

**Facility:** Davis-Besse **Task No:** 004-006-01-0100**Task Title:** Calculate Boron Concentration for SDM of 1%Δk/k with 2 stuck rods**K/A Reference:** 2.1.37 **Job Performance Measure No:** NEW**Examinee:** \_\_\_\_\_**NRC Examiner:** \_\_\_\_\_ **Date:** \_\_\_\_\_**Method of testing:**Simulated Performance \_\_\_\_ Actual Performance XClassroom X Simulator \_\_\_\_ 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:**

This JPM is not dependant on any specific simulator initial conditions since the task is administrative in nature.

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**Task Standard:**

Determine the boron concentration needed to ensure 1% shutdown margin

**Required Materials:**

DB-NE-06201, Reactor Operators Curve Book (ROCB), Rev 12  
DB-NE-06202, Reactivity Balance Calculation, Rev 7  
Calculator

**General References:****Initiating Cue:**

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**Time Critical Task** No**Validation Time:** 30 minutes

**SIMULATOR INSTRUCTIONS****INITIAL CONDITION:**

This JPM is not dependant on any specific simulator initial conditions since the task is administrative in nature.

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**ADDITIONAL SETUP/DEVIATION FROM INITIAL CONDITION:**

If this JPM is not conducted in the simulator, the following references need to be available to the examinee:

**MALFUNCTIONS/FAILURE TO INSERT:**

None

**ACTION/CUES:**

JPM STEP NUMBER

CUE

See body of JPM

**EXAMINER COPY****INITIAL CONDITIONS:**

The plant is in Mode 3 following a reactor trip.

Two control rods failed to insert on the trip.

The START program is not available.

The following conditions exist:

Burnup: 500 EFPD

Tave: 552°F

The Reactor Engineer reports the following values:

Reactivity worth due to transient poisons is - 2.6 %ΔK/K

Correction factor for Boron 10 depletion is 0.96

Reactivity Anomaly is zero.

**INITIATING CUES:**

The Unit Supervisor directs you to determine the boron concentration needed to ensure 1% shutdown margin is adequate in accordance with Section 14 of DB-NE-06202, Reactivity Balance Calculations, and DB-NE-06201, Reactor Operator Curve Book.

**(Provide Candidate a copy of Section 14 and Attachment 10 of DB-NE-06202 and a copy of DB-NE-06201)**

**CANDIDATE COPY****INITIAL CONDITIONS:**

The plant is in Mode 3 following a reactor trip.

Two control rods failed to insert on the trip.

The START program is not available.

The following conditions exist:

Burnup: 500 EFPD

Tave: 552°F

The Reactor Engineer reports the following values:

Reactivity worth due to transient poisons is - 2.6 % $\Delta$ K/K

Correction factor for Boron 10 depletion is 0.96

Reactivity Anomaly is zero.

**INITIATING CUES:**

The Unit Supervisor directs you to determine the boron concentration needed to ensure 1% shutdown margin is adequate in accordance with Section 14 of DB-NE-06202, Reactivity Balance Calculations, and DB-NE-06201, Reactor Operator Curve Book.

**PERFORMANCE INFORMATION**

NOTE: Critical steps denoted with a "C". Failure to meet any one of these standards for this item constitutes failure. Sequence is assumed unless denoted in the "Comments".

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

1. PERFORMANCE STEP: Determine RCS Boron Concentration Shutdown Margin,.  
.....**C**..... B (ROCB SDM)

STANDARD: Determine B(ROCB SDM) from Figure 6C. Determines the value to be 1460 to 1475 ppmB and enters this value on Attachment 10.

COMMENT: Actual value is 1470 ppmB %ΔK/K.

COMMENT: Sequence NOT required for this JPM except for last step

CUE: **None.**

SAT UNSAT

2. PERFORMANCE STEP: Determine CF(B10)

STANDARD: Enters 0.96 value for CF(B10) value from Initial Conditions

CUE: **None.**

SAT UNSAT

3. PERFORMANCE STEP: Determine Reactivity Worth of HFP Anomaly

STANDARD: Enters 0 for anomaly value from Initial Conditions

CUE: **None.**

SAT UNSAT

4. PERFORMANCE STEP: Determine the Differential Boron Worth (DBW).

STANDARD: Determine DBW value from Figure 5A. Determines value of – 0.00715 to - 0.00714 %ΔK/K.

COMMENT: Actual value is -0.007145 %ΔK/K.

CUE: **None.**

SAT UNSAT

5. PERFORMANCE STEP: Determine Transient Poison worth,  $\rho(tp)$ , for Transient Reactivity Boron Equivalent (B(tr))

STANDARD: Enters – 2.6 % $\Delta K/K$  for  $\rho(tp)$  value from the Initial Conditions

CUE: **None.**

---

SAT UNSAT

6. PERFORMANCE STEP: Determine Pu-239 worth,  $\rho(PU-max)$ , for Transient Reactivity  
.....C..... Boron Equivalent (B(tr))

STANDARD: From Figure 20B, determines a value of 0.137 to 0.139 % $\Delta K/K$  for  $\rho(PU-max)$

COMMENT: Actual value is 0.138 % $\Delta K/K$

CUE: **None.**

---

SAT UNSAT

7. PERFORMANCE STEP: Determine Transient Poison Conversion Factor for Transient  
.....C..... Reactivity Boron Equivalent, B(tr)

STANDARD: Determines a value of 86 from Table 1 of the ROCB

CUE: **None.**

---

SAT UNSAT

8. PERFORMANCE STEP: Determine CF(B10) for Transient Reactivity Boron Equivalent, B(tr)

STANDARD: Enters 0.96 value for CF(B10) value from Initial Conditions

CUE: **None.**

---

SAT UNSAT

9. PERFORMANCE STEP: Determine Transient Reactivity Boron Equivalent, B(tr)  
.....C.....

STANDARD: Performs calculation for B(tr) on Attachment 10. Determine value of ~~220.46~~  
~~220~~ to ~~220.64~~ **221** ppmB<sup>1</sup>

Comment: Actual value is 220.55

CUE: **None.**

---

SAT UNSAT

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<sup>1</sup> Range expanded to account for rounding off to whole number (significant figure).

10. PERFORMANCE STEP: Determine Minimum RCS Boron Concentration for 1% SDM  
.....**C**.....

STANDARD: Performs calculation on Attachment 10. Determine value of 1313  
to 1330 ppmB

COMMENT: Actual value is 1324 ppmB

CUE: **None.**

---

SAT UNSAT

TERMINATING CUES: **This JPM is complete.** (The evaluator will terminate.)

---

END TIME

EVALUATOR NOTE: Multiple errors may provide a correct final answer.  
Rounding off values may make the answer different from key.  
Evaluator discretion required.

**Verification of Completion****Job Performance Measure No.**   A - 1  **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 and date:** \_\_\_\_\_



**ATTACHMENT 10: ANSWER KEY**

Page 1 of 1

EFPD= 500 CF(B10)= 0.96 Tave = 552 °FNumber of known stuck rods? 2 Data: Date Today Time Now**CAUTION**

If Transient Poison is to be credited, take appropriate actions to ensure the 1%Δk/k Shutdown Margin is not lost as Transient Poison decrease

Minimum RCS Boron Concentration for 1%Δk/k Shutdown Margin

$$\left[ \left( \frac{1470}{B(\text{ROCB SDM})} \right) / \frac{0.96}{CF(B10)} - \left( \frac{0}{\rho(\text{anom})} \right) / \frac{-0.007145}{DBW} - \frac{220.55}{B(\text{tr})} \right] \times (1 + .01) = \frac{1324}{\text{Minimum Measured B(RCS)}} \text{ ppmB}$$

Where:

B(ROCB SDM) is from Figure 6 based on Tave, EFPD, and stuck rod condition

$\rho(\text{anom})$  is Reactivity Worth of HFP Anomaly from the Reactor Operating Guidanc  
(For conservatism, a value of 0 may be used in place of a negative HFP anomaly for calculations of Shutdown Margin. See Step 4.2.8.)

DBW is Differential Boron Worth from Figure 5A based on B(ROCB SDM) and EFPD

B(tr) is Transient Reactivity Boron Equivalent\*

$$\left[ \left( \frac{-2.6}{\rho(\text{tp})} + \frac{0.138}{\rho(\text{Pu-max})} \right) \times \frac{86}{\text{TPCF}} \right] / \frac{0.96}{CF(B10)} \times [-1] = \frac{220.55}{B(\text{tr})}$$

Where:

$\rho(\text{tp})$  is Transient Poison Worth from START program at time of data

$\rho(\text{Pu-max})$  is Maximum Excess Pu-239 Worth from Figure 20B based on EFPD

TPCF is Transient Poison Conversion Factor from Table 1 of ROCB

\* If no credit is to be taken for transient poison, enter zero for B(tr)

.01 is the Boron Concentration Measurement Uncertainty

(1+.01) is the Boron Concentration Measurement Correction Factor

Calculated by \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Checked by \_\_\_\_\_ Date \_\_\_\_\_

**Facility:** Davis-Besse **Task No:** 115-004-02-0100**Task Title:** Control of Locked Valves During Post-Maintenance Testing**K/A Reference:** 2.1.18 **Job Performance Measure No:** JPM 261**Examinee:** \_\_\_\_\_**NRC Examiner:** \_\_\_\_\_ **Date:** \_\_\_\_\_**Method of testing:**Simulated Performance \_\_\_\_\_ Actual Performance XClassroom \_\_\_\_\_ 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 conditions are specified in the Initial Conditions and Initiating Cues.

**Task Standard:**

Perform Post Maintenance Testing and Control Valve

**Required Materials:**

DB-PF-03272, Post Maintenance Valve Test  
ISTB3, Pump and Valve Basis Document, Volume III, Section C  
Lock Valve Log Sheet  
Stop Watch

**General References:****Initiating Cue:**

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**Time Critical Task:** No**Validation Time:** 40 minutes

**SIMULATOR INSTRUCTIONS****TASK DESCRIPTION:**

Control of Locked Valves During Post-Maintenance Testing

**INITIAL CONDITION:**

Any IC

**ADDITIONAL SETUP/DEVIATION FROM INITIAL CONDITION:**

None

**MALFUNCTIONS/FAILURE TO INSERT:**

DH2736 Malfunction to open faster than 45.71 seconds

**ACTION/CUES:**

**EXAMINER COPY****INITIAL CONDITIONS:**

Maintenance has completed a packing adjustment on valve DH2736, DH Aux. Spray Throttle Valve, to stop a packing leak per Order 200001155.

**INITIATING CUES:**

The Unit Supervisor directs you to perform post maintenance valve testing of DH2736 in accordance with DB-PF-03272, Post Maintenance Valve Test beginning with Section 3.2.

DB-PF-03272, Section 3.1 is complete.

The Shift Manager has given his permission to stroke DH2736, DH Aux. Spray Throttle Valve.

An equipment operator is standing by in the Auxiliary Building.

The Locked Valve Log is in the Control Room.

The Unit Supervisor has completed the first eight columns in the Locked Valve Log.

**(Provide the Candidate a copy of DB-PF-03272 and a copy of the Locked Valve Log)**

**CANDIDATE COPY****INITIAL CONDITIONS:**

Maintenance has completed a packing adjustment on valve DH2736, DH Aux. Spray Throttle Valve, to stop a packing leak per Order 200001155.

**INITIATING CUES:**

The Unit Supervisor directs you to perform post maintenance valve testing of DH2736 in accordance with DB-PF-03272, Post Maintenance Valve Test beginning with Section 3.2.

DB-PF-03272, Section 3.1 is complete.

The Shift Manager has given his permission to stroke DH2736, DH Aux. Spray Throttle Valve.

An equipment operator is standing by in the Auxiliary Building.

The Locked Valve Log is in the Control Room.

The Shift Manager has completed the first eight columns in the Locked Valve Log.

**PERFORMANCE INFORMATION**

NOTE: Critical steps denoted with a "C". Failure to meet any one of these standards for this item constitutes failure. Sequence is NOT assumed unless denoted in the "Comments".

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

1. PERFORMANCE STEP: Complete Section 3.2 of DB-PF-03272.

STANDARD: Check/verify Section 3.1 is complete.

CUE: **None.**

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SAT UNSAT

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2. PERFORMANCE STEP: Complete Section 3.2 of DB-PF-03272.

STANDARD: Verify an RWP is available.

CUE: **(If asked) A special RWP is not required for this test.**

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SAT UNSAT

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3. PERFORMANCE STEP: Obtain stroke times from the Pump and Valve Basis  
.....**C**..... Document and record.

STANDARD: Enter the maximum close time of 59.70 seconds; the maximum open time of 59.62 seconds; the expected close time range of 33.83 seconds to 45.77 seconds; and the expected open time range of 33.79 seconds to 45.71 seconds in Step 3.2.3 of DB-PF-03272.

CUE: **None.**

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SAT UNSAT

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4. PERFORMANCE STEP: Complete Section 3.2 of DB-PF-03272.

STANDARD: Obtain Shift Manager's permission to perform the test.

CUE: **(If asked) The Shift Manager has given permission to stroke test DH 2736 and no actions need to be taken.**

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SAT UNSAT

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- 
5. PERFORMANCE STEP: Record test equipment data.

STANDARD: Record the M&TE number for the stopwatch and the calibration due date.

CUE: **(If asked) A special NOP-OP-1014 lineup is NOT required.**

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SAT UNSAT

- 
6. PERFORMANCE STEP: Verify the Equipment Operator is at DH 2736.

STANDARD: Communicate via Gai-Tronics or radio.

CUE: **An Equipment Operator is standing by to verify local valve position.**

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SAT UNSAT

- 
7. PERFORMANCE STEP: Stroke DH 2736 open and record time.

.....**C**.....

STANDARD: Depress and hold the OPEN pushbutton and stroke time using the stopwatch. Record the stroke time.

COMMENT: DH 2736 is a throttle valve, which requires the OPEN pushbutton to be depressed while the valve is stroking.

DH 2736 will stroke faster than the expected time.

CUE: **None**

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SAT UNSAT

- 
8. PERFORMANCE STEP: Contact the Equipment Operator to check local indication.

STANDARD: Communicate via Gai-Tronics or radio.

CUE: **(I/F) The Equipment Operator reports local valve position indicates DH 2736 is open.**

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SAT UNSAT

- 
9. PERFORMANCE STEP: Complete the "Position To" column in the Locked Valve Log.  
.....**C**.....

STANDARD: Enter "Open".

COMMENT: The Locked Valve Log may be updated after the stroke test is complete.

CUE: **None.**

---

SAT UNSAT

10. PERFORMANCE STEP: Complete the "Position By" column in the Locked Valve Log.  
.....**C**.....

STANDARD: Enter initials.

COMMENT: The Locked Valve Log may be updated after the stroke test is complete.

CUE: **None.**

---

SAT UNSAT

11. PERFORMANCE STEP: Stroke DH 2736 closed and record time.  
.....**C**.....

STANDARD: Depress and hold the CLOSED pushbutton and stroke time using the stopwatch. Record the stroke time.

CUE: **None.**

---

SAT UNSAT

12. PERFORMANCE STEP: Contact the equipment operator to check local indication.

STANDARD: Communicate via Gai-Tronics or radio.

CUE: **(I/F) The Equipment Operator reports local valve position indicates DH 2736 is closed.**

---

SAT UNSAT

13. PERFORMANCE STEP: Complete the "Restored By" column in the Locked Valve Log.  
.....**C**.....

STANDARD: Enter initials.

COMMENT: The Locked Valve Log may be updated after the stroke test is complete.

CUE: **None.**

---

SAT UNSAT



14. PERFORMANCE STEP: Recognize the stroke times are not within the expected times.

STANDARD: Compare valve stroke times to the expected range of stroke times.

CUE: **None.**

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SAT UNSAT

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15. PERFORMANCE STEP: Restroke DH 2736 and record times.

.....**C**.....

STANDARD: Recognize the test requires the valve to be stroke timed a second time.

CUE: **DH 2736 has been stroked open and closed a second time. The stroke times are the same as recorded in Step 4.2.2**

---

SAT UNSAT

---

16. PERFORMANCE STEP: Inform the Unit Supervisor or Shift Manager the stroke times are  
.....**C**..... not within the expected range.

STANDARD: Communicate to a shift SRO the need to write a Condition Report and perform an Operability Justification.

CUE: **The Shift Manager will write the Condition Report and document the Operability Justification.**

---

SAT UNSAT

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17. PERFORMANCE STEP: Complete acceptance criteria.

.....**C**.....

STANDARD: Sign off Steps 5.2, ~~and~~ 5.3, *and 5.4<sup>1</sup>*.

CUE: **None.**

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SAT UNSAT

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TERMINATING CUES: This JPM is complete. (Terminated by the evaluator)

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END TIME

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<sup>1</sup> During administration of the exam it was identified that step 5.4 was also applicable for valve DH2736 (valve is a motor operated containment isolation valve as identified in Section 2 of DB-PF-03272, Attachment 1).

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**Verification of Completion****Job Performance Measure No.** \_\_\_\_\_**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 and date:** \_\_\_\_\_

ATTACHMENT 1: SAMPLE LOCKED VALVE LOG SHEET

Page 1 of 1

[illegible]

Completed Sheet Reviewed By Operations Superintendent  
Date \_\_\_\_\_

\*If AS 138, CC 609, or WG 19, Refer to Attachment 4

**Facility:** Davis-Besse **Task No:** 115-004-02-0100**Task Title:** Review Post-Maintenance Testing Surveillance**K/A Reference:** 2.1.18 **Job Performance Measure No:** NEW**Examinee:** \_\_\_\_\_**NRC Examiner:** \_\_\_\_\_ **Date:** \_\_\_\_\_**Method of testing:**Simulated Performance \_\_\_\_\_ Actual Performance XClassroom X Simulator \_\_\_\_\_ 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 conditions are specified in the Initial Conditions and Initiating Cues.

**Task Standard:**

Identify Valve Stroke time is > Maximum Permissible time, and applies appropriate TS actions

**Required Materials:**

DB-PF-03272, Post Maintenance Valve Test, filled out with actual stroke time >ISTB3 maximum stroke time and Acceptance Criteria filled out incorrectly  
ISTB3, Pump and Valve Basis Document, Volume III, Section C

**General References:****Initiating Cue:**

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**Time Critical Task:** No**Validation Time:** 30 minutes

**SIMULATOR INSTRUCTIONS**

**TASK DESCRIPTION:**

Review Post Maintenance Testing Surveillance

**INITIAL CONDITION:**

N/A

**ADDITIONAL SETUP/DEVIATION FROM INITIAL CONDITION:**

None

**MALFUNCTIONS/FAILURE TO INSERT:**

None

**ACTION/CUES:**

None

**EXAMINER COPY****INITIAL CONDITIONS:**

The plant is starting up and is in Mode 3.

Maintenance has completed a packing adjustment on valve DH2736, DH Aux. Spray Throttle Valve, to stop a packing leak per Order 200001155.

DB-PF-03272, Post Maintenance Valve Testing, has been completed and the Operator has given you the test for review.

**INITIATING CUES:**

Perform a review of DB-PF-03272 for DH2736.

**(Hand Candidate the filled out copy of the ST)**

**CANDIDATE COPY****INITIAL CONDITIONS:**

The plant is starting up and is in Mode 3.

Maintenance has completed a packing adjustment on valve DH2736, DH Aux. Spray Throttle Valve, to stop a packing leak per Order 200001155.

DB-PF-03272, Post Maintenance Valve Testing, has been completed and the Operator has given you the test for review.

**INITIATING CUES:**

Perform a review of DB-PF-03272 for DH2736.

**PERFORMANCE INFORMATION**

NOTE: Critical steps denoted with a "C". Failure to meet any one of these standards for this item constitutes failure. Sequence is NOT assumed unless denoted in the "Comments".

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

1. PERFORMANCE STEP: Reviews DB-PF-03272, step 4.2.2, first bullet  
C

STANDARD: Identify open stroke time exceeds Maximum Allowable Open Stroke Time  
(Acceptance Criteria step 5.2)

CUE: None

SAT UNSAT

2. PERFORMANCE STEP: Reviews DB-PF-03272, step 4.2.2, third bullet  
C

STANDARD: Identify close stroke time exceeds Maximum Allowable Close Stroke Time  
(Acceptance Criteria step 5.2)

CUE: None

SAT UNSAT

3. PERFORMANCE STEP: Reviews DB-PF-03272 step 4.2.3

STANDARD: Identify step should be "N/A" (valve stroke time exceeds maximum allowed)

CUE: None

SAT UNSAT

4. PERFORMANCE STEP: Reviews DB-PF-03272, step 4.2.4  
C

STANDARD: Declares the valve inoperable, initiate a Condition Report, and N/A steps  
4.2.5 and initial steps

CUE: (If asked) Another Operator is writing the Condition Report

SAT UNSAT



5. PERFORMANCE STEP: Reviews DB-PF-03272 step 4.2.5

STANDARD: Identify all of step should be N/A (id in step 4.2.4)

CUE: None

SAT UNSAT

6. PERFORMANCE STEP: Reviews DB-PF-03272 Acceptance Criteria step 5.2

C

STANDARD: Identify Acceptance Criteria step 5.2 was not met

CUE: Apply applicable actions.

SAT UNSAT

7. PERFORMANCE STEP: Review TS 5.5.7

STANDARD: Review TS 5.5.7

CUE: None

SAT UNSAT

8. PERFORMANCE STEP: ~~Applies TS 3.6.3~~<sup>1</sup> *Refers to Technical Specifications and ISTB3, Pump and Valve Basis Document, Volume III, Section C, as needed, and determines that the containment isolation function of DH2736 is inoperable, enters applicable LCO, and identifies required actions.*

C

STANDARD: Determines and applies actions for TS 3.6.3 Condition A, ~~is applicable (and enters 4 hour action statement for closing CTMT Isolation Valve inside Containment)~~

- *4 hour action to isolate affected penetration flow path*
- *Once per 31 day action to verify affected penetration flow path is isolated.*

CUE: None

SAT UNSAT

TERMINATING CUES: This JPM is complete. (Terminated by the evaluator)

END TIME

<sup>1</sup> Revised during administration to clarify requirement to identify applicable Technical Specification LCO and required actions.

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**Verification of Completion****Job Performance Measure No.** A-2**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 and date:** \_\_\_\_\_

Davis-Besse Nuclear Power Station

**SURVEILLANCE TEST PROCEDURE**

DB-PF-03272

POST MAINTENANCE VALVE TEST

REVISION 11

Prepared by: Dan Staudt

Procedure Owner: Superintendent - Nuclear Operations

Effective Date: MAR 03 2011

**LEVEL OF USE:**  
**STEP-BY-STEP**

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## 1.0 PURPOSE

- 1.1 The purpose of this procedure is to perform Post Maintenance Testing for Power Operated Valves. Successful completion of this test fulfills the surveillance requirements of TS 5.5.7 for valves in the Inservice Testing (IST) Program including:
- Verification of acceptable opening and/or closing stroke times
  - Verification that the control station indication accurately reflects the actual valve position
  - Verification that AOVs fail to their safety position on loss of air.
- 1.2 The purpose of this procedure is also to verify the isolation time for power operated valves and to demonstrate the operability of Containment Isolation Valves (CIV) prior to returning valves to service after maintenance has been performed on the valve, its actuator, control circuit, or power circuit. Successful completion of this test fulfills the surveillance requirement of SR 3.6.3.4 for the automatic power operated CIV tested.
- 1.3 This procedure contains cold shutdown testing to satisfy ASME OM Code, Code for Operation and Maintenance of Nuclear Power Plants, requirements. Cold shutdown testing is performed as directed by the outage schedule if not performed within the last 92 days.
- 1.4 This procedure may also be used for testing valves other than Containment Isolation and IST Program Valves.
- 1.5 This procedure may also be used to satisfy SR 3.3.17.3(7), Channel Calibration requirement for Post Accident Monitoring Position Indication for Containment Isolation Valves.

## 2.0 LIMITS AND PRECAUTIONS

### 2.1 Administrative

- 2.1.1 Observe the Precautions and Limitations of any applicable Operating Procedure.
- 2.1.2 This test is written assuming stopwatches are used to record stroke times. AOV or MOV diagnostic equipment may be substituted for the stopwatches.
- 2.1.3 ISTB3, Pump & Valve Basis Document, Volume III, Stroke Time Basis, Section C will be used in conjunction with this procedure to determine the acceptability of the test data including the Maximum Allowable Stroke Time and the Expected Stroke Time Range. Controlled copies of this manual are located in the Control Room, at the Shift Manager/Work Support Center SRO's (WSC SRO) desk, and in the online copy retrieval system.
- 2.1.4 Stroke times for IST MOVs and IST AOVs are normally performed using the remote Hand Indicating Switch (HIS). If there is no control room HIS, the local control station can be used to stroke time the valve.
- 2.1.5 Some valves have special testing requirements which are specified in the Post Maintenance Test Manual (PMTM). This procedure may be used at the discretion of the Shift Manager.

2.1.6 This procedure may be used to obtain As Found stroke time data when directed by the schedule or other procedures. Position verification is not required to be performed when As Found stroke timing has been specified.

2.1.7 The applicable Order delineates the Post Maintenance Testing required for a particular valve. Portions of this test may be marked N/A depending on the scope of work performed under the Order.

## 2.2 Equipment

2.2.1 Any observed abnormality or erratic action of the valve under test shall be documented on a Condition Report.

## 3.0 PREREQUISITES

### INITIALS

#### 3.1 Administrative - Test Preparation

3.1.1 IF valve data has been acquired during the performance of an Order which satisfies the Acceptance Criteria, THEN only the applicable substeps of Step 5.0, Acceptance Criteria, need to be completed by the Test Leader, AND appropriate supporting documentation attached.

3.1.2 Record the valve being tested below:

Valve under test: DH 2736

3.1.3 IF this test is being performed as post maintenance testing, THEN record the Order number AND any additional testing information from the Order below:

Order number: 200001155

Order comments: \_\_\_\_\_

\_\_\_\_\_

NOTE 3.1.4 and 3.1.5

- For Step 3.1.4, all Post-Maintenance Testing for MOVs and AOVs in the IST Program shall include stroke timing the valve in the open and closed directions.
- For Step 3.1.4, valve position verification is required if directed by a work order or by the schedule.
- For Steps 3.1.4 and 3.1.5, a listing of IST MOVs and IST AOVs can be found in the ISTB3 Pump and Valve Basis Document, Volume III, Section C.

N/A3.1.4

IF the valve under test is an IST MOV or IST AOV  
AND valve position verification is NOT required,  
OR the test is for As Found stroke timing only,  
THEN mark the Step 4.2.1  
AND applicable sub-steps of Step 4.2.2 N/A.

N/A3.1.5

IF the valve under test is an IST AOV,  
THEN indicate the fail-safe direction as indicated in the ISTB3 Pump and Valve Basis Document below,  
OTHERWISE mark Step 5.5 N/A:

OPEN

CLOSED

(Circle one)

NOTE 3.1.6

Attachment 2, Specific Test Guidance, contains guidance for specific valves to be tested. Attachment 2 is not all-inclusive for all plant conditions, all valves or all situations.

P3.1.6

IF a change to the system lineup is required to conduct this test,  
THEN determine the system conditions under which the valve can be stroked  
AND initiate appropriate plant status control requirements IAW NOP-OP-1014,  
if required.

P3.1.7

Obtain independent verification of an Operation's SRO for completeness and accuracy on the information contained in Section 3.1.

SRO IV:

Joe Job

Date:

Today

3.2 Administrative - Test PerformanceP  
N/A3.2.1 Verify Section 3.1 is complete and signed.3.2.2 IF an RWP is required,  
THEN verify an RWP is available for this test.NOTE 3.2.3

In some cases, both the Open and Close stroke times will be marked N/A in Step 3.2.3. However, Open and Close stroke times will be obtained for trending purposes in Step 4.2.

P

3.2.3 IF the valve under test is a Power Operated Valve,  
THEN obtain the Maximum Allowable Stroke Time value(s) AND the  
Expected Stroke Time Range(s) from the ISTB3, Pump and Valve Basis  
Document, Volume III, Section C  
AND record these values below:  
(N/A the value if it is not listed)

Valve under test: DH2736Maximum Allowable OPEN Stroke Time: 59.62 sec.Maximum Allowable CLOSE Stroke Time: 59.7 sec.OPEN Expected Stroke Time Range: 33.79 to 45.71 sec.CLOSE Expected Stroke Time Range: 33.83 to 45.77 sec.N/A

3.2.4 IF the OPEN  
AND CLOSE Stroke Times were marked N/A in Step 3.2.3,  
THEN mark Steps 4.2.3, 4.2.4, 4.2.5  
AND 5.2 N/A.

P

3.2.5 Review with the Shift Manager, any Technical Specification impact, equipment  
unavailability and, if applicable, risk summary for this test  
AND record any actions taken below:

Actions: NoneP3.2.6 Obtain the Shift Manager's permission to perform this test.Shift Manager: Joe Job Date Today Time Now



3.3 Equipment – Test PerformanceNOTE 3.3.1

Stopwatches or AOV/MOV diagnostic equipment may be used

3.3.1 IF the valve under test is to be stroke timed,  
THEN obtain a stopwatch OR other stroke timing equipment  
AND record the test equipment M&TE Number(s) and Cal Due Date(s) below:

M&TE Number: EST 0052 Cal Due Date: 1/25/12

M&amp;TE Number: \_\_\_\_\_ Cal Due Date: \_\_\_\_\_

M&amp;TE Number: \_\_\_\_\_ Cal Due Date: \_\_\_\_\_

3.3.2 IF the valve to be stroked has specific test requirements listed in Attachment 2,  
OR plant status control requirements of NOP-OP-1014,  
THEN verify these actions are complete  
AND record the actions taken.

Actions Taken: \_\_\_\_\_

4.0 PROCEDUREINITIALS4.1 Manual Containment Isolation Valves

4.1.1 IF the valve under test is a manual Containment Isolation Valve,  
THEN perform the following:

- N/A a. Cycle the valve through a minimum of one complete cycle.
- N/A b. GO TO Step 4.3, Restoration.

NOTE 4.2

- Stroke times are normally measured by depressing a Hand Indicating Switch (HIS) while simultaneously starting the stopwatch, and immediately stopping the stopwatch once the correct indication is received on the HIS.
- Other test equipment may be used to measure stroke times utilizing the valve motor control circuitry.
- The Valve Position Verification ensures that the control switch indication agrees with actual local valve position.
- Local valve position may be determined by observing an appropriate indicator such as a valve stem indicator, valve stem travel, or mechanical linkage motion that is indicative of actual valve position. It is not required that the valve position be verified as exactly 100% open or closed, and as such, the local valve position escutcheon plates, markings, etc. need not be 100% accurate to satisfy this requirement.
- Communication between the control switch and the valve location is required for the Valve Position Verification.
- It is intended that valve stroke times be measured during the initial full stroke operation of the valve in the appropriate direction(s) to avoid preconditioning of the valve. Open and close stroke timing may be performed in any order within a step, dependent upon the initial position of the valve.

4.2 Stroke Time and Valve Position Verification for Power Operated Valves

P 4.2.1 Verify an individual is present at the valve for local valve position verification.

P 4.2.2 Perform stroke testing of the valve as follows:

P 6 Stroke and time the valve open  
AND record the time below:

Open Stroke Time : 61.2 sec

P 6 Check that the valve is open by:

P - Control switch indication.

P - Local valve position.

P 6 Stroke and time the valve closed  
AND record the time below:

Close Stroke Time: 61.5 sec

P 6 Check that the valve is closed by:

P - Control switch indication.

P - Local valve position.

#### NOTE 4.2.3 – 4.2.5

In the following steps, refer to Step 3.2.3 for the Open/Close Maximum Allowable Stroke Time(s) and Expected Stroke Time Range(s). If the Maximum Allowable Stroke Time or Expected Stroke Time Range is marked N/A for the Open/Close Position, then the Stroke Time(s) recorded have no Acceptance Criteria and as such, Steps 4.2.3 through 4.2.5 do not apply for that applicable stroke position.

P 4.2.3 IF the open AND close stroke time values recorded in Step 4.2.2 are less than or equal to the Maximum Allowable Stroke Time(s),  
THEN N/A Step 4.2.4 since the stroke time acceptance criteria has been met.

4.2.4 IF the open OR close valve stroke time(s) exceed the Maximum Allowable Stroke Time(s),  
THEN perform the following:

- N/A
- ↓
- N/A
- Declare the valve inoperable.
  - Initiate a CR.
  - N/A step 4.2.5

4.2.5 Perform the following:

N/A

a.

IF the open AND close stroke time values recorded in Step 4.2.2 are within the Expected Stroke Time Range(s),  
THEN N/A Steps 4.2.5.b through 4.2.5.f since valve performance is as expected.

b.

IF the open OR close stroke times are outside the Expected Stroke Time Range,  
THEN perform the following:

P

c.

Stroke and time the valve open  
AND record the time below:

Open Stroke Time: 61.2 sec

P

d.

Stroke and time the valve closed  
AND record the time below:

Close Stroke Time: 61.5 sec

P

e.

IF the open AND close stroke time values recorded in Step 4.2.5.b are less than or equal to the Maximum Allowable Stroke Time(s),  
THEN N/A Step 4.2.5.d since the stroke time acceptance criteria has been met.

d.

IF the open OR close valve stroke time(s) recorded in Step 4.2.5.b exceed the Maximum Allowable Stroke Time(s),  
THEN perform the following:

N/A

↓

N/A

- Declare the valve inoperable.
- Initiate a CR.
- N/A Steps 4.2.5.e and 4.2.5.f.

NOTE 4.2.5.e and 4.2.5.f

- The valve is considered operable with regard to stroke time testing in Steps 4.2.5.e and 4.2.5.f.
- If the second stroke time is within the Expected Stroke Time Range, a Condition Report is issued to prompt and document an evaluation of the baseline reference values and/or the condition that caused this deviation.
- If the second stroke time is again outside of the Expected Stroke Time Range, a Condition Report is issued to require an evaluation within 96 hours for continued valve operability, as required by the ASME OM Code.

P ☒

IF the open OR close stroke time values recorded in Step 4.2.5.b are outside of the Expected Stroke Time Range(s),  
THEN initiate a Condition Report stating that an evaluation must be performed within 96 hours to justify continued operability of the valve.

N/A ☐ f.

IF the open AND close stroke time values recorded in Step 4.2.5.b are within the Expected Stroke Time Range(s),  
THEN initiate a Condition Report documenting the occurrence.

4.3 Restoration

(4.3.1) Perform the following restoration actions as directed by the Shift Manager:

P ☒

Return the valve under test to the desired position  
AND record the as-left position below:

As Left Position: CLOSE

N/A ☐

IF a special lineup was performed under Step 3.3.2,  
THEN restore from any specific test conditions  
OR the NOP-OP-1014 plant status control requirement  
AND record the restoration actions taken:

Actions Taken: \_\_\_\_\_

N/A ☐

IF a specific actions were taken under Step 3.2.5,  
THEN restore from any condition initiated  
AND record the restoration actions taken:

Actions Taken: \_\_\_\_\_

5.0 ACCEPTANCE CRITERIAValve under Test: DA 2736

- (5.1) IF the valve being tested is a Manual Containment Isolation Valve,  
THEN the valve was satisfactorily cycled through a minimum of one complete cycle.  
(Step 4.1.1 OR the applicable Order)

Verified N/A Date \_\_\_\_\_

- (5.2) IF the valve under test is an MOV or AOV  
AND Stroke Time(s) were specified in Step 3.2.3 or by the applicable work order,  
THEN the Open  
AND Close Stroke Time(s) are less than or equal to the Maximum Allowable Stroke  
Time(s). (TS 5.5.7 and SR 3.6.3.4 for automatic power operated valves) (Step 4.2.2 OR  
4.2.5.b OR the applicable Order)

Verified Tim Tenny Date Today

- (5.3) IF the valve under test is a MOV or AOV  
AND valve position verification was performed in Step 4.2 or the applicable Order,  
THEN the valve's control switch indication reflects the observed local valve position.  
(TS 5.5.7 and SR 3.3.17.3 Function 7) (Step 4.2.2 OR the applicable Order)

Verified Tim Tenny Date Today

- (5.4) IF work was performed on a MOV or AOV Containment Isolation Valve that could  
affect the valve's performance,  
THEN the valve was cycled at least one complete cycle. (Step 4.2 OR the applicable  
Order)

Verified Tim Tenny Date Today

- 5.5 IF the valve being tested is an Air Operated Valve,  
AND has a fail-safe position specified in Step 3.1.5 or the applicable Order,  
THEN the valve failed to its safety position as shown by cycling of the valve to its  
specified safety position during stroke testing. (TS 5.5.7) (Step 4.2 OR the applicable  
Order)

Verified N/A Date \_\_\_\_\_6.0 RECORDS

- 6.1 Upon completion of this procedure, the following shall be attached to the Surveillance  
Order or Test Cover Sheet and delivered to the Surveillance Coordinator for records  
capture and processing:

- Test Procedure pages, which contain sign-offs, test data, and/or calculations.
- Computer printouts, data, etc. required by the individual test procedure.

## 7.0 REFERENCES

### 7.1 Development

- 7.1.1 Technical Specification 5.5.7, Inservice Testing Program
- 7.1.2 Surveillance Requirement 3.6.3.4, Containment Isolation Valves  
Surveillance Requirement 3.3.17.3(7), Post Accident Monitoring
- 7.1.3 USAR Table 6.2-23, Containment Vessel Isolation Valve Arrangements
- 7.1.4 DB-PF-00201, Inservice Testing of Pumps and Valves
- 7.1.5 ISTEP3, Third Ten Year Inservice Testing Program
- 7.1.6 Memorandum NEN-93-10319 (CC1495 differential pressure).

### 7.2 Implementation

- 7.2.1 ISTB3, Pump and Valve Basis Document, Volume III, Stroke Time Basis, Section C
- 7.2.2 NOP-OP-1014, Plant Status Control
- 7.2.3 DB-PF-03020, Service Water Train 1 Valve Test
- 7.2.4 DB-PF-03027, Service Water Train 2 Valve Test
- 7.2.5 DB-PF-03386, Makeup System Valve Testing
- 7.2.6 DB-PF-03440, Atmospheric Vent Valves, ICS11A and ICS11B, Operability Test
- 7.2.7 DB-SP-03444, SFRCS Channel 1 Trip of MS100 and MS101
- 7.2.8 DB-SP-03445, SFRCS Channel 2 Trip of MS100 and MS101
- 7.2.9 Post Maintenance Test Manual (PMTM).

ATTACHMENT 1: CONTAINMENT ISOLATION VALVES

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1. Manual Valves

Valve	Penetration	Valve	Penetration
CF15	44A	HP49	22
CF16	71C	HP56	20
CS17	25	HP57	19
CS18	26	MU242	52
CS33	25	MU243	53
CS36	26	MU244	54
CV343	17	MU245	55
DH23	29	SA532	25
DH76	27	SA533	26
DH77	28	SA535	26
DH87	49	SA536	25
DH88	49		
HP48	50		

2. Motor Operated Valves

Valve	Penetration	Control Switch	Panel	
AF599	35	HIS 599A	C5709	*(1)
AF608	36	HIS 608A	C5706	*(1)
CC1407A	4	HIS 1407A	C5717	*
CC1407B	4	HIS 1407B	C5717	*
CC1411A	3	HIS 1411A	C5717	*
CC1411B	3	HIS 1411B	C5717	*
CC1567A	12	HIS 1567A	C5717	*
CC1567B	12	HIS 1567B	C5717	*
CF2A	47A	HIS CF2A	C5716	*(1)
CF2B	47A	HIS CF2B	C5716	*(1)
CF5A	47B	HIS CF5A	C5716	*(1)
CF5B	47B	HIS CF5B	C5716	*(1)
CS1530	26	HIS 1530	C5716	*
CS1531	25	HIS 1531	C5716	*
CV624B	72C	NV624B	Local	(1)
CV645B	73C	NV645B	Local	(1)
CV2000B	71A	NV2000	Local	(1)
CV2001B	72A	NV2001	Local	(1)
CV2002B	73A	NV2002	Local	(1)
CV2003B	74A	NV2003	Local	(1)

\* Performance of valve position verification satisfies SR 3.3.17.3 Function 7

(1) Remote Manual valves, SR 3.6.3.4 is N/A



ATTACHMENT 1: CONTAINMENT ISOLATION VALVES

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2. Motor Operated Valves (Continued)

Valve	Penetration	Control Switch	Panel	
CV5010A	71B	HIS 5010A	C5717	*
CV5010B	68B	HIS 5010B	C5717	*
CV5010C	73B	HIS 5010C	C5717	*
CV5010D	74B	HIS 5010D	C5717	*
CV5010E	42B	HIS 5010E	C5717	*
CV5011A	71B	HIS 5011A	C5717	*
CV5011B	68B	HIS 5011B	C5717	*
CV5011C	73B	HIS 5011C	C5717	*
CV5011D	74B	HIS 5011D	C5717	*
CV5011E	43B	HIS 5011E	C5717	*
CV5037	51	HIS 5037	C5716	*
CV5038	51	HIS 5038	C5716	*
CV5065	69	HIS 5065	C5716	*
CV5070	8A	HIS 5070	C5717	*
CV5071	8B	HIS 5071	C5717	*
CV5072	8C	HIS 5072	C5717	*
CV5073	8D	HIS 5073	C5717	*
CV5074	8E	HIS 5074	C5717	*
CV5075	8F	HIS 5075	C5717	*
CV5076	8G	HIS 5076	C5717	*
CV5077	8H	HIS 5077	C5717	*
CV5078	8I	HIS 5078	C5717	*
CV5079	8J	HIS 5079	C5717	*
CV5090	67	HIS 5090	C5716	*
DH1A	27	HIS DH1A	C5716	*(1)
DH1B	28	HIS DH1B	C5716	*(1)
DH9A	30	HIS DH9A	C5716	*
DH9B	31	HIS DH9B	C5716	*
DH11	29	HIS DH11	C5704	*(1)
DH2735	74C	HIS 2735	C5705	*(1)
DH2736	74C	HIS 2736	C5705	*(1)
DR2012A	13	HIS 2012A	C5717	*
DR2012B	13	HIS 2012B	C5717	*
FW601	37	HIS 601	C5708	*(1)
FW612	38	HIS 612	C5708	*(1)
HP2A	19	HIS HP2A	C5716	*
HP2B	20	HIS HP2B	C5716	*
HP2C	50	HIS HP2C	C5716	*
HP2D	22	HIS HP2D	C5716	*

\* Performance of valve position verification satisfies SR 3.3.17.3 Function 7

(1) Remote Manual valves, SR 3.6.3.4 is N/A

ATTACHMENT 1: CONTAINMENT ISOLATION VALVES

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2. Motor Operated Valves (Continued)

Valve	Penetration	Control Switch	Panel	
MS106	40	HIS 106A	C5706	*(1)
MS106A	39	HIS 106E	C5706	*(1)
MS107	39	HIS 107A	C5709	*(1)
MS107A	40	HIS 107E	C5709	*(1)
MS603	57	HIS 603	C5710	*(1)
MS611	60	HIS 611	C5708	*(1)
MU2A	14	HIS MU2A	C5717	*
MU59A	56	HIS MU59A	C5717	*
MU59B	56	HIS MU59B	C5717	*
MU59C	56	HIS MU59C	C5717	*
MU59D	56	HIS MU59D	C5717	*
MU6421	50	HIS 6421	C5703	*(1)
MU6422	20	HIS 6422	C5703	*(1)
RC240A	1	HIS 240A	C5717	*
RC240B	1	HIS 240B	C5717	*
SW1366	5	HIS 1366	C5716	*(1)
SW1367	7	HIS 1367	C5716	*(1)
SW1368	6	HIS 1368A or HIS 1368B	C5716	*(1)

\* Performance of valve position verification satisfies SR 3.3.17.3 Function 7

(1) Remote Manual valves, SR 3.6.3.4 is N/A

ATTACHMENT 1: CONTAINMENT ISOLATION VALVES

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3. Air Operated Valves

Valve	Pen.	Alternate Testing (Or as directed by the Shift Manager)	Control Switch	Panel	
CF1541	44A		HIS 1541	C5716	*
CF1542	47B		HIS 1542	C5716	*
CF1544	71C		HIS 1544	C5716	*
CF1545	47A		HIS 1545	C5716	*
CV5005	33		HIS 5005	C5717	*
CV5006	33		HIS 5006	C5717	*
CV5007	34		HIS 5007	C5717	*
CV5008	34		HIS 5008	C5717	*
DW6831A	21		HIS 6831A	C5717	*
DW6831B	21		HIS 6831B	C5717	*
IA2011	43A		HIS 2011	C5717	*
ICS11A	39	Use DB-PF-03440 for TS 5.5.7 Testing or Post Maintenance Testing	HIS ICS11A	C5708	*(1)
ICS11B	40		HIS ICS11B	C5708	*(1)
MS100	39	Use DB-SP-03444 <u>OR</u> DB-SP-03445 for TS 5.5.7 Testing or Post Maintenance Testing	HIS 100	C5708	*(1)
MS101	40		HIS 101	C5708	*(1)
MS100-1	39		HIS 100-1	C5708	*(1)
MS101-1	40		HIS 101-1	C5708	*(1)
MS375	39		HIS 375	C5708	*(1)
MS394	40		HIS 394	C5708	*(1)
MU3	14	Use DB-PF-03386 for TS 5.5.7 Fail-Safe Testing	HIS MU3	C5717	*
MU38	56		HIS MU38	C5717	*
MU66A	52		HIS MU66A	C5717	*
MU66B	53		HIS MU66B	C5717	*
MU66C	54		HIS MU66C	C5717	*
MU66D	55		HIS MU66D	C5717	*
NN236	44B		HIS 236	C5717	*
RC229A	48		HIS 229A	C5717	*
RC229B	48		HIS 229B	C5717	*
RC232	41		HIS 232	C5717	*
RC1719A	16		HIS 1719A	C5717	*
RC1719B	16		HIS 1719B	C5717	*
RC1773A	32		HIS 1773A	C5717	*
RC1773B	32		HIS 1773B	C5717	*

\* Performance of valve position verification satisfies SR 3.3.17.3 Function 7

(1) Remote Manual valves, SR 3.6.3.4 is N/A

ATTACHMENT 1: CONTAINMENT ISOLATION VALVES

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3. Air Operated Valves

SA2010	42A		HIS 2010	C5717	*
SS235A	68A		HIS 235A	C5717	*
SS235B	68A		HIS 235B	C5717	*
SS598	18		HIS 598	C5717	*
SS607	2		HIS 607	C5717	*
W1356	9	Use DB-PF-03020 for TS 5.5.7 Testing or Post Maintenance Testing	HIS 1356	C5716	*(1)
SW1357	11	Use DB-PF-03027 for TS 5.5.7 Testing or Post Maintenance Testing	HIS 1357	C5716	*(1)
SW1358	10	Use DB-PF-03020 <u>OR</u> DB-PF-03027 for TS 5.5.7 Testing or Post Maintenance Testing	HIS 1358A or 1358B	C5716	*(1)

\* Performance of valve position verification satisfies SR 3.3.17.3 Function 7

(1) Remote Manual valves, SR 3.6.3.4 is N/A

**ATTACHMENT 2: SPECIFIC TEST GUIDANCE**

Page 1 of 1

VALVES	REQUIREMENT
CC2645 CC5097	CCW Line 2 is supplying the Non-Essential Header <u>AND</u> CC5095 is closed. CCW Line 1 <u>AND</u> Line 2 in service.
CC2649 CC5098	CCW Line 1 is supplying the Non-Essential Header <u>AND</u> CC5096 is closed. CCW Line 1 <u>AND</u> Line 2 in service.
CC5095	CCW Line 1 <u>AND</u> Line 2 in service. CCW Line 2 is supplying the Non-Essential Header. CC2645 <u>AND</u> CC5097 are open.
CC5096	CCW Line 1 <u>AND</u> Line 2 in service. CCW Line 1 is supplying the Non-Essential Header. CC2649 <u>AND</u> CC5098 are open.
CC1495	Isolate instrument air supply prior to stroke timing closed. Valve verified failed close by a differential pressure of at least 40 psid.
CF2A	Verify core Flood Tank 2 pressure is not more than 50 psig above Core Flood Tank 1 pressure, <u>OR</u> verify CF55, CFT 1-2 BLEED LINE ISOLATION is closed to prevent inadvertent water transfer.
CS1530 CS1531	Measure stroke time with a stop watch at the MCC while the valve is stroked from the Control Room.
CV5005 CV5006 CV5007 CV5008	Valves shall only be tested in MODES 5 or 6. Verify the Containment Purge Supply Fan 1 is OFF.
CV5010A through CV5010E CV5011A through CV5011E	Verify that the operating CTMT Hydrogen Analyzer <u>AND</u> the operating CTMT Radiation Monitor will not be isolated.
CV5065	Verify H2 Dilution Blower 2 is OFF.
CV5090	Verify H2 Dilution Blower 1 is OFF.
DH9A	Verify blank flange is installed. Verify DH7A is closed.
DH9B	Verify blank flange is installed. Verify DH7B is closed.
MU6406 MU6407	Isolate instrument air supply prior to stroking closed.
RC229A RC229B RC232	Verify that the Quench Tank Circulating Pump is OFF.
SW1356 SW1357 SW1358 SW1366 SW1367 SW1368	Verify the manual isolation valves are closed for the associated containment air cooler to prevent potential water hammer damage.
SW1382 SW1383	Train1: Verify SW5 and SW9 closed. Train2: Verify SW6 and SW10 closed.
SW1424	Test in accordance with the applicable section of DB-PF-03020, Service Water Train 1 Valve Test.
SW1429	Test in accordance with the applicable section of DB-PF-03020, Service Water Train 1 Valve Test <u>OR</u> DB-PF-03027, Service water Train 2 Valve Test.
SW1434	Test in accordance with the applicable section of DB-PF-03027, Service Water train 2 Valve Test.
DR2012A & B	CTMT Normal Sump Pumps are not running and are not expected to auto start while DR2012A or DR2012B are stroked closed (refer to T.S. 3.4.15).

Facility: Davis-Besse Task No: 119-023-03-0100Task Title: Determine a safety tagout for Containment Spray Pump 1 with eSOMS unavailableK/A Reference: 2.2.13 Job Performance Measure No: NEW

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_ Date: \_\_\_\_\_

**Method of testing:**Simulated Performance \_\_\_\_ Actual Performance XClassroom X Simulator \_\_\_\_ 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:**

This JPM is not dependant on any specific simulator initial conditions since the task is administrative in nature.

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**Task Standard:**

Prepare a safety tagout manually

**Required Materials:**

NOBP-OP-1001, Clearance Program, Rev. 03  
NOP-OP-1001-07, Manual Clearance Coversheet, filled out  
NOP-OP-1001-10, Clearance Preparation and Review Checklist, Rev 10  
Valve Location Book  
Operations Schematic, OS-005 (Containment Spray System)

**General References:****Initiating Cue:**

The plant conditions are specified in the Initial Conditions and Initiating Cues.

Time Critical Task: No

Validation Time: 40 minutes

## **EXAMINER COPY**

### **INITIAL CONDITIONS:**

The plant is currently operating at 100%.

eSOMS is currently out of service and will not be restored for another four hours.

Containment Spray Pump #1 has a leak on the pump's seal that requires replacement.

Clearance No. is DB-060-05-XXX

The Manual Clearance Coversheet has been filled out.

### **INITIATION CUE:**

The Shift Manager directs you to determine the tagging points, tag type, placement configuration, and hang order for Containment Spray Pump #1 for seal replacement. A cover sheet has been completed. Another operator will complete restoration review.

**(Hand Candidate a copy of NOBP-OP-1001, and NOP-OP-1001-07, Cover Sheet, form filled out and OS-005, CTMT Spray)**

## **CANDIDATE COPY**

### **INITIAL CONDITIONS:**

The plant is currently operating at 100%.

eSOMS is currently out of service and will not be restored for another four hours.

Containment Spray Pump #1 has a leak on the pump's seal that requires replacement.

Clearance No. is DB-060-05-XXX

The Manual Clearance Coversheet has been filled out.

### **INITIATION CUE:**

The Shift Manager directs you to determine the tagging points, tag type, placement configuration, and hang order for Containment Spray Pump #1 for seal replacement. A cover sheet has been completed. Another operator will complete restoration review.



## **PERFORMANCE INFORMATION**

NOTE: Critical steps denoted with a "C". Failure to meet any one of these standards for this item constitutes failure. Sequence is NOT required unless denoted in the "Comments".

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

- 
1. PERFORMANCE STEP: Reviews NOBP-OP-1001, Manual Clearance Generation and Cover Sheet

STANDARD: Reviews Section 4.0 is the correct section

CUE: **(IF ASKED) "This is not an exceptional tag out."**

\_\_\_\_\_  
SAT    UNSAT

- 
2. PERFORMANCE STEP: Determine Tagging Boundaries  
    C

STANDARD    Use system drawing OS-005 to determine tagging points

COMMENTS    Refer to Manual Clearance Tag List (NOP-OP-1001-09) key

CUE:    NONE

\_\_\_\_\_  
SAT    UNSAT

- 
3. PERFORMANCE STEP: Determine Tag Type, Placement Configuration, Hang Order  
    C

STANDARD:    Tag electrical, high pressure, low pressure, and vents and drains

COMMENTS:    Refer to Manual Clearance Tag List (NOP-OP-1001-09) key

CUE:    NONE

\_\_\_\_\_  
SAT    UNSAT

---

TERMINATING CUES: This JPM is complete (Terminated by the examiner)

\_\_\_\_\_  
END TIME

## Verification of Completion

Job Performance Measure No. A-3

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 and date: \_\_\_\_\_

[illegible]

[illegible]

MANUAL CLEARANCE COVERSHEET					
NOP-OP-1001-07 Rev. 02					
Manual Clearance DB        -060-05        -XXX		Date /     /		Time	
Equipment ID / Asset Number : P56-1                                  /					
Description / Reason Replace CTMT Spray Pump 1 seal					
Placement Notes Align pump drains to the nearest floor drain					
Cautions None					
Completion Notes Vent the pump and associated piping prior to placing the pump in service					
Order Number 200XXXXXX		FLOC P56-1		Description CTMT SPRAY PUMP 1	
Clearance Acceptance  _____ Print/Sign                      Date			Work Group Acceptance  _____ Print/Sign                      Date		
Clearance Release  _____ Print/Sign                      Date			Work Group Release  _____ Print/Sign                      Date		
Status	Name (Print / Sign)			Date / Time	
Prepared By	/			/	
Reviewed By	/			/	
Approved by	/			/	
Issued for Work by	/			/	
Removal Authorized by	/			/	
Clearance Closed by	/			/	

**Facility:** Davis-Besse **Task No:** 331-007-03-300**Task Title:** Determine Compensatory Measures For Removing Fire Suppression For The  
Auxiliary Boiler Room**K/A Reference:** KA 2.2.37 **Job Performance Measure No:** NEW**Examinee:** \_\_\_\_\_**NRC Examiner:** \_\_\_\_\_ **Date:** \_\_\_\_\_**Method of testing:**

Simulated Performance \_\_\_\_

Actual Performance XClassroom X

Simulator \_\_\_\_

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 conditions are specified in the Initial Conditions and Initiating Cues

**Initiating Cue:**

The plant conditions are specified in the Initial Conditions and Initiating Cues

**Task Standard:**

Determine Fire Suppression Compensatory Measures

**Required Materials:**

DB-FP-0009, Fire Protection Impairment and Fire Watch  
Form DB-100  
FHAR 8.2.2 and Table 8.4  
Drawings - OS-47A Sheet 4, and OS-47B Sheet 4

**General References:****Time Critical Task:** No**Validation Time:** ? minutes

**EXAMINER COPY****INITIAL CONDITIONS:**

The plant is currently operating at 100%

Maintenance needs to replace a sprinkler head on Auxiliary Boiler Room, Rm 331, Fire Protection Header

Work Order number is 200XXXXXX

The work will take approximately 4 hours

FP 124 will be closed to support the maintenance

No Fire Detection instrumentation is out of service

**INITIATION CUE:**

The Shift Manager directs you to determine the Fire Protection compensatory measure required.

(Applicant locates procedures)

**CANDIDATE COPY****INITIAL CONDITIONS:**

The plant is currently operating at 100%

Maintenance needs to replace a sprinkler head on Auxiliary Boiler Room, Rm 331, Fire Protection Header

Work Order number is 200XXXXXX

The work will take approximately 4 hours

FP 124 will be closed to support the maintenance

No Fire Detection instrumentation is out of service

**INITIATION CUE:**

The Shift Manager directs you to determine the Fire Protection compensatory measure required.



## ERRATTA

*Discovered during administration of the examination that Section 2B (Performance Step 5) of Fire Impairment Initiation Worksheet (DB-0100) is simply used as a worksheet and that required information is recorded in sections 2A, 2B, and 3, therefore Performance Step 5 was changed to state that completion of Section 2B was not critical and Performance Steps 4 and 8 were changed to Critical Steps. Performance Steps 4 and 7 were revised to identify specifically what information was required (i.e., Critical). Performance steps 3 and 6 were deleted since associated information is addressed by completion of the other steps and/or there were no specific individual steps procedural steps associated with the stated actions.*

**PERFORMANCE INFORMATION**

NOTE: Critical steps denoted with a "C". Failure to meet any one of these standards for this item constitutes failure. Sequence is NOT required unless denoted in the "Comments".

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

1. PERFORMANCE STEP: Locate the correct procedure

STANDARD: Identifies DB-FP-00009 Section 6.0 is the correct procedure section

CUE: NONE

SAT    UNSAT

2. PERFORMANCE STEP: Completes Sections 1 of Form DB-100

STANDARD: Fills in Name, Date and Extension

CUE: **(If asked) Use extension 7269**

SAT    UNSAT

3. **STEP DELETED** ~~Determines Fire system affected and type using Attachment 14~~  
PERFORMANCE STEP:

**C**

STANDARD: ~~Determines fire suppression system affected is FSA-AUX BOILER and an Appendix A type~~

CUE: NONE

SAT    UNSAT

4. PERFORMANCE STEP: Completes Section 2A of Form DB-100

**C**

STANDARD: Checks Fire Suppression System "Sprinklers" (*not critical*), fills in fire system id number (*accept either FSA-Aux Boiler or FP124*), Work Order Number (*not CRITICAL – given in Initial Conditions*), and reason for impairment

CUE: NONE

SAT    UNSAT

- 
5. PERFORMANCE STEP: Determine impairment features and completes Section 2B of Form  
C DB-100 (page 2)

STANDARD: ~~Declare the fire suppression system is inoperable with FP 124 closed~~  
*Refers to DB-FP-00009 Attachments (specifically Attachments 4 and 14) and FHAR Section 8 (specifically 8.2.2) and determines applicable requirements. Completion of Form DB-100 Section 2B is not critical.*

CUE: NONE

---

SAT UNSAT

6. ~~STEP DELETED~~ ~~Determines Compensatory measures and completes Section 2C of~~  
PERFORMANCE STEP: ~~Form DB-100~~

STANDARD: ~~Reviews Attachment 4 and determines FHAR 8.2.2 and Table 8-4 applies~~

CUE: NONE

---

SAT UNSAT

7. PERFORMANCE STEP: Determine Compensatory measure from FHAR 8.2.2 and completes  
C Section 2C of Form DB-100

STANDARD: Determines there is an Operable fire detection instrument in the affected area(s), contains significant quantities of combustible loading, and required a hourly fire watch *(listed under "Compensatory Measures" as well as one of the boxes under "Fire Watch Performed by:" must be checked, and the "Hourly Roving Fire Watch" type must be checked)*

CUE: NONE

---

SAT UNSAT

- 
8. PERFORMANCE STEP: Completes Section 3  
C

STANDARD: Checks 8.2.2 under Suppression column  
Recognizes NEIL notification is not required

CUE: NONE

---

SAT UNSAT

TERMINATING CUES: This JPM is complete (Terminated by the examiner)

END TIME

---

**Verification of Completion****Job Performance Measure No.** A - 5**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 and date:** \_\_\_\_\_

DAVIS-BESSE NUCLEAR POWER STATION  
FIRE SYSTEM IMPAIRMENT CONTROL SYSTEM – Initiation Work Sheet

DB-0100-2

Page 1 of       

**Section 1 – Initiation**

**Initiated By / Date:** \_\_\_\_\_

**Extension** \_\_\_\_\_

**Section 2A – Impairment Information**

<u>Check One for Fire Barrier Component</u>			<u>Check One for Fire Suppression</u>	<u>Check One for Fire Detection/Computer System</u>
<input type="checkbox"/> Door	<input type="checkbox"/> Fire Wrap	<input type="checkbox"/> Structural Steel	<b>OR</b>	<b>OR</b>
<input type="checkbox"/> Damper	<input type="checkbox"/> Penetration		<input type="checkbox"/> Fire Suppression System "Pumps"	<input type="checkbox"/> Fire Detection Zone/Panel
<input type="checkbox"/> Water Curtain	<input type="checkbox"/> Other Items ( _____ )		<input type="checkbox"/> Fire Suppression System "Sprinklers"	<input type="checkbox"/> Computer Point
Fire Barrier Component ID Number _____			<input type="checkbox"/> Fire Suppression System "Other"	
Filed as (Barrier) _____			Fire System ID Number _____	Fire System ID Number _____

WOWR/Procedure/Surveillance Number: \_\_\_\_\_

Reason For Fire System Impairment: \_\_\_\_\_

**Section 2C – Compensatory Measures**

Compensatory Measures: \_\_\_\_\_

Fire Watch Performed by: ☐ Security ☐ Operations ☐ Maintenance ☐ Other: \_\_\_\_\_

**Fire Watch Post Type:**

☐ Continuous Fire Watch ☐ Hourly Fire Annunciator and Alarm Panels Non-RRA ☐ 8 Hour Roving Fire Watch ☐ N/A  
☐ Hourly Roving Fire Watch ☐ Hourly Fire Annunciator and Alarm Panels RRA ☐ Containment Air Temperature

**Section 3 – Impairment Declaration**

Operating Specification(s) to be Entered:

<i>Barriers</i>	<i>Suppression</i>	<i>Detection</i>
<input type="checkbox"/> 8.1.3 Appendix R Sprinkler/Water Curtain	<input type="checkbox"/> 8.1.2 Appendix R Fire Suppression	<input type="checkbox"/> 8.1.1 Appendix R Fire Detection
<input type="checkbox"/> 8.1.4 Appendix R Fire Barriers	<input type="checkbox"/> 8.2.2 Appendix A Sprinklers/Deluge	<input type="checkbox"/> 8.2.1 Appendix A Fire Detection
<input type="checkbox"/> 8.2.5 Appendix A Fire Barriers	<input type="checkbox"/> 8.2.3 Fire Hose Station/Connections	
	<input type="checkbox"/> 8.2.4 Yard Fire Hydrants & Hose Houses	

NEIL Notification Required: ☐ Notification Made By: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Information Given to NEIL: \_\_\_\_\_

Shift Manager: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**Close Out**

Reason for Closeout \_\_\_\_\_

Shift Manager/Shift Engineer Closeout \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**Section 2B – Fire System Assessment Work Sheet**

Fire Barrier	Opposite Fire Barrier	Barrier Type Operability	Fire Detection Zone	Opposite Fire Detection Zone	Fire Suppression System
		<input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> O <input type="checkbox"/> Op <input type="checkbox"/> In-Op	<input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> O <input type="checkbox"/> Op <input type="checkbox"/> In-Op	<input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> O <input type="checkbox"/> Op <input type="checkbox"/> In-Op	<input type="checkbox"/> R <input type="checkbox"/> A <input type="checkbox"/> O <input type="checkbox"/> Op <input type="checkbox"/> In-Op
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**Facility:** Davis-Besse **Task No:** 072-011-01-0100**Task Title:** Check out a Radiation Detector in the RRA**K/A Reference:** 2.3.5 **Job Performance Measure No:** JPM 149**Examinee:** \_\_\_\_\_**NRC Examiner:** \_\_\_\_\_ **Date:** \_\_\_\_\_**Method of testing:**Simulated Performance \_\_\_\_ Actual Performance XClassroom \_\_\_\_ 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 plant conditions are specified in the Initial Conditions and Initiating Cues.

**Task Standard:**

Check out a FLUKE 451B

**Required Materials:**

Operator Aid for Use of FLUKE 451B  
FLUKE 451B Radiation Meter  
Radiation Sources

**General References:****Initiating Cue:**

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**Time Critical Task** No**Validation Time:** 10 minutes



**EXAMINER COPY****INITIAL CONDITIONS:**

A large break Loss of Coolant Accident has occurred.

RE 8421 is reading 50 mRem/hr for #4 Mechanical Penetration Room general area dose rates.

The water curtain between Mechanical Penetration Room 4 and the Heater Bay has actuated inadvertently and flooding of Emergency Core Cooling System Room 2 is imminent.

**INITIATING CUES:**

The Shift Manager has directed you to isolate the water curtain supply from the Auxiliary Building by closing FP 266 #4 Mechanical Penetration Room 314 Water Curtain Isolation, located in the southeast corner of #4 Mechanical Penetration Room.

Radiation Protection coverage is not available and you are required to obtain a portable radiation detector prior to entering the Auxiliary Building.

The On-Site Emergency Response Facilities are not yet manned.

**(After the Candidate finds the Standing Order to check out a radiation meter, hand the candidate a copy of the Standing Order)**

**CANDIDATE COPY****INITIAL CONDITIONS:**

A large break Loss of Coolant Accident has occurred.

RE 8421 is reading 50 mRem/hr for #4 Mechanical Penetration Room general area dose rates.

The water curtain between Mechanical Penetration Room 4 and the Heater Bay has actuated inadvertently and flooding of Emergency Core Cooling System Room 2 is imminent.

**INITIATING CUES:**

The Shift Manager has directed you to isolate the water curtain supply from the Auxiliary Building by closing FP 266 #4 Mechanical Penetration Room 314 Water Curtain Isolation, located in the southeast corner of #4 Mechanical Penetration Room.

Radiation Protection coverage is not available and you are required to obtain a portable radiation detector prior to entering the Auxiliary Building.

The On-Site Emergency Response Facilities are not yet manned.

**PERFORMANCE INFORMATION**

NOTE: Critical steps denoted with a "C". Failure to meet any one of these standards for this item constitutes failure. Sequence is NOT assumed unless denoted in the "Comments".

START TIME: _____
-------------------

1. PERFORMANCE STEP: Refer to Posted Operator Aid For either Emergency Checkout of Ludlum 9-3 or Emergency Checkout of Fluke 451B.

STANDARD: Refer to Posted Operator Aid For either Emergency Checkout of Ludlum 9-3 or Emergency Checkout of Fluke 451B.

Comment: If Posted Aid for Emergency Checkout of Ludlum 9-3 is chosen, continue with this sequence.

If Posted Aid for Emergency Checkout of Fluke 451B is chosen,  
GO TO Step 25.

NOTE: Operation Aid is back to back

CUE: **None**

SAT    UNSAT
--------------

2. PERFORMANCE STEP: Obtain a Portable Radiation Detector.  
    C

STANDARD: Obtain a Ludlum 9-3

CUE: **None**

SAT    UNSAT
--------------

3. PERFORMANCE STEP: Ensure instrument is not past its calibration due date.

STANDARD: Check the date on the "Calibration" sticker has not been exceeded.

CUE: **None**

SAT    UNSAT
--------------

4. PERFORMANCE STEP: Ensure the daily instrument check is current.

STANDARD: Check the daily instrument check has been completed for the current day and month.

CUE: **None**

SAT    UNSAT
--------------

- 
5. PERFORMANCE STEP: Inspect meter for physical damage.

STANDARD: Physically inspect the instrument for any damage including mylar window.

CUE: **None**

---

SAT    UNSAT

- 
6. PERFORMANCE STEP: Ensure the mechanical zero is correct.

STANDARD: Ensure meter indicates approximately zero when selected to OFF.

CUE: **None**

---

SAT    UNSAT

- 
7. PERFORMANCE STEP: Perform a battery check.

**C**

STANDARD: Select the **X10K** scale and press the **BAT TEST** button, meter should indicate in the **BAT OK** scale, release **BAT TEST** button.

CUE: **Meter Indicates 0**

COMMENT: The operator should set this meter aside and obtain another meter. If the operator obtains another meter, he should begin the meter inspection from the beginning of the operator aid.

---

SAT    UNSAT

- 
8. PERFORMANCE STEP: Obtain a replacement Portable Radiation Detector.

**C**

STANDARD: Obtain another Ludlum 9-3

NOTE: If another meter is not available, take the meter from the examinee, turn it off and provide the cue.

CUE: **(if another meter is not available) (SEE NOTE) You have obtained a new meter. This is the new meter.**

---

SAT    UNSAT

- 
9. PERFORMANCE STEP: Ensure instrument is not past its calibration due date.

STANDARD: Check the date on the "Calibration" sticker has not been exceeded.

CUE: **None**

---

SAT    UNSAT

- 
10. PERFORMANCE STEP: Ensure the daily instrument check is current.

STANDARD: Check the daily instrument check has been completed for the current day and month.

CUE: **None**

---

SAT    UNSAT

---

11. PERFORMANCE STEP: Inspect meter for physical damage.

STANDARD: Physically inspect the instrument for any damage including mylar window.

CUE: **None**

---

SAT    UNSAT

---

12. PERFORMANCE STEP: Ensure the mechanical zero is correct.

STANDARD: Verify that the instrument's output meter reads zero with the instrument off.

CUE: **None**

---

SAT    UNSAT

---

13. PERFORMANCE STEP: Perform a battery check.

**C**

.....

STANDARD: Select the **X10K** scale and press the **BAT TEST** button, meter should indicate in the **BAT OK** scale, release **BAT TEST** button.

CUE: **None**

---

SAT    UNSAT

---

14. PERFORMANCE STEP: Turn on the instrument and verify the electronic zero is correct,

**C**

STANDARD: Select the **X1** scale and allow the meter to stabilize to zero, **SLOWLY** adjust the zero adjust knob if necessary.

CUE: **None**

---

SAT    UNSAT

---

- 
15. PERFORMANCE STEP: Slide open the meter beta shield.

**C**

STANDARD: Utilize beta shield release button to enable opening of beta shield

COMMENT: **If not completed, meter response will be low when exposed to the source.**

CUE: **None**

---

SAT    UNSAT

- 
16. PERFORMANCE STEP: Remove the shield plug from source 1.1.117.

STANDARD: Ensure slide attenuator is fully inserted and remove shield plug and set in a safe position on the cabinet.

CUE: **None**

---

SAT    UNSAT

- 
17. PERFORMANCE STEP: Align meter over source 1.1.117 as indicated in picture.

STANDARD: Ensure meter is aligned as indicated in picture on Operator Aid, dimples indicating meter effective center should be aligned over the source.

CUE: **None**

---

SAT    UNSAT

- 
18. PERFORMANCE STEP: Slide source attenuator out to the #1 position. (line on attenuator even with edge of cabinet upper lip).

STANDARD: Slide source attenuator out to the #1 position. (line on attenuator even with edge of cabinet upper lip)

CUE: **None**

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SAT    UNSAT

- 
19. PERFORMANCE STEP: Ensure meter responds to between 3-5 mR/hr. Adjust meter and attenuator slide alignment if necessary.

STANDARD: Meter should respond to between 3-5 mR/hr, adjustments to meter and attenuator slide may be necessary to show proper response.

COMMENT: If examinee slides attenuator out too far, meter may respond off scale high and will take several seconds after adjustment to respond on scale.  
If examinee failed to open beta shield, meter will indicate below desired scale.

CUE: **None**

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SAT    UNSAT

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20. PERFORMANCE STEP: Push source attenuator slide in fully.

STANDARD: Source attenuator slide should be pushed into the cabinet as far as it will go.

CUE: **None**

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SAT    UNSAT

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21. PERFORMANCE STEP: Remove the meter.

STANDARD: Remove the meter.

COMMENT: Examinee should be careful with meter at this point as beta window is exposed.

CUE: **None**

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SAT    UNSAT

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22. PERFORMANCE STEP: Close the meter beta shield.

C

STANDARD: Close the meter beta shield.

CUE: **None**

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SAT    UNSAT

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23. PERFORMANCE STEP: Place the shield plug over source 1.1.117.

STANDARD: Place the shield plug over source 1.1.117.

CUE: **None**

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SAT    UNSAT

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24. PERFORMANCE STEP: Examinee should leave instrument check out area and walk toward RRA Entrance. Surveying for radiation levels while en route to Mechanical Penetration Room #4.

STANDARD: 

- Beta window must be closed before leaving the instrument storage area.
- Check hand-held radiation detector indication while travelling through the Auxiliary Building.

COMMENT: ***End the Job Performance Measure at this step if the Ludlum 9-3 was selected.***

CUE: **None**

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SAT    UNSAT

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25. PERFORMANCE STEP: Obtain a Portable Radiation Detector. (**FLUKE 451B**)  
**C**
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STANDARD: Obtain a Fluke 451B.

CUE: **None**

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SAT    UNSAT

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26. PERFORMANCE STEP: Ensure instrument is not past its calibration due date.

STANDARD: Check the date on the "Calibration" sticker has not been exceeded.

CUE: **None**

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SAT    UNSAT

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27. PERFORMANCE STEP: Ensure the daily instrument check is current.

STANDARD: Check the daily instrument check has been completed for the current day and month.

CUE: **None**

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SAT    UNSAT

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28. PERFORMANCE STEP: Inspect meter for physical damage.

STANDARD: Physically inspect the instrument for any damage including mylar window under beta shield.

CUE: **None**

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SAT    UNSAT

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29. PERFORMANCE STEP: Turn the Meter On using the Power button.

STANDARD: Press the Power button.

CUE: **None**

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SAT    UNSAT

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30. PERFORMANCE STEP: Wait for Meter to complete start up sequence. The meter should stabilize less than 0.5 mRem/hr within 30 to 40 seconds.

**C**

STANDARD: Watch meter face to observe start up sequence.

CUE: **Meter Indicates flashing "Battery"**

COMMENT: The operator should set this meter aside and obtain another meter. If the operator obtains another meter, he should begin the meter inspection from the beginning of the operator aid.

SAT UNSAT

31. PERFORMANCE STEP: Obtain a replacement Portable Radiation Detector.

**C**

STANDARD: Obtain another Fluke 451B.

NOTE: If another meter is not available, take the meter from the examinee, turn it off and provide the cue.

CUE: **(if another meter is not available) (SEE NOTE) You have obtained a new meter. This is the new meter.**

SAT UNSAT

32. PERFORMANCE STEP: Ensure instrument is not past its calibration due date.

STANDARD: Check the date on the "Calibration" sticker has not been exceeded.

CUE: **None**

SAT UNSAT

33. PERFORMANCE STEP: Ensure the daily instrument check is current.

STANDARD: Check the daily instrument check has been completed for the current day and month.

CUE: **None**

SAT UNSAT

34. PERFORMANCE STEP: Inspect meter for physical damage.

STANDARD: Physically inspect the instrument for any damage including mylar window.

CUE: **None**

SAT UNSAT

35. PERFORMANCE STEP: Turn the Meter On using the Power button.

STANDARD: Press the Power button.

CUE: **None**

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SAT	UNSAT
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36. PERFORMANCE STEP: Wait for Meter to complete start up sequence. The meter should stabilize less than 0.5 mRem/hr within 30 to 40 seconds.

**C**

STANDARD: Watch meter face to observe start up sequence.

CUE: **None**

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SAT	UNSAT
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37. PERFORMANCE STEP: Slide open the meter beta shield.

**C**

STANDARD: Slide open the meter beta shield.

COMMENT: **If not completed, meter response will be low when exposed to the source.**

CUE: **None**

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SAT	UNSAT
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38. PERFORMANCE STEP: Remove the shield plug from source 1.1.117.

STANDARD: Ensure slide attenuator is fully inserted and remove shield plug and set in a safe position on the cabinet.

CUE: **None**

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SAT	UNSAT
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39. PERFORMANCE STEP: Align meter over source 1.1.117 as indicated in picture.

STANDARD: Ensure meter is aligned as indicated in picture on Operator Aid, dimples indicating meter effective center should be aligned over the source.

CUE: **None**

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SAT	UNSAT
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40. PERFORMANCE STEP: Slide source attenuator out to the #1 position. (line on attenuator even with edge of cabinet upper lip).

STANDARD: Slide source attenuator out to the #1 position. (line on attenuator even with edge of cabinet upper lip)

CUE: **None**

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SAT	UNSAT
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41. PERFORMANCE STEP: Ensure meter responds to between 4-7 mR/hr. Adjust meter and attenuator slide alignment if necessary.

STANDARD: Meter should respond to between 4-7 mR/hr, adjustments to meter and attenuator slide may be necessary to show proper response.

COMMENT: If examinee slides attenuator out too far, meter may respond high out of the desired band and will take several seconds after adjustment to respond on scale. If examinee failed to open beta shield, meter will indicate below desired scale.

CUE: **None**

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SAT	UNSAT
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42. PERFORMANCE STEP: Push source attenuator slide in fully.

STANDARD: Source attenuator slide should be pushed into the cabinet as far as it will go.

CUE: **None**

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SAT	UNSAT
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43. PERFORMANCE STEP: Remove the meter.

STANDARD: Remove the meter.

COMMENT: Examinee should be careful with meter at this point as beta window is exposed.

CUE: **None**

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SAT	UNSAT
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44. PERFORMANCE STEP: Close the meter beta shield.

C

STANDARD: Close the meter beta shield.

CUE: **None**

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SAT	UNSAT
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45. PERFORMANCE STEP: Place the shield plug over source 1.1.117.  
C

STANDARD: Place the shield plug over source 1.1.117.

COMMENT: ***End the Job Performance Measure at this step***

CUE: **None**

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SAT	UNSAT
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TERMINATING CUES This JPM is complete. (Terminated by the evaluator)

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END TIME

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**Verification of Completion****Job Performance Measure No.** A – 4**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 and date:** \_\_\_\_\_

**Facility:** Davis-Besse **Task No:** 334-01-05-0300**Task Title:** EAL Classification and Initial Notification Form**K/A Reference:** 2.4.41 **Job Performance Measure No:** 230**Examinee:** \_\_\_\_\_**NRC Examiner:** \_\_\_\_\_ **Date:** \_\_\_\_\_**Method of testing:**Simulated Performance \_\_\_\_ Actual Performance XClassroom \_\_\_\_ 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 conditions are specified in the Initial Conditions and Initiating Cues.

**Task Standard:**

Classify an event and complete the Initial Notification Form

**Required Materials:**

RA-EP-01500, Emergency Notification  
RA-EP-01800, Site Area Emergency  
DBRM-EMER-1500A, Davis- Besse Emergency Action Level Basis Document  
DBRM-EMER-1500B, Davis-Besse EAL Wallboards  
Davis- Besse Emergency Plan Telephone Directory  
E-Plan Implementation Forms envelope

**General References:****Initiating Cue:**

The plant conditions are specified in the Initial Conditions and Initiating Cues.

**Time Critical Task:** No**Validation Time:** 30 minutes

**SIMULATOR INSTRUCTIONS****INITIAL CONDITION:**

This JPM is independent of the simulator setup

**ADDITIONAL SETUP/DEVIATION FROM INITIAL CONDITION:**

If this JPM is not conducted in the simulator, the following references need to be available to the examinee:

- RA-EP-01500, Emergency Classification
- RA-EP-01800, Site Area Emergency
- RA-EP-02110, Emergency Notification
- DBRM-EMER-1500A, Davis- Besse Emergency Action Level Basis Document
- DBRM-EMER-1500B, Davis-Besse EAL Wallboards
- Davis- Besse Emergency Plan Telephone Directory
- E-Plan Implementation Forms envelope

**MALFUNCTIONS/FAILURE TO INSERT:**

None.

**ACTION/CUES:**

JPM STEP NUMBER

CUE

See body of JPM

**EXAMINER COPY****INITIAL CONDITIONS:**

You are the Shift Manager.

The reactor was operating at 100% power.

EDG #1 is Inoperable due to maintenance.

**INITIATING CUES:**

The station experienced an earthquake as felt by the Control Room operators and indicated by the following indications:

- Annunciator 7-6-A, STA SEISMIC INSTR ON
- OBE alarm on seismic panel C5764A

Shortly afterwards, the following indications are noticed:

- Annunciator 9-4-A, VAC SYS DISCH RAD HI
- Annunciator 12-1-B, MN STM LINE 2 RAD HI

The Unit Supervisor entered DB-OP-02000, RPS, SFAS, SFRCS TRIP, OR SG TUBE RUPTURE, and tripped the reactor. Following the successful reactor trip, the following abnormal conditions were discovered:

- Main Steam Safety Valves on #2 OTSG lifted and at least one has failed to reseal (as observed and reported by Security).
- The ATC operator has calculated the RCS leak rate to be 320 gallons per minute.

The Unit Supervisor continues to direct recovery actions in accordance with DB-OP-02000 and told you to refer to RA-EP-01500, Emergency Classification.

Determine if any Emergency Action Levels have been exceeded and perform the duties of the Emergency Director if required.

This is a time critical JPM.



**CANDIDATE COPY****INITIAL CONDITIONS:**

You are the Shift Manager.

The reactor was operating at 100% power.

EDG #1 is Inoperable due to maintenance.

**INITIATING CUES:**

The station experienced an earthquake as felt by the Control Room operators and indicated by the following indications:

- Annunciator 7-6-A, STA SEISMIC INSTR ON
- OBE alarm on seismic panel C5764A

Shortly afterwards, the following indications are noticed:

- Annunciator 9-4-A, VAC SYS DISCH RAD HI
- Annunciator 12-1-B, MN STM LINE 2 RAD HI

The Unit Supervisor entered DB-OP-02000, RPS, SFAS, SFRCS TRIP, OR SG TUBE RUPTURE, and tripped the reactor. Following the successful reactor trip, the following abnormal conditions were discovered:

- Main Steam Safety Valves on #2 OTSG lifted and at least one has failed to reseal (as observed and reported by Security).
- The ATC operator has calculated the RCS leak rate to be 320 gallons per minute.

The Unit Supervisor continues to direct recovery actions in accordance with DB-OP-02000 and told you to refer to RA-EP-01500, Emergency Classification.

Determine if any Emergency Action Levels have been exceeded and perform the duties of the Emergency Director if required.

This is a time critical JPM.

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**PERFORMANCE INFORMATION**

NOTE: Critical steps denoted with a "C". Failure to meet any one of these standards for this item constitutes failure. Sequence is NOT assumed unless denoted in the "Comments".

START TIME: _____
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- 
1. PERFORMANCE STEP: Locate the correct procedure guidance.

STANDARD: Obtains RA-EP-01500, Emergency Classification, and/or the wallboard (DBRM-EMER-1500B).

COMMENT: Hand a clean copy of the procedure to the examinee.

CUE: **This is a time critical JPM. The clock starts now.**

Time: \_\_\_\_\_

**IF asked or if the examinee attempts to start PC Dose,  
THEN say "Another operator has used PC Dose to determine  
that there are no Protective Action Recommendations.**

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SAT   UNSAT

- 
2. PERFORMANCE STEP: Classify the event.  
.....**C**.....

STANDARD: Classifies the event as a Site Area Emergency per EAL FS1.

COMMENT: Event must be classified within 15 minutes.

Time: \_\_\_\_\_

CUE: **If asked, provide an independent check of the selected EAL.**

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SAT   UNSAT

- 
3. PERFORMANCE STEP: Locate the correct procedure.

STANDARD: Obtains RA-EP-01800, Site Area Emergency.

COMMENT: Hand a clean copy of the procedure to the examinee.

CUE: **None.**

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SAT   UNSAT

- 
4. PERFORMANCE STEP: Sound the appropriate station alarm.  
.....**C**.....

STANDARD: Presses the "EMER" button on the Gai-Tronics box on either the RO's desk or at the Back Panel C5722 (HSG 3-3524).

CUE: **"EMER" button has been pressed.**  
**The alarm has sounded and has stopped.**

---

SAT UNSAT

- 
5. PERFORMANCE STEP: Announce the classification to the station.  
.....**C**.....

STANDARD: Makes a plant announcement made using the public address system (Gai-Tronics).

CUE: **None.**

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SAT UNSAT

- 
6. PERFORMANCE STEP: Announce the classification to the rest of the OCA.

STANDARD: Directs Security to make an Owner Controller Area (OCA) announcement.

CUE: **(I/S CUE) Repeat back the direction as given.**

---

SAT UNSAT

- 
7. PERFORMANCE STEP: Locate the correct procedure for emergency notification.

STANDARD: Obtains RA-EP-02110, Emergency Notification.

CUE: **None.**

---

SAT UNSAT

- 
8. PERFORMANCE STEP: Notify the Emergency Response Organization.  
.....**C**.....

STANDARD: Directs Security to activate CANS OR examinee activates CANS.

COMMENT: IF Security is contacted to activate CANS, THEN this step is critical. Go to step 15 and mark steps 9-14 as N/A.  
IF trainee activates CANS, THEN mark this step as N/A. Go to steps 9 through 14, which are now critical.

CUE: **(I/S CUE) Repeat back direction to activate CANS as given.**

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SAT UNSAT

- 
9. PERFORMANCE STEP: Obtain CANS access number from Emergency Plan  
.....**C**..... Telephone Directory and dial it.

STANDARD: Locates Immediate Notification Numbers tab in directory. Locates a touch tone phone and correctly dials the CANS number.

COMMENT: CANS number is 9-1-877-686-7612; backup number is 9-1-866-334-6556.

CUE: **(I/S CUE) "This is the Remote Activation Module. Please enter your user ID number followed by the pound sign."**

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SAT UNSAT

- 
10. PERFORMANCE STEP: Enter SAP number followed by the # sign.  
.....**C**.....

STANDARD: Enters SAP number followed by the # sign.

CUE: **(I/S CUE) "Please enter your security code followed by the pound sign."**

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SAT UNSAT

- 
11. PERFORMANCE STEP: Enter SAP number followed by the # sign.  
.....**C**.....

STANDARD: Enters SAP number followed by the # sign.

CUE: **(I/S CUE) "To start a scenario, enter the scenario ID followed by the pound sign, or press the pound sign alone for more options."**

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SAT UNSAT

- 
12. PERFORMANCE STEP: Enter 3333# for a Site Area Emergency.  
.....**C**.....

STANDARD: Enters 3333#.

CUE: **(I/S CUE) "To listen to the current scenario message, press 1; To re-record the scenario message, press 2; To start a scenario, press 3; To start a re-contact scenario, press 4; To return to the main menu, press pound."**

**IF only # is entered,**

**THEN read, "This is the Remote Activation module. Please enter your user ID number followed by the pound sign" and return to step 9.**

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SAT UNSAT

13. PERFORMANCE STEP: Enter 3.  
.....**C**.....

STANDARD: Enters 3.

CUE: (I/S CUE)  
"The scenario is building"

"To start a scenario, press 1; To stop a scenario, press 2; To check scenario information, press 3; To log in as a different user, press 4; To end this call, press pound."

IF other than "3" is entered,  
THEN read, "This is the Remote Activation module. Please enter your user ID number followed by the pound sign" and return to step 9.

---

SAT UNSAT

14. PERFORMANCE STEP: Enter #.  
.....**C**.....

STANDARD: Enters # to terminate the call.

CUE: (I/S CUE) Either hang up or say, "The call is ended and you hear a dial tone."

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SAT UNSAT

- 
15. PERFORMANCE STEP: Complete an Initial Notification Form (DBEP-010) and a Davis-Besse Notification Cover Sheet (DBEP-012).  
.....**C**.....

STANDARD: Completes items 1 through 7 on the Initial Notification form and the header information on the Cover Sheet then signs the Cover Sheet.

CUE: **If asked, provide an independent check of the data entered and sign the Davis-Besse Notification Cover Sheet.**

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SAT    UNSAT

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16. PERFORMANCE STEP: Make Initial Notification using the 4-Way Ring-Down Circuit.  
.....**C**.....

STANDARD: Picks up the 4-Way Ring-Down phone in the Control Room. When the parties answer, reads the Initial Notification information.

COMMENT: This step may be performed before activation of CANS to ensure timeliness of the Initial Notification. Notification must be made within 15 minutes of the event declaration time; the clock stops when the 4-Way Ring-Down phone is picked up.

CUE: (I/S CUE) **Ottawa County Sheriff's Dispatcher, Lucas County Sheriff's Dispatcher, and Ohio Highway Patrol Dispatcher answer the phone.**

**(I/S CUE) Repeat back information as it is communicated.**

Time: \_\_\_\_\_

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SAT    UNSAT

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TERMINATING CUES: **This JPM is complete.** (Terminated by the evaluator).

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END TIME

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**Verification of Completion****Job Performance Measure No.** A-6**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 and date:** \_\_\_\_\_