| Appendix C | Job Performance Measure Worksheet | Form ES-C-1 |
|---|---|---|

| | | | |
|---|---|---|---|
| Facility: | **BVPS Unit 1** | Task No.: | 0011-014-01-013<br>0535-006-04-013 |
| Task Title: | Raise Reactor Power To $10^{-8}$ Amps | JPM No.: | 2005 NRC JPM S1 |
| K/A Reference: | 001 A2.11 (4.4/4.7)<br>001 AA1.05 (4.3/4.2) | | |
| Examinee: | | NRC Examiner: | |
| Facility Evaluator: | | Date: | |

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: A reactor startup is in progress in accordance with 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2. The following conditions exist:

- All shutdown bank rods are fully withdrawn.
- Control Bank "D" is at 90 steps.
- The estimated critical position is 120 steps on Control Bank "D".

Task Standard: The reactor is tripped in response to inappropriate continuous control rod motion.

Required Materials: Estimated Critical Position & 1/M Plot

General References: 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, Rev. 43

1OM-53C.4.1.1.3, RCCA Control Bank Inappropriate Continuous Movement, Rev. 9

Handouts: 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, Rev. 43

Estimated Critical Position & 1/M Plot

Initiating Cue: The Unit Supervisor directs you to withdraw control rods to criticality in accordance with 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, beginning at Step IV.D.15.f.

Time Critical Task: NO

Validation Time: 16 minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-151<br>PW = NJPM<br>Select **FAST** speed on NR-45. |

(Denote Critical Steps with a check mark)

**NOTE: Provide Candidate with copy of 1/M Plot and ECP.**

**START TIME:** _____

**Performance Step: 1** WHEN the Inverse Count Rate Ratio is less than 0.25, Reduce rod withdrawal intervals to 25 step increments.

(Step IV.D.15.f)

**Standard:** Candidate initiates rod withdrawal at less than 25 step increments.

**CUE: As the Unit Supervisor, inform the Candidate the ICRR is less than 0.25 and to withdraw control rods at 5 step increments to take the reactor critical.**

**Comment:**

**Performance Step: 2** Verify both source ranges HV Manual ON/OFF switches are in the NORMAL position.

(Step IV.D.16.a)

**Standard:** Candidate locates and verifies both source range HV MANUAL CONTROL switches in NORMAL.

**NOTE: This step occurs due to P-6 actuation and prior to reaching criticality.**

**Comment:**

**Performance Step: 3** (Step IV.D.16.b)

Record Source Range Neutron Level indications:

[NI-NI-31A] _____ CPS

[NI-NI-32A] _____ CPS

**Standard:** Candidate locates and records SR counts for N31 and N32.

**Comment:**

**Performance Step: 4** (Step IV.D.16.c)

Verify annunciators A4-85 and A4-87 "NIS SOURCE RANGE CH 1(2) DETECTOR VOLTAGE TROUBLE", are ON.

**Standard:** Candidate locates and verifies A4-85 and A4-87 in alarm.

**Comment:**

**Performance Step: 5** (Step IV.D.16.d)

Select both IR channels to indicate on recorder NR-45.

**Standard:** Candidate locates and places NI SYS RECORDER SEL SW 1N45 and 2N45 to record IR channels N35 and N36.

**Comment:**

√ **Performance Step: 6** (Step IV.D.16.e)

BLOCK the source range hi flux trip by placing the Block Source Range Trip Train A and Train B control switches to BLOCK.

**Standard:** Candidate locates and places BLOCK SOURCE RANGE TRIP TRAIN A/TRAIN B control switches in Block.

**Comment:**

**Performance Step: 7** (Step IV.D.16.f)

Verify the Source Range High Voltage is de-energized.

**Standard:** Candidate locates and verifies Source Range DETECTOR VOLTS indicate zero.

**Comment:**

**Performance Step: 8** (Step IV.D.16.g)

Verify annunciators A4-85 AND A4-87, "NIS SOURCE RANGE CH1(2) DETECTOR VOLTAGE TROUBLE", are OFF.

**Standard:** Candidate locates and verifies A4-85 AND A4-87 not in alarm.

**Comment:**

**Performance Step: 9** (Step IV.D.17)

If the Source Range High Flux Trip signal is blocked prior to criticality, perform the following: (Otherwise N/A)

**Standard:**

Candidate determines step is N/A based on reactor criticality and source range high flux trips blocked.

**NOTE:** **If the Candidate blocks the SR High Flux Trip before criticality, then Performance Steps 10 & 11 are to be performed.**

**If the SR High Flux Trip is NOT blocked prior to criticality, then continue with Performance Step 12.**

**Comment:**

**Performance Step: 10** (Step IV.D.17.a)

Suspend performance of the 1/m plot.

**Standard:**

Candidate informs Unit Supervisor to suspend 1/m plot

**CUE:** **Inform the Candidate as the Unit Supervisor, that the 1/m plot has been suspended.**

**Comment:**

√ **Performance Step: 11**
(Step IV.D.17.b)

Continue incremental rod withdrawal (at a rate determined by the SM, but not to exceed 25 step increments) until the reactor is critical as indicated by a stable positive startup rate, with no rod motion, on the intermediate range instrumentation once the prompt jump has receded.

**Standard:** Candidate continues withdrawing control rods to take the reactor critical.

**CUE: Inform the Candidate as the Shift Manager to withdraw rods at no more than 5 step increments.**

**NOTE: The performance of Step 11 or Step 12 satisfies the Critical Task requirement for the JPM.**

**Comment:**

√ **Performance Step: 12**
(Step IV.D.18)

Continue incremental rod withdrawal until the reactor is critical as indicated by a stable positive startup rate, with no rod motion, on the intermediate range instrumentation once the prompt jump has receded.

**Standard:** Candidate continues withdrawing control rods to take the reactor critical.

**CUE: Inform the Candidate as the Shift Manager to withdraw rods at no more than 5 step increments.**

**NOTE: The performance of Step 11 or Step 12 satisfies the Critical Task requirement for the JPM.**

**Comment:**

**NOTE: The following step begins the alternate path portion of the JPM.**

**Performance Step: 13** Determine that rods are withdrawing with NO demand signal.

**Standard:** Candidate determines from ROD STEP COUNTER CONTROL BK D GROUP 1 and GROUP 2 ROD POSITION indication that rods are withdrawing with **NO** demand signal.

**Comment:**

√ **Performance Step: 14** (AOP-1.1.3, Step 1 RNO) Trip the reactor in response to inappropriate continuous rod outward motion.

**Standard:** Candidate trips the reactor in response to inappropriate continuous rod motion.

**NOTE: Candidate may refer to AOP-1.1.3 and determine that a reactor trip is required based on Step 1 RNO.**

**Comment:**

**Terminating Cue:** When the Candidate trips the reactor, the evaluation for this JPM is complete.

**STOP TIME:** _____

VERIFICATION OF COMPLETION

JPM No.: 2005 NRC S1

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____

Response: _____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:**

A reactor startup is in progress in accordance with 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2. The following conditions exist:

- All shutdown bank rods are fully withdrawn.
- Control Bank "D" is at 90 steps.
- The estimated critical position is 120 steps on Control Bank "D".

**INITIATING CUE:**

The Unit Supervisor directs you to withdraw control rods to criticality in accordance with 1OM-50.4.D, Reactor Startup From Mode 3 To Mode 2, beginning at Step IV.D.15.f.

| Appendix C | Job Performance Measure Worksheet | Form ES-C-1 |
|---|---|---|

Facility: **BVPS Unit 1** Task No.: 0531-005-05-013

Task Title: Perform SI Termination IAW ES-1.1 JPM No.: 2005 NRC JPM S2

K/A Reference: E02 EA1.3 (3.8/4.0)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: **X**

Classroom _____ Simulator **X** Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:
- The reactor was tripped and safety injection was actuated due to low RCS pressure.
- The crew has entered ES-1.1, SI Termination.

Task Standard: High head safety injection is aligned to provide flow to the RCS.

Required Materials: None

General References: 1OM-53A.1.ES-1.1, SI Termination, Issue 1C, Rev. 4

Handouts: 1OM-53A.1.ES-1.1, SI Termination, Issue 1C, Rev. 4

Initiating Cue: The Unit Supervisor directs you to perform the steps to terminate safety injection in accordance with ES-1.1, SI Termination.

Time Critical Task: NO

Validation Time: 20 minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-192<br>PW = NJPM |

(Denote Critical Steps with a check mark)

**START TIME:** _____

√ **Performance Step: 1** Reset SI

(Step 1)

**Standard:** Candidate locates and depresses SI Reset/Override Train A/Train B pushbuttons.

**Standard:** Candidate verifies Status Light Panel 62-4C is off and 62-4D is on.

**Comment:**

√ **Performance Step: 2** Reset CIA and CIB

(Step 2)

**Standard:** Candidate locates and depresses CIA Reset/Override Train A/ Train B and CIB Reset Override Train A/Train B switches.

**Standard:** Candidate verifies A1-72, Containment Isolation Phase B clears.

**Comment:**

**Performance Step: 3** Stop All But One Charging Pump

(Step 3)

**Standard:** Candidate locates and places 1CH-P-1A or 1B control switch in Stop.

**Standard:** Candidate verifies white trip light on and red running light off.

**Comment:**

**Performance Step: 4** Check RCS Pressure - STABLE OR RISING

(Step 4)

**Standard:** Candidate locates RCS pressure indication and verifies stable or rising.

**Comment:**

**Performance Step: 5** Isolate The BIT

(Step 5.a) Close [MOV-1SI-867A, B]

**Standard:** Candidate locates MOV-1SI-867A, B control switches and places in Close.

**Standard:** Candidate verifies green close light on and red open light off for each valve.

**Comment:**

**Performance Step: 6** Isolate the BIT

(Step 5.b) Close [MOV-1SI-867C, D]

**Standard:** Candidate locates MOV-1SI-867C, D control switches and places in Close.

**Standard:** Candidate verifies green close light on and red open light off for each valve.

**Comment:**

| | |
|---|---|
| **Performance Step: 7** | Establish Normal Charging Flow |
| (Step 6.a) | Close [FCV-1CH-122] |
| **Standard:** | Candidate locates FCV-1CH-122 controller and places in Manual and closes valve. |
| **Standard:** | Candidate verifies valve controller indicates 100% (Shut). |

**Comment:**

| | |
|---|---|
| **Performance Step: 8** | Establish Normal Charging Flow |
| (Step 6.b) | Open [MOV-1CH-310] |
| **Standard:** | Candidate locates MOV-1CH-310 control switch and places in open. |
| **Standard:** | Candidate verifies red open light on and green close light off. |

**Comment:**

| | |
|---|---|
| **Performance Step: 9** | Establish Normal Charging Flow |
| (Step 6.c) | Open [MOV-1CH-289] |
| **Standard:** | Candidate locates MOV-1CH-289 control switch and places in open. |
| **Standard:** | Candidate verifies red open light on and green close light off. |

**Comment:**

| | |
|---|---|
| **Performance Step: 10** | Establish Normal Charging Flow |
| (Step 6.d) | Adjust [FCV-1CH-122] to maintain required PRZR level |
| **Standard:** | Candidate locates FCV-1CH-122 controller and opens valve to re-establish charging flow. |

**Comment:**

| | |
|---|---|
| **Performance Step: 11** | Control Charging Flow to Maintain PRZR Level |
| (Step 7) | |
| **Standard:** | Candidate observes PRZR level indication and adjusts charging flow, as necessary to maintain PRZR level greater than 18%. |

**Comment:**

| | |
|---|---|
| **Performance Step: 12** | Energize Stub Busses |
| (Step 8.a) | Check 4160V stub busses - ENERGIZED |
| **Standard:** | Candidate locates and verifies ACB-1E5, 1AE stub bus red closed light on and white trip light off. |

**Comment:**

| | |
|---|---|
| **Performance Step: 13** | Energize Stub Busses |
| (Step 8.a) | Check 4160V stub busses - ENERGIZED |
| **Standard:** | Candidate locates and verifies ACB-1F5, 1DF stub bus red closed light on and white trip light off. |

**Comment:**

| | |
|---|---|
| **Performance Step: 14** | Energize Stub Busses |
| (Step 8.b) | Check 480V stub busses - ENERGIZED |
| **Standard:** | Candidate locates and verifies either boric acid transfer pumps or containment vacuum pumps indicating lights are lit. |

**Comment:**

| | |
|---|---|
| **Performance Step: 15** | Verify CNMT Instrument Air - AVAILABLE |
| (Step 9.a) | Check Station Instrument Air Header Pressure - GREATER THAN 100 PSIG |
| **Standard:** | Candidate locates and verifies PI-1IA-106 pressure indicates greater than 100 psig. |

**Comment:**

| | |
|---|---|
| **Performance Step: 16** | Verify CNMT Instrument Air - AVAILABLE |
| (Step 9.b) | Verify [TV-1IA-400] - OPEN |
| **Standard:** | Candidate locates TV-1IA-400 and verifies red open light on and green closed light off. |
| **Comment:** | |

| | |
|---|---|
| **Performance Step: 17** | Verify CNMT Instrument Air - AVAILABLE |
| (Step 9.c) | Check CNMT instrument air header pressure - GREATER THAN 85 PSIG |
| **Standard:** | Candidate locates and verifies PI-1IA-106A indicates greater than 85 psig. |
| **Comment:** | |

| | |
|---|---|
| **Performance Step: 18** | Check If LHSI Pumps Should Be Stopped: |
| (Step 10.a) | LHSI pumps - ANY RUNNING WITH SUCTION ALIGNED TO RWST |
| **Standard:** | Candidate locates and verifies 1SI-P-1A and 1B running. |
| **Standard:** | Candidate verifies red running light on for each pump. |
| **Standard:** | Candidate locates and verifies MOV-1SI-862A/B open. |
| **Standard:** | Candidate verifies red open light on and green closed light off for each valve. |
| **Comment:** | |

| | |
|---|---|
| **Performance Step: 19** | Check If LHSI Pumps Should Be Stopped: |
| (Step 10.b) | Stop LHSI pumps and place in AUTO |
| **Standard:** | Candidate locates and places 1SI-P-1A and 1B control switches in Stop. |
| **Standard:** | Candidate verifies white trip light on and red running light off for each pump. |

**Comment:**

| | |
|---|---|
| **Performance Step: 20** | Reset SI Auto Recirc Changeover |
| (Step 11) | |
| **Standard:** | Candidate locates and depresses SIS Auto Recirc Reset Train A/Train B pushbuttons. |

**Comment:**

| | |
|---|---|
| **Performance Step: 21** | Verify SI Flow Not Required |
| (Step 12.a) | RCS subcooling based on core exit TCs - GREATER THAN 46°F [54°F ADVERSE CNMT] |
| **Standard:** | Candidate locates ICCM display and verifies subcooling greater than 46°F. |

**Comment:**

**Performance Step: 22** Verify SI Flow Not Required

(Step 12.b) PRZR level - GREATER THAN 18% [37% ADVERSE CNMT]

**Standard:** Candidate locates and verifies PRZR level indicates less than 18%.

**Standard:** Candidate determines that PRZR level is dropping and refers to RNO column step 12.b.

**Comment:**

**NOTE: The following step begins the alternate path portion of the JPM.**

√ **Performance Step: 23** Adjust charging flow to restore PRZR level.

(Step 12.b RNO)

**Standard:** Candidate locates and adjusts FCV-1CH-122 to restore PRZR level.

**Comment:**

√ **Performance Step: 24** (Step 12.b RNO)

IF PRZR level can NOT be restored, THEN manually start SI pumps and align valves as necessary. GO TO E-1, "Loss Of Reactor Or Secondary Coolant", Step 1.

**Standard:** Candidate recognizes PRZR level cannot be maintained.

**Standard:** Candidate locates and manually operates the following equipment:

**Standard:**
- CH-P-1A or 1B, HHSI/Charging Pump (non-running pump)

**Standard:**
- SI-P-1A and 1B, LHSI Pumps

**Standard:**
- MOV-1SI-867A, B, BIT Inlet Isol Valves

**Standard:**
- MOV-1SI-867C, D, BIT Outlet Isol Valves

**NOTE: Candidate may choose to manually re-initiate SI as a direct means of starting SI pumps and realigning valves.**

**Comment:**

**Terminating Cue:** When the Candidate realigns SI pumps and valves, the evaluation for this JPM is complete.

**STOP TIME:** _____

VERIFICATION OF COMPLETION

JPM No.: 2005 NRC S2

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____

Response: _____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:**

- The reactor was tripped and safety injection was actuated due to low RCS pressure.
- The crew has entered ES-1.1, SI Termination.

**INITIATING CUE:**

The Unit Supervisor directs you to perform the steps to terminate safety injection in accordance with ES-1.1, SI Termination.

Facility: **BVPS Unit 1** Task No.: 0111-011-01-013

Task Title: Isolate SI Accumulators During a LOCA JPM No.: 2005 NRC JPM S3

K/A Reference: 009 EA1.13 (4.4/4.4)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: A LOCA has occurred. The crew is performing ES-1.2, Post LOCA Cooldown and Depressurization.

Task Standard: SI Accumulators A and B are isolated. SI Accumulator C is vented.

Required Materials: Shorting Bars (3)

General References: 1OM-53.A.1.ES-1.2, Post LOCA Cooldown and Depressurization, Issue 1C, Rev. 5

1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)]

Handouts: 1OM-53A.1.ES-1.2, Post LOCA Cooldown and Depressurization, Issue 1C, Rev. 5

1OM-11.4.H, Venting Safety Injection Accumulator [1SI-TK-1A (1B) (1C)]

1OM-53A.1.6-A, 0 F Plus Subcooling Based on Core Exit TCs, Issue 1C, Rev. 0

Initiating Cue: The Unit Supervisor directs you to isolate the SI accumulators in accordance with ES-1.2, Post LOCA Cooldown and Depressurization, Step 25.

Time Critical Task: NO

Validation Time: 12 minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-196<br>PW = NJPM |

(Denote Critical Steps with a check mark)

**START TIME:** _____

**Performance Step: 1** RCS subcooling based on core exit TCs - GREATER THAN SUBCOOLING LISTED ON ATTACHMENT 6-A

(Step 25.a)

**Standard:** Candidate locates ICCM display and verifies RCS subcooling based on core exit TCs is greater than subcooling listed on Attachment 6-A.

**CUE: Provide Candidate with a copy of Attachment 6-A.**

**Comment:**

**Performance Step: 2** PRZR level - GREATER THAN 18% [37% ADVERSE CNMT].

(Step 25.b)

**Standard:** Candidate locates and verifies PRZR level indication is greater than 18%.

**Comment:**

**Performance Step: 3** Power to [MOV-1SI-865A, B, C] - AVAILABLE.

(Step 25.c)

**Standard:** Candidate locates and verifies power available to MOV-1SI-865A, B and C.

**Standard:** Candidate verifies red open light on for each valve.

**Comment:**

√ **Performance Step: 4** Insert shorting bars into jacks for [MOV-1SI-865A, B, and C]

(Step 25.d)

**Standard:** Candidate locates and inserts shorting bars into jacks for MOV-1SI-865A, B, and C.

**CUE: Provide Candidate with shorting bars as needed.**

**Comment:**

√ **Performance Step: 5** Close [MOV-1SI-865A, B, C].

(Step 25.e)

**Standard:** Candidate locates MOV-1SI-865A and B control switches and places in Close.

**Standard:** Candidate verifies green close light on and red open light off for each valve.

**Comment:**

√ **Performance Step: 6** Close [MOV-1SI-865A, B, C].

(Step 25.e)

**Standard:** Candidate locates MOV-1SI-865C control switch and places in Close.

**Standard:** Candidate verifies red open light remains on indicating valve **NOT** closed.

**NOTE: Valve is overridden in the Open position.**

**Comment:**

**NOTE: The following step begins the alternate path portion of the JPM.**

**Performance Step: 7** Verify at least one station air compressor or the diesel air compressor is RUNNING.

(Step 25.e.1 RNO)

**Standard:** Candidate locates and verifies 1SA-C-1A or 1B running.

**Standard:** Candidate verifies red running light on for at least one station air compressor.

**Comment:**

**Performance Step: 8** Verify [TV-1IA-400] OPEN.

(Step 25.e.2 RNO)

**Standard:** Candidate locates and verifies TV-1IA-400 is open.

**Standard:** Candidate verifies red open light on and green closed light off.

**Comment:**

**Performance Step: 9** Check CNMT instrument air header pressure - GREATER THAN 85 PSIG.

(Step 25.e.3 RNO)

**Standard:** Candidate locates PI-1IA-106A and verifies containment instrument air header pressure indicates greater than 85 psig.

**Comment:**

**Performance Step: 10**
(Step 25.e.4 RNO)

Vent any unisolated accumulators to atmospheric pressure. Refer to 10M-11.4.H, "Venting Safety Injection Accumulators [1SI-TK-1A(B) (C)]".

**Standard:** Candidate refers to 10M-11.4.H to vent 1SI-TK-1C.

**CUE: Provide Candidate with a copy of 1OM-11.4.H.**

**Comment:**

**Performance Step: 11**
(Step IV.1)

Check [HIC-1SI-936] SI ACC $N_2$ Vent to Atm control, output is adjusted to "Zero" percent. (BB-A)

**Standard:** Candidate checks HIC-1SI-936 output is adjusted to zero percent.

**Standard:** Candidate locates and verifies HIC-1SI-936 indicates zero percent.

**CUE: If asked, inform Candidate that Radiation Protection does not require a nitrogen gas sample.**

**Comment:**

**Performance Step: 12** (Step IV.2.a)

Close [1SI-69], Nitrogen Supply to S.I. Accumulators (Aux Bldg, 768" near B.A Batch Tank).

**Standard:** Candidate dispatches local operator to direct closing 1SI-69.

**CUE: Local operator reports that 1SI-69 is closed.**

**Comment:**

**Performance Step: 13** (Step IV.2.b)

If desired by the SM/US, Close [1SI-437], Nitrogen Supply to Overpressure Protection System, (CNMT, At 1C SI ACC-692').

**Standard:** No action required.

**CUE: As Unit Supervisor, inform Candidate it is NOT desired to close 1SI-437.**

**Comment:**

√ **Performance Step: 14** (Step IV.3)

Open [MOV-1SI-853C], (1C) SI Acc $N_2$ Sup Isol Vlv. (BB-A)

**Standard:** Candidate locates and opens MOV-1SI-853C.

**Standard:** Candidate verifies red open light on and green closed light off.

**Comment:**

√ **Performance Step: 15** Open [TV-1SI-101-1], SI Acc $N_2$ Sup Isol Vlv. (BB-A)

(Step IV.4)

**Standard:** Candidate locates and opens TV-1SI-101-1.

**Standard:** Candidate verifies red open light on and green closed light off.

**Comment:**

√ **Performance Step: 16** Open [TV-1SI-101-2], SI Acc $N_2$ Sup Isol Vlv. (BB-A)

(Step IV.5)

**Standard:** Candidate locates and opens TV-1SI-101-2.

**Standard:** Candidate verifies red open light on and green closed light off.

**Comment:**

√ **Performance Step: 17** Operate [HIC-1SI-936] (BB-A) to lower accumulator to the desired pressure as indicated on [PI-1SI-921 & 923 (925 & 927) (929 & 931)]. (VB-A)

(Step IV.6)

**Standard:** Candidate locates and operates HIC-1SI-936 to lower accumulator pressure.

**Standard:** Candidate verifies PI-1SI-929 & 931 indicate accumulator pressure is lowering.

**Comment:**

| | |
|---|---|
| **Terminating Cue:** | When the Candidate verifies that accumulator pressure is lowering, the evaluation for this JPM is complete. |

**STOP TIME:** _____

VERIFICATION OF COMPLETION

JPM No.: 2005 JPM S3

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____

Response: _____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:** A LOCA has occurred. The crew is performing ES-1.2, Post LOCA Cooldown and Depressurization.

**INITIATING CUE:** The Unit Supervisor directs you to isolate the SI accumulators in accordance with ES-1.2, Post LOCA Cooldown and Depressurization, Step 25.

| | | | |
|---|---|---|---|
| Facility: | **BVPS Unit 1** | Task No.: | 0211-012-01-013<br>0531-009-05-011 |
| Task Title: | Initiate Natural Circulation Cooldown | JPM No.: | 2005 NRC JPM S4 |

K/A Reference: 002 A4.02 (4.3/4.5)
E09 EA1.1 (3.5/3.5)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: **X**

Classroom _____ Simulator **X** Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:
- A reactor trip has occurred and all RCP's were tripped.
- The crew has transitioned to ES-0.2, Natural Circulation Cooldown.
- The plant is stable with condenser steam dumps in automatic in the steam pressure mode.

Task Standard: RCS cooldown in progress using residual heat release valve.

Required Materials: None

General References: 1OM-53A.1.ES-0.2, Natural Circulation Cooldown, Issue 1.C, Rev 4
1OM-53A.1.5-C, CRDM Fans Running - Natural Circulation Cooldown Subcooling Requirements

Handouts: 1OM-53A.1.ES-0.2, Natural Circulation Cooldown, Issue 1.C, Rev 4
1OM-53A.1.5-C, CRDM Fans Running - Natural Circulation Cooldown Subcooling Requirements

Initiating Cue: The Unit Supervisor directs you to initiate an RCS cooldown in accordance with ES-0.2, Natural Circulation Cooldown, beginning at Step 5.

Time Critical Task: NO

Validation Time: 15 minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-194<br>PW = NJPM<br>Setup IPC RCS cold leg temperature trend |

(Denote Critical Steps with a check mark)

**START TIME:** _____

**Performance Step: 1** Maintain cooldown rate in RCS cold legs - LESS THAN 25°F/HR

(Step 5.a)

**Standard:** No action required.

**Comment:**

**Performance Step: 2** Initiate a trend of RCS cold leg temperature and pressure

(Step 5.a.1)

**Standard:** Candidate initiates a trend of RCS cold leg temperature and pressure.

**CUE:** **Inform Candidate that an IPC trend has been setup to trend RCS temperature and pressure.**

**Comment:**

**Performance Step: 3** Initial every half hour

(Step 5.a.2)

**Standard:** Candidate notes trending frequency requirement.

**NOTE:** **Inform Candidate that another operator will be responsible for trending and initialing.**

**Comment:**

**Performance Step: 4** Maintain RCS temperature and pressure - WITHIN LIMITS OF ATTACHMENT 5-C IFANY CRDM FAN RUNNING -OR- WITHIN LIMITS OF ATTACHMENT 5-B IF NO CRDM FAN RUNNING

(Step 5.a.3)

**Standard:** Candidate locates and verifies at least 1 CRDM fan running.

**Standard:** Candidate verifies red running light on and white trip light off.

**Standard:** Candidate refers to Attachment 5-C for temperature/pressure limits.

**CUE:** **Provide Candidate with a copy of Attachment 5-C.**

**Comment:**

**Performance Step: 5** Maintain SG narrow range level - BETWEEN 30% - 50%

(Step 5.b)

**Standard:** No action required.

**CUE:** **Inform Candidate that another operator will be responsible for controlling SG levels.**

**Comment:**

**Performance Step: 6** Check MSIVs - AT LEAST ONE OPEN

(Step 5.c.1)

**Standard:** Candidate locates and verifies at least one MSIV open.

**Standard:** Candidate verifies red open light on and green closed light off.

**Comment:**

**Performance Step: 7** Check condenser available

(Step 5.c.2)

**Standard:** Candidate locates and checks status light C-12, "COND AVAIL" (Panel 622) is on.

**Comment:**

√ **Performance Step: 8** Place condenser steam dump controller in MANUAL.

(Step 5.c.3)

**Standard:** Candidate locates and places AM-1MS-464B, COOLDOWN VLVS CONTROL in Manual.

**Standard:** Candidate verifies red light on.

**Comment:**

**Performance Step: 9** Verify demand - ZERO

(Step 5.c.4)

**Standard:** Candidate locates and verifies AM-1MS-464B demand indicates zero.

**Comment:**

**Performance Step: 10** Place steam dumps in STM PRESS Mode.

(Step 5.c.5)

**Standard:** No action required per JPM Initial Conditions.

**Comment:**

**Performance Step: 11** Check Tavg - GREATER THAN 541ºF

(Step 5.c.6)

**Standard:** Candidate locates and checks status light D-11, "2/3 Lo-Lo Tavg" (Panel 622) is **NOT** on.

**Comment:**

√ **Performance Step: 12** Gradually raise steam dump rate.

(Step 5.c.7)

**Standard:** Candidate locates AM-1MS-464B controller and depresses raise pushbutton to open steam dump valves.

**Standard:** Candidate determines that steam dump valves do **NOT** open.

**NOTE: Candidate may attempt to open steam dump valves in AUTO. If so, valves will NOT open.**

**NOTE: Steam dump controller is overridden to prevent dump valves from opening.**

**CUE: As the Unit Supervisor, acknowledge steam dump failure and direct Candidate to comply with the procedure.**

**Comment:**

**NOTE: The following step begins the alternate path portion of the JPM.**

√ **Performance Step: 13** Manually or locally dump steam using:

(Step 5.c RNO) SG Atm Dump Vlvs -OR-

Residual Heat Release Control Valve

**Standard:** Candidate locates HCV-1MS-104, Residual Heat Release Valve and opens to manually dump steam.

**Standard:** Candidate verifies valve open indication.

**CUE: As the Unit Supervisor, direct the Candidate to use the RHR valve to continue the cooldown.**

**Comment:**

**Terminating Cue:** When the Candidate initiates a cooldown using the RHR valve, the evaluation for this JPM is complete.

**STOP TIME:** _____

VERIFICATION OF COMPLETION

JPM No.: 2005 JPM S4

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:_____

Response:_____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:**

- A reactor trip has occurred.
- All RCP's are tripped.
- The crew has transitioned to ES-0.2, Natural Circulation Cooldown.
- The plant is stable with condenser steam dumps in automatic in the steam pressure mode.

**INITIATING CUE:**

The Unit Supervisor directs you to initiate an RCS cooldown in accordance with ES-0.2, Natural Circulation Cooldown, beginning at Step 5.

| | | | |
|---|---|---|---|
| Facility: | **BVPS Unit 1** | Task No.: | 0011-006-01-013 |
| Task Title: | Manually Actuate CIB | JPM No.: | 2005 NRC JPM S5 |
| K/A Reference: | 026 A3.01 (4.3/4.5) | 026 A4.01 | (4.5/4.3) |

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: X

Classroom _____ Simulator X Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:
- A reactor trip and safety injection have occurred due to a large break LOCA.
- 4KV Bus 1DF is de-energized.
- The actions of E-0 are being performed.

Task Standard: Manually initiate CIB, start 1QS-P-1A and stop the RCP's.

Required Materials: None

General References: 1OM-53A.1.1-K, Verification Of Automatic Actions, Issue 1C, Rev. 2
1OM-53A.1.1-E, Containment Isolation Phase B Checklist, Issue 1C, Rev. 2

Handouts: 1OM-53A.1.1-K, Verification Of Automatic Actions, Issue 1C, Revision 2
1OM-53A.1.1-E, Containment Isolation Phase B Checklist, Issue 1C, Rev. 2

Initiating Cue: The Unit Supervisor directs you to perform Attachment 1-K, Verification Of Automatic Actions, Step 8 to check CIB and Containment Spray status.

Time Critical Task: NO

Validation Time: 10 minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-195<br>PW = NJPM |

(Denote Critical Steps with a check mark)

**START TIME:** _____

| | |
|---|---|
| **Performance Step: 1** | Check CIB and Containment Spray Status |
| (Step 8) | Containment pressure - HAS REMAINED LESS THAN 8 PSIG |
| **Standard:** | Candidate locates PI-1LM-100A and 100B, Containment Pressure Indicators, or PR-1LM-100A, Containment Pressure Recorder. |
| **Standard:** | Candidate determines that containment pressure has **NOT** remained less than 8 psig. |
| | **NOTE: Containment pressure is > 8 psig.** |
| **Comment:** | |

**NOTE: The following step begins the alternate path portion of the JPM.**

| | |
|---|---|
| **Performance Step: 2** | Verify CIB initiated: |
| (Step 8.a RNO) | Check BLUE CIB marks - LIT |
| **Standard:** | Candidate checks components properly aligned and determines CIB components not positioned as required and CIB has **NOT** actuated. |
| **Comment:** | |

√ **Performance Step: 3** Verify CIB initiated:

(Step 8.a RNO) IF NOT, THEN manually initiate CIB (both pushbuttons for both trains). Check BLUE CIB marks - LIT

**Standard:** Candidate locates and depresses both pushbuttons for Train "A" CIB.

**Standard:** Candidate locates and depresses both pushbuttons for Train "B" CIB.

**NOTE: Candidate may actuate either train first followed by the opposite train.**

**Comment:**

**NOTE: If asked about the loss of power to Train "B" components, confirm that the DF bus is de-energized.**

√ **Performance Step: 4** Verify CIB initiated:

(Step 8.a RNO) IF CIB NOT actuated, THEN manually align equipment. If necessary, refer to Attachment 1-E, "Containment Isolation Phase B Checklist".

**NOTE: If requested, provide Candidate with a copy of Attachment 1-E, Containment Isolation Phase B Checklist.**

**Standard:** Candidate checks all indicating lights with BLUE CIB marks LIT.

**NOTE: Candidate should recognize time delays for 1-RS-P1A and 1-RS-P2A, Recirc Spray Pumps following CIB actuation.**

**Comment:**

√ **Performance Step: 5** Candidate determines 1QS-P-1A, Quench Spray 1A Pump did **NOT** automatically start.

(Step 8.a RNO)

**Standard:** Candidate locates and places pump control switch in Start.

**Standard:** Candidate verifies red running light on and white trip light off.

**Standard:** Candidate locates and verifies discharge pressure and motor amps pump.

**Comment:**

√ **Performance Step: 6** Candidate determines MOV-1QS-101A, 1A Quench Spray Pump Disch Vlv did **NOT** automatically open.

(Step 8.b RNO)

**Standard:** Candidate locates and opens MOV-1QS-101A.

**Standard:** Candidate verifies red open light on and green closed light off.

**Comment:**

√ **Performance Step: 7** Verify CIB initiated:

(Step 8.b RNO) Stop all RCP's.

**Standard:** Candidate determines that all RCP's are running.

**Standard:** Candidate locates and places control switches for 1RC-P-1A, 1B and 1C in Stop.

**Standard:** Candidate verifies white trip light on and red running light off for each pump.

**NOTE: Candidate may choose to place control switches in Pull-To-Lock after stopping pumps.**

**Comment:**

**Performance Step: 8** Request BV-2 operator verify CREVS equipment actuation.

(Step 8.c RNO)

**Standard:** Candidate contacts Unit 2 to verify proper CREVS equipment operation.

**CUE:** **Inform Candidate as Unit 2 Operator that all CREVS equipment is functioning properly.**

**Comment:**

**Terminating Cue:** When the Candidate stops the RCP's, the evaluation for this JPM is complete.

**STOP TIME:** _____

JPM No.: 2005 JPM S5

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:_____

Response:_____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:**

- A reactor trip and safety injection have occurred due to a large break LOCA.
- 4KV Bus 1DF is de-energized.
- The actions of E-0 are being performed.

**INITIATING CUE:**

The Unit Supervisor directs you to perform Attachment 1-K, Verification Of Automatic Actions, Step 8 to check CIB and Containment Spray status.

Facility: **BVPS Unit 1** Task No.: 0362-005-06-013

Task Title: Synchronize and Load EDG No. 2 JPM No.: 2005 NRC JPM S6

K/A Reference: 064 A4.06 (3.9/3.9)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: **X**

Classroom _____ Simulator **X** Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The plant is operating at power. 1OST-36.2, Diesel Generator No. 2 Monthly Test is in progress.

Task Standard: No. 2 diesel generator synchronized and running at minimum load.

Required Materials: None

General References: 1OST-36.2, Diesel Generator No. 2 Monthly Test, Rev. 43

Handouts: 1OST-36.2, Diesel Generator No. 2 Monthly Test, Rev. 43

Initiating Cue: The Unit Supervisor directs you to synchronize and load Diesel Generator No. 2 in accordance with 1OST-36.2, Diesel Generator No. 2 Monthly Test, Steps 27 - 31. All of the preceding procedure steps have been completed.

Time Critical Task: NO

Validation Time: 12 minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-152<br>PW = NJPM |

(Denote Critical Steps with a check mark)

**START TIME:** _____

√ **Performance Step: 1**
(Step V.27)

Position the No. 2 Diesel Generator Synchroscope Selector Switch to the 1F9 position to compare the diesel generator frequency to the frequency on bus 1DF. (Generator Section of the Benchboard)

**Standard:** Candidate locates and places EMERG GEN 2 SYNCHRONIZING SELECTOR SW in the 1F9 position.

**Standard:** Candidate locates and compares diesel generator frequency to bus 1DF frequency.

**Comment:**

**Performance Step: 2**
(Step V.27.a)

Verify A9-16, "ACB 1F7 OR 1F9 IN SYNCHRONIZING MODE" alarms when the Synchroscope Selector Switch is moved from the OFF position.

**Standard:** Candidate verifies A9-16 in alarm.

**Comment:**

√ **Performance Step: 3**
(Step V.28)

Using the No. 2 diesel Generator Governor Control Switch, adjust generator speed until the synchroscope needle is rotating very slowly in the FAST direction. (Generator Section of the Benchboard)

**Standard:** Candidate locates and adjusts EMERG GEN 2 GOVERNOR control switch.

**Standard:** Candidate verifies synchroscope needle is rotating slowly in the fast direction.

**Comment:**

√ **Performance Step: 4** (Step V.29)

Using the No. 2 Diesel Generator Voltage control Switch, match generator voltage (Incoming) with the voltage on bus 1DF (Running).

**Standard:** Candidate locates and adjusts EMERG GEN 2 VOLT ADJUST control switch to match voltages.

**Standard:** Candidate verifies incoming and running voltages indicate approximately 120 - 122 volts.

**Comment:**

√ **Performance Step: 5** (Step V.30)

Close the Motor Operated Ground Switch by positioning the No. 2 Diesel Generator Motor Operated Ground Switch control to CLOSE. (Generator Section of the Benchboard).

**Standard:** Candidate locates and closes EMERG GEN 2 MOTOR OPERATED GND SW DS2.

**Standard:** Candidate verifies red close light on and green open light off.

**Comment:**

**Performance Step: 6** (Step V.30.a)

Verify that ANN. A9-10, "DIESEL GENERATOR NO. 2 M.O. GROUND SWITCH NOT FULLY OPEN" is ON.

**Standard:** Candidate verifies A9-10 in alarm.

**Comment:**

√ **Performance Step: 7** (Step V.31)

When both synchronizing lights are completely dark AND the synchroscope needle is at the 12 o'clock position, place the No. 2 Diesel Generator Breaker control to CLOSE. (Red light) (Generator Section of the Benchboard)

**Standard:** Candidate locates and places EMERG GEN 2 CIRCUIT BREAKER ACB 1F9 in Close at 12 o'clock position.

**Standard:** Candidate verifies red close light on and green open light off.

**Comment:**

√ **Performance Step: 8** (Step V.31.a)

Pick up a small amount of load by moving the No. 2 Diesel Generator Governor Control Switch, intermittently, to the RAISE position.

**Standard:** Candidate locates EMERG GEN 2 GOVERNOR control switch and places in the Raise position.

**Standard:** Candidate verifies EMERG GEN 2 WATTS indicates increasing load.

**Comment:**

**Performance Step: 9** (Step V.31.b)

Turn synchroscope selector switch to OFF.

**Standard:** Candidate locates and places EMERG GEN 2 SYNCHRONIZING SELECTOR SW in Off.

**Comment:**

**Terminating Cue:** When the Candidate turns the synchroscope selector switch off, the evaluation for this JPM is complete.

**STOP TIME:** _____

VERIFICATION OF COMPLETION

JPM No.: 2005 JPM S6

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:_____

Response:_____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:** The plant is operating at power. 1OST-36.2, Diesel Generator No. 2 Monthly Test is in progress.

**INITIATING CUE:** The Unit Supervisor directs you to synchronize and load Diesel Generator No. 2 in accordance with 1OST-36.2, Diesel Generator No. 2 Monthly Test, Steps 27 - 31. All of the preceding procedure steps have been completed.

Facility: **BVPS Unit 1** Task No.: 0021-004-01-013

Task Title: Remove Power Range Instrument From Service JPM No.: 2005 NRC JPM S7

K/A Reference: 015 A3.03 (3.9/3.9)
015 A4.03 (3.8/3.9)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: _____ Actual Performance: __X__

Classroom _____ Simulator __X__ Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:
- The plant is operating at power.
- All systems are normal with the exception of one Power Range Nuclear Instrument which has failed.
- The required actions to stabilize the plant have been taken. Reactor, turbine power and $T_{AVG}$ are stable. $T_{AVG}$ is within one degree of $T_{REF}$.
- Control Rods are in Manual.

Task Standard: The failed nuclear channel is bypassed in accordance with AOP-1.2.1C.

Required Materials: None

General References: 1OM-53C.4.1.2.1C, Power Range Channel Malfunction, Issue 3A, Rev. 7

Handouts: 1OM-53C.4.1.2.1C, Power Range Channel Malfunction, Issue 3A, Rev. 7

Initiating Cue: The Unit Supervisor directs you to bypass the failed power range channel using AOP-1.2.1C.

Time Critical Task: NO

Validation Time: 10 Minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-197<br>PW = NJPM |

(Denote Critical Steps with a check mark)

**START TIME:** _____

**Performance Step: 1** (Step 1)
Check If Malfunction Of One Power Range Channel (N-41, N-42, N-43, N-44) And Power Range Rate Sensor Assembly (NC-41, NC-42, NC-43, NC-44) Has Occurred.

**Standard:**
Candidate locates and determines that NI-NI41B and/or NIS Rack N41, drawer A indicates channel has failed low.

**Standard:**
Candidate verifies that no other power range channel has failed.

**NOTE: Power Range channels read as follows:**
**N-41: 0%; N-42: ~ 48%; N-43: ~ 48%; N-44: ~ 48%**

**Comment:**

√ **Performance Step: 2** (Step 1.a)
Within 6 hours, trip nuclear bistables by removing control power supply fuses from drawer A of failed channel.

**Standard:**
Candidate locates and removes control power fuses from NIS Rack 41, drawer A.

**Comment:**

**Performance Step: 3** (Step 1.b)

IF Power Range Channel 4 (N-44) fails, THEN place Control Rod Bank Selector in MANUAL.

**Standard:** No action required.

**NOTE: Candidate may choose to verify that Control Rod Bank Selector Switch (BB-B) is in Manual.**

**Comment:**

√ **Performance Step: 4** (Step 1.c)

Turn Rod Stop Bypass switch to BYPASS on the failed channel (NIS Rack).

**Standard:** Candidate locates and places rod stop bypass switch in Bypass PR N-41 position.

**Comment:**

**Performance Step: 5** (Step 1.d)

Check reactor power - GREATER THAN 50%.

**Standard:** Candidate locates and verifies reactor power indicates less than 50%.

**Comment:**

√ **Performance Step: 6** Turn Comparator Channel Defeat switch to failed channel (NIS Rack).

(Step 1.g)

**Standard:** Candidate locates and places comparator channel defeat switch in N-41 position.

**Comment:**

**Performance Step: 7** Ensure vertical board recorders are selected to monitor only operable detectors.

(Step 1.g)

**Standard:** Candidate locates and places NI SYS RECORDER SEL SW 1N45 or 2N45 in N42, N43, or N44 position.

**NOTE: Normally, only 1 recorder is set to monitor power range indication.**

**Comment:**

**Terminating Cue:** When the Candidate selects an operable detector to the recorder, the evaluation for this JPM is complete.

**STOP TIME:** _____

VERIFICATION OF COMPLETION

JPM No.: 2005 JPM S7

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____

Response: _____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:**

- The plant is operating at power.
- All systems are normal with the exception of one Power Range Nuclear Instrument which has failed.
- The required actions to stabilize the plant have been taken. Reactor, turbine power and $T_{AVG}$ are stable. $T_{AVG}$ is within one degree of $T_{REF}$.
- Control Rods are in Manual.

**INITIATING CUE:**

The Unit Supervisor directs you to bypass the failed power range channel using AOP-1.2.1C.

Facility: **BVPS Unit 1** Task No.: 0071-025-01-013

Task Title: Perform Manual Makeup to the VCT JPM No.: 2005 NRC JPM S8

K/A Reference: 004A4.01 (3.8/3.9) 004A4.07 (3.9/3.7)
004A4.04 (3.2/3.6)

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____

Classroom _____ Simulator X Plant _____

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions:
- The plant is at 100% power.
- Core burnup is 500 MWD/MTU.
- RCS boron concentration is 1205 ppm.
- The inservice Boric Acid Tank concentration is 7380 ppm.
- VCT level is 24%.

Task Standard: Makeup flow initiated at 100 gpm through the blender.

Required Materials: CB-29

General References: 1OM-7.4.P, Blender Manual Makeup Operation, Rev. 5

Handouts: 1OM-7.4.P, Blender Manual Makeup Operation, Rev. 5

Initiating Cue: The Unit Supervisor directs you to raise VCT level to 40% at 100 gpm by performing a manual makeup in accordance with 1OM-7.4.P, Blender Manual Makeup Operation. All Initial Conditions are met.

Time Critical Task: No

Validation Time: 13 minutes

| | |
|---|---|
| **Simulator Setup:** | Initialize IC-153; PW = NJPM<br>Ramp ACVCVCTW, 7000, 20, 0 to set VCT level to 24%.<br>Update blender setpoint to 1205 ppm.<br>Update inservice BAT placard to 7380 ppm.<br>Do not enter setpoint data.<br>Reset Boric Acid and Total Flow Totalizers to ZERO. |

(Denote Critical Steps with a check mark)

**START TIME:** _____

**Performance Step: 1** (Step IV.A.1)
Obtain the existing RCS boron concentration obtained from Chemist's sample.

**Standard:**
No action required per JPM Initial Conditions.

**CUE:** **If asked, inform Candidate that current RCS boron is 1205 ppm.**

**Comment:**

**Performance Step: 2** (Step IV.A.2)
If the plant is operating at power, Obtain the B-10 Correction Factor from Curve Book 29, Otherwise Contact Reactor Engineering to obtain a B-10 Correction Factor.

**Standard:**
Candidate locates and determines a correction factor from CB-29 of 0.977.

**CUE:** **Provide Candidate with a copy of CB-29 (attached).**

**Comment:**

**Performance Step: 3** (Step IV.A.3)
Calculate Corrected Boron Concentration AND record in the Daily Journal.

**Standard:**
Candidate calculates a corrected boron concentration of 1177 ppm. 1205 x 0.977 = 1177

**CUE:** **If asked, inform the Candidate that another operator will make the Daily Journal log entry.**

**Comment:**

**Performance Step: 4** (Step IV.A.4)
Obtain the inservice Boric Acid Tank boron concentration obtained from Chemist's sample.

**Standard:**
No action required per JPM Initial Conditions.

**CUE:** **If asked, inform Candidate that current BAT boron is 7380 ppm.**

**Comment:**

**Performance Step: 5** (Step IV.A.5)
Determine the desired boric acid flow controller setpoint as follows AND record in the Daily Journal.

**Standard:**
Candidate calculates the required boric acid flow as:

$$\frac{1177\,ppm\ X\ 100\,gpm}{7380} = 15.9\,gpm$$

**CUE:** **If asked, inform the Candidate that another operator will make the Daily Journal log entry.**

**Comment:**

√ **Performance Step: 6** (Step IV.A.6)
Place 1MU to STOP for greater than 1 second to allow the blender to unarm.

**Standard:**
Candidate locates and places 1MU switch in Stop for greater than 1 second.

**Standard:**
Candidate verifies makeup control green light is on.

**Comment:**

√ **Performance Step: 7** (Step IV.A.7)

Adjust Boric Acid to Blender FCV [FCV-1CH-113A] controller (BB-A) to the calculated desired boric acid flow setpoint.

**Standard:** Candidate locates and sets FCV-1CH-113 for the desired flow: 15.9 gpm x 25 units/gpm = 398 units ± 2 units

**Comment:**

√ **Performance Step: 8** (Step IV.A.8.a)

Set [YIC-1CH-113], Boric Acid Integrator, for desire quantity (BB-A).

Reset [YIC-1CH-113], Boric Acid Integrator

**Standard:** Candidate locates and sets YIC-1CH-113 to the desired value.

**NOTE: Total volume change is approximately 225 gallons of which approximately 46 gallons is boric acid. Thumb rule for VCT level is ~ 15 gallons per percent.**

**Comment:**

√ **Performance Step: 9** (Step IV.A.9)

Adjust Primary Water to Blender FCV [FCV-1CH-114A] controller (BB-A) to the desired blender total flow.

**Standard:** Candidate locates and sets FCV-1CH-114A for the desired total flow setpoint: 100 gpm = 625 units.

**Comment:**

√ **Performance Step: 10** (Step IV.A.10.a)

Set [YIC-1CH-168A], Blender Output Integrator, for desired quantity (BB-A).

Reset [YIC-1CH-168A], Blender Output Integrator

**Standard:** Candidate locates and sets YIC-1CH-168A to the desired value.

**Comment:**

**Performance Step: 11** (Step IV.A.11)

Log the flow totalizer indication and add to it the number of gallons set into the batch integrator for [YIC-1CH-113], Boric Acid Integrator AND [YIC-1CH-168A], Blender Output Integrator.

**Standard:** Candidate sums the totalizer and integrator values, then records the summed values.

**Comment:**

**Performance Step: 12** (Step IV.A.12)

Prior to the start of AND at least once every hour during a reduction in the RCS boron concentration: (Tech. Spec. 4.1.1.3, 4.9.8.1.b) (N/A if raising or maintaining RCS boron concentration)

**Standard:** No action required. Step is N/A.

**Comment:**

**Performance Step: 13** (Step IV.A.13)
If in Mode 4, 5 or 6, align PG water to the blender by unlocking and opening either of the following valves: (Blender Room)

**Standard:**
No action required. Plant is in Mode 1.

**Comment:**

√ **Performance Step: 14** (Step IV.A.14)
Place 43/MU to MAN. (BB-A)

**Standard:**
Candidate locates and places 43/MU switch in Manual.

**Comment:**

√ **Performance Step: 15** (Step IV.A.15)
Place 1MU to START. (BB-A)

**Standard:**
Candidate locates and places 1MU switch in Start.

**Standard:**
Candidate verifies makeup control red light is on and inservice boric acid pump Fast light is on.

**Comment:**

√ **Performance Step: 16** (Step IV.A.16) Place Blender Outlet to Chg Pumps FCV [FCV-1CH-113B] control switch to OPEN. (BB-A)

**Standard:** Candidate locates and places FCV-1CH-113B switch in open.

**Standard:** Candidate verifies red open light is on and green closed light is off.

**Comment:**

**Performance Step: 17** (Step IV.A.16.a) Verify boric acid to Blender flow on [FR-1CH-113], Boric Acid Flow. (VB-A)

**Standard:** Candidate locates and verifies FR-1CH-113 indicates boric acid flow.

**Comment:**

**Performance Step: 18** (Step IV.A.16.b) Verify PG Water to Blender flow on [FR-1CH-113], Boric Acid Flow. (VB-A)

**Standard:** Candidate locates and verifies FR-1CH-113 indicates PG water flow.

**Comment:**

| **Terminating Cue:** | When the Candidate completes the batch addition, the evaluation for this JPM is complete. |
|---|---|

**STOP TIME:** _____

JPM No.: 2005 NRC S8

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:_____
_____
_____

Response:_____
_____
_____
_____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:**

- The plant is at 100% power.
- Core burnup is 500 MWD/MTU.
- RCS boron concentration is 1205 ppm.
- The inservice Boric Acid Tank concentration is 7380 ppm.
- VCT level is 24%.

**INITIATING CUE:**

The Unit Supervisor directs you to raise VCT level to 40% at 100 gpm by performing a manual makeup in accordance with 1OM-7.4.P, Blender Manual Makeup Operation. All Initial Conditions are met.

| | | | |
|---|---|---|---|
| Facility: | **BVPS Unit 1** | Task No.: | 0461-012-01-012 |
| Task Title: | Locally Startup a Containment Hydrogen Analyzer | JPM No.: | 2005 NRC JPM P1 |
| K/A Reference: | 028 A1.01 (3.4/3.8)<br>028 A4.01 (4.0/4.0) | | |

Examinee: NRC Examiner:

Facility Evaluator: Date:

Method of testing:

Simulated Performance: X Actual Performance: _____

Classroom _____ Simulator _____ Plant X

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

| | |
|---|---|
| Initial Conditions: | A reactor trip and safety injection occurred 10 minutes ago due to a LOCA. A wide range hydrogen analyzer is to be placed in service. The 120VAC and 125VDC electrical distribution systems are operable. |
| Task Standard: | The containment hydrogen analyzer is in service and a containment hydrogen concentration is calculated. |
| Required Materials: | Fluke Thermometer (Simulated) |
| General References: | 1OM-46.4.G, Placing Wide Range Containment Hydrogen Monitoring System in Operation, Rev. 3 |
| Handouts: | 1OM-46.4.G, Placing Wide Range Containment Hydrogen Monitoring System in Operation, Rev. 3 |
| Initiating Cue: | The Unit Supervisor directs you to place the Train "A" (Train "B") wide range hydrogen analyzer in service and obtain a containment hydrogen sample using 1OM-46.4.G. Steps 1 - 3 of the procedure are complete. Report your results when completed. |
| Time Critical Task: | **Yes - 30 minutes** |
| Validation Time: | 15 minutes |

(Denote Critical Steps with a check mark)

**START TIME:** _____

**NOTE: This JPM is designed to use either hydrogen analyzer. During Protected Train "A" weeks, use PNL-H2-101B. During Protected Train "B" weeks, use PNL-H2-101A.**

**Performance Step: 1** Open [PNL-H2-101A, 101B], (Wide Range Hydrogen Analyzer cabinet.
(Step IV.A.4.a)
**Standard:** Candidate locates [PNL-H2-101A, 101B] and opens the cabinet door. (Service Building West Wall 713')

**Comment:**

**Performance Step: 2** Verify the STANDBY/OFF switch in the STANDBY position.
(Step IV.A.4.b)
**Standard:** Candidate locates and verifies or places the STANDBY/OFF switch is in STANDBY.

**CUE: The STANDBY/OFF switch is in STANDBY.**

**Comment:**

√ **Performance Step: 3** Place the ON/OFF switch in the ON position.
(Step IV.A.4.c)
**Standard:** Candidate locates and places the ON/OFF switch in ON.

**CUE: The ON/OFF switch is in ON.**

**NOTE: If the ON/OFF Switch is not placed to ON within 30 minutes, then the UFSAR assumption has not been met and the JPM is UNSAT.**

**Comment:**

**Performance Step: 4** Verify the amber STANDBY indicator is On.
(Step IV.A.4.d)
**Standard:** Candidate locates and verifies the STANDBY indicator is ON.

**CUE: STANDBY indicator is On.**

**Comment:**

**Performance Step: 5** Verify the following:
(Step IV.A.4.e.1) Blue READY indicator is On.
**Standard:** Candidate locates and verifies the Blue READY indicator is On.

**CUE: Blue READY indicator is On.**

**Comment:**

**Performance Step: 6** (Step IV.A.4.e.2)

Verify the following:

Green ON indicator is On.

**Standard:** Candidate locates and verifies Green indicator is On.

**CUE: Green ON indicator is On.**

**Comment:**

**Performance Step: 7** (Step IV.A.4.f. 1 - 9)

Within four minutes after the green ON indicator comes On, Verify the following:

**Standard:**
- Red H2 indicator is OFF.

**CUE: H2 indicator is OFF.**

**Standard:**
- Yellow CAUTION indicator is OFF.

**CUE: CAUTION indicator is OFF.**

**Standard:**
- Red HI indicator is OFF.

**CUE: HI indicator is OFF.**

**Standard:**
- Green SAFE indicator is ON.

**CUE: SAFE indicator is ON.**

**Standard:**
- Percent hydrogen meter is <1% (dependent on plant conditions).

**CUE: Meter reading is 1.6%.**

**Standard:**
- PRESS ALARM indicator is OFF.

**CUE: PRESS ALARM indicator is OFF.**

**Standard:**
- FLOW ALARM indicator is OFF.

**CUE: FLOW ALARM indicator is OFF.**

**Standard:**
- TEMP ALARM indicator is OFF.

**CUE: TEMP ALARM indicator is OFF.**

**Standard:**
- SYSTEM STATUS ALARM is OFF.

**CUE: SYSTEM STATUS ALARM is OFF.**

**Comment:**

**Performance Step: 8** (Step IV.B.1.a)
Obtain local temperature of the applicable Cable Vault (735') using a calibrated Fluke Thermometer (or equivalent).

**Standard:**
Candidate obtains local temperature of the Cable Vault (735').

**CUE: 4 minutes have elapsed. (Refer to Note prior to step IV.B.1)**

**CUE: The Cable Vault temperature is 87°F (simulated reading from Fluke Thermometer).**

**Comment:**

**Performance Step: 9** (Step IV.B.1.b)
Observe the indicated hydrogen concentration.

**Standard:**
Candidate observes hydrogen concentration.

**CUE: Hydrogen concentration is 1.6%.**

**Comment:**

√ **Performance Step: 10** (Step IV.B.1.c)

Subtract the appropriate correction factor as determined from Figure 1.

**Standard:** Candidate calculates actual hydrogen concentration by subtracting the correction factor found on Figure 1 from the indicated hydrogen concentration.

**CUE: Containment pressure is 10 psia.**

**Standard:** Candidate reports hydrogen concentration is 1% (+/- 0.2%)

**NOTE:** 1.6% - 0.6% = 1.0%
(Indicated - Correction = Actual)

**Comment:**

| | |
|---|---|
| **Terminating Cue:** | When the Candidate reports the hydrogen concentration, the evaluation for this JPM is complete. |

**STOP TIME:** _____

VERIFICATION OF COMPLETION

JPM No.: 2005 NRC P1

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:_____

Response:_____

Result: Satisfactory/Unsatisfactory

Examiner's Signature: _____ Date: _____

**INITIAL CONDITIONS:** A reactor trip and safety injection occurred 10 minutes ago due to a LOCA. A wide range hydrogen analyzer is to be placed in service. The 120VAC and 125VDC electrical distribution systems are operable.

**INITIATING CUE:** The Unit Supervisor directs you to place the Train "A" (Train "B") wide range hydrogen analyzer in service and obtain a containment hydrogen sample using 1OM-46.4.G. Steps 1 - 3 of the procedure are complete. Report your results when completed.

Facility: **BVPS UNIT 1** Task No: 0241-024-01-043

Task Title: Reset TDAFW Pump Trip Throttle Valve JPM No: 2005 NRC JPM P2

K/A Reference: 061 A2.04 (3.4/3.8)
2.1.30 (3.9/3.4)

Examinee: _____ NRC Examiner: N/A

Facility Evaluator: _____ Date: _____

Method of Testing:

Simulated Performance: X Actual Performance _____

Classroom: _____ Simulator: _____ Plant: X

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

Initial Conditions: The Unit is at 50% power.

1FW-P-2, Steam Driven Auxiliary Feedwater Pump has tripped on overspeed. The Turbine Bldg. Operator has verified that the trip throttle valve is closed and no start signals exist for the pump.

TV-1MS-105A and TV-1MS-105B are closed. MOV-1MS-105 is open.

Task Standard: TDAFW pump trip throttle valve is reset IAW 1OM-24.4.V.

Required Materials: None

General References: 1OM-24.4.V, [1FW-P-2] Trip Throttle Valve Resetting, Rev. 4

Handouts: 1OM-24.4.V, [1FW-P-2] Trip Throttle Valve Resetting, Rev. 4

Initiating Cue: The Unit Supervisor directs you to reset the Turbine Driven AFW Pump trip throttle valve in accordance with 1OM-24.4.V.

Time Critical Task: NO

Validation Time: 15 minutes

(Denote Critical Steps with a check mark)

**START TIME:** _____

**Performance Step: 1** (Step IV.A.1.a) Close or Verify Closed [TV-1MS-105A], Turb Steam Sup A Trn Trip Vlv.

**Standard:** No action required. (Valve is closed per the Initial Conditions.)

**Comments:**

---

**Performance Step: 2** (Step IV.A.1.b) Close or Verify Closed [TV-1MS-105B], Turb Steam Sup B Trn Trip Vlv.

**Standard:** No action required per the JPM Initial Conditions.

**Comments:**

---

**Performance Step: 3** (Step IV.A.1.c) Open or Verify Open [MOV-1MS-105], AFW Turb Steam Isol Vlv.

**Standard:** No action required per the JPM Initial Conditions.

**Comments:**

---

√ **Performance Step: 4** (Step IV.A. 2)

Press the Manual Emergency Trip Lever to verify that the Overspeed Trip Mechanism is tripped.

**Standard:**

Candidate locates the trip mechanism and indicates it is in the tripped position.

**CUE: The overspeed trip mechanism is tripped.**

**Comments:**

---

**Evaluator Note:** **Figure 1 depicts the overspeed trip device mechanism and may be referred to by the Candidate to assist in explaining the actions in the following steps.**

**Performance Step: 5** (Step IV.A.3)

Verify that [1MS-465], 1FW-T-2 Inlet Stm Isol, is unlatched.

**Standard:**

Candidate indicates that the valve is unlatched.

**CUE: 1MS-465 is unlatched.**

**Comments:**

---

√ **Performance Step: 6** (Step IV.A.4)

Turn [1MS-465], 1FW-T-2 Inlet Stm Isol, handwheel in the clockwise direction until the sliding nut and trip lever rise to the upper limit of travel.

**Standard:**

Candidate simulates turning 1MS-465 in the clockwise direction until the sliding nut and trip lever reach the upper limit.

**CUE: The sliding nut and trip lever are at the upper limit.**

**Comments:**

---

√ **Performance Step: 7** (Step IV.A.5)

Reset the Overspeed Trip Mechanism by performing the following:

**Standard:**

Candidate simulates the following steps to reset the trip mechanism:

- Hold the overspeed trip connecting rod to the left.
- Verify the overspeed tappet washer flat side directly faces the overspeed trip lever.
- Release the connecting rod and allow the spring tension to maintain the reset condition.
- Verify the flat side of the washer is flush against the vertical side of the overspeed trip lever.
- Verify the trip lever is engaged with the trip hook.

**CUE: The trip lever is engaged with the trip hook.**

**Comments:**

---

√ **Performance Step: 8** (Step IV.A.6)

Slowly Open [1MS-465], 1FW-T-2 Inlet Stm Isol, by turning the handwheel counterclockwise.

**Standard:**

Candidate simulates turning the handwheel counterclockwise.

**CUE: 1MS-465 is open.**

**Comments:**

---

**Performance Step: 9** (Step IV.A.6) Verify that the pump does **NOT** accelerate in an uncontrolled manner.

**Standard:** Candidate indicates that the pump is not accelerating uncontrollably.

**NOTE: The pump is not accelerating uncontrollably.**

**Comments:**

---

**Performance Step: 10** (Step IV.A.7) WHEN Open, THEN adjust [1MS-465], 1FW-T-2 Inlet Stm Isol, 1/4 turn off of the backseat.

**Standard:** Candidate simulates turning 1MS-465 until 1/4 of a turn off the backseat.

**CUE: 1MS-465 is 1/4 of a turn off its backseat.**

**NOTE: If requested, inform the Candidate that another Operator will perform a concurrent verification of the valve position.**

**Comments:**

---

**Performance Step: 11** (Step IV.A.8) Notify the Unit 1 Control Room Operator that [1FW-P-2], Steam Driven Auxiliary Feedwater Pump, is available.

**Standard:** Candidate informs the Control Room of the pump status.

**CUE: As Control Room Operator, acknowledge report that the TD AFW pump is available.**

**Comments:**

---

| | |
|---|---|
| **Terminating Cue:** | When the Candidate notifies the Control Room that 1FW-P-2 is available, the evaluation for this JPM is complete. |

**STOP TIME:** _____

**VERIFICATION OF COMPLETION**

JPM No.: 2005 NRC P2

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:_____

Response:_____

Result: Satisfactory/Unsatisfactory

Examiner's signature: _____ Date:_____

**JPM CUE SHEET**

**INITIAL CONDITIONS:** The Unit is at 50% power.

1FW-P-2, Steam Driven Auxiliary Feedwater Pump has tripped on overspeed. The Turbine Bldg. Operator has verified that the trip throttle valve is closed and no start signals exist for the pump.

TV-1MS-105A and TV-1MS-105B are closed. MOV-1MS-105 is open.

**INITIATING CUE:** The Unit Supervisor directs you to reset the Turbine Driven AFW Pump trip throttle valve in accordance with 1OM-24.4.V, [1FW-P-2] Trip Throttle Valve Resetting.

Facility: **BVPS Unit 1** Task No: 0361-019-01-013

Task Title: BV-1 Actions To Establish Station Blackout Cross-tie to Unit 2 JPM No: 2005 NRC JPM P3

K/A Reference: 055 EA1.06 (4.1/4.5) 055 EA2.03 (3.9/4.7)
062 A2.05 (2.9/3.3) 062 A4.02 (2.5/2.8)

Examinee: _____ NRC Examiner: _____

Facility Evaluator: N/A Date: _____

Method of Testing:

Simulated Performance: X Actual Performance: _____

Classroom: _____ Simulator: _____ Plant: X

**READ TO THE EXAMINEE**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this Job Performance Measure will be satisfied.

| | |
|---|---|
| Initial Conditions: | A tornado strike has caused a partial loss of the switchyard. Unit 2 is without normal and emergency AC power. The Unit 2 Control Room has requested Unit 1 to establish a station blackout cross-tie from 4KV Bus 1DF. |
| Task Standard: | Station cross-tie has been established in accordance with EOP Attachment A-1.14. |
| Required Materials: | Cubicle Pictures |
| General References: | 1OM-53A.1.A-1.14, BV-1 Actions To Establish Station Blackout Cross-tie To BV-2, Issue 1C, Rev. 2 |
| Handouts: | 1OM-53A.1.A-1.14, BV-1 Actions To Establish Station Blackout Cross-tie To BV-2, Issue 1C, Rev. 2 |
| Tools: | Racking Tool and Gear (Simulated)<br>Key No. 30 (Simulated) |
| Initiating Cue: | The Unit Supervisor directs you to perform EOP Attachment A-1.14, Steps 11 and 12 to establish a station blackout cross-tie to Unit 2. |
| Time Critical Task: | NO |
| Validation Time: | 20 minutes |

**JOB PERFORMANCE MEASURE**

(Denote Critical Steps with a check mark)

**START TIME:** _____

**NOTE: Remind Candidate to simulate all actions and NOT to reach inside any switchgear or relay panel cabinets.**

**NOTE: Provide Candidates with a picture of cabinet internals, as appropriate.**

√ **Performance Step: 1** (Step 11.a)

To Defeat Diesel Generator Trips, perform the following:
Open Knife Switch 3-771 (Loss of Field) on left inside [PNL-REL-21], (Relay Room)

**Standard:** Candidate locates Relay Room Panel 21 [PNL-REL-21].

**Standard:** Candidate locates and opens Knife Switch 3-771 (Loss of Field).

**CUE: Knife Switch 3-771 is open.**

**NOTE: Refer to attached picture.**

**Comments:**

---

√ **Performance Step: 2** (Step 11.a)

To Defeat Diesel Generator Trips, perform the following:
Open Knife Switch 2-688 (Rev Pwr) on left inside [PNL-REL-22], (Relay Room)

**Standard:** Candidate locates Relay Room Panel 22 [PNL-REL-22].

**Standard:** Candidate locates and opens Knife Switch 2-688 (Reverse Power).

**CUE: Knife Switch 2-688 is open.**

**NOTE: Refer to attached picture.**

**Comments:**

---

| | | |
|---|---|---|
| √ | **Performance Step: 3** (Step 11.b) | To defeat 4KV emergency bus undervoltage trip, open 125 VDC control breaker in Cubicle F8A (1DF bus). |
| | **Standard:** | Candidate locates 4KV Bus 1DF, Cubicle F8A. |
| | **Standard:** | Candidate locates and opens 125VDC control power breaker. |
| | | **CUE: 125VDC control power breaker is open.** |
| | **Comments:** | |

| | | |
|---|---|---|
| √ | **Performance Step: 4** (Step 11.c) | To defeat 480V emergency bus undervoltage trip, open 125 VDC circuit breaker "Bus U/V DC" (1P bus) |
| | **Standard:** | Candidate locates 480V Bus 1P. |
| | **Standard:** | Candidate locates and opens 125 VDC circuit breaker "Bus U/V DC". |
| | | **CUE: 125VDC circuit breaker is open.** |
| | **Comments:** | |

| | | |
|---|---|---|
| √ | **Performance Step 5:** (Step 12.a) | Open [ACB-1D3] 480V Substation 1-2 Bus 1D And 480V Substation 1-4 Bus 1H Breaker. |
| | **Standard:** | Candidate locates and opens ACB-1D3 using the control switch. |
| | | **CUE: ACB-1D3 is open.** |
| | **Comments:** | |

**Performance Step: 6** (Step 12.b) Open [ACB-1D13], Air Conditioning Chilled Water Unit [1VS-E-3C].

**Standard:** Candidate locates and opens ACB-1D13 using the local pushbutton.

**CUE: ACB-1D13 is open.**

**Comments:**

---

**NOTE:** **Prior to racking in breaker, Candidate may verbalize donning flash suit and 4KV switching gloves. Notify Shift Manager than ACB-1D5 cubicle door will be opened (if not previously done.) A 4KV breaker diagram is attached for information purposes.**

√ **Performance Step: 7** (Step 12.c.1) With Key 30, [1D5] SBO Bkr, remove padlock from [ACB-1D5], Unit 1 To Bus 1D Cross-tie.

**Standard:** Candidate obtains Key No. 30.

**CUE: Use of the key is simulated.**

**Standard:** Candidate locates ACB-1D5 and removes padlock using Key 30.

**CUE: Padlock is removed.**

**Comments:**

---

√ **Performance Step: 8** (Step 12.c.2) Verify DC Control Power - OFF

**Standard:** Candidate locates and opens DC control power breaker.

**CUE: Control power breaker is off.**

**Comments:**

---

√ **Performance Step: 9** (Step 12.c.3, 4 & 5) Verify charging springs are discharged by pulling the manual close lever.

**Standard:** Candidate locates and then holds down the manual trip button.

**Standard:** Candidate locates and pulls the manual close lever.

**Standard:** Candidate releases the manual trip button.

**CUE: Charging springs are discharged.**

**Comments:**

---

**Performance Step: 10** (Step 12.c.6) Verify that the breaker mechanical indicator is in the OPEN position.

**Standard:** Candidate locates and verifies the mechanical flag indicates open.

**CUE: Mechanical flag is in the open position.**

**Comments:**

---

√ **Performance Step: 11** (Step 12.c.7) Rack the breaker to the CONNECT position.

**Standard:** Candidate turns the lock release lever to the left, inserts racking tool and turns clockwise until reaching the connect position.

**CUE: Breaker is in the connect position.**

**Comments:**

---

**Performance Step: 12** (Step 12.c.8) Verify charging spring motor disconnect toggle switch - ON.

**Standard:** Candidate locates and verifies the charging spring motor disconnect switch is on.

**CUE: Charging spring motor disconnect switch is on.**

**Comments:**

---

√ **Performance Step: 13** (Step 12.c.9) Close DC control power breaker.

**Standard:** Candidate locates and closes the DC control power breaker.

**CUE: DC control power breaker is closed and the closing springs are charged.**

**Comments:**

---

√ **Performance Step: 14** (Step 12.c.10) Manually close [ACB-1D5], Unit 2 To Bus 1D Cross-tie using breaker control switch.

**Standard:** Candidate locates and closes ACB-1D5 using the control switch.

**Standard:** Candidate verifies red light is on.

**CUE: Breaker is closed.**

**NOTE: Ensure the breaker door is shut and fastened.**

**Comments:**

| **Terminating Cue:** | When the Candidate manually closes breaker ACB-1D5, the evaluation for this JPM is complete. |
|---|---|

**STOP TIME:** _____

**PERFORMANCE INFORMATION**

JPM No.: 2005 NRC P3

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question:_____

Response:_____

Result: Satisfactory/Unsatisfactory

Examiner's signature: _____ Date:_____

**JPM CUE SHEET**

**INITIAL CONDITIONS:** A tornado strike has caused a partial loss of the switchyard.

Unit 2 is without normal and emergency AC power. The Unit 2 Control Room has requested Unit 1 to establish a station blackout cross-tie from 4KV Bus 1DF.

**INITIATING CUE:** The Unit Supervisor directs you to perform EOP Attachment A-1.14, **Steps 11 and 12** to establish a station blackout cross-tie to Unit 2.