|                                    | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> |
|------------------------------------|----------|----------|----------|----------|
| <u>ASI Upper</u>                   | 4.73     | 4.69     | 4.70     | 4.70     |
| <u>ASI Lower</u>                   | 4.73     | 4.70     | 4.72     | 4.69     |
| <u>Nuclear Power</u>               | 6.99     | 4.87     | 4.89     | 4.87     |
| <u><math>\Delta T</math> Power</u> | 3.90     | 4.09     | 3.93     | 4.06     |
| <u>Tcold Cal.</u>                  | 4.80     | 4.61     | 4.90     | 4.90     |

# JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: **Perform TDAFP Operability Test**

ID Number: JPM-S4

Revision: 0

II. Initiated:

  
\_\_\_\_\_  
Daniel A. Pantalone  
Developer

01/24/05  
Date

III. Reviewed:

  
\_\_\_\_\_  
R. J. Ashley  
Technical Reviewer

1/26/05  
Date

IV. Approved:

  
\_\_\_\_\_  
User Department Supervisor

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Nuclear Training Supervisor

1/27/05  
Date

**SUMMARY OF CHANGES**

| A/I & Date          | DESCRIPTION       | REV/CHANGE |
|---------------------|-------------------|------------|
| 01/13/2005<br>(DAP) | Developed new JPM | 0          |
|                     |                   |            |
|                     |                   |            |



## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:                     JPM-S4                    

Rev.           0          

Initiating Cues:                   The US has directed you to complete SP 2610BO, "TDAFP AND RECIRCULATION CHECK VALVE IST," for a retest after minor maintenance.

- You are to start at step 4.2.10 of SP 2610BO, Rev. 000-00.
- The completed steps of the procedure are marked.

Initial Conditions:

- The TDAFP Trip Test does NOT need to be performed.
- Vibration Data does NOT need to be taken.
- The Terry Turbine Minimum Flow Recirc Discharge Check, 2-FW-33, does NOT need to be verified full open.
- A PEO is stationed at the TDAFP
- The US entered LCO 3.7.1.2 per step 4.1.3 and TRMAS 7.1.15, Item B, per step 4.2.5.
- Turbine AFP Discharge Isolation, 2-FW-9C, is closed.
- No S/G Tube leaks exist.
- Aux Feed Pump Suction Header X-Tie, 2-CN-28, is open.
- Aux Feed Pump Suction Header Stop, 2-CN-27A, is open.
- The TDAFP is ready to start. OP 2322, section 4.2 "Aligning TDAFW for Service," is complete.
- The examiner will act as the US, PEO, and any other support person.

Simulator Requirements:       IC-24 or any mode IC with AFW secured and steam supply pressure >800 psig.  
FW30C @ 48%, Degraded TDAFP

- Check that you can find a computer point like F201 on the PPC Trend Search Screen.
- If not, close the MMI Viewers and restart the Viewers.

---

**\*\*\*\* NOTES TO EXAMINER \*\*\*\***

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S4      TITLE: Perform TDAFP Operability Test

---

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

STEP 1      X Performance Steps: Refer To OP 2322, Auxiliary Feedwater System," and  
START  
TDAFP from Control Room.

GRADE \_\_\_ X Standards:      *Examinee obtains OP 2322, Auxiliary Feedwater, section  
4.3.*

Cue:

Comments:

~~~~~

STEP 2 ___ Performance Steps: - Refer To Section 4.2, and ENSURE TDAFP and
stem leakoff drains are aligned for service.

GRADE ___ ___ Standards: *Examinee states that Section 4.2 is complete.*

Cue:

Comments: Per the Initial Conditions, Section 4.2 has been performed.

~~~~~



**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S4      TITLE: Perform TDAFP Operability Test

---

STEP 5       Performance Steps: If at any time, No. 1 TDAFP Sply Vlv, MS-201, or No. 2 TDAFP Sply Vlv, MS-202, are to remain closed for greater than 8 hours, Refer To Section 4.18 and Initiate necessary actions.

GRADE   Standards:      *Examinee states that No. 1 TDAFP Sply Vlv, MS-201, or No. 2 TDAFP Sply Vlv, MS-202, will NOT be closed for greater than 8 hours*

Cue:      **If asked, as the US state that the steam supply valves will NOT be closed for greater than 8 hours.**

Comments:

~~~~~

STEP 6 Performance Steps: Ensure the TDAFP is NOT rotating. (Local)

GRADE Standards: *Examinee determines the TDAFP is NOT rotating by asking the PEO to check for rotation.*

Cue: **When asked, report as the PEO that the TDAFP is NOT rotating.**

Comments:

~~~~~

STEP 7       Performance Steps: Using TDAFP Stm Vlv Sel Sw, SV-4188, slowly Open terry turbine auxiliary feed pump steam supply, 2-MS-464 (SV-4199) (C-05).

GRADE   Standards:      *Examinee places SV-4188 in the open position and observes:*

- *Both green lights go out.*
- *TDAFP Speed on C-05 increases to approximately 1500 rpm.*

Cue:

Comments:

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S4 TITLE: Perform TDAFP Operability Test

STEP 8 X Performance Steps: To warm turbine and lubricate bearings. OPERATE TDAFP at a minimum speed of 1,500 rpm for at least 2 minutes.

GRADE ___ X Standards: *Examinee waits for 2 minutes.*

Cue: **When appropriate, inform the examinee that 2 minutes has past. The TDAFP is warm.**

Comments:

~~~~~

STEP 9      X Performance Steps: When at least 2 minutes has elapsed, adjust the "SPD CNTL" switch to maintain the following:  
- Turbine speed between 1500 to 4200 rpm.  
- Discharge pressure  $\geq$  1080 psig.

GRADE \_\_\_ X Standards:      *When 2 minutes has elapsed, the examinee adjusts the SPD "CNTL to maintain the following as monitored on C-05 or the PPC:*  
- Turbine speed between 1,500 and 4,200 rpm  
- Pump discharge pressure greater than or equal to 1,080 psig

Cue:

Comments:

~~~~~

STEP 10 X Performance Steps: If mechanical seal leakage of TDAFP is greater than 1 quart per minute, Notify system engineer.

GRADE ___ X Standards: *Examinee asks PEO to determine magnitude of mechanical seal leakage.*

Cue: **When asked as the PEO, report that mechanical seal leakage is normal (less than 1 quart per minute).**

Comments: The examinee should now return to SP 2610BO.

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S4      TITLE: Perform TDAFP Operability Test

---

STEP 11    \_\_\_ Performance Steps: Operate TDAFP at 1,500 to 1,600 for greater than two minutes.

GRADE \_\_\_    Standards:    *Examinee states that the TDAFP has already been run at 1500 rpm for 2 minutes in OP 2322.*

Cue:

Comments:

~~~~~

STEP 12 X Performance Steps: When TDAFP has operated for greater than two minutes, adjust TDAFP "SPD CNTL" switch (C-05) and establish 4,200 rpm (4,150 to 4,250 rpm).

GRADE ___ X Standards: *Examinee adjusts the SPD "CNTL to establish 4,200 rpm as read on C-05 or the PPC.*

Cue:

Comments:

~~~~~

STEP 13    \_\_\_ Performance Steps: IF mechanical seal leakage of TDAFP is greater than one quart per minute, NOTIFY System Engineer.

GRADE \_\_\_    Standards:    *The examinee states that mechanical seal leakage has already been verified at less than one quart per minute.*

Cue:    **If requested, as PEO, report that mechanical seal leakoff is still less than one quart per minute.**

Comments:

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S4 TITLE: Perform TDAFP Operability Test

STEP 14 Performance Steps: If any TDAFP parameter is NOT normal, Notify SM or US.

GRADE Standards: *The examinee states that all TDAFP parameters appear normal.*

Cue: **If requested, as PEO, report that all local conditions are normal.**

Comments:

~~~~~

STEP 15  Performance Steps: WHEN system conditions have been as stable as the system permits for at least two minutes, VERIFY TDAFP speed is 4,150 to 4,250 rpm from hand held tachometer (local).

GRADE   Standards: *Examinee requests TDAFP speed from the PEO using the hand held tachometer.*

Cue: **As the PEO, report the TDAFP speed in 4190 rpm.**

Comments:

~~~~~

STEP 16 Performance Steps: WHEN TDAFP has operated at 4,150 to 4,250 rpm with stable system conditions for at least two minutes, REQUEST qualified vibration monitoring personnel MEASURE TDAFP vibration level at points specified in SP 2610BO-002.

GRADE Standards: *Examinee should indicate vibration monitoring is NOT required per the initial conditions of this JPM.*

Cue: **If necessary, remind the examinee that vibration monitoring is NOT necessary.**

Comments:

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S4

TITLE: Perform TDAFP Operability Test

STEP 17 Performance Steps: Refer To SP 2610BO-002 and PERFORM the following:

- |          |                                                                                             |
|----------|---------------------------------------------------------------------------------------------|
| <u>X</u> | a. RECORD TDAFP speed from hand held tachometer and DOCUMENT results.                       |
| <u>X</u> | b. RECORD TDAFP recirculation flow from portable flowmeter at FP-9863 and DOCUMENT results. |
| <u>X</u> | c. RECORD TDAFP discharge pressure (PPC P5284).                                             |
| <u>X</u> | d. RECORD TDAFP suction pressure (PI-5401, local).                                          |
| <u>X</u> | e. CALCULATE ΔP corrected to rated speed.                                                   |
| <u>X</u> | f. RECORD TDAFP ΔP corrected to rated speed and DOCUMENT results.                           |

GRADE Standards: *Examinee requests the required information from the PEO and records the following in SP 2610BO-002:*

- |                       |                                                              |
|-----------------------|--------------------------------------------------------------|
| <u>   </u> <u>X</u>   | - 4190 rpm in 4.2.18.a, "Hand held Tach"                     |
| <u>   </u> <u>X</u>   | - 60 gpm in 4.2.18.b, "Recirc Flow"                          |
| <u>   </u> <u>X</u>   | - 1116 psig in 4.2.18.c, "Discharge Press"                   |
| <u>   </u> <u>X</u>   | - 16 psig in 4.2.18.d, "Suction Press"                       |
| <u>   </u> <u>   </u> | - Marks UNSAT on SP 2610BO-002 for "Acceptable" and "Normal" |

Cue: **Report as PEO that TDAFP speed is still 4190 rpm.  
Report as PEO that TDAFP Recirc flow is 60 gpm.  
Report as PEO that TDAFP suction pressure is 16 psig.**

Comments: The following is a guideline for determining TDAFP corrected discharge pressure. The actual data may be slightly different.

TDAFP discharge pressure, (PPC point P5284) = 1110 psig  
TDAFP suction pressure, (PI\_5401) = 16 psig  
TDAFP Speed Handheld tachometer = 4190 rpm

$$\begin{aligned}
 &1 \quad 4200 \div \frac{4190}{\text{Recorded Speed}} = \frac{1.00238}{\text{Speed Correction Ratio}} \\
 &2 \quad \frac{1.00238}{\text{Speed Correction Ratio}} (\text{squared}) = \frac{1.0048}{\text{Speed Correction Factor}} \\
 &3 \quad \frac{1110}{\text{TDAFP Disch Press}} - \frac{16}{\text{TDAFW Suct Press}} = \frac{1094}{\text{Uncorrected D/P}} \\
 &4 \quad \frac{1094}{\text{Uncorrected D/P}} \times \frac{1.0048}{\text{Speed Correction Factor}} = \frac{1099}{\text{D/P Corrected to Rated Pump Speed (Note 3)}}
 \end{aligned}$$

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S4 TITLE: Perform TDAFP Operability Test

STEP 18 X Performance Steps: IF any Data Section data NOT within "Acceptable" limits, Refer To Attachment 1 and PERFORM applicable actions.

GRADE Standards: *The examinee:*
____ X - *Determines that the data is NOT within "Acceptable" limits and refers to Attachment 1.*
____ X - *Notifies the US that the pump failed the surveillance.*
____ ____ - *Advises the US to carry out the steps in Attachment 1.*

Cue: **As the US, acknowledge the need to perform the steps of Attachment 1.**

~~~~~

STEP 19      X      Performance Steps: IF TDAFP ΔP or vibration data NOT within "Normal" limits, Refer To Attachment 2 and PERFORM applicable actions.

GRADE      Standards:      *The examinee:*  
\_\_\_\_ X      - *Determines that the data is NOT within "Normal" limits and refers to Attachment 2.*  
\_\_\_\_ X      - *Notifies the US that the pump failed the surveillance.*  
\_\_\_\_ \_\_\_\_      - *Advises the US to carry out the steps in Attachment 2.*

Cue:      • **As the US, acknowledge the need to perform the steps of Attachment 2 and direct the examinee NOT to perform the test again.**  
            • **If the examinee does NOT recommend shutting down the TDAFP, then ask for a recommendation.**

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S4

TITLE: Perform TDAFP Operability Test

STEP 20 X Performance Steps: To shutdown TDAFP, PERFORM the following:

- a. Using TDAFP "SPD CNTL" switch, ADJUST turbine speed to 1,500 rpm.
- b. WHEN turbine speed is steady at greater than or equal to 1,500 rpm, CLOSE "TDAFP STM VLV, SEL SW, SV-4188."

GRADE ___ X Standards:

- *The examinee adjusts the SPD CNTL switch on C-05 and reduces TDAFP Speed to 1,500 rpm.*
- *When turbine speed is observed to be steady at greater than or equal to 1,500 rpm, the examinee closes TDAFP STM VLV, SEL SW, SV-4188.*
 - *The examinee observes both green lights are lit and the red light is out.*
 - *The examinee observes TDAFP speed lower to 0 rpm.*

___ X

___ ___

___ ___

Cue:

Comments: **After this step is completed, the JPM is considered complete.**

~~~~~

STOP TIME: \_\_\_\_\_

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-S4

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes \_\_\_\_\_ No \_\_\_\_\_

Validated Time (minutes): 20

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM Number:                   JPM-S4                  

Rev.           0          

Initiating Cues:

The US has directed you to complete SP 2610BO, "TDAFP AND RECIRCULATION CHECK VALVE IST," for a retest after minor maintenance.

- You are to start at step 4.2.10 of SP 2610BO, Rev. 000-00.
- The completed steps of the procedure are marked.

Initial Conditions:

- The TDAFP Trip Test does NOT need to be performed.
- Vibration Data does NOT need to be taken.
- The operation of the Terry Turbine Minimum Flow Recirc Discharge Check, 2-FW-33, does NOT need to be verified.
- A PEO is stationed at the TDAFP
- The US entered LCO 3.7.1.2 per step 4.1.3 and TRMAS 7.1.15, Item B, per step 4.2.5.
- Turbine AFP Discharge Isolation, 2-FW-9C, is closed.
- No S/G Tube leaks exist.
- Aux Feed Pump Suction Header X-Tie, 2-CN-28, is open.
- Aux Feed Pump Suction Header Stop, 2-CN-27A, is open.
- The TDAFP is ready to start. OP 2322, section 4.2 "Aligning TDAFW for Service," is complete.
- The examiner will act as the US, PEO, and any other support person.

**Form Approval**

Approval Date

11/22/04

Effective Date

12/02/04

# Surveillance Form

**Generic Information**

Form Title

**TDAFP and Recirculation Check Valve IST**

Rev. No.

000-00

Reference Procedure

SP 2610BO

Applicable Tech. Spec.

4.0.5

Applicability (Tech. Spec.)

MODEs 1, 2, and 3

Frequency

At least once every  
92 days (Q)**Specific Information**

Schedule Start Date

Today

AWO Number

Mntc Restoration

Yes

No

Performance Modes

MODEs 1, 2, and 3

Prerequisites Completed (Initials)

Precautions Noted (Initials)

N/A

Test Authorized By

U. Seepin

Date

Today

Partial Surveillance

Yes

No

Performed By

Date

Accepted By

Date

Acceptance Criteria  
Satisfied

Yes

No

Approved By (Department Head or Designee)

Date

**Surveillance Information**

| Test Equipment Type  | QA Number | Cal Due Date |
|----------------------|-----------|--------------|
| Vibration Analyzer   | NA        | NA           |
| Portable Flowmeter   | FM 3481   | Tomorrow     |
| Hand Held Tachometer | T 5231    | Tomorrow     |
| Accelerometer        | NA        | NA           |

**Comments**

CR# \_\_\_\_\_

Vibration test not required.

### TDAFP and Recirculation Check Valve IST

| TDAFP Speed |             |                      |            |            |         |                                                                    |
|-------------|-------------|----------------------|------------|------------|---------|--------------------------------------------------------------------|
| Step        | Parameter   | Indicator            | IST Limits |            |         |                                                                    |
|             |             |                      | Minimum    | Data (rpm) | Maximum | Results                                                            |
| 4.2.18.a.   | TDAFP speed | Hand held tachometer | 4,150      |            | 4,250   | "SAT" <input type="checkbox"/><br>"UNSAT" <input type="checkbox"/> |

| TDAFP Recirculation Flow |                          |                    |                         |            |         |                                                                    |
|--------------------------|--------------------------|--------------------|-------------------------|------------|---------|--------------------------------------------------------------------|
| Step                     | Parameter                | Indicator          | IST "Acceptable" Limits |            |         |                                                                    |
|                          |                          |                    | Minimum                 | Data (gpm) | Maximum | Results                                                            |
| 4.2.18.b.                | TDAFP recirculation flow | Portable flowmeter | 54                      |            | 66      | "SAT" <input type="checkbox"/><br>"UNSAT" <input type="checkbox"/> |

| TDAFP ΔP Calculation                                                                                       |                                                                                                                        |                 |             |
|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|
| Step                                                                                                       | Parameter                                                                                                              | Indicator       | Data (psig) |
| 4.2.18.c.                                                                                                  | TDAFP discharge pressure                                                                                               | PPC point P5284 |             |
| 4.2.18.d.                                                                                                  | TDAFP suction pressure                                                                                                 | PI-5401         |             |
| 4.2.18.e.                                                                                                  | 1. $4,200 \div \frac{\text{Recorded Speed}}{\text{Speed Correction Ratio}} = \text{Speed Correction Ratio}$            |                 |             |
|                                                                                                            | 2. $\frac{\text{Speed Correction Ratio}}{\text{Speed Correction Ratio (squared)}} = \text{Speed Correction Factor}$    |                 |             |
|                                                                                                            | 3. $\frac{\text{TDAFP Disch Press}}{\text{TDAFW Suct Press}} = \text{Uncorrected D/P}$                                 |                 |             |
|                                                                                                            | 4. $\frac{\text{Uncorrected D/P}}{\text{Speed Correction Factor}} = \text{D/P Corrected to Rated Pump Speed (Note 1)}$ |                 |             |
| Note 1: $\Delta P = (\text{Discharge} - \text{Suction pressure}) \times (4,200 \div \text{TDAFP Speed})^2$ |                                                                                                                        |                 |             |

| Step      | Parameter                       | Indicator    | IST Limits |             |                                                                    |
|-----------|---------------------------------|--------------|------------|-------------|--------------------------------------------------------------------|
|           |                                 |              | Minimum    | Data (psid) | Results                                                            |
| 4.2.18.f. | Calculated TDAFP ΔP<br>(Note 1) | "Acceptable" | 1,113      |             | "SAT" <input type="checkbox"/><br>"UNSAT" <input type="checkbox"/> |
|           |                                 | "Normal"     | 1,116      |             | "SAT" <input type="checkbox"/><br>"UNSAT" <input type="checkbox"/> |

### TDAFP and Recirculation Check Valve IST

| TDAFP Vibration |                                                         |              |                                                                 |          |
|-----------------|---------------------------------------------------------|--------------|-----------------------------------------------------------------|----------|
| Step            | Vibration Measurement Point                             | IST Limits   |                                                                 |          |
|                 |                                                         | "Acceptable" | Data (in/sec)                                                   | "Normal" |
| 4.2.19.a.       | TOH                                                     | < 0.636      |                                                                 | N/A      |
|                 | TOV                                                     | < 0.636      |                                                                 | N/A      |
|                 | TOA                                                     | < 0.700      |                                                                 | N/A      |
|                 | TIH                                                     | < 0.528      |                                                                 | N/A      |
|                 | TIV                                                     | < 0.700      |                                                                 | N/A      |
|                 | TIA                                                     | < 0.594      |                                                                 | N/A      |
|                 | PIH                                                     | < 0.700      |                                                                 | < 0.325  |
|                 | PIV                                                     | < 0.700      |                                                                 | < 0.325  |
|                 | PIA                                                     | < 0.700      |                                                                 | N/A      |
|                 | POH                                                     | < 0.700      |                                                                 | < 0.312  |
|                 | POV                                                     | < 0.700      |                                                                 | < 0.325  |
|                 | POA                                                     | < 0.700      |                                                                 | < 0.325  |
| Step            | Parameter                                               |              | Results                                                         | Initials |
| 4.2.19.b.       | All TDAFP vibration data within IST "Acceptable" limits |              | "YES" <input type="checkbox"/><br>"NO" <input type="checkbox"/> |          |
|                 | All TDAFP vibration data within IST "Normal" limits     |              | "YES" <input type="checkbox"/><br>"NO" <input type="checkbox"/> |          |

| 2-FW-33 Full Open Data |                                         |                                                          |                            |                                                                    |          |
|------------------------|-----------------------------------------|----------------------------------------------------------|----------------------------|--------------------------------------------------------------------|----------|
| Step                   | Parameter                               | IST Acceptance Criteria                                  | Data (from step 4.2.17.b.) | Results                                                            | Initials |
| 4.2.19.c.              | 2-FW-33 full open operational readiness | TDAFP recirculation flow greater than or equal to 50 gpm | gpm                        | "SAT" <input type="checkbox"/><br>"UNSAT" <input type="checkbox"/> |          |

### TDAFP and Recirculation Check Valve IST

| TDAFP Operability Data |                             |                                                                                                                                                                                                |                                                                    |          |
|------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------|
| Step                   | Parameter                   | IST Acceptance Criteria                                                                                                                                                                        | Results                                                            | Initials |
| 4.2.19.d.              | TDAFP operational readiness | <i>All data within IST "Acceptable" limits:</i> <ul style="list-style-type: none"> <li>• TDAFP recirculation flow</li> <li>• TDAFP <math>\Delta P</math></li> <li>• TDAFP vibration</li> </ul> | "SAT" <input type="checkbox"/><br>"UNSAT" <input type="checkbox"/> |          |

| Valve Restoration |          |                                                   |          |             |      |
|-------------------|----------|---------------------------------------------------|----------|-------------|------|
| Step              | Number   | Function                                          | Position | Initials    |      |
|                   |          |                                                   |          | Performance | I.V. |
| 4.2.23<br>and     | 2-FW-9C  | TURBINE AFP<br>DISCHARGE ISOLATION                | Open     |             |      |
|                   | 2-CN-27A | AUX FEED SUCTION<br>HEADER STOP                   | Open     |             |      |
| 4.2.24            | 2-CN-28  | AUX FEEDWATER PUMP<br>SUCTION HEADER<br>CROSS-tie | Closed   |             |      |

# JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: **"A" DG Operability Test (Alternate Path)**

ID Number: JPM-S5

Revision: 0

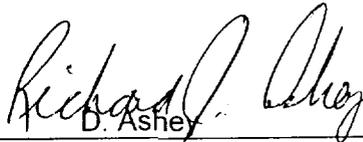
II. Initiated:



D. A. Pantalone  
Developer

1/18/05  
Date

III. Reviewed:



D. Ashley  
Technical Reviewer

1/27/05  
Date

IV. Approved:

N/A

User Department Supervisor

Date



Nuclear Training Supervisor

1/27/05  
Date

**SUMMARY OF CHANGES**

| A/I & Date          | DESCRIPTION                                                                 | REV/CHANGE |
|---------------------|-----------------------------------------------------------------------------|------------|
| 01/18/2005<br>(DAP) | Modified JPM 223 Rev1 by using a different malfunction to develop this JPM. | 0          |
|                     |                                                                             |            |
|                     |                                                                             |            |

**JOB PERFORMANCE MEASURE WORKSHEET**

Facility: MP-2 Examinee: \_\_\_\_\_

JPM Number: JPM-S5 Rev. 0

Task Title: Conduct a Facility 1 or 2 D/G operability test.

System: Diesel Generator

Time Critical Task: Yes      No   X  

Validated Time (minutes): 20 min

Task No.(s): NUTIMS # 064-02-015

Applicable To: SRO   X   RO   X   PEO     

K/A No.: 064 A4.01 K/A Rating: 4.0/4.3

Method of Testing:

Simulated Performance:      Actual Performance:   X  

Location:

Classroom:      Simulator:   X   In-Plant:     

Task Standards: Examinee performs the Facility 1 Diesel Generator Operability Test, SP 2613A, on the 'A' D/G, recognizes the "D/G 12U Trouble" annunciator. Upon requesting information from the PEO in the diesel room, the examinee recommends, or trips, the 'A' D/G.

Required Materials Stop watch  
(procedures, equipment): Authorized OPS Form 2613A-001, Rev. 020-01  
SP 2613A, Diesel Generator Operability Tests, Facility 1, Rev. 021-04, completed through step 4.1.20.

General References: SP 2613A, Diesel Generator Operability Tests, Facility 1, Rev. 021-04

**\*\*\*\* READ TO THE EXAMINEE \*\*\*\***

*I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied. You may use any approved reference materials normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgments, and log entries as if the evolution was actually being performed.*

## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:                     JPM-S5                    

Rev.           0          

Initiating Cues:

- The US has directed you to perform the Periodic 'A' D/G Operability Test (Fast Start, Loaded Run) per SP 2613A, beginning at step 4.1.21
- Review step 4.1.2 and 4.1.4 prior to commencing the surveillance.
- I will act as the US, PEO, etc.

Initial Conditions:

- All plant conditions are normal.
- NO other surveillances are being performed that interfere with 2613A.
- SP 2613A-001 has been authorized for release.
- There are NO Ozone alerts in affect.
- Valve Alignment Check, OPS Form 2613A-002 was performed two weeks ago
- NO maintenance has been performed on the "A" DG in the last two weeks.
- The 'A' D/G pre-start check list, 2346A-002, has been completed.
- Steps 4.1.1 through 4.1.18 were performed by another operator who had to leave due to a family emergency.
- A PEO has been briefed and is standing by at the 'A' D/G gage board. He will complete the D/G Data Sheet, 2346A-004.
- The applicable portions of SP 2619G, AC Electrical Sources Inoperability, were completed 5 minutes ago.
- A chart recorder is installed for auto triggering at the 'A' D/G.
- "B" D/G is OPERABLE.

Simulator Requirements:

- Initialize at a normal 100% power IC or a Low Power IC.
- Ensure the 'B' D/G is operable with its breaker open.
- Ensure 24C is powered from the NSST or RSST.
- Ensure Z1 SW total flow is  $\geq$  2000 GPM.
- Ensure no surveillances will interfere with 2613A.
- I/O A-36, panel CO-8 'ON' for BT37

---

\*\*\*\* NOTES TO EXAMINER \*\*\*\*

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. This JPM may be performed in conjunction with JPM-220 and JPM 221.

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S5

TITLE: "A" DG Operability Test

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

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STEP 1 ___ Performance Steps: If D/G prelube time exceeds 12 minutes and D/G is not started, then perform applicable steps to rotate the D/G with air.

GRADE ___ ___ Standards: *Examinee states that the prelube time should NOT exceed 12 minutes.*

Cue:

Comments:

~~~~~

STEP 2    X Performance Steps: Place Prelube Pump switch in START and start prelube timing.

GRADE \_\_\_    X Standards:    

- *Examinee places Prelube Pump switch in the START position and starts the stop watch.*
- *Examinee stops the stop watch when 9.5 to 12 minutes has elapsed.*

Cue:    **At the discretion of the examiner, inform the examinee that 9 minutes has elapsed.**  
**(Booth Operator - EGR16 'Norm' [This resets the "12U DG Trouble" alarm on CO-8])**  
**When asked the operator may request the PEO to reset the alarm on the EDG alarm panel.**

Comments:    The 9 minute mark allows the examinee time to review the next set of steps.

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S5

TITLE: "A" DG Operability Test

STEP 3 X Performance Steps: When 9½ to 12 minutes has elapsed, perform the following:

- Start the chart recorder
- Simultaneously place the "A" DG Manual Start-Stop switch in START and start the stop watch.

GRADE ___ X Standards:

- When 9½ to 12 minutes has elapsed, examinee informs the PEO to start the chart recorder
- Examinee simultaneously places the "A" DG Manual Start-Stop switch in START and starts the stop watch.

Cue: **Inform examinee that the chart recorder is running.**

Comments:

~~~~~

STEP 4    X Performance Steps: When diesel Ready To Load alarm is lit, stop the stop watch.

GRADE \_\_\_ X Standards: *After approximately 8 seconds, the examinee observes the "Ready To Load" annunciator (A-34, C-08) and stops the stop watch.*

Cue:

Comments: The Ready to Load alarm will be annunciated in less than 15 seconds.

~~~~~

STEP 5 ___ Performance Steps: ENSURE "PRESS DELAY CIRCUIT ENERGIZED" light is lit after 25 seconds.

GRADE ___ ___ Standards: *The examinee asks the PEO at the 'A' D/G to report when the "PRESS DELAY CIRCUIT ENERGIZED" light is lit and monitors clock.*

Cue: Wait approximately 25 seconds and report the "PRESS DELAY CIRCUIT ENERGIZED" light is lit.

Comments:

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S5 TITLE: "A" DG Operability Test

~~~~~

STEP 6    X Performance Steps: Place Prelube Pump switch in STOP.

GRADE \_\_\_ X Standards:    *Examinee places the Prelube Pump switch in STOP.*

Cue:

Comments:

~~~~~

STEP 7 ___ Performance Steps: Record stop watch diesel start time on OPS Form 2346A-004, "A" DG Data Sheet.

GRADE ___ ___ Standards: *Examinee directs the PEO to enter the time from the stop watch on OPS Form 2346A-004, "A" DG Data Sheet.*

Cue: **The time has been entered on the form.**

Comments: The start time must be less than or equal to 15 seconds.

~~~~~

STEP 8    \_\_\_ Performance Steps: Record the appropriate information on SP 2613A-001.

GRADE \_\_\_ \_\_\_ Standards:    *Examinee records the following on SP 2613A-001*

- *Stopwatch diesel start time, if < 15 sec. Initial the form.*
- *'A' D/G voltage, if between 3740 to 4580 volts, initial the form.*
- *'A' D/G frequency, if between 58.8 and 61.2 Hz, initial the form.*
- *Initial for adequate pre-lube time.*

Cue:

Comments:    The start time must be less than 15 sec.

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S5

TITLE: "A" DG Operability Test

STEP 9 Performance Steps: Adjust "A" DG Load Cntl Governor Cntl switch to obtain at least 60 Hz.

GRADE Standards: *The examinee adjusts "A" DG Load Cntl Governor Cntl switch to obtain at least 60 Hz.*

Cue:

Comments:

~~~~~

STEP 10     X   Performance Steps: Place Syn Switch, 15G-12U-2, to ON.

GRADE       X   Standards:    *The examinee obtains the hand switch, places it in the hole for Syn Switch, 15G-12U-2, and turns the switch to the ON position.*

Cue:

Comments:    After approximately 1 minute, the SYNC SWITCH ON alarm will annunciate. This is an expected alarm.

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S5 TITLE: "A" DG Operability Test

STEP 11 X Performance Steps: Adjust "A" DG Voltage Cntl Reg Auto Cntl switch to match generator voltage with bus voltage.

GRADE X Standards: *The examinee will place the "A" DG Voltage Cntl Reg Auto Cntl switch in either RAISE or LOWER to match the Incoming voltage with the Running voltage.*

Cue:

Comments:

~~~~~

STEP 12   Performance Steps: Turn "A" DG Volt Cntl Trans Sw to MAN.

GRADE     Standards: *The examinee places the "A" DG Volt Cntl Trans Sw in MAN.*

Cue:

Comments:

~~~~~

STEP 13 Performance Steps: Adjust "A" DG Voltage Cntl Reg Man Cntl switch to match generator voltage with bus voltage.

GRADE Standards: *The examinee place the "A" DG Voltage Cntl Reg Man Cntl switch in either RAISE or LOWER to match the Incoming voltage with the Running voltage.*

Cue:

Comments:

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S5                      TITLE: "A" DG Operability Test

---

STEP 14      X   Performance Steps: Turn "A" DG Volt Cntl Trans Sw to AUTO.

GRADE \_\_\_   X   Standards:     *The examinee places the "A" DG Volt Cntl Trans Sw in AUTO.*

Cue:

Comments:

~~~~~

STEP 15 X Performance Steps: Turn Unit Parallel Sel Sw/12U to UNIT PARALLEL and observe Unit Parallel white light lit.

GRADE ___ X Standards: *The examinee will place the Unit Parallel Sel Sw/12U to the UNIT PARALLEL position and observe Unit Parallel white light is lit.*

Cue:

Comments:

~~~~~

STEP 16    \_\_\_ Performance Steps: To ensure slow rotation (0.5 to 1 rpm) of sychroscope in fast direction, adjust "A" SG Load Cntl Governor Cntl switch to raise or lower engine speed.

GRADE \_\_\_ \_\_\_ Standards:     *The examinee will place the "A" SG Load Cntl Governor Cntl switch in the RAISE or LOWER position to ensure the syncroscope is rotating at approximately 0.5 to 1 rpm in the fast direction.*

Cue:

Comments:

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S5

TITLE: **"A" DG Operability Test**

STEP 17 X Performance Steps: When synchroscope needle passes "11 o'clock" position, simultaneously close DG A Fdr Bkr, 15G-12U-2 (A312)

GRADE ___ X Standards: When synchroscope needle passes "11 o'clock" position, The examinee will simultaneously close the "A" DG Output Breaker, 15G-12U-2 (A312).

Cue:

Comments: Due to the operating characteristics of the simulator, the "A" DG Output Breaker may NOT close or may trip. This does NOT constitute a failure of the JPM. The examinee may be given additional opportunities to reset and close the breaker.

~~~~~

STEP 18    X Performance Steps: • Adjust "A" DG Load CNTL Governor Cntl switch to load the "A" DG to between 1,350 and 1,450 kW at a rate of 250 to 300 kW per minute.  
• While raising "A" DG load, Adjust "A" DG Voltage Cntl Reg Auto Cntl to maintain a kvar loading at approximately 50% of the kW loading.

GRADE \_\_\_    X Standards: • *The examinee will use the "A" DG Load Cntl Governor Cntl switch to load the "A" DG to between 1,350 and 1,450 kW at a rate of 250 to 300 kW per minute.*  
• *While raising "A" DG load, the examinee will adjust "A" DG Voltage Cntl Reg Auto Cntl to maintain a kvar loading at approximately 50% of the kW loading.*

Cue:

Comments: Annunciator (A-36, C-08) "DIESEL GENERATOR 12U TROUBLE", will be annunciated when load is raised to approximately 500 kW. The examinee may NOT notice the annunciator until load is raised to the directed range.

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S5 TITLE: "A" DG Operability Test

STEP 19 X Performance Steps: Observe Annunciator (A-36, C-08) "DIESEL GENERATOR 12U TROUBLE"

GRADE ___ X Standards: *The examinee will observe and annunciator (A-36, C-08) "DIESEL GENERATOR 12U TROUBLE".*

Cue:

Comments:

~~~~~

STEP 20 X Performance Steps: Send an operator to the 'A' D/G panel C-38 to determine cause of the annunciator.

GRADE \_\_\_ X Standards: *The examinee directs the PEO in the 'A' D/G room to report the cause of the annunciator.*

Cue: **As the PEO, report that annunciator (B-1, C-38) "LUBE OIL PRESSURE LOW" is lit.**

**If the examinee requests a report of lube oil pressure, report 'A' D/G Lube Oil pressure = 19 psig and decreasing slowly.**

**If requested the PEO reports that the ARP for alarm B-1 on C-38 is missing.**

Comments: Due to the seriousness of the annunciator, the examinee may NOT wait for a report on lube oil pressure or for referring to the ARP for (B1, C-38) "Low Lube Oil Pressure" before (recommend) tripping the "A" DG. (See next step)

~~~~~


PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S5

TITLE: "A" DG Operability Test

Comments: **After this step is completed, the JPM is considered complete.**

STOP TIME: _____

VERIFICATION OF JPM COMPLETION

Job Performance Measure No. JPM-S5

Rev. 0

Date Performed: _____

Operator: _____

Evaluator(s): _____

For examinee to achieve a satisfactory grade, ALL critical steps must be completed correctly. If task is Time Critical, it MUST be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes _____ No X

Validated Time (minutes): 20 minutes

Actual Time to Complete (minutes): _____

Result of JPM: _____ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

EXAMINEE HANDOUT

JPM ID Number: JPM-S5

Initiating Cues:

- The US has directed you to perform the Periodic 'A' D/G Operability Test (Fast Start, Loaded Run) per SP 2613A, beginning at step 4.1.21
- Review step 4.1.2 and 4.1.4 prior to commencing the surveillance.
- I will act as the US, PEO, etc.

Initial Conditions:

- All plant conditions are normal.
- NO other surveillances are being performed that interfere with 2613A.
- SP 2613A-001 has been authorized for release.
- There are NO Ozone alerts in affect.
- Valve Alignment Check, OPS Form 2613A-002 was performed two weeks ago
- NO maintenance has been performed on the "A" DG in the last two weeks.
- The 'A' D/G pre-start check list, 2346A-002, has been completed.
- Steps 4.1.1 through 4.1.18 were performed by another operator who had to leave due to a family emergency.
- A PEO has been briefed and is standing by at the 'A' D/G gage board. He will complete the D/G Data Sheet, 2346A-004.
- The applicable portions of SP 2619G, AC Electrical Sources Inoperability, were completed 5 minutes ago.
- A chart recorder is installed for auto triggering at the 'A' D/G.
- "B" D/G is OPERABLE.

Form Approval

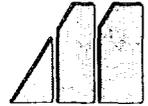
Approval Date

9/3/03

Effective Date

9/16/03

Surveillance Form

**Generic Information**

Form Title

Periodic DG Operability Test, Facility 1 (Fast Start, Loaded Run)

Rev. No.

020-01

Reference Procedure

SP2613A

Applicable TS/TRM

4.8.1.1.2d.1, d.2, d.3;
4.8.1.1.2a.1, a.2, a.3

Applicability (TS/TRM)

MODEs 1, 2, 3 and 4

Frequency

At least once every
184 days**Specific Information**

Schedule Start Date

AWO Number

Mntc Restoration

Performance Modes

All MODEs

Prerequisites Completed (Initials)

Precautions Noted (Initials)

 Yes No

Test Authorized By

*U. Seeples*Date *Today*

Partial Surveillance

Performed By

*R. Spator*Date *Today* Yes No

Accepted By

Date

Acceptance Criteria Satisfied

Approved By (Department Head or Designee)

Date

 Yes No**Surveillance Information**

Test Equipment Type

QA Number

Cal Due Date

Stopwatch

XXX

Next month

Stopwatch

YYY

Hand held temperature detector

TTT

Chart recorder

RRR

Comments

CR# _____

NOTE: Completed copies FORWARDED to:

- Environmental Services Nuclear
- DG System Engineer with printouts

Initial

Periodic DG Operability Test, Facility 1 (Fast Start, Loaded Run)

Item	Data	TS/TRM Acceptance Criteria	Initials
Indication on "A" DG day tank level gauge, LG-7003 (local)	138 inches	Greater than 134 inches	Ro
"DIESEL GEN 12U SUPPLY TANK HI/LO" (window B-32, C-08)	<input checked="" type="checkbox"/> Not lit		Ro

"A" DG stopwatch time to reach 90% of rated speed and 97% rated voltage (DIESEL GEN 12U READY TO LOAD" annunciator lit) [Ref 6.14]		Less than or equal to 15 seconds	
"A" DG voltage	Volts	Greater than or equal to 3740 and less than or equal to 4580 volts	
"A" DG frequency	Hz	Greater than or equal to 58.8 and less than or equal to 61.2 Hz	
"A" DG prelubed between 9½ and 12 minutes	<input type="checkbox"/> Prelubed		
"A" DG loaded between 1,350 and 1,450 kW for 5 minutes (MB 065)			
"A" DG load raised to between 2,550 and 2,650 kW at a rate of 250 to 300 kW per minute			
"A" DG PPC start time	"READY" time, "ZE537"	sec	
	"START" time, "ZE537S"	sec	
		sec	Less than or equal to 15 seconds
Air Start Valve Operating Time	sec		
"A" DG operated for greater than or equal to 1 hour between 2,475 and 2,750 kW (MB 065)		Operates for Greater than or equal to 1 hour at 2,475 to 2,750 kW	
"A" DG operated for greater than or equal to 4 hours at between 2,550 and 2,650 kW			
"A" DG voltage at shutdown in MANUAL 4180 +20/-0 volts (PPC EE003)			
"A" DG voltage at shutdown in AUTO 4180 +20/-0 volts (PPC EE003)			

Valve	Required Position	Initials	DV Initials
Lube oil sample valve, 2-DG-84A (Note:)	Locked Closed		

Note: Use dual verification due to type of locking device on lube oil sample valve, 2-DG-84A, unless performing monthly surveillance, at which time single verification is adequate.

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: **Power Range Safety Channel and Delta T Power Channel Calibration**

ID Number: JPM-S6

Revision: 0

II. Initiated:


R. J. Ashley

Developer

1/10/05

Date

III. Reviewed:


Technical Reviewer

1/26/05
Date

IV. Approved:

N/A

User Department Supervisor

Date


Nuclear Training Supervisor

1/27/05
Date

SUMMARY OF CHANGES

A/I & Date	DESCRIPTION	REV/CHANGE

JOB PERFORMANCE MEASURE WORKSHEET

JPM Number: JPM-S6

Rev. 0

Initiating Cues:

- You are the PPO
- An I&C Technician has just completed the incore/excore detector calibration on RPS Channel "C".
- The US has directed you to perform surveillance SP 2601D, Power Range Safety Channel and Delta T Power Channel Calibration, for RPS Channel "C" only.

Initial Conditions:

- The plant is at 100% power
- All systems are in a normal alignment
- SP 2601D-001 has been authorized

Simulator Requirements:

Any 100% power, stable IC. (e.g., IC-24)

Insert malfunction RP30C at 4% to cause the -10 Volt power supply on Channel "C" to read -9.996 Volts.

**** NOTES TO EXAMINER ****

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S6

TITLE: Power Range Safety Channel and Delta T
Power Channel Calibration

START TIME: _____

STEP 1 X Performance Steps: Place Meter Input switch to "METER INPUT."

GRADE ___ X Standards: *Examinee places RPS Channel "C" Meter Input switch to "METER INPUT" position.*

Cue:

Comments:

~~~~~

STEP 2     X Performance Steps: Press and hold the "ZERO" test button.

GRADE \_\_\_ X Standards:     *Examinee presses and holds the "ZERO" test button on RPS Channel "C".*

Cue:

Comments:

~~~~~

STEP 3 X Performance Steps: When voltage is observed, release test button and record respective voltage on applicable form.

GRADE ___ X Standards: *Examinee observes a voltage of 0.000±0.003 volts, releases the test button, and records this value on SP 2601D-001, page 2, step 4.1.1c for Channel "C"*

Cue:

Comments:

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S6

TITLE: Power Range Safety Channel and Delta T  
Power Channel Calibration

---

STEP 4     X Performance Steps: Press and hold the "+10V" test button.

GRADE \_\_\_ X Standards:     *Examinee presses and holds the "+10V" test button on RPS Channel "C".*

Cue:

Comments:

~~~~~

STEP 5 X Performance Steps: When voltage is observed, release test button and record respective voltage on applicable form.

GRADE ___ X Standards: *Examinee observes a voltage of +10.000±0.003 volts, releases the test button, and records this value on SP 2601D-001, page 2, step 4.1.1c for Channel "C"*

Cue:

Comments:

~~~~~

STEP 6     X Performance Steps: Press and hold the "-10V" test button.

GRADE \_\_\_ X Standards:     *Examinee presses and holds the "-10V" test button on RPS Channel "C".*

Cue:

Comments:

~~~~~

STEP 7 X Performance Steps: When voltage is observed, release test button and record respective voltage on applicable form.

GRADE ___ X Standards: *Examinee observes a voltage of -9.996 volts, releases the test button, and records this value on SP 2601D-001, page 2, step 4.1.1c for Channel "C"*

Cue:

Comments:

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S6

TITLE: Power Range Safety Channel and Delta T  
Power Channel Calibration

---

STEP 8     X Performance Steps: Compare each channel's voltage values within "Acceptance Criteria" range on applicable form.

GRADE \_\_\_ X Standards:     *Examinee determines that the voltage reading of -9.996 volts exceeds the acceptance criteria of -9.997 to -10.003 volts on SP 2601D-001, page 2, step 4.1.1c for Channel "C"*  
*Examinee checks "UNSAT" on SP 2601D-001, page 2, step 4.1.2, for Channel "C"*

Cue:

Comments:

~~~~~

STEP 9 X Performance Steps: If any values are outside of acceptance criteria, perform the following:

- Refer to Technical Specification LCO 3.3.1.1 and perform applicable actions to declare applicable RPS channel inoperable.
- Perform applicable actions to place the RPS channel's trips in a bypassed condition.
- Submit Priority 1 Trouble Report to I&C Department to repair or calibrate voltmeter.

GRADE ___ X Standards: *Examinee determines that RPS Channel "C" is inoperable and performs the following:*

- *Informs the US that RPS Channel "C" is inoperable and recommends logging into the action statement for Tech Spec LCO 3.3.1.1.*
- *Places the bypass key lock switches for all trip units on Channel "C" in the "trip" position.*
- *Recommends submitting a Priority 1 Trouble Report to the I&C Department for repair or calibrate the RPS Channel "C" -10 volt power supply.*
- *States that the remainder of the calibration cannot be accomplished until the -10 volt power supply is restored.*

Cue: **If the examinee does NOT make the recommendations listed, ask him/her what recommendations he/she would make.**

Comments: **After this step is completed, the JPM is considered complete.**

~~~~~

STOP TIME: \_\_\_\_\_

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-S6

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes \_\_\_\_\_ No X

Validated Time (minutes): 10 minutes

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID Number: JPM-S6

### Initiating Cues:

- You are the PPO
- An I&C Technician has just completed the incore/excore detector calibration on RPS Channel "C".
- The US has directed you to perform surveillance SP 2601D, Power Range Safety Channel and Delta T Power Channel Calibration, for RPS Channel "C" only.

### Initial Conditions:

- The plant is at 100% power
- All systems are in a normal alignment
- SP 2601D-001 has been authorized

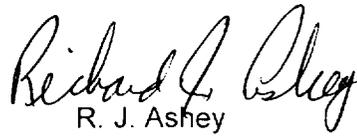
JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: **Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger**

ID Number: JPM-S7

Revision: 0

II. Initiated:



R. J. Ashley

Developer

1/18/05

Date

III. Reviewed:



Daniel A. Pantalone

Technical Reviewer

1/24/05

Date

IV. Approved:

NA

User Department Supervisor

Date



Nuclear Training Supervisor

1/27/05

Date

**SUMMARY OF CHANGES**

| A/I & Date | DESCRIPTION | REV/CHANGE |
|------------|-------------|------------|
|            |             |            |
|            |             |            |
|            |             |            |

**JOB PERFORMANCE MEASURE WORKSHEET**

Facility: MP-2 Examinee: \_\_\_\_\_

JPM Number: JPM-S7 Rev. 0

Task Title: **Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger**

System: Plant Service – Reactor Building Closed Cooling Water

Time Critical Task: Yes \_\_\_\_\_ No X

Validated Time (minutes): 30 minutes

Task No.(s): NUTIMS # 076-01-043

Applicable To: SRO X RO X PEO \_\_\_\_\_

K/A No.: 008 A4.01 K/A Rating: 3.3/3.1

Method of Testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X

Location:

Classroom: \_\_\_\_\_ Simulator: X In-Plant: \_\_\_\_\_

Task Standards: The examinee places "B" RBCCW Pump and Heat Exchanger in service in place of "A" RBCCW Pump and Heat Exchanger.

Required Materials OP 2330A, RBCCW System, Sections 4.1 and 4.2  
(procedures,equipment): OP 2326A, Service Water System, Sections 4.9 and 4.11

General References:

**\*\*\*\* READ TO THE EXAMINEE \*\*\*\***

*I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied. You may use any approved reference materials normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgments, and log entries as if the evolution was actually being performed.*

## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:                     JPM-S7                    

Rev.                     0                    

Initiating Cues:

- You are the SPO.
- Preventive Maintenance is scheduled on the "A" RBCCW Heat Exchanger and Pump.
- The US directs you to place the "B" RBCCW pump and "B" RBCCW HX in service and to remove the "A" RBCCW pump and "A" RBCCW HX from service per OP 2330A, sections 4.1 and 4.2.
- I will act as the US/PEO as needed

Initial Conditions:

- "A" & "C" RBCCW Pumps and Heat Exchangers are in service
- Bus 24E is aligned to Bus 24C.
- "B" RBCCW Pump breaker (A504) racked up.
- The SIAS/LNP Actuation Signal HS 6119D (A504) is in the BLOCK position.
- The "B" RBCCW HX is presently being used for minimum flow for "A" Service Water header.
- Injection temperature is 44°F.
- All other plant conditions are normal.

Simulator Requirements:

Initialize to any IC with:

- A normal RBCCW lineup ("A" & "C" pumps and heat exchangers in service; "B" RBCCW Heat Exchanger used for minimum flow for "A" Service Water header)
- Bus 24E aligned to Bus 24C.
- SIAS/LNP Actuation Signal HS 6119D (A504) in the BLOCK position.

---

**\*\*\*\* NOTES TO EXAMINER \*\*\*\***

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S7

TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

---

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

STEP 1     \_\_\_ Performance Steps: Verify the following:

- "B" RBCCW Pump switch is in Pull-To-Lock. (C-06)
- "RBCCW PP B HDR B SUCT, RB-211D," is closed and "RBCCW PP B HDR A SUCT, RB-211C," is open (C-06)
- "HDR B HX-B OUT, RB-4.1D," is closed (C-06)

GRADE \_\_\_ Standards:

Examinee observes:

- The "B" RBCCW pump handswitch is in the Pull-To-Lock position.
- The green light for "RBCCW PP B HDR B SUCT, RB-211D," is lit.
- The red light for "RBCCW PP B HDR A SUCT, RB-211C," is lit.
- The green light for "HDR B HX-B OUT, RB-4.1D," is lit.

Cue:

Comments: The examinee may dispatch a PEO to locally monitor the pump swap.

~~~~~

STEP 2 X Performance Steps: Verify open PP DIS HDR A/B X-TIE, RB-251A. (C-06).

GRADE ___ X Standards: *Examinee places the handswitch for PP DIS HDR A/B X-TIE, RB-251A, in the open position and observes the red light lit.*

Cue:

Comments: PP DIS HDR A/B X-TIE, RB-251A, may be open or closed initially. If the valve is initially open, the examinee will only observe the red light lit.

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S7      TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

---

STEP 3    \_\_\_ Performance Steps: Log into TS 3.7.3.1

GRADE \_\_\_    \_\_\_ Standards:    *Examinee informs the US of the need to log into TSAS 3.7.3.1.*

Cue:    **US acknowledges the need to enter TSAS 3.7.3.1**

Comments:

~~~~~

STEP 4 X Performance Steps: Start "RBCCW PP B." (C-06)

GRADE ___ X Standards: *Examinee momentarily places the "B" RBCCW Pump handswitch in the Start position and observes the red light for the "B" RBCCW Pump is lit.*

Cue: **If asked, report as the PEO that the pump is running normally.**

Comments:

~~~~~

STEP 5    \_\_\_ Performance Steps: Check alarm RBCCW PUMP B SIAS/LNP START MANUALLY BLOCKED" (AA-20, C-06/07) lit.

GRADE \_\_\_    \_\_\_ Standards:    *Examinee observes alarm RBCCW PUMP B SIAS/LNP START MANUALLY BLOCKED" (AA-20, C-06/07) is lit.*

Cue:

Comments:

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PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S7 TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

STEP 9 X Performance Steps: Place "SIAS/LNP Actuation Signal HS 6119D" (A504) is in the NORMAL position.

GRADE ___ X Standards: *Examinee directs a PEO to place SIAS/LNP Actuation Signal HS 6119D (A504) is in the NORMAL position and observes the following:*

- "RBCCW PUMP B SIAS/LNP START MANUALLY BLOCKED" annunciator clears.
- RBCCW HDR A FLOW HI annunciator is NOT lit.

Cue: **Booth Operator – CCR40 set to Normal. When directed, as the PEO, report that the "SIAS/LNP Actuation Signal HS 6119D" (A504) is in the NORMAL position.**

Comments:

~~~~~

STEP 10    \_\_\_ Performance Steps: Exit Tech Spec 3.7.3.1

GRADE \_\_\_ \_\_\_ Standards:     *Examinee informs the US of the need to exit TSAS 3.7.3.1.*

Cue: **US acknowledges the need to exit TSAS 3.7.3.1**

Comments:

~~~~~

STEP 11 ___ Performance Steps: Open "A" RBCCW Pump Discharge Stop, 2-RB-3A.

GRADE ___ ___ Standards: *Examinee directs a PEO to open "A" RBCCW Pump Discharge Stop, 2-RB-3A.*

Cue: **Booth Operator – Set CCR06 to 100%. When directed, as the PEO, report that "A" RBCCW Pump Discharge Stop, 2-RB-3A is open.**

Comments:

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S7      TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

---

STEP 12    \_\_\_    Performance Steps: Verify "A" RBCCW header flow on FI-6035 greater than or equal to 6,000 gpm and less than 8,000 gpm.

GRADE \_\_\_    \_\_\_    Standards:    *Examinee observes FI-6035 and determines that "A" RBCCW header flow is greater than or equal to 6,000 gpm and less than 8,000 gpm. (Approximately 6300 gpm)*

Cue:

Comments: Closing PP DIS HDR A/B X-TIE, RB-251A, is NOT required. The "B" RBCCW Heat Exchanger is NOT in service.

~~~~~

STEP 13 ___ Performance Steps: Perform the following to ensure correct flow through RM-6038:

- Throttle "B" RBCCW Pump RE Flow Stop, 2-RB-41, as required to set flow indicated on FI-6313 to greater than or equal to one gpm.
- Throttle "C" RBCCW Pump RE Flow Stop, 2-RB-39, as required to set flow indicated on FI-6314 to greater than or equal to one gpm.
- Verify flow indicated on FI-6038 is between 2.0 and 4.5 gpm.

GRADE ___ ___ Standards: *Examinee directs a PEO to:*

- *Throttle "B" RBCCW Pump RE Flow Stop, 2-RB-41, as required to set flow indicated on FI-6313 to greater than or equal to one gpm.*
- *Throttle "C" RBCCW Pump RE Flow Stop, 2-RB-39, as required to set flow indicated on FI-6314 to greater than or equal to one gpm.*
- *Verify flow indicated on FI-6038 is between 2.0 and 4.5 gpm.*

Cue: **When directed, as the PEO report that radiation monitor flows have been set as requested.**

Comments:

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**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S7      TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

---

STEP 14    \_\_\_    Performance Steps: Refer to OP 2326A, "Service water System", and establish Service water flow through the "B" RBCCW Heat Exchanger.

GRADE \_\_\_    \_\_\_    Standards:    *Examinee obtains OP 2326A, "Service water System", and selects section 4.9, Placing "B" RBCCW Heat Exchanger in Service and Removing "A" RBCCW Heat Exchanger From Service".*

Cue:    **Provide OP 2326A, Service Water, when requested.**

Comments:

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STEP 15 ___ Performance Steps: Ensure the following are closed:

- "B" Service Water Header to "B" RBCCW Heat Exchanger, 2-SW-7A
- "B" RBCCW Heat Exchanger to "B" Discharge Header, 2-SW-10A.

GRADE ___ ___ Standards: *Direct a PEO to verify the following valves are closed:*

- "B" Service Water Header to "B" RBCCW Heat Exchanger, 2-SW-7A
- "B" RBCCW Heat Exchanger to "B" RBCCW Discharge Header, 2-SW-10A.

Cue: **As the PEO, report that 2-SW-7A and 2-SW-10A are closed.**

Comments:

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**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S7 TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

---

STEP 16 \_\_\_ Performance Steps: Open the following:  
• "A" Service Water Header to "B" RBCCW Heat Exchanger, 2-SW-7B  
• "B" RBCCW Heat Exchanger to "A" Discharge Header, 2-SW-10B.

GRADE \_\_\_ Standards: *Direct a PEO to verify the following valves are open:*  
• "A" Service Water Header to "B" RBCCW Heat Exchanger, 2-SW-7B  
• "B" RBCCW Heat Exchanger to "A" RBCCW Discharge Header, 2-SW-10B.

Cue: **As the PEO, report that 2-SW-7B and 2-SW-10B are open.**

Comments:

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STEP 17 ___ Performance Steps: At "B" RBCCW Heat Exchanger temperature controller, TIC-6307, ensure the following:
• Mode switch in "A" (inside controller)
• Temperature control knob set greater than 200°F.

GRADE ___ Standards: *Direct a PEO to perform the following:*
• *Ensure the mode switch is in "A" (inside controller)*
• *Set the temperature control knob to greater than 200°F.*

Cue: **Booth Instructor – Set CCR03 to 95. As the PEO, inform the examinee that the temperature controller has been set to 200°F.**

Comments:

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STEP 18 \_\_\_ Performance Steps: Ensure "B" RBCCW Heat Exchanger temperature control valve is in either "Summer Valve, 2-SW-8.1B" or "Winter Valve, 2-SW-246".

GRADE \_\_\_ Standards: *Examinee directs the PEO to ensure the "B" RBCCW temperature control valve is in the "Winter" mode.*

Cue: **Booth Operator – Ensure SWR09 is set to Winter. Report that the temperature control valve is in the Winter Mode.**

Comments:

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PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S7 TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

STEP 19 ___ Performance Steps: Log into TS Action Statement 3.7.4.1

GRADE ___ ___ Standards: *Examinee informs the US of the need to enter TSAS 3.7.4.1.*

Cue: **Acknowledge the need to enter TSAS 3.7.4.1.**

Comments:

~~~~~

STEP 20    X Performance Steps: Open "B" RBCCW Heat Exchanger SW Outlet, 2-SW-9B.

GRADE \_\_\_    X Standards:    *Examinee directs the PEO to open "B" RBCCW Heat Exchanger SW Outlet, 2-SW-9B.*

Cue:    **Booth Operator – SWR24 set to 100%. When directed, as the PEO, report that "B" RBCCW Heat Exchanger SW Outlet, 2-SW-9B is open.**

Comments:

~~~~~

STEP 21 X Performance Steps: Slowly lower "B" RBCCW Heat Exchanger temperature control knob to setting specified by the Control Room.

GRADE ___ X Standards: *Examinee directs the PEO to slowly lower the "B" RBCCW Heat Exchanger TCV to 75°F.*

Cue: **Booth Instructor – Set CCR03 to 75. As the PEO, inform the examinee that the temperature controller has been set to 75°F.**

Comments:

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**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S7      TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

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STEP 22        Performance Steps: Refer to OP 2330A, Reactor Building Closed Cooling Water System," and shift RBCCW loads from "A" RBCCW Heat Exchanger to "B" RBCCW Heat Exchanger.

GRADE         Standards:    *Examinee obtains OP 2330A, Reactor Building Closed Cooling Water System," and refers to Section 4.2, step 4.2.2.*

Cue:

Comments:

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STEP 23 Performance Steps: If "A" RBCCW Pump is operating, perform the following:
• Verify HDR BHX-B OUT, RB-4.1D is closed.
• Open PP DIS HDR A/B X-TIE, RB-251A.

GRADE Standards: • *Examinee states that "A" RBCCW Pump is NOT in operation; therefore, this step is NOT applicable.*

Cue:

Comments: This step is not applicable. "A" RBCCW Pump is NOT in operation.

~~~~~

STEP 24      X   Performance Steps: Open HDR A HX-B OUT, RB-4.1C

GRADE       X   Standards:    *Examinee opens HDR A HX-B OUT, RB-4.1C, and observes the associated red light is lit.*

Cue:

Comments:

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PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S7

TITLE: Placing "B" RBCCW Pump and Heat Exchanger in Service and Removing "A" RBCCW Pump and Heat Exchanger

STEP 25 Performance Steps: Monitor header "A" flow on FI-6035 to ensure it remains stable.

GRADE Standards: *Examinee monitors flow on FI-6035 and observes stable flow at approximately 6300 gpm.*

Cue:

Comments:

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STEP 26      X   Performance Steps: Close HDR A HX-A OUT, RB-4.1A.

GRADE          X   Standards:    *Examinee closes HDR A HX-A OUT, RB-4.1A and observes the associated green light is lit.*

Cue:

Comments:

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Comments: **After this step is completed, the JPM is considered complete.**

STOP TIME: _____

EXAMINEE HANDOUT

JPM ID Number: JPM-S7

Initiating Cues:

- You are the SPO.
- Preventive Maintenance is scheduled on the "A" RBCCW Pump and Heat Exchanger.
- The US directs you to place the "B" RBCCW pump and "B" RBCCW HX in service and to remove the "A" RBCCW pump and "A" RBCCW HX from service per OP 2330A, sections 4.1 and 4.2 (Pump first).
- I will act as the US/PEO as needed

Initial Conditions:

- "A" & "C" RBCCW Pumps and Heat Exchangers are in service
- Bus 24E is aligned to Bus 24C.
- "B RBCCW Pump breaker (A504) racked up.
- The SIAS/LNP Actuation Signal HS 6119D (A504) is in the BLOCK position.
- The "B" RBCCW HX is presently being used for minimum flow for "A" Service Water header.
- All other plant conditions are normal.

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Change the Alarm Setpoint of the SJAE RM 5099

ID Number: JPM-S8

Revision: 0

II. Initiated:


Daniel A. Pantalone

Developer

01/24/05

Date

III. Reviewed:


Duffy Ashley

Technical Reviewer

1/26/05

Date

IV. Approved:

N/A

User Department Supervisor

Date



Nuclear Training Supervisor

1/27/05

Date

SUMMARY OF CHANGES

A/I & Date	DESCRIPTION	REV/CHANGE
01/19/2005 (DAP)	Developed new JPM.	0

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S8 TITLE: Change the Setpoint of the SJAE RM 5099

STEP 4 X Performance Steps: PLACE RI-5099 "NORM/SUPV." switch to "SUPV."

GRADE ____ X Standards: *The examinee inserts the key into the "NORM/SUPV." Switch, selects "SUPV", and observes the red SUPV MODE light is lit".*

Cue:

Comments:

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STEP 5                      Performance Steps: Using SP 2833-007, "SJAE Radiation Monitor RM 5099 & PPC Alarm Setpoint Change Request," ENTER new alarm setpoint as follows:

- X                      a. Press "CH1."
- X                      b. Press "0," "0," "9."
- X                      c. Press "ITEM"
- X                      d. Enter new value using scientific notation.
- X                      e. PRESS "ENTER."
- X                      f. PRESS "CH. 1."

GRADE                      Standards:     *At RC-14D, the examinee performs the following steps on the RM-5099 insert.*

- \_\_\_\_ X                      - Press CH 1 and observe no change.
- \_\_\_\_ X                      - Press 009 and observe 009 on the display.
- \_\_\_\_ X                      - Press the ITEM button and observe the button is lit when pressed and light goes out when button is released.
  
- \_\_\_\_ X                      - Press 412+02 and observe 412 E 2 on the display
- \_\_\_\_ X                      - Press ENTER and observe 4.12 E+2 on the display.
- \_\_\_\_ X                      - Press CH1 and observe present radiation monitor reading of 9.80 E+1.

- Cue:     • **Provide the examinee with SP 2833-007, "SJAE Radiation Monitor RM 5099 & PPC Alarm Setpoint Change Request."**
- **If an error is made while entering information into the RM-5099 Insert, the CLEAR button may be used to start over.**

Comments:     If an error is made while entering information into the RM-5099 Insert, the CLEAR button may be used to start over.

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PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S8

TITLE: Change the Setpoint of the SJAE RM 5099

STEP 10 X Performance Steps: As appropriate, PLACE RADMONITOR BYPASS, HS 5099E" switch to RM 4262 OUT" or NORMAL."

GRADE ___ X Standards: *The examinee locates HS 5099E key switch, and places it in the NORMAL position.*

Cue:

Comments:

~~~~~

STEP 11    \_\_\_    Performance Steps: RETURN keys (Operations key locker).

GRADE \_\_\_    \_\_\_    Standards:    *The examinee returns the two keys to the Ops Key Locker.*

Cue:

Comments:

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PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S8

TITLE: Change the Setpoint of the SJAE RM 5099

STEP 12 X Performance Steps: Using SP 2833-007, "SJAE Radiation Monitor RM 5099 & PPC Alarm Setpoint Change Request," ENTER new values into PPC as follows:

- a. OPEN PPC screen N16_CHEM.
- b. ENTER value for steam jet air ejector instrument background.
- c. ENTER value for SJAE DP.
- d. ENTER value for RCS total gas activity.
- e. ENTER value for RM 5099 response factor.
- f. EXIT application.

GRADE ____ Standards: *Using SP 2833-007, "SJAE Radiation Monitor RM 5099 & PPC Alarm Setpoint Change Request," the examinee performs the following:*

- X a. *Opens PPC screen N16_CHEM on any available PPC Console.*
- X b. *Enters the instrument background value of 124 cpm.*
- X c. *Enters SJAE DP value of 0.35 Inches of Water.*
- X d. *Enters the Total Gaseous Activity value of 1.113 μ Ci/cc.*
- X e. *Enters the RM-5099 Response Factor value of 7.450E-07 cpm/ μ Ci/cc.*
- ____ f. *Exits the application by pressing the ENTER key and closing the present PPC page.*

Cue:

Comments: When the appropriate data has been entered into the PPC, the JPM is complete. Exiting the application is NOT a requirement for completion of this JPM.

~~~~~

STOP TIME: \_\_\_\_\_



## EXAMINEE HANDOUT

JPM ID Number: JPM-S8

Initiating Cues: The US has assigned you to change the setpoint of the SJAE Radmonitor (RM5099) in accordance with OP 2383C, Radiation Monitor Alarm Setpoint Control, section 4.1.

Initial Conditions: The latest RCS samples have indicated a rise in RCS gaseous isotopic results. Due to this rise in fission product gasses, chemistry has requested a change to the SJAE RM (RM 5099) setpoint.

- Chemistry has provided an approved "SJAE Radmonitor Setpoint Change Request, SP-2833-007.
- The Radiation Monitor System Engineer has referenced EN-21235 and verified that the new setpoint does NOT exceed the maximum setpoint.
- The S/G Blowdown Radmonitor (RM-4262) is in service.

03/25/04

Approval Date

03/29/04

Effective Date

**SJAE Radiation Monitor RM 5099 & PPC Alarm Setpoint Change Request**

Date: Today Time: Morning

Current SJAE RM setpoint: 206 cpm

Unit 2 Chemistry requests the SJAE RM alarm setpoint REMAIN at/CHANGE to: 412 cpm

This setpoint corresponds to a 50.4 gpd Primary-to-Secondary Leak Rate and is based on the most current constituents of the RCS gaseous isotopic results. |②

Unit 2 Chemistry also requests the PPC SJAE Primary-to-Secondary Leak Rate Input Data on the PPC "n16\_chem" display page be revised to reflect the following: |

Instrument Background: 124 cpm\*

SJAE DP: 0.35 Inches of Water

RCS Total Gaseous Activity: 1.113  $\mu\text{Ci/cc}$

RM 5099 Response Factor:  $7.450 \times 10^{-7}$  cpm/ $\mu\text{Ci/cc}$

Change Request Sheet Submitted By: C. Technician

Reviewed By: J Christ Date: Today

\* As recorded on current IC 2422T, Attachment 3, "RM5099 Calibration Data Sheet" |②

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Hydrogen Recombiner Surveillance

ID Number: JPM-S9

Revision: 0

II. Initiated:

  
\_\_\_\_\_  
Daniel A. Pantalone  
Developer

01/10/05  
\_\_\_\_\_  
Date

III. Reviewed:

  
\_\_\_\_\_  
Richard J. Oleg  
Technical Reviewer

1/24/05  
\_\_\_\_\_  
Date

IV. Approved:

  
\_\_\_\_\_  
User Department Supervisor

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Nuclear Training Supervisor

1/28/05  
\_\_\_\_\_  
Date

**SUMMARY OF CHANGES**

| A/I & Date          | DESCRIPTION        | REV/CHANGE |
|---------------------|--------------------|------------|
| 12/02/2005<br>(DAP) | Developed new JPM. | 0          |
|                     |                    |            |
|                     |                    |            |

**JOB PERFORMANCE MEASURE WORKSHEET**

Facility: MP-2 Examinee: \_\_\_\_\_

JPM Number: JPM-S9 Rev. 0

Task Title: Hydrogen Recombiner Surveillance

System: Containment Post-Incident Hydrogen Control

Time Critical Task: Yes \_\_\_ No X

Validated Time (minutes): 15

Task No.(s): NUTIMS# 028-01-025

Applicable To: SRO X RO X PEO \_\_\_

K/A No.: 028-000-A4.01 K/A Rating: 4.0/4.0

Method of Testing:

Simulated Performance: \_\_\_\_\_ Actual Performance: X

Location:

Classroom: \_\_\_\_\_ Simulator: X In-Plant: \_\_\_\_\_

Task Standards:

At the completion of this JPM, the examinee will have "A" Hydrogen Recombiner in service in accordance with SP-2608A

Required Materials

(procedures, equipment):

- Calculator
- SP-2608A "Hydrogen Recombiner Operability – Operating"
- SP-2608A - 001

General References:

SP-2608A

\*\*\*\* READ TO THE EXAMINEE \*\*\*\*

*I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied. You may use any approved reference materials normally available in the Control Room, including logs. Make all written reports, oral reports, alarm acknowledgments, and log entries as if the evolution was actually being performed.*

## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:                     JPM-S9                    

Rev.           0          

Initiating Cues:                   The Unit Supervisor has directed you to place the "A" Hydrogen Recombiner in service using SP-2608A.

Initial Conditions:               The "A" Hydrogen Recombiner surveillance was missed, when originally scheduled. The surveillance must be completed within the next 4 hours to comply with the surveillance frequency.

Simulator Requirements:       Initialize to any IC.  
                                          Containment is closed  
                                          IO-CH "KW, JI-8223" = 0

---

**\*\*\*\* NOTES TO EXAMINER \*\*\*\***

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S9      TITLE: Hydrogen Recombiner Surveillance

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START TIME: 

STEP 1          Performance Steps: ENSURE "POT, JC-8723," set at "000" (C-01).

GRADE         Standards:      *Examinee locates "Pot, JC-8723," on C-01 and observes "000" on the face of the pot..*

Cue:

Comments:

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STEP 2 X Performance Steps: PLACE "H2 RECOMB HTR, H-29A" switch to "ON" (C-01).

GRADE X Standards: *Examinee locates and places the Hydrogen Recombiner Heater handswitch on C-01 to "ON" and observes the red light only lit.*

Cue:

Comments:

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STEP 3        X   Performance Steps: IF "KW, JI-8723" is available, slowly INCREASE "POT, JC-8723" to obtain 48 kW, as indicated on "KW, JI-8723" (C-01) [Ref. 6.4].

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-S9      TITLE: **Hydrogen Recombiner Surveillance**

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GRADE     X Standards:    *The examinee turns "Pot JC-8723" and observes NO response on "KW, JI-8723".*

- *The examinee stops and reports the condition to the US.*
- *No indication or response noted on KW JI-8723.*
- *Temperature will not change.*

Cue: Ask the examinee for a recommendation.

- If the examinee recommends to CR the "A" Hydrogen Recombiner and send an electrician to investigate failure,
  - REPLY: Consider the CR complete and the electrician reports that only the meter "KW, JI-8723" is failed. The remainder of the circuit is operating properly.
- If the examinee recommends we place the "A" Recombiner in "OFF" and stop the surveillance until the "A" Recombiner is fixed,
  - Remind the examinee that the surveillance must be done within 4 hours,
  - Ask if there is another alternative.
- If examinee does not recommend a CR, ask the examinee for a recommendation (writing a CR and trouble shoot the equipment.)

Comments: Because Step 3 is a conditional step, "IF ... is available.", the examinee should continue onto Step 4 once it is determined that only the KW Meter is not working.

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PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S9 TITLE: Hydrogen Recombiner Surveillance

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- STEP 4 Performance Steps: IF "KW, JI-8723" is not available, PERFORM the following:
- X a. REQUEST Electrical Maintenance
 Department install portable clamp-on ammeter at TB-2 on cable to "A," "B," or "C" terminal (C-33A, East 14"6' Electrical Penetration Area).

 - X b. ESTABLISH communications between East 14"6' Electrical Penetration Area and Control Room.

 - X c. OBSERVE voltage on bus 22E (C-08).

 - X d. CALCULATE required input current, IR, using the following formula:

 (IR = 48,000 / 1.73 x voltage on bus 22E)

 - X e. MONITOR clamp-on ammeter and slowly INCREASE "POT, JC-8723" to obtain calculated input current, IR (C-01).

 - f. WHEN required input current is obtained, TERMINATE communications.

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S9 TITLE: Hydrogen Recombiner Surveillance

GRADE	Standards:	Examinee performs the following:
___ <u>X</u>		a. Requests that an electrician be briefed and sent to take the required readings.
___ <u>X</u>		b. States communications would be established by the maintenance jack or over the Ericsson Phones.
___ <u>X</u>		c. Observes voltage on 22E via the meter on C-08, approximately 480 volts. Could range from 480v to 520v.
___ <u>X</u>		d. Input current can range from 53.35 amps to 57.80 amps, depending on the voltage of bus 22E. IR = ~ 57.80 amps = 48,000 / 1.73 x 480 volts IR = ~ 53.35 amps = 48,000 / 1.73 x 520 volts
___ <u>X</u>		e. Turns the "Pot, JC-8723" until the electrician indicates the required current is achieved.
___ ___		f. Terminates communications and releases the electrician.

- Cue:
- a. As the US, respond that the electrician is ready in the 14"6' Electrical Penetration Area.
 - b. Indicate you will act as the electrician
 - c. See Comments.
 - d. IR = 53.35 to 57.80
 - e. When the candidate turns Pot, JC-8723, as the electrician give the following current readings.

POT READING:	ELECTRICIAN AMMETER READING:
100	10 amps
200	20 amps
300	30 amps
400	40 amps
500	50 amps
600	60 amps

- f. Acknowledge the order from the control room.

Comments: c. If the examinee obtains 22E voltage from the PPC, and not C-08, this is not grounds for failure.

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-S9 TITLE: Hydrogen Recombiner Surveillance

STEP 5 Performance Steps: Refer To OPS Form 2608A-001, "Hydrogen Recombiner Operability - Operating, Facility 1" and RECORD time of increase, T1 (increase of "POT, JC-8723").

GRADE Standards: *Examinee records the time in 2608A-001*

Cue: 

Comments:

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STEP 6   X Performance Steps: Using "TEMP SEL, HJS-8721" switch, MONITOR available temperature channels on "TEMP IND SW, TIS 8721" to determine when any channel indicates greater than or equal to 700°F (C-01).

GRADE      X Standards: *Examinee selects the various positions on "TEMP SEL, HJS-8721" switch to monitor the available channels.*

Cue: 

Comments: **After this step is completed, the JPM is considered complete.**

STOP TIME:

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM-S9

Rev. 0

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes \_\_\_\_\_ No X

Validated Time (minutes): 15

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID Number: S9

Initiating Cues: The Unit Supervisor has directed you to place the "A" Hydrogen Recombiner in service using SP-2608A.

Initial Conditions: The "A" Hydrogen Recombiner surveillance was missed, when originally scheduled. The surveillance must be completed within the next 4 hours to comply with the surveillance frequency.

- Containment is closed.

# JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: **Removing Section 201A-1, of Battery Charger 201A , From Service**

ID Number: JPM-P1

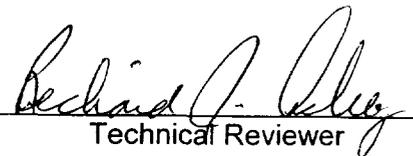
Revision: 0

II. Initiated:

  
\_\_\_\_\_  
Daniel A. Pantalone  
Developer

10/15/04  
\_\_\_\_\_  
10-15-04  
Date

III. Reviewed:

  
\_\_\_\_\_  
Richard J. Riley  
Technical Reviewer

1/26/05  
\_\_\_\_\_  
Date

IV. Approved:

\_\_\_\_\_  
User Department Supervisor

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Nuclear Training Supervisor

1/26/05  
\_\_\_\_\_  
Date

**SUMMARY OF CHANGES**

| A/I & Date          | DESCRIPTION        | REV/CHANGE |
|---------------------|--------------------|------------|
| 10/15/2004<br>(DAP) | Developed new JPM. | 0          |
|                     |                    |            |
|                     |                    |            |





**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM- P-1

TITLE: **Removing Section 201A-1, of Battery Charger 201A, From Service**

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

STEP 1     \_\_\_ Performance Steps:           ENSURE total charger "DC OUTPUT" current less than 400 amps.

GRADE \_\_\_     Standards:           *Examinee observes "DC OUTPUT" ammeter on the Totalizer Cabinet.*

Cue:   **Amperage is < 400 amps.**

Comments:

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STEP 2 ___ Performance Steps: PLACE "MODE SEL." Switch in "DIS. A"

GRADE ___ Standards: - *Examinee indicates the following on the "Termination Cabinet":*
 - *the "MODE SEL." Switch is being turned to the "DIS A." position.*
 - *the "BATTERY CHARGER 201A-1 ALARMS DISABLED" red light lights*
 - *the "CURRENT SHARING DISABLED" red light lights.*

Cue: - "MODE SEL." Switch is in the "DIS A." position
 - "BATTERY CHARGER 201A-1 ALARMS DISABLED" red light is lit.
 - "CURRENT SHARING DISABLED" red light is lit..

Comments:

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM- P-1 TITLE: **Removing Section 201A-1, of Battery Charger 201A, From Service**

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STEP 3      X Performance Steps: PLACE breaker "201A AC INPUT TO BATTERY CHARGER 201A-1" in OFF.

GRADE \_\_\_\_ X Standards:      *Examinee locates the correct breaker on the Termination Cabinet and simulates pulling down on the breaker.*

Cue: Breaker is in "OFF"

Comments:

~~~~~

STEP 4 X Performance Steps: PLACE breaker "201A-1 DC OUTPUT TO BATTERY BUS BREAKER D0102" in OFF.

GRADE ____ X Standards: *Examinee locates the correct breaker on the Termination Cabinet and simulates pulling down on the breaker.*

Cue: Breaker is in "OFF"

Comments:

~~~~~

STEP 5      X Performance Steps: PLACE breaker "BATTERY CHARGER 201A-1 AC INPUT" in OFF.

GRADE \_\_\_\_ X Standards:      *Examinee locates the correct breaker on the "Battery Charger 201A-1" cabinet and simulates pulling down on the breaker.*

Cue: Breaker is in "OFF"

Comments:

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM- P-1 TITLE: **Removing Section 201A-1, of Battery Charger 201A, From Service**

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~~~~~

STEP 6 X Performance Steps: PLACE breaker "BATTERY CHARGER 201A-1 DC OUTPUT" in OFF.

GRADE X Standards: *Examinee locates the correct breaker on the "Battery Charger 201A-1" cabinet and indicates pulling down on the breaker.*

Cue: **Breaker is in the OFF Position**

Comments:

~~~~~

STEP 7    Performance Steps: ENSURE total charger "DC OUTPUT" current less than 400 amps.

GRADE       Standards: *Examinee locates the "D.C. OUTPUT – DC AMPERES" meter on either the 201A-2 panel or the Totalizer Cabinet.*

Cue: DC Amps is < 400

Comments: **After this step is completed, the JPM is considered complete.**

STOP TIME: \_\_\_\_\_



## EXAMINEE HANDOUT

JPM ID Number: JPM-P1

Initiating Cues: The US has directed you to remove battery charger section 201A-1 from service, in preparation for preventive maintenance.

Initial Conditions: Battery Charger 201A is operating with both sections in service.

JOB PERFORMANCE MEASURE APPROVAL SHEET

I. JPM Title: Loss of SDC / Vent the 'A' LPSI Pps

ID Number: JPM-P2

Revision: 0

II. Initiated:

  
Daniel A. Pantalone

Developer

01/25/05

Date

III. Reviewed:

  
Duffy Ashley

Technical Reviewer

1/26/05

Date

IV. Approved:

N/A

User Department Supervisor

Date

  
Nuclear Training Supervisor

1/27/05

Date

**SUMMARY OF CHANGES**

| <b>A/I &amp; Date</b> | <b>DESCRIPTION</b> | <b>REV/CHANGE</b> |
|-----------------------|--------------------|-------------------|
| 01/18/2005<br>(DAP)   | Developed new JPM  | 0                 |
|                       |                    |                   |
|                       |                    |                   |



## JOB PERFORMANCE MEASURE WORKSHEET

JPM Number:                   JPM-P2                  

Rev.           0          

Initiating Cues:           The US has directed you to vent the 'A' LPSI Pp. per AOP 2572 "Loss of Shutdown Cooling", step 4.15.

Initial Conditions:    The plant is at the center line of the hot leg to replace an RCP seal. The 'A' LPSI Pp started to show indications of air binding.

- The 'A' LPSI Pp is secured.
- RCS level has been raised and the SDC suction piping evacuated.
- The pump is placed in a safe condition and is ready to vent.
- RCS temperature is approximately 85°F.

Simulator Requirements:    N/A

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**\*\*\*\* NOTES TO EXAMINER \*\*\*\***

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-P2

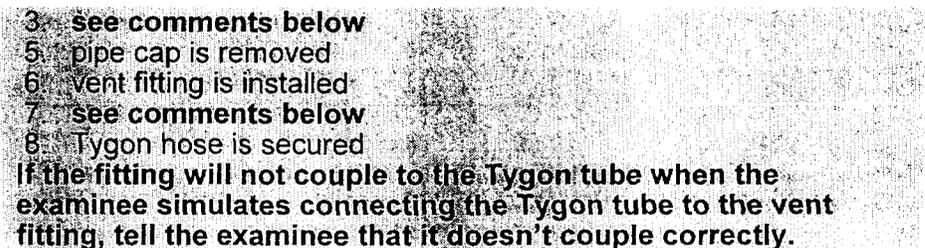
TITLE: Loss of SDC / Vent the 'A' LPSI Pp.

---

START TIME: 

STEP 1    X Performance Steps:    CONNECT vent hose to SI-21A, ("A" LPSI Pp. vent).

|       |          |            |                                                                                                |
|-------|----------|------------|------------------------------------------------------------------------------------------------|
| GRADE | ___      | Standards: | <i>Examinee does the following:</i>                                                            |
|       | <u>X</u> |            | 1. Locates SI-21A on the "A" LPSI Pp. casing                                                   |
|       | <u>X</u> |            | 2. Verifies SI-21A is closed.                                                                  |
|       | <u>X</u> |            | 3. Locates the "vent pipe fitting" in the vent rig box, located at the base of the LPSI Pp.    |
|       | <u>X</u> |            | 4. Locates the "pipe wrench" in the vent rig box, located at the base of the LPSI Pp.          |
|       | <u>X</u> |            | 5. Simulates removing the "pipe cap" at the end of the extension pipe of SI-21A.               |
|       | <u>X</u> |            | 6. Simulates installing the "female Camlock vent pipe fitting" on the extension pipe of SI-21A |
|       | <u>X</u> |            | 7. Simulate connecting the Tygon Hose to the "vent pipe fitting".                              |
|       | ___      |            | 8. Simulate running and securing the Tygon Hose to a floor drain.                              |

Cue: 

3: see comments below  
5: pipe cap is removed  
6: vent fitting is installed  
7: see comments below  
8: Tygon hose is secured

**If the fitting will not couple to the Tygon tube when the examinee simulates connecting the Tygon tube to the vent fitting, tell the examinee that it doesn't couple correctly.**

Comments:    There may be several vent fittings in the box at the base of the LPSI Pp. Visually determine that the fitting selected by the examinee will couple up to the fitting on the end of the Tygon tube.

The examinee should then find the correct fitting.

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-P2 TITLE: Loss of SDC / Vent the 'A' LPSI Pp.

STEP 2 X Performance Steps: Slowly open SI-21A ("A" LPSI Pp vent)

GRADE X Standards: *Examinee simulates cracking open SI-21A.*

Cue: **Inform the examinee that large air bubbles are visible in the water.**

Comments: - The examinee should indicate that s/he would continue to vent until air free water is observed.
 - The note in the procedure defines air-free as bubbles the size of bubbles in carbonated water or soda.

~~~~~

STEP 3      X Performance Steps: Close SI-21A when air-free water is observed.

GRADE      X Standards:      *The examinee simulates closing SI-21A when soda water like bubbles are observed.*

Cue: **Ask the examinee to describe the conditions that would indicate SI-21A can be closed.**

Comments:    Ensure the examinee understands the information given in the note. This may be done when the examinee asks if the bubbles are like those in soda water. If the examinee gives no indication, ask the examinee to describe the conditions that would indicate the pump is properly vented.

~~~~~

Comments: **After this step is completed, the JPM is considered complete.**

STOP TIME: _____

VERIFICATION OF JPM COMPLETION

Job Performance Measure No. JPM- P2

Rev. 0

Date Performed: _____

Operator: _____

Evaluator(s): _____

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly. If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes _____ No X

Validated Time (minutes): 13

Actual Time to Complete (minutes): _____

Result of JPM: _____ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

EXAMINEE HANDOUT

JPM Number: JPM-P2

Rev. 0

Initiating Cues: The US has directed you to vent the ‘A’ LPSI Pump per AOP 2572 “Loss of Shutdown Cooling”, step 4.15.

Initial Conditions: The plant is at the centerline of the hot leg to replace an RCP seal. The ‘A’ LPSI Pp started to show indications of air binding.

- The ‘A’ LPSI Pp is secured.
- RCS level has been raised and the SDC suction piping evacuated.
- The pump is placed in a safe condition and is ready to vent.
- RCS temperature is approximately 85°F.

SUMMARY OF CHANGES

A/I & Date	DESCRIPTION	REV/CHANGE
10/25/2004	Developed new JPM.	0

JOB PERFORMANCE MEASURE WORKSHEET

JPM Number: JPM-P3

Rev. 0

Initiating Cues: The Unit Supervisor has directed you to cross-tie Station Air from Unit 3 to allow Station Air to supply Instrument Air in accordance with EOP 2525, Contingency Action step 19.1.

Initial Conditions:

- Unit has tripped from 100% power.
- The RSST failed resulting in a loss of off site power.
- Both Emergency Diesels have energized their respective buses.
- Instrument Air header pressure is reading 85 psig and lowering.
- Unit 3 has informed the Unit Supervisor that they are able to supply Station Air to Unit 2.
- SA-10.1, Station Air to Instrument Air Cross-Tie, is open.

Simulator Requirements: N/A

****** NOTES TO EXAMINER ******

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM (in-plant only).

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-P3 TITLE: Cross-Tie Station Air With Unit 3 to Supply Unit 2 Instrument Air

START TIME: _____

STEP 1 Performance Steps: Ensure SA-26, SA-11.1 Outlet Bypass, is open.

GRADE Standards: *Examinee checks SA-26, SA-11.1 Outlet Bypass, open attempting to rotate the valve handwheel in the counter clockwise direction.*

Cue: **SA-26 is open.**

Comments: SA-26 is located on the 14'6' elevation of the Turbine Building near the Instrument Air Dryer.

~~~~~

STEP 2      X   Performance Steps: Open SA-12, SA-11.1 Inlet Bypass.

GRADE       X   Standards:            *Examinee opens SA-12, SA-11.1 Inlet Bypass, by rotating the valve handwheel in the counter clockwise direction.*

Cue:    **SA-12 is open when the examinee simulates opening the valve.**

Comments: SA-12 is located on the 14'6' elevation of the Turbine Building near the Instrument Air Dryer.

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-P3 TITLE: Cross-Tie Station Air With Unit 3 to Supply Unit 2 Instrument Air

STEP 3 X Performance Steps: Open SAS-379, Bypass Valve for SAS-EFV-20

GRADE X Standards: *Examinee opens SAS-379, Bypass Valve for SAS-EFV-20, by rotating the valve handwheel in the counter clockwise direction.*

Cue: **SAS-379 is open when the examinee simulates opening the valve.**

Comments: SAS-379 is located on the 14'6" elevation of the Turbine Building, on the stairway by the "C" Instrument Air Compressor.

~~~~~

STEP 4  X  Performance Steps: Open SAS-6, Station Air Cross-Tie to Unit 3.

GRADE    X  Standards: *Examinee opens SAS-6, Station Air Cross-Tie to Unit 3, by rotating the valve handwheel in the counter clockwise direction.*

Cue: **SAS-6 is open when the examinee simulates opening the valve.**

Comments: SAS-6 is located in the CFP Building Truck Bay.

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-P3

TITLE: Cross-Tie Station Air With Unit 3 to Supply Unit 2 Instrument Air

STEP 5 X Performance Steps: Request Unit 3 Operations to slowly open 3-SAS-V900, Service air Cross-Tie to Unit 2.

GRADE X Standards: *Examinee will either simulate contacting the Unit 3 Control Room or have the Unit 2 Control Room contact the Unit 3 Control Room, to have 3-SAS-V900 opened by a Unit 3 operator.*

Cue: **Unit 3 reports that an operator is on his way to open 3-SAS-V900.**

Comments: The JPM is complete when the examinee requests 3-SAS-V900 to be opened by a Unit 3 operator.

STOP TIME:

EXAMINEE HANDOUT

JPM ID Number: JPM-P3

Initiating Cues: The Unit Supervisor has directed you to cross-tie Station Air from Unit 3 to allow Station Air to supply Instrument Air in accordance with EOP 2525, Contingency Action step 19.1.

Initial Conditions:

- Unit has tripped from 100% power.
- The RSST failed resulting in a loss of off site power.
- Both Emergency Diesels have energized their respective buses.
- Instrument Air header pressure is reading 85 psig and lowering.
- Unit 3 has informed the Unit Supervisor that they are able to supply Station Air to Unit 2.
- SA-10.1, Station Air to Instrument Air Cross-Tie, is open.

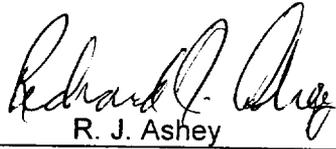
JOB PERFORMANCE MEASURE APPROVAL SHEET

I JPM Title: Local Manual Operation of the "A" Atmospheric Dump Valve

ID Number: JPM-093

Revision: 9

II. Initiated:



R. J. Ashey
Developer

1/18/05
Date

III. Reviewed:



Technical Reviewer

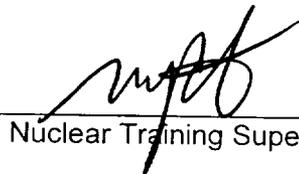
1/26/05
Date

IV. Approved:

N/A

User Department Supervisor

Date



Nuclear Training Supervisor

1/27/05
Date

JOB PERFORMANCE MEASURE WORKSHEET

Initiating Cues:

- The US directs you to take local manual control of the "A" Atmospheric Dump Valve and open the valve to 25% in accordance with EOP 2541 Appendix 36.

Initial Conditions:

- A loss of I.A. has occurred in the plant.
- The plant has tripped and the decision has been made to use the "A" Atmospheric Dump Valve to remove decay heat.

Simulator Requirements:

N/A

****** NOTES TO EXAMINER ******

1. Critical steps for this JPM are indicated with an "X". For the examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.
2. When examinee states what his/her simulated action/observation would be, read the appropriate "Cue".
3. If necessary, question examinee for details of simulated actions / observations (i.e. "What are you looking at?" or "What are you observing?").
4. Under **NO** circumstances must the examinee be allowed to manipulate any devices during the performance of this JPM.

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-093

TITLE: Local Manual Operation of the "A" Atmospheric Dump Valve

START TIME: _____

STEP 1 ___ Performance Steps: Check local ambient air temperatures less than 120°F.

GRADE ___ ___ Standards: *Examinee observes local thermometer (TI-8130C) in the East 38'6" penetration room to determine ambient air temperature is less than 120°F.*

TI- 8130C is located just inside the inner door to the right.

Cue: **If asked, as Health Physics, state that radiological conditions are normal. Room temperature is as indicated.**

Comments:

~~~~~

STEP 2    \_\_\_ Performance Steps:    If local operation of the ADV is desired, refer to Attachment 36-A, Establishing Local ADV Control.

GRADE \_\_\_    \_\_\_ Standards:    *Examinee obtains Attachment 36-A, Establishing Local ADV Control.*

Cue: **If requested, provide a copy of Attachment 36-A Establishing Local ADV Control.**

Comments:

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-093

TITLE: Local Manual Operation of the "A" Atmospheric Dump Valve

STEP 3 ___ Performance Steps: Establish communications with the Control Room.

GRADE ___ Standards: *Examinee states that he would obtain a headset and extension, goes to the blowdown room (East 38'6";AB), plugs into maintenance jack on the stanchion next to the blowdown H.X. and gets in contact with the control room.*

Cue: **Communications are established.**

Comments:

~~~~~

STEP 4    \_\_\_    Performance Steps:    Ensure ADV Manual isolation valve, MS-3A is open.

GRADE    \_\_\_    Standards:    *Examinee climbs to the ADV platform and observes ADV isolation valves, MS-3A, is fully open by stem indication and/or by stating he/she would attempt to turn the handwheel in the counter clockwise direction.*

Cue: **MS-3A is full open.**

Comments:

~~~~~

STEP 5 X Performance Steps: Remove the "Vent Valve" assembly from the instrument rack located below the ADV.

GRADE ___ X Standards: *Examinee obtains the "Vent Valve" assembly by operating the quick disconnect fitting.*

"Vent Valve" assembly is located below the valve on a gauge board and is labeled "Vent Valve".

Cue: **Remove the Vent Valve assembly from the instrument rack.**

Comments:

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-093

TITLE: Local Manual Operation of the "A" Atmospheric Dump Valve

STEP 6 \_\_\_ Performance Steps: Ensure the "Vent Valve" assembly is closed.

GRADE \_\_\_ \_\_\_ Standards: *Examinee verifies the vent valve is in the closed position by turning the handwheel in the clockwise direction until it stops.*

Cue: *Ask examinee to verify the vent valve is closed.*

Comments:

~~~~~

STEP 7 X Performance Steps: Close the instrument air isolation valve to the ADV.

GRADE ___ X Standards: *Examinee locates the I.A. isolation for 2-MS-190A (located on the Ctmt wall behind the ADV) and states that he/she would close it position by turning the handwheel in the clockwise direction until it stops.*

Cue: *- Ask examinee how s/he would reach the air supply to MS-190A. The examinee should use the ladder that is chained to the cat walk.
- I.A. isolation to 2-MS-190A is closed.*

Comments:

~~~~~

STEP 8 X Performance Steps: Remove the vent cap from the quick disconnect at the top of the ADV operator diaphragm.

GRADE \_\_\_ X Standards: *Examinee states that he/she would remove the cap from the quick disconnect at the top of the valve operator diaphragm.*

Cue: *The vent cap is removed.*

Comments:

~~~~~

PERFORMANCE INFORMATION

JPM ID NUMBER: JPM-093

TITLE: Local Manual Operation of the "A" Atmospheric Dump Valve

STEP 9 X Performance Steps: Insert the "Vent Valve" assembly into the quick disconnect.

GRADE X Standards: *Examinee inserts the "Vent Valve" assembly into the quick disconnect on top of the ADV operator diaphragm.*

Cue: **The vent valve is inserted.**

Comments:

~~~~~

STEP 10 X Performance Steps: Open the vent valve assembly to ensure air has been vented off the ADV operator.

GRADE     X Standards: *To vent off the air from the ADV operator, the examinee opens the vent valve on the Vent Valve assembly by turning the handwheel in the clockwise direction until it stops.*

Cue: **The air from the operator has been vented off.**

Comments:

~~~~~

STEP 11 Performance Steps: Ensure that the ADV is closed.

GRADE Standards: *Examinee observes ADV position indicator and determines that the ADV is closed.*

Cue: **The ADV is closed.**

Comments:

~~~~~

**PERFORMANCE INFORMATION**

JPM ID NUMBER: JPM-093

TITLE: Local Manual Operation of the "A" Atmospheric Dump Valve

STEP 12 X Performance Steps: Remove the handwheel restraining device.

GRADE     X Standards: *Examinee states that he would remove the restraining device*

Cue: **Restraining device is removed.**

Comments:

~~~~~

STEP 13 X Performance Steps: Position the ADV as directed by the Control Room.

GRADE X Standards: *Examinee states that he/she would rotate the handwheel in the clockwise direction to position the valve to 25% open by the local stem position indication.*

Cue: **The ADV is 25% open.**

Comments:

~~~~~

Comments: When it has been simulated that manual control has been taken and the valve is 25% open, then this JPM is complete.

STOP TIME: \_\_\_\_\_

**VERIFICATION OF JPM COMPLETION**

Job Performance Measure No. JPM -093

Rev. 9

Date Performed: \_\_\_\_\_

Operator: \_\_\_\_\_

Evaluator(s): \_\_\_\_\_

For examinee to achieve a satisfactory grade, **ALL** critical steps must be completed correctly.  
If task is Time Critical, it **MUST** be completed within the specified time to achieve a satisfactory grade.

Time Critical Task? Yes \_\_\_\_\_ No X

Validated Time (minutes): \_\_\_\_\_ 15 \_\_\_\_\_

Actual Time to Complete (minutes): \_\_\_\_\_

Result of JPM: \_\_\_\_\_ (Denote by an S for satisfactory or a U for unsatisfactory)

Areas for Improvement:

## EXAMINEE HANDOUT

JPM ID Number: 093

Initiating Cues:

- The US directs you to take local manual control of the "A" Atmospheric Dump Valve and open the valve to 25% in accordance with EOP 2541 Appendix 36.

Initial Conditions:

- A loss of I.A. has occurred in the plant.
- The plant has tripped and the decision has been made to use the "A" Atmospheric Dump Valve to remove decay heat.