

## Waterford 3 Examination Question Examination Bank

**Examination Question Number** A.1-1

**QUESTION ID:** 5842 - A

**DESCRIPTION:** QSPDS and Instrumentation Compliance with Tech Specs.

**AUTHOR:** dcassid **REVISION** 0 **REVISION DATE** 7/26/2000

**REFERENCE VERIFIED:** dcassid **VERIFICATION DATE:** 7/26/2000

**TYPE:** Short Answer **TIME:** 10

**QUIZ ONLY:** **CLOSED REFERENCE:** **OPEN REFERENCE** X

**PLANT SYSTEM:** IC **CATEGORY:** PROCEDURE

**REFERENCE:** **REVISION:** **CHANGE:** **DATE:**

OP-903-013 13 03 6/28/00

TS 3.3.3

**NRC KA NUMBER:** **RO** **SRO** **TRAINING MATERIAL:** **OBJECTIVE**

2-1-12 2.9 4.0 W-3-LP-OPS-QSP00 7

2-1-20 4.3 4.2

### **QUESTION**

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Containment Pressure Wide Wide-Range Recorder, ESF-IPR-6755B on CP-8 failed low and is declared Inoperable. It is determined that ONLY the recorder has failed. What actions are necessary to comply with Technical Specifications?

### **ANSWER**

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Perform OP-903-013, Monthly Channel Checks, to verify that Containment Pressure Wide Wide-Range indication on QSPDS Channel 2 (page 102) meets the Channel Check Limits. If the Channel Check Limit is met, than the QSPDS can be used as a qualified replacement for the inoperable recorder, and no entry into Tech Spec 3.3.3.6 is required.

### **COMMENTS**

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Facility: <u>Waterford 3</u>		Date of Examination: <u>10/10/00</u>
Examination Level (circle one): <u>RO / SRO</u>		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Shutdown Margin	JPM – Manually perform a Shutdown Margin Calculation for Technical Specification Surveillance requirements.
	Qualified Safety Parameter Display System	Containment Pressure Wide Range Recorder, ESF-IPR-6755B, on CP-8 fails low, and it is determined that ONLY the recorder has failed. What actions are necessary to comply Technical Specifications?
		What is the difference between a qualified channel indication on QSPDS, and a pre-planned alternate indication on QSPDS?
A.2	Equipment Out of Service (EOS) Review	JPM – Review and Approve an EOS. SRO Applicant will review an EOS for Approval. Applicant must find 3 errors with the provided EOS.
A.3	Gas Decay Tank (GDT) 'A' Release Review	JPM – Review and Approve a Gaseous Waste Release. Permit. Applicant will Review a Gaseous Waste release request on GDT 'A' for approval to release. Applicant must determine all actions necessary to release GDT 'A'.
A4	E-Plan PARs and Emergency Classification	JPM – Determine Protective Action Recommendations in an Emergency. The Applicant will be given the initial conditions and classification of a site emergency, and must determine as Emergency Coordinator the appropriate Protective Action Recommendations to the appropriate off-site agencies.

## Waterford 3 Examination Question Examination Bank

**Examination Question Number** A.1-2

**QUESTION ID:** 5843 - A

**DESCRIPTION:** Difference between Qualified and Alternate QSPDS Indication

**AUTHOR:** dcassid **REVISION** 0 **REVISION DATE** 7/26/2000

**REFERENCE VERIFIED:** dcassid **VERIFICATION DATE:** 7/26/2000

**TYPE:** Short Answer **TIME:** 5

**QUIZ ONLY:** **CLOSED REFERENCE:** **OPEN REFERENCE** X

**PLANT SYSTEM:** IC **CATEGORY:** PROCEDURE

**REFERENCE:** **REVISION:** **CHANGE:** **DATE:**

OP-903-013 13 03 6/28/00

**NRC KA NUMBER:** **RO** **SRO** **TRAINING MATERIAL:** **OBJECTIVE**

2-1-12 2.9 4 W-3-LP-OPS-QSP00 7

2-1-20 4.3 4.2

### **QUESTION**

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What is the difference between a Qualified Channel Indication on QSPDS, and an indication that is used as a Pre-planned Alternate Indication on QSPDS?

### **ANSWER**

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Qualified Channel Indications are allowed to satisfy the Tech Spec requirements of T.S. 3.3.3.6. These are designated on Attachment 10.3, Accident Monitoring Instrumentation Channel Check, of OP-903-013, Monthly Channel Checks. Preplanned Alternates, which are listed in Attachment 10.4, Alternate Accident Monitoring Instruments, are usable backup indications, but can not be used for Tech Spec Compliance. Attachment 10.3 overrides Attachment 10.4

### **COMMENTS**

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In some cases in Op-903-013, Rev 13, Change 2, a Qualified Instrument listed in Attachment 10.3 is also listed as an alternate indication for the same required instrument in Attachment 10.4. Attachment 10.3 overrides Attachment 10.4.

Facility: <u>Waterford 3</u>		Date of Examination: <u>10/10/00</u>
Examination Level (circle one): <u>RO / SRO</u>		Operating Test Number: <u>1</u>
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Shutdown Margin	JPM – Manually perform a Shutdown Margin Calculation for Technical Specification Surveillance requirements.
	Qualified Safety Parameter Display System	Containment Pressure Wide Range Recorder, ESF-IPR-6755B, on CP-8 fails low, and it is determined that ONLY the recorder has failed. What actions are necessary to comply Technical Specifications?
		What is the difference between a qualified channel indication on QSPDS, and a pre-planned alternate indication on QSPDS?
A.2	Equipment Out of Service (EOS) Review	JPM – Review and Approve an EOS. SRO Applicant will review an EOS for Approval. Applicant must find 3 errors with the provided EOS.
A.3	Gas Decay Tank (GDT) 'A' Release Review	JPM – Review and Approve a Gaseous Waste Release. Permit. Applicant will Review a Gaseous Waste release request on GDT 'A' for approval to release. Applicant must determine all actions necessary to release GDT 'A'.
A4	E-Plan PARs and Emergency Classification	JPM – Determine Protective Action Recommendations in an Emergency. The Applicant will be given the initial conditions and classification of a site emergency, and must determine as Emergency Coordinator the appropriate Protective Action Recommendations to the appropriate off-site agencies.



**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. MAINTENANCE HAS BEEN COMPLETED ON BATTERY CHARGER DC-EBC-1A
2. THE REMOTE POWER SUPPLY BREAKERS FOR BATTERY CHARGER DC-EBC-1A WERE LEFT OPEN AFTER MAINTENANCE.

**Task Standard**

1. BATTERY CHARGER DC-EBC-1A HAS BEEN RETURNED TO SERVICE.
2. FAULTED: THE OPERATOR RE-OPENS THE AC AND DC ISOLATION BREAKERS AND INFORMS THE SS/CRS.

**Tools**

NONE

**Safety Considerations**

1. ENERGIZED ELECTRICAL EQUIPMENT

**Initiating Cue**

THE NPO DIRECTS YOU TO PLACE BATTERY CHARGER DC-EBC-1A IN SERVICE.

**Terminating Cue**

1. THE BATTERY CHARGER IS IN SERVICE AND OPERATING NORMALLY.
2. FAULTED: THE BATTERY CHARGER IS DEENERGIZED AND THE SM/CRS IS INFORMED.

**Performance Consequences**

1. EQUIPMENT DAMAGE
2. PERSONNEL INJURY
3. LOSS OF VITAL INSTRUMENTATION

**Human Interfaces**

1. NPO
2. SM/CRS

**Skills Knowledges**

NONE

**Task Element**

- 0 Perform the task in accordance with referenced procedure OP-006-003, section 8.1. All components are located in the RAB + 21MSL, A Switchgear Room along the North wall. This JPM requires opening battery charger doors. Permission is required from the On-shift Shift Manager to open these doors (Ext. 3104).
- C TC

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- 1 VERIFY BATTERY CHARGER AC ISOLATION AND BATTERY CHARGER DC ISOLATION BREAKERS FOR APPLICABLE BATTERY CHARGER OPEN.
- C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE APPLICABLE BREAKER AT THE SELECTED BATTERY CHARGER CUE THE OPERATOR THAT THE BREAKER IS OPEN. (BREAKERS ARE LOCATED INSIDE FRONT PANEL OF THE SELECTED BATTERY CHARGER)

**Standards** 1. THE OPERATOR LOCATES THE SELECTED BATTERY CHARGER.  
2. THE OPERATOR CHECKS THAT THE AC ISOLATION BREAKER OF THE SELECTED BATTERY CHARGER IS OPEN. (DC-EBKR-1161-A1)  
3. THE OPERATOR CHECKS THAT THE DC ISOLATION BREAKER OF THE SELECTED BATTERY CHARGER IS OPEN (DC-EBKR-1A2)

- 
- 2 VERIFY REMOTE POWER SUPPLY BREAKERS FOR APPLICABLE BATTERY CHARGER ARE CLOSED.
- C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE APPLICABLE BREAKER AND DEMONSTRATES ACTION TO CLOSE THE BREAKER, THEN CUE THE OPERATOR THAT THE APPLICABLE BREAKER IS CLOSED.

**Standards** 1. THE OPERATOR LOCATES THE APPLICABLE 480VAC MOTOR CONTROL CENTER AND CLOSSES THE CORRECT BREAKER. (DC-EBKR-311A-14D) (EAST END OF MCC 311A, SECOND ROW IN, SECOND BREAKER FROM TOP)  
2. THE OPERATOR LOCATES THE APPLICABLE DC DISTRIBUTION PANEL AND CLOSSES THE CORRECT BREAKER. (DC-EBKR-A-34) (PDP A-DC, RIGHT HAND SECTION, THIRD BREAKER FROM BOTTOM ON RIGHT FACING PANEL)

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RETURNING A, B, OR AB BATTERY CHARGERS TO SERVICE

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3 SET EQUALIZE/FLOAT SWITCH (INSIDE CABINET) TO FLOAT POSITION.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE EQUALIZE/FLOAT SWITCH INSIDE THE BATTERY CHARGER CABINET, CUE THE OPERATOR THAT THE SWITCH IS IN FLOAT.

**Standards** 1. THE OPERATOR LOCATES THE EQUALIZE/FLOAT SWITCH.  
2. THE OPERATOR VERIFIES THE SWITCH IS IN THE FLOAT POSITION.

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4 PLACE LOAD SHARING SWITCH TO OFF.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE LOAD SHARING SWITCH ON THE FRONT PANEL OF THE BATTERY CHARGER, THEN CUE THE OPERATOR THAT THE SWITCH IS IN OFF.

**Standards** 1. THE OPERATOR LOCATES THE LOAD SHARING SWITCH.  
2. THE OPERATOR VERIFIES THE SWITCH IS IN THE OFF POSITION.

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5 CLOSE BATTERY CHARGER ISOLATION (DC) BREAKER AND CHECK THE FOLLOWING: DC VOLTMETER EQUALS BATTERY POTENTIAL, NO CHARGE LAMP ILLUMINATES, PHASE FAIL LAMP EXTINGUISHES.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR DEMONSTRATES THE ACTION TO CLOSE THE DC BREAKER, THEN CUE THE OPERATOR THAT THE BATTERY CHARGER ISOLATION (DC) BREAKER IS CLOSED.  
2. WHEN THE OPERATOR LOCATES THE DC VOLTMETER, THEN CUE THE OPERATOR THAT THE VOLTMETER INDICATION EQUALS BATTERY POTENTIAL (~135 VDC).  
3. WHEN THE OPERATOR LOCATES THE NO CHARGE LAMP ON THE FRONT PANEL OF THE BATTERY CHARGER, THEN CUE THE OPERATOR THAT THE NO CHARGE LAMP IS ILLUMINATED.  
4. WHEN THE OPERATOR LOCATES THE PHASE FAIL LAMP, THEN CUE THE OPERATOR THAT THE PHASE FAIL LAMP IS EXTINGUISHED.

**Standards** 1. THE OPERATOR LOCATES AND CLOSES THE BATTERY CHARGER ISOLATION (DC) BREAKER.  
2. THE OPERATOR VERIFIES INDICATION OF DC VOLTAGE AND LAMP STATUS.

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RETURNING A, B, OR AB BATTERY CHARGERS TO SERVICE

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C TC

- 6 WHEN 25 SECONDS HAVE ELAPSED, THEN CLOSE BATTERY CHARGER AC ISOLATION BREAKER AND CHECK THE FOLLOWING: DC VOLTMETER REMAINS AT BATTERY POTENTIAL, NO CHARGE LAMP EXTINGUISHES, PHASE FAIL LAMP EXTINGUISHES.

- Conditions/Cues**
1. WHEN THE OPERATOR LOCATES THE BATTERY CHARGER AC ISOLATION BREAKER AND DEMONSTRATES THE ACTION TO CLOSE IT, THEN CUE THE OPERATOR THAT THE BATTERY CHARGER AC ISOLATION BREAKER IS CLOSED.
  2. ALTERNATE PATH: WHEN THE OPERATOR LOCATES THE DC VOLTMETER, THEN CUE THE OPERATOR THAT THE VOLTMETER READ 148 VDC FOR A SHORT PERIOD AND THEN DROPPED DOWN TO BATTERY POTENTIAL (~135 VDC).
  3. ALTERNATE PATH: WHEN THE OPERATOR LOCATES THE NO CHARGE LAMP, THEN CUE THE OPERATOR THAT THE NO CHARGE LAMP EXTINGUISHED FOR A SHORT PERIOD AND THEN ILLUMINATED.
  4. ALTERNATE PATH: WHEN THE OPERATOR LOCATES THE PHASE FAIL LAMP, THEN CUE THE OPERATOR THAT THE PHASE FAIL LAMP IS EXTINGUISHED.
  5. ALTERNATE PATH: WHEN THE OPERATOR LOCATES THE HI-V SHUTDOWN LAMP, CUE THE OPERATOR THAT THE HI-V SHUTDOWN LAMP IS ILLUMINATED.

- Standards**
1. THE OPERATOR LOCATES AND CLOSES THE BATTERY CHARGER AC ISOLATION BREAKER AFTER WAITING AT LEAST 25 SECONDS SINCE CLOSING THE DC ISOLATION BREAKER.
  2. THE OPERATOR VERIFIES DC VOLTMETER INDICATION AND INDICATOR STATUS.

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C TC

- 7 ALTERNATE PATH: IF HI-V SHUTDOWN LAMP IS ILLUMINATED AND OUTPUT VOLTAGE IS < 144 VDC, THEN DEPRESS THE HIGH VOLTAGE RESET PUSHBUTTON LOCATED ON HV SHUTDOWN CARD INSIDE CABINET.

- Conditions/Cues**
1. WHEN THE OPERATOR LOCATES AND RESETS THE HIGH VOLTAGE RESET PUSHBUTTON, THEN CUE THE OPERATOR THAT THE HI-V SHUTDOWN LAMP EXTINGUISHED FOR A SHORT PERIOD AND THEN RE-ILLUMINATED.

- Standards**
1. THE OPERATOR OPENS THE BATTERY CHARGER AC ISOLATION BREAKER.
  2. THE OPERATOR OPENS BATTERY CHARGER ISOLATION (DC) BREAKER.
  3. THE OPERATOR NOTIFIES SS/CRS OF CONDITION.
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RETURNING A, B, OR AB BATTERY CHARGERS TO SERVICE

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8 END OF TASK.

**C** **TC**

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. MAINTENANCE HAS BEEN COMPLETED ON BATTERY CHARGER DC-EBC-1A
2. THE REMOTE POWER SUPPLY BREAKERS FOR BATTERY CHARGER DC-EBC-1A WERE LEFT OPEN AFTER MAINTENANCE.

#### Initiating Cue

THE NPO DIRECTS YOU TO PLACE BATTERY CHARGER DC-EBC-1A IN SERVICE.



**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. A FIRE HAS OCCURRED IN CP-2.
2. CONTROL ROOM EVACUATION HAS OCCURRED AND CONTROLS HAVE BEEN TRANSFERRED TO LCP-43.

**Task Standard**

1. ATMOSPHERIC DUMP VALVE MS-116A IS IN LOCAL CONTROL

**Tools**

NONE

**Safety Considerations**

NONE

**Initiating Cue**

YOU HAVE BEEN DIRECTED BY THE PNPO TO TAKE LOCAL CONTROL OF ATMOSPHERIC DUMP VALVE MS-116A AND OPEN TO 50%.

**Terminating Cue**

1. MS-116A IS OPEN TO 50%.

**Performance Consequences**

1. EQUIPMENT DAMAGE
2. OVERHEATING OR OVERCOOLING OF THE RCS
3. COOLDOWN RATES IN EXCESS OF TECHNICAL SPECIFICATIONS

**Human Interfaces**

1. PNPO

**Skills Knowledges**

NONE

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OPERATE THE ATMOSPHERIC DUMP VALVES LOCALLY

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**Task Element**

- 0 Perform the task in accordance with referenced procedure OP-901-502, Attachment 8. All components are located in West MSIV area +46 RAB in the vicinity of the MSIV skid.

**C TC**

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- 1 NOTE THE PRESSURE AT THE OUTLET TO THE TRANSDUCER.

**C TC**

**Conditions/Cues** 1. AFTER THE OPERATOR LOCATES THE PRESSURE GAUGE AT THE OUTLET OF THE TRANSDUCER: THE PRESSURE GAUGE READS 5 PSIG.

**Standards** 1. THE OPERATOR LOCATES THE PROPER GAUGE.  
2. THE OPERATOR NOTES THE READING ON THE GAUGE.

- 
- 2 ADJUST THE PRESSURE AT THE OUTLET OF THE AIR REGULATOR ON THE FRONT OF THE PANEL TO THE PRESSURE NOTED IN STEP 1.

**C TC**

**Conditions/Cues** 1. AFTER THE OPERATOR DEMONSTRATES THE METHOD (TURN THE HANDLE ON TOP OF THE REGULATOR COUNTER-CLOCKWISE) FOR REDUCING PRESSURE AT THE OUTLET OF THE REGULATOR: PRESSURE AT THE OUTLET OF THE REGULATOR IS 5 PSIG.

**Standards** 1. THE OPERATOR LOCATES THE AIR PRESSURE GAUGE AT THE OUTLET OF THE AIR REGULATOR.  
2. THE OPERATOR ADJUSTS THE PRESSURE AT THE OUTLET OF THE AIR REGULATOR TO 5 PSIG BY TURNING HANDLE ON TOP OF THE AIR REGULATOR COUNTER-CLOCKWISE.

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OPERATE THE ATMOSPHERIC DUMP VALVES LOCALLY

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- 3 TURN THE PNEUMATIC PERMISSIVE VALVE ABOVE THE TRANSDUCER COUNTER-CLOCKWISE FROM AUTO TO MANUAL.

C TC

**Conditions/Cues** 1. AFTER THE OPERATOR DEMONSTRATES THE METHOD FOR MANIPULATING THE PNEUMATIC PERMISSIVE VALVE: THE PNEUMATIC PERMISSIVE VALVE IS IN THE MANUAL POSITION.

**Standards** 1. THE OPERATOR LOCATES THE PNEUMATIC PERMISSIVE VALVE ABOVE THE TRANSDUCER.  
2. THE OPERATOR MANIPULATES THE PNEUMATIC PERMISSIVE VALVE COUNTER-CLOCKWISE TO THE MANUAL POSITION.

- 
- 4 TURN THE PNEUMATIC PERMISSIVE VALVE ABOVE THE AIR REGULATOR ON THE FRONT OF THE PANEL COUNTER-CLOCKWISE FROM AUTO TO MANUAL.

C TC

**Conditions/Cues** 1. AFTER THE OPERATOR DEMONSTRATES THE METHOD FOR MANIPULATING THE PNEUMATIC PERMISSIVE VALVE: THE PNEUMATIC PERMISSIVE VALVE IS IN THE MANUAL POSITION.

**Standards** 1. THE OPERATOR LOCATES THE PNEUMATIC PERMISSIVE VALVE ABOVE THE AIR REGULATOR ON THE FRONT OF THE PANEL.  
2. THE OPERATOR MANIPULATES THE PNEUMATIC PERMISSIVE VALVE COUNTER-CLOCKWISE TO THE MANUAL POSITION.

- 
- 5 ADJUST THE AIR REGULATOR ON THE FRONT OF THE PANEL TO OBTAIN THE DESIRED VALVE POSITION.

C TC

**Conditions/Cues** 1. AFTER THE OPERATOR DEMONSTRATES THE METHOD (TURN THE HANDLE ON TOP OF THE REGULATOR CLOCKWISE) FOR RAISING PRESSURE AT THE OUTLET OF THE REGULATOR AND LOCATES THE VALVE POSITION INDICATOR FOR THE ATMOSPHERIC DUMP VALVE: THE ATMOSPHERIC DUMP VALVE IS AT THE 50% POSITION.

**Standards** 1. THE OPERATOR RAISES THE AIR PRESSURE AT THE OUTLET OF THE AIR REGULATOR BY TURNING THE HANDLE ON TOP OF THE AIR REGULATOR CLOCKWISE AND OBSERVES THE ATMOSPHERIC DUMP VALVE POSITION. (THE OPERATOR MAY GO UP TO VALVE TO OBSERVE LOCAL VALVE POSITION)

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OPERATE THE ATMOSPHERIC DUMP VALVES LOCALLY

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6 END OF TASK.

**C** **TC**



## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. A FIRE HAS OCCURRED IN CP-2.
2. CONTROL ROOM EVACUATION HAS OCCURRED AND CONTROLS HAVE BEEN TRANSFERRED TO LCP-43.

#### Initiating Cue

YOU HAVE BEEN DIRECTED BY THE PNPO TO TAKE LOCAL CONTROL OF ATMOSPHERIC DUMP VALVE MS-116A AND OPEN TO 50%.



# Job Performance Measure Examination -

05-Oct-00

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ALIGN SHUTDOWN COOLING TRAIN A TO STANDBY

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**Site:** W3    **Job:** NAO    **System:** SDC    **Mode:** Norm    **Number:** 3

**Revision**            2        10/5/00

**Estimated Time(min)**            15

**References**    OP-009-005                            SHUTDOWN COOLING SYSTEM            14    02

**NRC KA**    3.4-005-K1.10    3.2    3.4\*                    **Evaluation Methods**    PERFORM  
                  3.4-005-K4.02    3.2    3.5\*    SIMULATE

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. RCS Temperature is <350°F
2. RCS Pressure is <392 psia
3. RC Loop 1 & 2 SDC Suction LTOP Relief to CNTMT Sump SI-406A(B) are aligned for service.
4. The Shift Manager has waived the venting step to place the SDC train in standby expeditiously.
5. OP-009-005, Section 5.2 Steps 1-4 have been completed.

**Task Standard**

SDC Train A valves located in RCA are aligned for standby

**Tools**

NONE

**Safety Considerations**

NONE

**Initiating Cue**

CRS directs you to Align SDC Train A to standby in accordance with OP-009-005, Section 5.2 beginning at step 5.

**Terminating Cue**

SDC Train A is aligned for standby.

**Performance Consequences**

SDC System is not ready to be placed in service.

**Human Interfaces**

1. SM
2. CRS
3. NPO

**Skills Knowledges**

NONE

**Task Elements**

- 0 Perform the task in accordance with OP-902-005, section 5.2. C TC

- 
- 1 Close the following valves: C TC
1. CS-111A, Containment Spray Pump A Discharge Stop Check
  2. CS-117A, Shutdown Cooling HX A Outlet Stop Check

**Conditions/Cues** 1. After the examinee has located each remote operator in the -15' Valve Gallery and demonstrated the method to close the valve, cue the examinee that the respective valve is closed.

**Standards** 1. The examinee locates the remote operator for each valve and simulates closing CS-111A and CS-117A.

- 
- 2 Verify Closed LPSI Pump A Suction SI-IPI-7140A Root, SI-1131A, for LPSI Pump A Suction Hdr Pressure Indicator, SI-IPI-7140A. C TC

**Conditions/Cues** 1. After the examinee locates SI-1131A at the instrument rack outside of Safeguards Pump Room A on the -35' el. of the RAB and demonstrates the method for closing the valve, cue the examinee that SI-1131A is closed.  
2. When the examinee informs the Control Room that he has completed closing SI-1131A (step 6), cue the examinee that steps 7 and 8 are complete and the Shift Manager has waived performance of step 9.

**Standards** 1. The examinee locates and simulates closing SI-1131A.  
2. The examinee continues performance of task at step 10.

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ALIGN SHUTDOWN COOLING TRAIN A TO STANDBY

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- 3 Unlock and Close LPSI Pump A Minimum Flow Recirc Stop Check, SI-116A.

C TC

**Conditions/Cues** 1. When the examinee locates SI-116A in Safeguards Pump Room A and demonstrates the method for closing the valve, cue the examinee that SI-116A is closed.  
2. When the examinee informs the Control Room that he has closed SI-116A, cue the examinee that steps 11 and 12 are complete.

**Standards** 1. The examinee locates SI-116A and simulates closing the valve.

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- 4 End Of Task

C TC

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## Information for Trainee

### Directions to Examinee:

### Initial Condition

1. RCS Temperature is <350°F
2. RCS Pressure is <392 psia
3. RC Loop 1 & 2 SDC Suction LTOP Relief to CNTMT Sump SI-406A(B) are aligned for service.
4. The Shift Manager has waived the venting step to place the SDC train in standby expeditiously.
5. OP-009-005, Section 5.2 Steps 1-4 have been completed.

### Initiating Cue

CRS directs you to Align SDC Train A to standby in accordance with OP-009-005, Section 5.2 beginning at step 5.



# Job Performance Measure Examination -

24-Aug-00

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PLACE SHUTDOWN COOLING PURIFICATION IN SERVICE

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**Site:** W3    **Job:** NAO    **System:** SDC    **Mode:** Norm    **Number:** 5

**Revision**            5            8/3/00

**Approved**

**Estimated Time(min)**            20

**References**    OP-009-005    6.6            SHUTDOWN COOLING SYSTEM            14    02

**NRC KA**    2-1-20            4.3            4.2            **Evaluation Methods**    PERFORM  
                  3.4-005-K1.04    2.9            3.1    SIMULATE

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. THE RCS IS DEPRESSURIZED
2. RCS TEMPERATURE IS 110°F
3. SDC SYSTEM TRAIN A IS IN SERVICE
4. NORMAL CHARGING AND LETDOWN ARE SECURED
5. SUFFICIENT VOLUME AVAILABLE IN BM SYSTEM TO FLUSH ION EXCHANGERS
6. NO HYDRAZINE OR HYDROGEN PEROXIDE IS PRESENT IN THE RCS
7. PURIFICATION ION EXCHANGER A HAS BEEN VERIFIED TO BE ALIGNED FOR SERVICE

**Task Standard**

SHUTDOWN COOLING PURIFICATION IS IN SERVICE FOR TRAIN A

**Tools**

1. LOCKED VALVE KEY

**Safety Considerations**

1. RADIATION EXPOSURE LEVEL IN VCT ROOM

**Initiating Cue**

STEPS 1 AND 2 OF OP-009-005, SECTION 6.6 HAVE BEEN COMPLETED. THE CRS DIRECTS YOU TO PLACE SHUTDOWN COOLING PURIFICATION TRAIN A IN SERVICE USING PURIFICATION ION EXCHANGER A IN ACCORDANCE WITH OP-009-005, SECTION 6.6, COMMENCING WITH STEP 3.

**Terminating Cue**

SHUTDOWN COOLING PURIFICATION HAS BEEN PLACED IN SERVICE FOR TRAIN A

**Performance Consequences**

1. INADVERTENT DRAINING OF THE RCS
2. INADVERTENT DILUTION OF THE RCS

**Human Interfaces**

1. NPO
2. SM/CRS
3. CHEMISTRY/HP

**Skills Knowledges**

NONE



**Task Element**

0 Perform the task in accordance with OP-009-005, Section 6.6.

**C TC**

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1 Unlock and Open Letdown to LPSI Pumps Suction Isol, CVC-164.

**C TC**

**Conditions/Cues** 1. After the examinee locates the remote handwheel in the -4' el. CVC ion exchanger valve gallery and demonstrates the method for unlocking and opening the valve, cue the examinee that CVC-164 is open.

**Standards** 1. The examinee locates the remote handwheel for CVC-164, ensures deviation is authorized for the locked valve, unlocks and opens CVC-164, and verifies the remote operator indicator does not hit the open stop.

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2 Unlock and Open SHDN Cooling Purification Supply Isol, SI-423.

**C TC**

**Conditions/Cues** 1. After the examinee locates the remote handwheel at the -4' Letdown heat exchanger valve gallery and demonstrates the method for unlocking and opening the valve, cue the examinee that SI-423 is open.  
2. Cue the examinee that step 5 has been completed.

**Standards** 1. The examinee locates the remote handwheel for SI-423, ensures deviation is authorized for the locked valve, unlocks and opens SI-423, and verifies the remote operator indicator does not hit the open stop.  
2. The examinee continues performance of the procedure at step 6.

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PLACE SHUTDOWN COOLING PURIFICATION IN SERVICE

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3 Unlock and slowly Open RC Loop 2 SHDN Cooling Purification Supply Isol, SI-418A.

C TC

**Conditions/Cues** 1. After the examinee locates the remote handwheel in the -15' el. valve gallery and demonstrates the method for unlocking and opening the valve, cue the examinee that SI-418A is open.  
2. Cue the examinee that steps 7-10 of the procedure have been completed.

**Standards** 1. The examinee locates the remote handwheel for SI-418A, ensures deviation is authorized for the locked valve, unlocks and opens SI-418A, and verifies the remote operator indicator does not hit the open stop.  
2. The examinee continues performance of the procedure at step 11.

---

4 Unlock and Close Purification Ion Exchs Outlet Header Isolation, CVC-1661.

C TC

**Conditions/Cues** 1. If the plant is in MODE 1 the VCT room will not be accessible. After the examinee states that the valve is located in the VCT room, cue the examinee that the valve is closed.  
2. If the VCT room is accessible, then after the examinee locates the valve in the VCT room and demonstrates the method for closing the valve, cue the operator that CVC-1661 is closed.

**Standards** 1. If the VCT room is not accessible, the examinee states the location of CVC-1661 and states his required action.  
2. If the VCT room is accessible, the examinee locates CVC-1661, verifies a deviation has been authorized to close the valve, and unlocks and closes the valve.

---

5 Unlock and Open Letdown to LPSI Pump A Suction Isol, CVC-1654A.

C TC

**Conditions/Cues** 1. After the examinee locates the remote handwheel in the -15' el. valve gallery and demonstrates the method for unlocking and opening the valve, cue the examinee that CVC-1654A is open.  
2. Cue the examinee that steps 13 and 14 of the procedure have been completed.

**Standards** 1. The examinee locates the remote handwheel for CVC-1654A, ensures deviation is authorized for the locked valve, unlocks and opens CVC-1654A, and verifies the remote operator indicator does not hit the open stop.  
2. The examinee continues performance of the procedure at step 15.

---

---

PLACE SHUTDOWN COOLING PURIFICATION IN SERVICE

---

- 6 Verify Purification Ion Exchanger A differential pressure, as indicated on CVC-IDPI-0207, is < 20 PSID.

C TC

**Conditions/Cues** 1. After the examinee locates the gauge for CVC IX A Differential Pressure, cue the examinee that Differential Pressure is 5 psid.

**Standards** 1. The examinee verifies that ion exchanger differential pressure is in spec.

- 
- 7 End of Task

C TC

---

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. THE RCS IS DEPRESSURIZED
2. RCS TEMPERATURE IS 110°F
3. SDC SYSTEM TRAIN A IS IN SERVICE
4. NORMAL CHARGING AND LETDOWN ARE SECURED
5. SUFFICIENT VOLUME AVAILABLE IN BM SYSTEM TO FLUSH ION EXCHANGERS
6. NO HYDRAZINE OR HYDROGEN PEROXIDE IS PRESENT IN THE RCS
7. PURIFICATION ION EXCHANGER A HAS BEEN VERIFIED TO BE ALIGNED FOR SERVICE

#### Initiating Cue

STEPS 1 AND 2 OF OP-009-005, SECTION 6.6 HAVE BEEN COMPLETED. THE CRS DIRECTS YOU TO PLACE SHUTDOWN COOLING PURIFICATION TRAIN A IN SERVICE USING PURIFICATION ION EXCHANGER A IN ACCORDANCE WITH OP-009-005, SECTION 6.6, COMMENCING WITH STEP 3.



# Job Performance Measure Examination -

24-Aug-00

PLACING CCW PUMP A/B IN SERVICE TO REPLACE CCW PUMP A(B)

**Site:** W3    **Job:** RO    **System:** CC    **Mode:** Norm    **Number:** 6

**Revision**            3            8/2/00

**Approved**

**Estimated Time(min)**            10

**Alternate Path**            Yes

**References**    OP-002-003    6.4            COMPONENT COOLING WATER SYSTEM    12    1

<b>NRC KA</b>	2-1-20	4.3	4.2	<b>Evaluation Methods</b>	PERFORM
	3.8-008-A3.04	2.9	3.2		SIMULATE
	3.8-008-A4.01	3.3	3.1		SIMULATOR
	3.8-008-K2.01	2.1	2.2		

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. MAINTENANCE IS TO BE PERFORMED ON CCW PUMP B
2. PLANT IS IN MODE 3
3. TRM 3.7.3 FOR CCW PUMP B BEING INOPERABLE HAS BEEN ENTERED

**Task Standard**

AB CCW PUMP STOPPED AFTER OIL LEAK REPORTED

**Tools**

NONE

**Safety Considerations**

NONE

**Initiating Cue**

YOU ARE DIRECTED BY THE CRS TO REPLACE CCW PUMP B WITH CCW PUMP "AB"

**Terminating Cue**

PUMP AB HAS BEEN SECURED, THE AB ASSIGNMENT SWITCH HAS BEEN RETURNED TO NORMAL, AND SM OR CRS NOTIFIED OF OIL LEAK

**Performance Consequences**

EQUIPMENT DAMAGE

**Human Interfaces**

1. NAO
2. SM/CRS

**Skills Knowledges**

NONE

**Task Element**

0 Perform the task in accordance with OP-002-003, Section 6.4.

**C TC**

---

1 Verify the 3AB Bus is aligned to the 3B Bus.

**C TC**

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the BUS AB STATUS lights on CP-8 and verifies the B light is illuminated.

---

2 Verify the CCW Pump A/B assignment switch is in the Normal position.

**C TC**

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the CCW Pump A/B assignment switch on CP-8 and verifies the switch is in the NORM (middle) position.

---

3 Close the following valves: CC-114B, CCW Pump B To AB Suction Crossconnect, CC-115B, CCW Pump AB To B Suction Crossconnect, CC-126B, CCW Pump B To AB Discharge Crossconnect, CC-127B, CCW Pump AB To B Discharge Crossconnect.

**C TC**

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the common switch for CC-126B/114B, places and holds the control switch in the CLOSE position until the upper and lower red lights are extinguished and the upper and lower green lights are illuminated.  
2. The examinee locates the common switch for CC-127B/115B, places and holds the control switch in the CLOSE position until the upper and lower red lights are extinguished and the upper and lower green lights are illuminated.

---

---

PLACING CCW PUMP A/B IN SERVICE TO REPLACE CCW PUMP A(B)

---

- 4 Place the CCW Pump A/B assignment switch in Position B.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the CCW Pump A/B assignment switch on CP-8 and positions the switch to the B position.

- 
- 5 Verify the following valves Open: CC-114B, CCW Pump B To AB Suction Crossconnect, CC-115B, CCW Pump AB To B Suction Crossconnect, CC-126B, CCW Pump B To AB Discharge Crossconnect, CC-127B, CCW Pump AB To B Discharge Crossconnect.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the common switch for CC-126B/114B and verify that the upper and lower red lights are illuminated and the upper and lower green lights are extinguished.  
2. The examinee locates the common switch for CC-127B/115B and verify that the upper and lower red lights are illuminated and the upper and lower green lights are extinguished.

- 
- 6 If the CCW Pump suction and discharge cross-connect valves, CC-126B/114B and CC-127B/115B, did not open, then contact maintenance to trouble shoot and repair the valves.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee notifies maintenance if the appropriate valves did not open.  
2. The examinee skips the step if all valves operate as required.

- 
- 7 Verify CCW Pump A/B bearing oil level is between the Off level marks.

C TC

**Conditions/Cues** 1. After the examinee requests the NAO to check bearing oil levels, cue the examinee that bearing oil level is between the Off level marks.

**Standards** 1. The examinee requests the NAO to verify bearing oil levels at CCW Pump A/B.

---



---

PLACING CCW PUMP A/B IN SERVICE TO REPLACE CCW PUMP A(B)

---

8 Start CCW Pump A/B.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the CCW Pump A/B control switch on CP-8 and momentarily places the switch in the START position.  
2. The examinee verifies the red light illuminates and the green light extinguishes on the CCW pump A/B control switch.

---

9 Verify CCW Pump A/B bearing oil level is between the Run marks.

C TC

**Conditions/Cues** ALT: NAO reports oil level dropping rapidly on pump outboard bearing due to a split in the oil line to the flow sightglass, the leak is not isolable.

**Standards** 1. NAO directed to check oil level.  
2. ALT: RO recommends to the CRS securing pump and realigning CCW Pump A/B assignment switch.

---

10 ALT: Secure CCW Pump A/B.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee momentarily places the CCW Pump A/B control switch on CP-8 in the OFF position.  
2. The examinee verifies that the green light illuminates and the red light extinguishes on the CCW Pump A/B control switch.

---

11 ALT: Realign CCW Pump A/B assignment switch to NORM.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee positions the CCW Pump A/B assignment switch to the NORM position. (Mid Position)

---

---

PLACING CCW PUMP A/B IN SERVICE TO REPLACE CCW PUMP A(B)

---

12 End of Task

**C** **TC**

## Information for Trainee

### Directions to Examinee:

### Initial Condition

1. MAINTENANCE IS TO BE PERFORMED ON CCW PUMP B
2. PLANT IS IN MODE 3
3. TRM 3.7.3 FOR CCW PUMP B BEING INOPERABLE HAS BEEN ENTERED

### Initiating Cue

YOU ARE DIRECTED BY THE CRS TO REPLACE CCW PUMP B WITH CCW PUMP "AB"



# Job Performance Measure Examination -

24-Aug-00

---

BLENDING MAKEUP TO VCT USING MANUAL MODE

---

**Site:** W3    **Job:** RO    **System:** CVC    **Mode:** Norm    **Number:** 25

**Revision**        4        8/2/00

**Approved**

**Estimated Time(min)**        20

**Alternate Path**        Yes

**References**    OP-002-005    6.10        CHEMICAL AND VOLUME CONTROL        15    00

**NRC KA**    3.1-004-A4.12    3.8    3.3        **Evaluation Methods**    PERFORM  
SIMULATOR

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. PLANT IS IN MODE 3
2. POWER IS 100%
3. RCS TEMPERATURE IS 545°F
4. CURRENT RCS BORON CONCENTRATION 873 PPM
5. BAMS A CONCENTRATION IS 5000 PPM
6. BAMS B CONCENTRATION IS 5750 PPM

**Task Standard**

1. THE CORRECT AMOUNT OF BORIC ACID/PRIMARY WATER HAS BEEN ADDED TO THE RCS
2. (ALT) THE MAKEUP OPERATION IS SECURED AFTER THE BORIC ACID PUMP TRIPS

**Tools**

NONE

**Safety Considerations**

1. N/A

**Initiating Cue**

1. YOU ARE DIRECTED BY THE CRS TO PERFORM A BLENDING MAKEUP TO THE VCT USING THE MANUAL MODE. RAISE LEVEL IN THE VCT TO 51%, USING BAMS A AS THE BORIC ACID SOURCE. CONTROL PMU AND BORIC ACID FLOW CONTROLLERS IN MANUAL.

**Terminating Cue**

1. THE MAKEUP SYSTEM HAS BEEN RETURNED TO STANDBY CONDITIONS

**Performance Consequences**

1. LOSS OF REACTIVITY MANAGEMENT

**Human Interfaces**

1. SM/CRS

**Skills Knowledge**

NONE

**Task Elements**

- 0 Perform this task in accordance with OP-002-005, Section 6.10. C TC

- 
- 1 Inform SS/CRS that this Section is being performed. C TC

**Conditions/Cues** 1. Cue the examinee that the CRS has been informed.

**Standards** 1. The examinee communicates that he is commencing the ordered manual blend to the VCT to either the CRS or SM.

- 
- 2 At SS/CRS discretion, calculate the Boric Acid flow rate to be used on Attachment 11.5, Calculation of Boric Acid Flow Rate for VCT Blended Makeup. C TC

**Conditions/Cues** 1. Cue the examinee that the calculation has been completed and verified and hand the examinee the prepared copy of Att. 11.5.

**Standards** 1. The examinee takes action to start Att. 11.5 until cued otherwise.

- 
- 3 Note Boric Acid and Water Totalizer readings for use in verifying proper final blend ratio. C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee notes the Boric Acid Totalizer and PMU Totalizer readings on CP-4 and fills in the initial readings on Att. 11.5.

---

---

BLENDING MAKEUP TO VCT USING MANUAL MODE

---

4 Verify Direct Boration Valve, BAM-143, control switch in CLOSE.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee verifies the control switch for BAM-143 on CP-4 is in the CLOSE position and that only the green light is illuminated on the control switch.

---

5 Verify Makeup Mode selector switch in MANUAL.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the Makeup Mode Selector Switch on CP-4 and verifies it is positioned to MANUAL.

---

6 Start the desired Boric Acid Makeup Pump.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the control switch for the selected Boric Acid Makeup Pump on CP-4 and places the control switch in the RUN position.  
2. The examinee verifies the red light illuminates on the control switch for the selected Boric Acid Makeup Pump and verifies the Boric Acid Header Pressure Lo Alarm on CP-4 Cabinet G remains clear. (Not Critical)

---

7 Open VCT Makeup Valve, CVC-510.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the control switch for CVC-510 on CP-4 and momentarily places the switch in the OPEN position.  
2. The examinee verifies the red light is illuminated and the green light is extinguished on the control switch for CVC-510 on CP-4.

---

---

BLENDING MAKEUP TO VCT USING MANUAL MODE

---

- 8 If manual control of Boric Acid flow is desired, then perform the following: Verify Boric Acid Flow controller, BAM-IFIC-0210Y, in Manual.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates BAM-IFIC-0210Y on CP-4 and verifies the red MAN light is illuminated and the AUTO light is extinguished.  
OR  
2. The examinee depresses the MAN pushbutton on BAM-IFIC-0210Y and then verifies the red light illuminates on the MAN pushbutton and the AUTO light is extinguished.

- 
- 9 Adjust Boric Acid Flow controller, BAM-IFIC-0210Y, output to >3 GPM flow rate.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee depresses the RAISE and LOWER pushbuttons on BAM-IFIC-0210Y as necessary to obtain the flow determined by Att. 11.5 of OP-002-005.

- 
- 10 Verify Boric Acid Makeup Control Valve, BAM-141, Intermediate or Open.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the position indication for BAM-141 on CP-4 and verifies that the red light is illuminated or both the red and green lights are illuminated.

---



---

BLENDING MAKEUP TO VCT USING MANUAL MODE

---

- 11 If manual control of Primary Makeup Water flow is desired, then perform the following:  
Verify Primary Makeup Water Flow controller, PMU-IFIC-0210X, in Manual.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

- Standards** 1. The examinee locates PMU-IFIC-0210X on CP-4 and verifies the red MAN light is illuminated and the AUTO light is extinguished.  
OR  
2. The examinee depresses the MAN pushbutton on PMU-IFIC-0210X and then verifies the red light illuminates on the MAN pushbutton and the AUTO light is extinguished.

- 
- 12 Adjust Primary Makeup Water Flow controller, PMU-IFIC-0210X, output to >5 GPM flow rate.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

- Standards** 1. The examinee depresses the RAISE and LOWER pushbuttons on PMU-IFIC-0210Y as necessary to obtain the flow determined by Att. 11.5 of OP-002-005.

- 
- 13 Verify Primary Makeup Water Control Valve, PMU-144, Intermediate or Open.

C TC

**Conditions/Cues** 1. The simulator provides cues.

- Standards** 1. The examinee locates the position indication for PMU-144 on CP-4 and verifies that the red light is illuminated or both the red and green lights are illuminated.
-

---

BLENDING MAKEUP TO VCT USING MANUAL MODE

---

14 Observe Primary Makeup water flow rate and Boric Acid flow rate for proper indications.

C TC

**Conditions/Cues**

ALT:

1. The Boric Acid Pump trips. Initiate Malfunction CV04A. The simulator provides the cues

**Standards** ALT:

1. The examinee recognizes the Boric Acid Pump tripped and takes action to secure the dilution of the VCT and RCS by performing Step 17 of this JPM as a minimum. The examinee may opt to perform all restoration steps.
2. The examinee informs the SM or CRS of the malfunction.

---

15 When desired makeup has been achieved, then perform the following: Verify Boric Acid and Water Totalizer readings reflect the desired blend ratio has been added.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

- Standards**
1. The examinee locates the PMU and Boric Acid totalizers and enters values on ATT. 11.5 of OP-002-005.
  2. The examinee determines if the makeup achieved the blend ratio determined by the calculation of Att. 11.5.
  3. If blend ratio is not met inform the SM or CRS and anticipate power or temperature changes.

---

16 Stop the operating Boric Acid Makeup Pump.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** ALT:

1. The examinee places the tripped Boric Acid Pump control switch on CP-4 to OFF.
-

---

BLENDING MAKEUP TO VCT USING MANUAL MODE

---

17 Close VCT Makeup Valve, CVC-510. (This step is not critical if step 20 is performed)

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the control switch for CVC-510 on CP-4 and momentarily places the control switch to the CLOSE position.  
2. The examinee verifies that the green light illuminates and the red light extinguishes on the control switch for CVC-510.

---

18 Verify Primary Makeup Water Flow controller, PMU-IFIC-0210X, in Manual.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates PMU-IFIC-0210X on CP-4 and verifies the red MAN light is illuminated and the AUTO light is extinguished.  
OR  
2. The examinee depresses the MAN pushbutton on PMU-IFIC-0210X and then verifies the red light illuminates on the MAN pushbutton and the AUTO light is extinguished.

---

19 Verify both Primary Makeup Water Flow controller, PMU-IFIC-0210X, output and setpoint potentiometer set to zero. (This step is not critical if step 17 is performed)

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee depresses the LOWER pushbutton on PMU-IFIC-0210X as necessary to obtain zero output on the controller.  
2. The examinee verifies the setpoint potentiometer on PMU-IFIC-0210X is set to zero.

---

20 Verify Primary Makeup Water Control Valve, PMU-144, Closed.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the position indication for PMU-144 on CP-4 and verifies that the green light is illuminated and the red light is extinguished.

---

---

BLENDING MAKEUP TO VCT USING MANUAL MODE

---

21 Verify Boric Acid Flow controller, BAM-IFIC-0210Y, in Manual.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates BAM-IFIC-0210Y on CP-4 and verifies the red MAN light is illuminated and the AUTO light is extinguished.  
OR  
2. The examinee depresses the MAN pushbutton on BAM-IFIC-0210Y and then verifies the red light illuminates on the MAN pushbutton and the AUTO light is extinguished.

---

22 Verify both Boric Acid Flow controller, BAM-IFIC-0210Y, output and setpoint potentiometer set to zero.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee depresses the LOWER pushbutton on BAM-IFIC-0210Y as necessary to obtain zero output on the controller.  
2. The examinee verifies the setpoint potentiometer on BAM-IFIC-0210Y is set to zero.

---

23 Verify Boric Acid Makeup Control Valve, BAM-141, Closed.

C TC

**Conditions/Cues** 1. The simulator provides the cues.

**Standards** 1. The examinee locates the position indication for BAM-141 on CP-4 and verifies that the green light is illuminated and the red light is extinguished.

---

24 Make up to the VCT with >100 gallons of Primary Makeup water in accordance with Section 6.11, VCT Makeup Using Acid/Water Batches.

C TC

**Conditions/Cues** 1. Cue the examinee that this step will be performed by the other NPO.

---

---

BLENDED MAKEUP TO VCT USING MANUAL MODE

---

25 End of Task

**C** **TC**

## Information for Trainee

### Directions to Examinee:

### Initial Condition

1. PLANT IS IN MODE 3
2. POWER IS 100%
3. RCS TEMPERATURE IS 545°F
4. CURRENT RCS BORON CONCENTRATION 873 PPM
5. BMT A CONCENTRATION IS 5000 PPM
6. BMT B CONCENTRATION IS 5750 PPM

### Initiating Cue

1. YOU ARE DIRECTED BY THE CRS TO PERFORM A BLENDING MAKEUP TO THE VCT USING THE MANUAL MODE. RAISE LEVEL IN THE VCT TO 51%, USING BMT A AS THE BORIC ACID SOURCE. CONTROL PMU AND BORIC ACID FLOW CONTROLLERS IN MANUAL.



# Job Performance Measure Examination -

24-Aug-00

PERFORM ACTIONS OF OP-901-110, SECTION E2, PRESSURIZER LEVEL SETPOINT MALFUN

**Site:** W3 **Job:** RO **System:** PLC **Mode:** OffNorm **Number:** 3

**Revision** 1 8/5/00

**Approved**

**Estimated Time(min)** 15

**Alternate Path** Yes

**References** OP-901-110 E2 PRESSURIZER LEVEL CONTROL 03 01  
MALFUNCTION

<b>NRC KA</b>	3.2-011-A4.04	3.2	2.9	<b>Evaluation Methods</b>	PERFORM
	3.2-011-K6.04	3.1	3.1		SIMULATE
	3.2-011-A1.01	3.5	3.6		SIMULATOR
	3.2-011-A1.02	3.3	3.5		

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. THE PLANT IS IN MODE 3 AT 545 DEGREES F.
- 2.. PZR LEVEL CONTROL SETPOINT HAS FAILED HIGH.
3. OP-901-110 IS BEING IMPLEMENTED, SECTION E0 IS COMPLETE.
4. THE CRS HAS DIAGNOSED TO SECTION E2.

**Task Standard**

RESTORE PZR LEVEL SETPOINT TO NORMAL AND RESTORE PLCS IN AUTOMATIC.

**Tools**

NONE

**Safety Considerations**

NONE

**Initiating Cue**

THE CRS DIRECTS YOU TO PERFORM THE ACTIONS OF SECTION E2 OF OP-901-110.

**Terminating Cue**

PZR LEVEL SETPOINT IS RESTORED TO NORMAL AND PLCS IS RESTORED TO AUTOMATIC OPERATION

**Performance Consequences**

1. OVERFILL OF PZR
2. LOSS OF RCS INVENTORY

**Human Interfaces**

1. CRS
2. NPO
3. STA

**Skills Knowledges**

1. THEORY OF OPERATION OF PZR LEVEL CONTROLLERS
2. ABILITY TO OPERATE PZR LEVEL CONTROLLERS IN MANUAL



**Task Element**

- 1 Verify normal indications on ALL Safety Measurement Channel Hot Leg AND Cold Leg temperature indicators.

**C TC**

**Conditions/Cues** Simulator will provide the cues.

**Standards** 1. The examinee locates the Safety Measure Channel indicators for the hot and cold legs on CP-7 and determines that all instruments are functioning normally.

- 
- 2 Determine affected channel(s) by checking Reactor Regulating System (RRS) Tavg recorders (RC-ITR-0111 AND RC-ITR-0121).

**C TC**

**Conditions/Cues** Simulator will provide the cues.

**Standards** 1. The examinee locates the Tavg recorders on CP-2 and determines that both Reactor Reg channels are affected.

- 
- 3 Start OR stop Charging Pumps as necessary to maintain Pressurizer level above minimum level for operation in accordance with Attachment 1, Pressurizer Level Versus Tave Curve.

**C TC**

**Conditions/Cues** The Simulator will provide the cues.

**Standards** 1. The examinee compares pZR level readings on the PZR Level recorders on CP-2 to the readings prior to the malfunction and determines the need to start or stop charging pumps or adjust letdown.  
2. If the charging pumps need to be operated, the examinee operates the pumps in accordance with OP-002-005.  
3. If letdown must be adjusted, the examinee uses the pZR level controller to change letdown flow.

---

- 4 IF unable to control Pressurizer level with Letdown in service, THEN perform the following: a) Close Letdown Stop valve (CVC-101) b) Prior to starting Charging Pump(s), complete Attachment 2, Charging Nozzle Thermal Cycling Evaluation Data c) Cycle Charging Pump(s) to maintain Pressurizer level above minimum level for operation in accordance with Attachment 1, Pressurizer Level Versus Tave Curve.

C TC

**Conditions/Cues** Simulator will provide the cues.

**Standards** 1. The examinee determines that pressurizer level is being controlled above the minimum level for operation and continues the procedure.

- 
- 5 IF Pressurizer Backup Heaters have energized, THEN place unnecessary BACKUP HEATER BANKS to OFF.

C TC

**Conditions/Cues** Simulator will provide the cues.

**Standards** Pressurizer Backup Heaters are placed in the OFF position.

- 
- 6 Check Reactor Regulating System (RRS) Hot Leg indicators (RC-ITI-0111-X AND RC-ITI-0121-X) for abnormal readings.

C TC

**Conditions/Cues** Simulator will provide the cues.

**Standards** Student checks the Hot instruments and finds no abnormal readings.

---

---

PERFORM ACTIONS OF OP-901-110, SECTION E2, PRESSURIZER LEVEL SETPOINT MALFUN

---

- 7 Check Reactor Regulating System (RRS) Cold Leg indicators (RC-ITI-0111-Y AND RC-ITI-0121-Y) for abnormal readings AND perform the following: For RCS Temperature Loop 1 Cold Leg (RC-ITI-0111-Y) indicates abnormally high OR low, perform EITHER of the following:  
1) Select presently non-selected position (ALT OR NORM) on TCOLD LOOP 1 selector switch located behind CP-2, Reactor Control  
OR  
2) Select LOOP 2 on BOTH RRS local cabinets (CP-12A AND CP-12B) (Alternate Path)

C TC

**Conditions/Cues** Simulator will provide cues.

**Standards** Student observes that Cold Leg indicator, RC-ITI-0111Y has failed High. Student recognizes that substep 1 cannot be performed due to danger tag on selector switch , and MUST perform substep 2 to perform this element.

- 
- 8 Verify setpoint on Pressurizer Level Controller (RC-ILIC-0110) returns to program setpoint in accordance with Attachment 1, Pressurizer Level Versus Tave Curve AND perform the following: a) Place desired backup Charging Pumps in AUTO b) Place Pressurizer Level Controller (RC-ILIC-0110) in AUTO AND verify Pressurizer level being controlled at setpoint c) Place desired Pressurizer BACKUP HEATER BANKS in AUTO d) IF necessary, THEN reset BOTH PROPORTIONAL HEATER BANKS.

C TC

**Conditions/Cues** Simulator will provide the cues of students actions..

**Standards** Student verifies Pressurizer Level Setpoint is correct and places Pressurizer Level Controller to Auto. Charging pumps and Pressurizer Heaters have all been returned to a normal lineup.

- 
- 9 End of Task

C TC

---

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. THE PLANT IS IN MODE 3 AT 545 DEGREES F.
- 2.. PZR LEVEL CONTROL SETPOINT HAS FAILED HIGH.
3. OP-901-110 IS BEING IMPLEMENTED, SECTION E0 IS COMPLETE.
4. THE CRS HAS DIAGNOSED TO SECTION E2.

#### Initiating Cue

THE CRS DIRECTS YOU TO PERFORM THE ACTIONS OF SECTION E2 OF OP-901-110.



# Job Performance Measure Examination -

24-Aug-00

RESET MSIS ACTUATION

**Site:** W3    **Job:** RO    **System:** PPS    **Mode:** Emerg    **Number:** 1

**Revision** 8/4/00

**Approved**

**Estimated Time(min)** 15

**References** OP-902-009 Att. 5B Emergency Operating Procedure Standard 0.1 00  
Appendices

<b>NRC KA</b>	2-1-20	4.3	4.2	<b>Evaluation Methods</b>	SIMULATE
	4.2-A40-AA2.05	4.1	4.5		SIMULATOR
	4.2-A40-AK3.04	4.5	4.7		

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. A MAIN STEAM LINE BREAK OCCURRED OUTSIDE CONTAINMENT
2. A MAIN STEAM ISOLATION SIGNAL ACTUATION HAS OCCURRED
3. CONTAINMENT PRESSURE IS LESS THAN 17.1 PSIA

**Task Standard**

THE MAIN STEAM ISOLATION SIGNAL HAS BEEN RESET.

**Tools**

NONE

**Safety Considerations**

NONE

**Initiating Cue**

THE CRS ORDERS YOU TO RESET MSIS USING ATT. 5-B OF OP-902-009, STARTING AT STEP 5.

**Terminating Cue**

1. MSIS ACTUATION IS RESET

**Performance Consequences**

1. MSIS NOT RESET
2. REACTUATION OF CHANNELS PREVIOUSLY RESET

**Human Interfaces**

1. SM/CRS
2. NPO

**Skills Knowledges**

1. ABILITY TO RESET VARIABLE SETPOINTS FOR STEAM GENERATOR PRESSURE LOW TRIPS
2. ABILITY TO RESET ESFAS ACTUATIONS

**Task Element**

- 1 Place Channel Test Switch to 'B' and verify Test Power Supply is illuminated.

C TC

**Conditions/Cues** The simulator provides the cues.

- Standards**
1. The examinee locates the Channel Test switch in CP-10 Channel A and positions the switch to 'B'.
  2. The examinee verifies the Test Power Supply pushbutton located in CP-10 Channel A is illuminated.

- 
- 2 Place Bistable Select Switch to Bistable '12'.

C TC

**Conditions/Cues** The simulator provides the cues.

- Standards**
1. The examinee locates the B channel bistable select switch on PPS Cabinet B Bistable Control Panel and positions the switch to the '12' position.

- 
- 3 Place Meter Input Select Switch to 'Input'.

C TC

**Conditions/Cues** The simulator provides the cues.

- Standards**
1. The examinee locates the B channel Meter Input select switch on PPS Cabinet B Bistable Control Panel and positions the switch to the 'Input' position.

- 
- 4 Record DVM reading.

C TC

**Conditions/Cues** The simulator provides the cues.

- Standards**
1. The examinee locates the Digital Voltmeter on PPS Cabinet B Bistable Control Panel and records the reading on Att. 5B.
-

---

RESET MSIS ACTUATION

---

5 Press and Hold the Test pushbutton on Bistable Control Panel.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel Test pushbutton on PPS Cabinet B Bistable Control Panel and depresses the pushbutton until directed by procedure to release the pushbutton. (Element 12)

---

6 Raise Test Pot output until DVM reads 3.9 vdc.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel Test Potentiometers on PPS Cabinet B Bistable Control Panel and rotates the pot until the voltage on the Digital Voltmeter reads at least 3.9 vdc .

---

7 Press Lamp Reset pushbutton as necessary to clear Trip and Pretrip lights.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel Lamp Reset pushbutton on PPS Cabinet B Bistable Control Panel, depresses the pushbutton and verifies the trip and pretrip lights on S/G 2 Pressure Lo bistable indicator are extinguished.

---

8 Lower Test Pot output until LO SG-2 PRESS Pretrip occurs.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel Test potentiometer on PPS Cabinet B Bistable Control Panel and rotates pot counter-clockwise until the LO SG-2 Press Pretrip light illuminates.

---



---

RESET MSIS ACTUATION

---

9 Press LOW SG PRESS SETPOINT RESET pushbutton.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel LOW SG PRESS SETPOINT RESET pushbutton on PPS Cabinet B Bistable Control Panel and presses the pushbutton.

---

10 Press Lamp Reset pushbutton and verify Pretrip clears.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel Lamp Reset pushbutton on PPS Cabinet B Bistable Control Panel, depresses the pushbutton and verifies the trip and pretrip lights on S/G 2 Pressure Lo bistable indicator are extinguished.

---

11 When 10 seconds have elapsed, then repeat previous steps until EITHER DVM reads less than the reading recorded on Attachment 5-B, step 2c, with Low SG Pressure Trip and Pretrip clear OR DVM reads 0.0 vdc, corresponding to 0.0 psia.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee repeats elements 7-10 until the DVM reads less than reading recorded earlier on Att. 5B or 0.0 vdc and pretrip and trip lights are extinguished on LO SG-2 PRESS bistable indicator.

---

12 Release the Test pushbutton.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee releases the Channel B Test pushbutton.

---

---

RESET MSIS ACTUATION

---

13 Press Lamp Reset pushbuttons to clear Trip and Pretrip lights.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel Lamp Reset pushbutton on PPS Cabinet B Bistable Control Panel, depresses the pushbutton and verifies the trip and pretrip lights on S/G 2 Pressure Lo bistable indicator are extinguished.

---

14 Place Bistable Select switch to 'Off'.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the B channel bistable select switch on PPS Cabinet B Bistable Control Panel and positions the switch to the 'OFF' position.

---

15 Place Channel Test switch to 'Off'.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates the Channel Test switch in CP-10 Channel A and positions the switch to 'OFF'.

---

16 Bypass channel C LO SG-1 PRESS (Bistable 11) and verify BYPASS light is lit.

C TC

**Conditions/Cues** The simulator provides the cues.

**Standards** 1. The examinee locates, unlocks, and opens the access door for the Bistable Bypass pushbuttons on PPS Channel C Bistable Control Panel and depresses the pushbutton for LO SG-1 Press (Bistable 11).  
2. The examinee verifies the Bistable Bypass pushbutton locks in and the amber bypass light is illuminated for LO SG-1 Press bistable on PPS Channel C Bistable Control Panel.

---

C TC

- 17 Bypass channel C LO SG-2 PRESS (Bistable 12) and verify BYPASS light is lit.

**Conditions/Cues** The simulator provides the cues.

- Standards**
1. The examinee locates, unlocks, and opens the access door for the Bistable Bypass pushbuttons on PPS Channel C Bistable Control Panel and depresses the pushbutton for LO SG-2 Press (Bistable 12).
  2. The examinee verifies the Bistable Bypass pushbutton locks in and the amber bypass light is illuminated for LO SG-2 Press bistable on PPS Channel C Bistable Control Panel.

---

C TC

- 18 Reset MSIS Initiation relays on ALL four channels as follows: Place the Reset Permissive switch to 'UNLK' position. (CP-10) Press MSIS Reset pushbutton. Verify the initiation relay indicator lit on the ENGINEERED SAFETY FEATURES SYSTEM mimic. Place the Reset permissive switch to 'LK' position.

**Conditions/Cues** The simulator provides the cues.

- Standards**
1. The examinee locates the Reset Permissive Switch on PPS Channel A, places the switch in the UNLOCK position, depresses the MSIS Reset pushbutton, verifies the red initiation relay light for MSIS illuminates on CP-10 ENGINEERED SAFETY FEATURES SYSTEM mimic, and places the Reset Permissive switch to the LOCK position.
  2. The examinee locates the Reset Permissive Switch on PPS Channel B, places the switch in the UNLOCK position, depresses the MSIS Reset pushbutton, verifies the yellow initiation relay light for MSIS illuminates on CP-10 ENGINEERED SAFETY FEATURES SYSTEM mimic, and places the Reset Permissive switch to the LOCK position.
  3. The examinee locates the Reset Permissive Switch on PPS Channel C, places the switch in the UNLOCK position, depresses the MSIS Reset pushbutton, verifies the green initiation relay light for MSIS illuminates on CP-10 ENGINEERED SAFETY FEATURES SYSTEM mimic, and places the Reset Permissive switch to the LOCK position.
  4. The examinee locates the Reset Permissive Switch on PPS Channel D, places the switch in the UNLOCK position, depresses the MSIS Reset pushbutton, verifies the blue initiation relay light for MSIS illuminates on CP-10 ENGINEERED SAFETY FEATURES SYSTEM mimic, and places the Reset Permissive switch to the LOCK position.

---

C TC

- 19 Reset MSIS actuation logic on BOTH trains as follows: Press the MSIS Reset pushbuttons (CP-33). Verify the actuation relay indicator lit on the ENGINEERED SAFETY FEATURES SYSTEM mimic (CP-10).

**Conditions/Cues** The simulator provides the cues.

- Standards**
1. The examinee locates and depresses both MSIS Reset pushbuttons on CP-33.
  2. The examinee verifies that all four white action relay lights for MSIS on the ENGINEERED SAFETY FEATURES SYSTEM mimic on CP-10 are illuminated.

---

RESET MSIS ACTUATION

---

20 End of Task.

**C** **TC**

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. A MAIN STEAM LINE BREAK OCCURRED OUTSIDE CONTAINMENT
2. A MAIN STEAM ISOLATION SIGNAL ACTUATION HAS OCCURRED
3. CONTAINMENT PRESSURE IS LESS THAN 17.1 PSIA

#### Initiating Cue

THE CRS ORDERS YOU TO RESET MSIS USING ATT. 5-B OF OP-902-009, STARTING AT STEP 5.



# Job Performance Measure Examination -

24-Aug-00

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

**Site:** W3    **Job:** RO    **System:** SI    **Mode:** Emerg    **Number:** 1

**Revision**            2            8/3/00

**Approved**

**Estimated Time(min)**            10

<b>References</b>	OP-902-008	CTPC-CA	SAFETY FUNCTION RECOVERY	11	00
	OP-902-009	APP. 29	Emergency Operating Procedure Standard Appendices	0.1	00

<b>NRC KA</b>	4.4-E9-EA1.1	4.2	4	<b>Evaluation Methods</b>	DISCUSS
					SIMULATE
					SIMULATOR

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. AN ESD AND A SGTR HAVE OCCURRED ON SG 1.
2. CONTAINMENT PRESSURE IS 40 PSIA AND RISING RAPIDLY.
3. NEITHER CS PUMP IS AVAILABLE.
4. ALL ESFAS ACTUATIONS HAVE OCCURRED AS REQUIRED. ASSUME ALL COMPONENTS ACTUATED PER DESIGN UNLESS OTHERWISE STATED.
5. OP-902-008, SAFETY FUNCTION RECOVERY PROCEDURE HAS BEEN IMPLEMENTED.
6. THE CRS HAS IMPLEMENTED CONTAINMENT TEMPERATURE AND PRESSURE CONTROL CONTINUING ACTIONS AND HAS DECIDED TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A.
7. THE TSC CONCURS WITH THE DECISION.

**Task Standard**

ONE LPSI PUMP IS ALIGNED TO CS WITH ACCEPTABLE FLOW TO CONTAINMENT.

**Tools**

1. LOCKED VALVE KEYS

**Safety Considerations**

NONE

**Initiating Cue**

THE CRS DIRECTS YOU THE SNPO TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A IN ACCORDANCE WITH OP-902-009 STANDARD APPENDICES 29.

**Terminating Cue**

SPRAY FLOW IS ESTABLISHED TO CONTAINMENT USING THE SELECTED LPSI PUMP.

**Performance Consequences**

1. LOSS OF CONTAINMENT INTEGRITY
2. POSSIBLE OFFSITE DOSE
3. DAMAGE TO EQUIPMENT

**Human Interfaces**

CRS

**Skills Knowledges**

NONE

---

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

---

**Task Element**

0 Perform the task in accordance with referenced procedure, OP-902-009, Appendix 29. All components operated are located on CP-8.

**C TC**

---

1 VERIFY LPSI PUMP A CONTROL SWITCH IN OFF.

**C TC**

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE C/S FOR LPSI PUMP A AND DEMONSTRATES THE INTENDED ACTION, CUE THE OPERATOR THAT THE SWITCH IS IN OFF.

**Standards** 1. THE OPERATOR LOCATES THE LPSI PUMP A C/S ON CP-8.  
2. THE OPERATOR ENSURES THAT THE C/S IS IN THE OFF POSITION.

---

2 VERIFY CONTAINMENT SPRAY PUMP A CONTROL SWITCH IN OFF.

**C TC**

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE C/S FOR CS PUMP A AND DEMONSTRATES THE INTENDED ACTION, CUE THE OPERATOR THAT THE C/S IS IN OFF.

**Standards** 1. THE OPERATOR LOCATES CS PUMP A C/S ON CP-8.  
2. THE OPERATOR ENSURES THAT THE C/S IS IN THE OFF POSITION.

---



---

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

---

3 PLACE SI-129A, LPSI FLOW CONTROL VALVE TO AUTO. [KEY 137]

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE C/S FOR SI 129A AND DEMONSTRATES THE INTENDED ACTION, CUE THE OPERATOR THAT THE C/S WAS PLACED IN THE AUTO POSITION AND SPRING RETURNED TO THE MID POSITION.

**Standards** 1. THE OPERATOR OBTAINS KEY FOR SI-129A FROM KEY LOCKER ON SIDE OF NPO DESK.  
2. THE OPERATOR LOCATES THE C/S FOR SI-129A ON CP-8.  
3. THE OPERATOR INSERTS THE KEY, MOMENTARILY PLACES THE C/S IN THE AUTO POSITION, THEN RELEASES THE C/S TO THE MID POSITION.

---

4 PLACE SI-IFIC-0307 LPSI FLOW CONTROLLER HEADER 2A/2B IN MANUAL.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE FLOW CONTROLLER ON CP-8 AND DEMONSTRATES PROCESS FOR PLACING THE CONTROLLER IN MANUAL, CUE THE OPERATOR THAT THE CONTROLLER IS IN MANUAL AND PROCESS OUTPUT METER READS 100%.

**Standards** 1. THE OPERATOR LOCATES SI-IFIC-0307 ON CP-8.  
2. THE OPERATOR DEPRESSES THE MANUAL PUSHBUTTON ON THE CONTROLLER AND VERIFIES THE RED LIGHT ILLUMINATES.

---

5 ADJUST SI-IFIC-0307 LPSI FLOW CONTROLLER HEADER 2A/2B TO 0% OUTPUT.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE MANUAL OUTPUT DECREASE PUSHBUTTON ON THE CONTROLLER AND DEMONSTRATES ACTION TO LOWER OUTPUT, CUE THE OPERATOR THAT PROCESS OUTPUT METER READS 0%.

**Standards** 1. THE OPERATOR LOCATES SI-IFIC-0307 ON CP-8.  
2. THE OPERATOR DEPRESSES THE MANUAL OUTPUT DECREASE PUSHBUTTON ON THE CONTROLLER UNTIL OUTPUT READS 0%.

---

---

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

---

- 6 VERIFY THE FOLLOWING VALVES CLOSED: SI-415A, SHUTDOWN TEMP CONTROL VALVE [KEY 138], SI-138A, COLD LEG 2B, SI-139A, COLD LEG 2A

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES EACH VALVE C/S ON CP-8 AND DEMONSTRATES THE ACTION TO PLACE EACH VALVE IN THE REQUIRED POSITION, CUE THE OPERATOR THAT THE VALVE IS CLOSED. (AT THE EXAMINERS DISCRETION HE MAY CUE THE OPERATOR THAT SI-138A OR SI-139A IS NOT MOVING IF THE OPERATOR DOES NOT DEMONSTRATE OVERRIDING THE SIAS SIGNAL TO THE VALVE)

**Standards** 1. THE OPERATOR LOCATES THE C/S FOR SI-415A ON CP-8 AND VERIFIES THE C/S IS LOCKED IN THE LESS POSITION AND VERIFIES THE ANALOG VALVE POSITION INDICATOR READS 0% OR THAT THE GREEN LIGHT IS LIT AND RED LIGHT IS EXTINGUISHED ABOVE THE C/S.  
2. THE OPERATOR LOCATES THE C/S FOR SI-138A ON CP-8 AND PLACES THE C/S TO THE MORE POSITION TO OVERRIDE THE SIAS SIGNAL AND THEN BACK TO LESS UNTIL THE DIGITAL INDICATOR ABOVE THE C/S READS 0% OR THE GREEN LIGHT IS LIT AND RED LIGHT IS EXTINGUISHED ON THE C/S.  
3. THE OPERATOR LOCATES THE C/S FOR SI-139A ON CP-8 AND PLACES THE C/S TO THE MORE POSITION TO OVERRIDE THE SIAS SIGNAL AND THEN BACK TO LESS UNTIL THE DIGITAL INDICATOR ABOVE THE C/S READS 0% OR THE GREEN LIGHT IS LIT AND RED LIGHT IS EXTINGUISHED ON THE C/S.

- 
- 7 OPEN SI-125A/SI-412A, SHDN HX A ISOL VALVES. [KEY 136]

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE SWITCH FOR SI-125A/SI-412A ON CP-8 AND DEMONSTRATES ACTION TO OPEN THE VALVES, CUE THE OPERATOR THAT SI-125A AND SI-412A ARE OPEN.

**Standards** 1. THE OPERATOR OBTAINS THE KEY FOR SI-125A/SI-412A FROM THE KEY LOCKER ON THE SIDE OF THE NPO DESK.  
2. THE OPERATOR LOCATES THE SWITCH FOR SI-125A/SI-412A ON CP-8, INSERTS THE KEY, MOMENTARILY PLACES THE C/S TO OPEN, AND RELEASES THE SWITCH.  
3. THE OPERATOR VERIFIES THE VALVES OPEN BY OBSERVING BOTH RED LIGHTS ARE LIT AND BOTH GREEN LIGHTS ARE EXTINGUISHED ABOVE C/S.

---

---

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

---

8 VERIFY CS-125A, CNTMT SPRAY HEADER A VALVE OPEN.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES THE C/S FOR CS-125A ON CP-8 AND DEMONSTRATES METHOD FOR VERIFYING VALVE POSITION, CUE THE OPERATOR THAT CS-125A IS OPEN.

**Standards** 1. THE OPERATOR LOCATES THE C/S FOR CS-125A ON CP-8.  
2. THE OPERATOR VERIFIES THAT THE RED LIGHT IS LIT AND THE GREEN LIGHT IS EXTINGUISHED ON THE C/S.

---

9 START LPSI PUMP A.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES LPSI PUMP A C/S ON CP-8 AND DEMONSTRATES ACTION TO START THE PUMP, CUE THE OPERATOR THAT THE PUMP IS RUNNING.

**Standards** 1. THE OPERATOR LOCATES LPSI PUMP A C/S ON CP-8, MOMENTARILY PLACES THE C/S TO THE START POSITION, AND VERIFIES THE RED LIGHT IS LIT AND THE GREEN LIGHT IS EXTINGUISHED ON THE C/S.  
2. THE OPERATOR VERIFIES DISCHARGE PRESSURE INDICATOR ON CP-8 INCREASES.  
3. THE OPERATOR VERIFIES CURRENT INDICATION ON CP-8 IS STEADY AND NOT PEGGED AFTER STARTING CURRENT DROPS OFF.

---

10 VERIFY CONTAINMENT SPRAY HEADER A FLOW.

C TC

**Conditions/Cues** 1. WHEN THE OPERATOR LOCATES CONTAINMENT SPRAY HEADER A FLOW INDICATOR ON CP-8, CUE THE OPERATOR THAT FLOW IS 2000 GPM.

**Standards** 1. THE OPERATOR LOCATES CONTAINMENT SPRAY HEADER A FLOW INDICATOR ON CP-8 AND VERIFIES FLOW INDICATION MEETS ACCEPTANCE CRITERIA FOR SAFETY FUNCTION.

---

---

ALIGN A LPSI PUMP TO REPLACE A CS PUMP

---

11 END OF TASK

**C** **TC**

## Information for Trainee

### Directions to Examinee:

### Initial Condition

1. AN ESD AND A SGTR HAVE OCCURRED ON SG 1.
2. CONTAINMENT PRESSURE IS 40 PSIA AND RISING RAPIDLY.
3. NEITHER CS PUMP IS AVAILABLE.
4. ALL ESFAS ACTUATIONS HAVE OCCURRED AS REQUIRED. ASSUME ALL COMPONENTS ACTUATED PER DESIGN UNLESS OTHERWISE STATED.
5. OP-902-008, SAFETY FUNCTION RECOVERY PROCEDURE HAS BEEN IMPLEMENTED.
6. THE CRS HAS IMPLEMENTED CONTAINMENT TEMPERATURE AND PRESSURE CONTROL CONTINUING ACTIONS AND HAS DECIDED TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A.
7. THE TSC CONCURS WITH THE DECISION.

### Initiating Cue

THE CRS DIRECTS YOU THE SNPO TO ALIGN LPSI PUMP A TO REPLACE CS PUMP A IN ACCORDANCE WITH OP-902-009 STANDARD APPENDICES 29.



# Job Performance Measure Examination -

24-Aug-00

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

**Site:** W3    **Job:** RO    **System:** SI    **Mode:** Norm    **Number:** 3

**Revision**            3            8/4/00

**Approved**

**Estimated Time(min)**            15

**References**    OP-009-008    6.4            SAFETY INJECTION SYSTEM            15    02

<b>NRC KA</b>	3.2-006-A1.13	3.5	3.7	<b>Evaluation Methods</b>	PERFORM
	3.2-006-A4.02	4.0*	3.8		SIMULATOR
	3.2-006-A4.03	3.5*	3.5*		

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. SIT 1A LEVEL IS APPROX. 42% AFTER BEING DRAINED DUE TO LOW BORON CONCENTRATION
2. THE SYSTEM ENGINEER CALCULATES THAT THE BORON CONCENTRATION OF SIT 1A AFTER THE FILL WILL BE 2300 PPM.
3. SIT 1A PRESSURE IS BETWEEN 600 AND 675 PSIG
4. THE PLANT IS AT 100% POWER

**Task Standard**

1. DESIGNATED SIT FILLED TO SPECIFIED VALUE.

**Tools**

LOCKED VALVE KEYS

**Safety Considerations**

NONE

**Initiating Cue**

THE CRS DIRECTS YOU TO RAISE SIT 1A LEVEL TO APPROX. 75% USING HPSI PUMP 'A'  
.

**Terminating Cue**

2. HPSI LINEUP RESTORED

**Performance Consequences**

TECH-SPEC VIOLATION

**Human Interfaces**

1. SM/CRS
2. NAO

**Skills Knowledges**

NONE

**Task Element**

- 0 Perform the task in accordance with referenced procedure section 6.4. The following steps are critical or require additional conditions, standard, or knowledge items. If no steps are listed then all steps in the procedure section are considered to be critical.
- C TC**

- 
- 1 If raising SIT level solely to raise SIT boron concentration based on lowering boron concentration over time, then the System Engineer should be contacted to calculate an estimated calculated boron concentration based upon trended plant conditions.
- C TC**

**Conditions/Cues** 1. If the examinee attempts to contact the engineer, cue the examinee that that per the initial conditions given, calculated boron concentration is 2300 ppm.

**Standards** 1. The examinee determines that estimated boron concentration falls within limits of operability.

- 
- 2 Calculate the expected SIT boron concentration for each SIT to be filled using Attachment 11.13, SIT Boron Concentration Calculation When Filling a SIT. Ensure the calculated boron concentration for each SIT to be filled will not result in the SIT becoming < 2200 ppm before proceeding.
- C TC**

**Conditions/Cues** 1. When examinee determines the need to perform Att.11.13, cue the operator that the calculation was performed by another operator and the result was 2310 ppm.

**Standards** 1. Examinee determines the need to perform this calculation and takes action to perform the calculation until cued otherwise.

---



---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

- 3 Observe pressure indicated on leakage pressure instrument for SIT to be filled: SI IPI0319, Safety Injection Tank 1A Check Vlv Leak Press Indr

C TC

**Conditions/Cues** 1. When the examinee locates SI-IPI0319, Leakage Pressure Cold Leg 1A indicator on CP-8, cue the operator that indicated pressure is 650 psig.

**Standards** 1. The examinee locates the desired indicator and determines the indicated pressure.

- 
- 4 Locally Unlock and Open SI Tank Drain Header to RWSP Manual Isolation, SI MVAAA344.

C TC

**Conditions/Cues** 1. When the examinee mentions or attempts to perform a deviation for the valve cue the examinee that the deviation has been completed.  
2. After the examinee requests the NAO open SI-344, cue the examinee that the valve is open.

**Standards** 1. The examinee requests the NAO to unlock and open SI-344.

- 
- 5 Verify following valves for HPSI Pump A(B) to be started are Open: SI MVAAA120A, SI Recirculating Hdr A to RWSP Upstream Isolation; SI MVAAA121A, SI Recirculating Hdr A to RWSP Downstream Isolation.

C TC

**Conditions/Cues** 1. After the examinee locates SI-120A and SI-121A on CP-8 and demonstrates knowledge for verifying valve position, cue the examinee that SI-120A and SI-121A are open.

**Standards** 1. The examinee locates the control switches for SI-120A and SI-121A and verifies the red light illuminated and the green light extinguished.

---

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

6 Start selected HPSI Pump.

C TC

**Conditions/Cues** 1. If the examinee requests the NAO to verify HPSI pump A is ready for a start, cue the examinee that the HPSI pump is ready  
2. After the examinee demonstrates knowledge for verifying HPSI pump A started, cue the examinee that HPSI pump A is running normally.

**Standards** 1. The examinee locates the control switch for HPSI Pump A on CP-8 and momentarily places the switch to start.  
2. The examinee verifies that the red light illuminates and the green light extinguishes on the control switch for HPSI pump A.  
3. The examinee locates HPSI discharge header pressure for HPSI A on CP-8 and verifies that pressure is approximately 1400-1500 psig.

---

7 Open SIT Leakage Drain valve for SIT to be filled: SI MVAAA303A, Safety Injection Tank 1A Leakage Drain.

C TC

**Conditions/Cues** 1. When the examinee locates the control switch for SI-303A on CP-8 and demonstrates knowledge to open the valve and verify valve position, cue the examinee that SI-303A is open.

**Standards** 1. The examinee locates the control switch for SI-303A and simulates taking the control switch to OPEN.  
2. The examinee verifies the red light is illuminated and the green light is extinguished.

---

8 Open HPSI Header A Loop Flow Control Valve to approximately 20%, for applicable SIT: SI MVAAA225A, HPSI Hdr A to RC Loop 1A Flow Control.

C TC

**Conditions/Cues** 1. When the examinee demonstrates the knowledge required to operate SI-225A, cue the examinee the valve is 20% open by digital indication.

**Standards** 1. The examinee locates the control switch for SI-225A on CP-8 and simulates taking the control switch to the MORE position while monitoring the digital position indicator for 20% indication.  
2. The examinee verifies the red and green lights on the control switch are illuminated.

---

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

9 Open SI Tank Drain Header to RWSP Isolation, SI MVAAA343.

C TC

**Conditions/Cues** 1. After the examinee locates the control switch for SI-343 on CP-8 and demonstrates the knowledge to open the valve, cue the examinee that SI-343 is open.

**Standards** 1. The examinee locates the control switch for SI-343 and simulates taking the control switch to the OPEN position.  
2. The examinee verifies the red light is illuminated and the green light is extinguished on the control switch.

---

10 Throttle HPSI Header A Loop Flow Control Valve to applicable SIT to achieve a pressure greater than or equal to pressure observed in Step 6.4.3.2. (Final pressure should be approximately 650 to 800 PSIG.)

C TC

**Conditions/Cues** 1. When the examinee checks SI-IPI0319 Cold Leg 1A Leakage Pressure indicator, cue the examinee that indicated pressure is 850 psig.  
2. After the examinee simulates taking the control switch for SI-225A to the LESS position, cue the examinee that indicated pressure is 700 psig.

**Standards** 1. The examinee checks the leakage pressure indication and when cued that it is above the required band takes action of lower pressure into the required band by throttling SI-225A in the close direction.

---

11 Allow header to recirculate back to RWSP for 10 minutes.

C TC

**Conditions/Cues** 1. When the examinee states the requirements for recirculating the header 10 minutes, cue the examinee that the time has elapsed.

**Standards** 1. The examinee states the requirement for recirculating the header for 10 minutes.

---

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

12 Inform Chemistry Department to sample HPSI return header at SI Tank Drain Header Sample Point SI-3, SI MVAAA345.

C TC

**Conditions/Cues** 1. When the examinee simulates notifying Chemistry to sample, cue the examinee that header boron concentration is 2500 ppm.

**Standards** 1. The examinee simulates contacting a chemist via radio or telephone and informs them to sample from SI-345.

---

13 Verify HPSI header sample to be in specification as determined by Chemistry Department and documented in Station Log.

C TC

**Conditions/Cues** 1. Cue for boron concentration given in previous step.

**Standards** 1. The examinee notes that boron concentration is acceptable and simulates recording results in the Station Logs.

---

14 Close SI Tank Drain Header to RWSP Isolation, SI MVAAA343.

C TC

**Conditions/Cues** 1. After the examinee locates the control switch for SI-343 on CP-8 and demonstrates the knowledge to open the valve, cue the examinee that SI-343 is open.

**Standards** 1. The examinee locates the control switch for SI-343 and simulates taking the control switch to the CLOSE position.  
2. The examinee verifies the red light is extinguished and the green light is illuminated on the control switch.

---

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

15 Close applicable HPSI Flow Control Valve.

C TC

**Conditions/Cues** 1. When the examinee demonstrates the knowledge required to operate SI-225A, cue the examinee the valve is closed.

**Standards** 1. The examinee locates the control switch for SI-225A on CP-8 and simulates taking the control switch to the LESS position while monitoring the digital position indicator for 0% indication.  
2. The examinee verifies the red light is extinguished and green light is illuminated on the control switch.

---

16 Open SIT Fill/Drain valve for applicable SIT: SI MVA307A, Safety Injection Tank 1A Fill/Drain.

C TC

**Conditions/Cues** 1. After the examinee demonstrates ability to operate SI-307A, cue the examinee that SI-307A is open.

**Standards** 1. The examinee locates the control switch for SI-307A on CP-8 and simulates placing the control switch to the open position.  
2. The examinee verifies that the red light is illuminated and the green light is extinguished on the control switch for SI-307A.

---

17 Throttle Open HPSI Header A or B Loop Flow Control Valve to desired fill rate for applicable SIT: SI MVA225A, HPSI Hdr A to RC Loop 1A Flow Control.

C TC

**Conditions/Cues** 1. When the examinee demonstrates the knowledge required to operate SI-225A, cue the examinee the valve is throttled open and SIT 1A level and pressure are slowly rising.

**Standards** he examinee locates the control switch for SI-225A on CP-8 and simulates taking the control switch to the MORE position while monitoring the SIT 1A pressure and level indicators on CP-8..  
2. The examinee verifies the red and green lights on the control switch are illuminated.

---

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

18 Inform personnel in Containment Sump prior to venting Safety Injection Tanks.

C TC

**Conditions/Cues** Cue the examinee that SIT 1A pressure is 670 psig.

**Standards** 1. The examinee simulates making a plant page to alert personnel that SITs are being vented. (Initial conditions for this JPM were given as 100% power. In this condition no one is expected to be in the Containment Sump. The examinee may skip this step.)

---

19 Cycle Open applicable SIT Vent Valve(s) as necessary to maintain SIT Pressure: SI ISV323A and SI ISV325A, Safety Injection Tank 1A Vents.

C TC

**Conditions/Cues** 1. Cue was given for SIT 1A pressure prior to venting in previous step.  
2. After the examinee demonstrates knowledge to operate SIT 1A vent Valves, cue the examinee that SIT 1A pressure is 605 psig.

**Standards** 1. The examinee locates the keyswitches for SI-232A and SI-325A, simulates obtaining key from the keylocker on the side of the NPO desk closest to CP-8, and simulates placing the keyswitch in the OPEN position.  
2. The examinee verifies the red light is illuminated and the green light is extinguished above both keyswitches. (The examinee may opt to use only one vent)  
3. After the examinee gets a cue that SIT 1A pressure is low in the band the examinee simulates taking the keyswitches to the CLOSE position and verifies that only the green light is illuminated above each keyswitch.

---

20 When desired SIT level is reached, then Close applicable HPSI Flow Control Valve opened in step 6.4.3.17.

C TC

**Conditions/Cues** 1. Cue the operator that SIT 1A level is 75% and pressure is 645 psig.  
2. After the examinee demonstrates the method for closing SI-225A, cue the examinee that the valve is closed.

**Standards** 1. The examinee simulates closing SI-225A by taking the control switch to the LESS position until the digital reading is 0% and only the green light is illuminated on the control switch on CP-8.

---

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

21 Verify applicable SIT Vent Valve(s) for SIT just filled are Closed.

C TC

**Conditions/Cues** 1. If examinee re verifies vent valve indication, cue the examinee that only the green light is illuminated above each keyswitch.

**Standards** 1. The examinee verifies green indication above the keyswitches for the the vent valves. (The examinee may skip this step if the last cue given concerning valve position indicated that the valves were closed.)

---

22 If RCS pressure is > 1750 PSIA, then verify SIT pressure is within Tech. Spec. Limits of 600 PSIG to 670 PSIG.

C TC

**Conditions/Cues** 1. If the examinee checks pressure of the SIT again, cue the examinee that SIT 1A pressure is 645 psia.

**Standards** 1. The examinee either verifies the SIT 1A pressure again or uses the previous cue to determine that SIT 1A pressure is within the Tech Spec limit.

---

23 Close SIT Fill/Drain valve for SIT just filled: SI MVA307A, Safety Injection Tank 1A Fill/Drain.

C TC

**Conditions/Cues** 1. After the examinee demonstrates ability to operate SI-307A, cue the examinee that SI-307A is closed.

**Standards** 1. The examinee locates the control switch for SI-307A on CP-8 and simulates placing the control switch to the CLOSE position.  
2. The examinee verifies that the red light is extinguished and the green light is illuminated on the control switch for SI-307A.

---

---

RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

24 Close SIT leakage drain valve for SIT just filled: SI MVAAA303A, Safety Injection Tank 1A Leakage Drain.

C TC

**Conditions/Cues** 1. When the examinee locates the control switch for SI-303A on CP-8 and demonstrates knowledge to close the valve and verify valve position, cue the examinee that SI-303A is closed.

**Standards** 1. The examinee locates the control switch for SI-303A and simulates taking the control switch to CLOSE.  
2. The examinee verifies the green light is illuminated and the red light is extinguished.

---

25 If its desired to fill another SIT, then perform the following:

C TC

1. Observe pressure on leakage pressure instrument for SIT to be filled: SI IPI0329, Safety Injection Tank 1B Check Vlv Leak Press Indr, SI IPI0339, Safety Injection Tank 2A Check Vlv Leak Press Indr, SI IPI0349, Safety Injection Tank 2B Check Vlv Leak Press Indr.
2. Repeat Steps 6.4.3.7 through 6.4.3.25 for each SIT to be filled.

**Conditions/Cues** 1. Cue the examinee that no other SITs will be filled.

**Standards** 1. The examinee determines which SITs are to be filled.

---

26 Stop HPSI Pump started in Step 6.4.3.6.

C TC

**Conditions/Cues** 1. After the examinee locates the control switch for HPSI pump A and demonstrates the method for securing the pump, cue the examinee that the pump is secured.

**Standards** 1. The examinee simulates taking the HPSI pump A control switch on CP-8 to OFF, verifies that the green light is illuminated on the control switch,  
2. The examinee simulates placing the HPSI pump A control switch to the Mid position and verifies the HPSI Pump A Unavailable alarm on Panel M is clear.

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RAISE SAFETY INJECTION TANK LEVEL WITH SIT ALIGNED FOR SAFETY INJECTION

---

27 Close and Lock SI Tank Drain Header to RWSP Manual Isolation, SI MVAAA344.

C TC

**Conditions/Cues** 1. After the examinee requests that the NAO close and lock SI-344, cue the examinee that the valve is closed and locked.

**Standards** 1. The examinee simulates communicating to an NAO the need to close and lock SI-344.

---

28 Perform OP-903-010, ECCS Throttle Valve Position Verification, for all HPSI Flow Control Valve(s) cycled during fill of SIT(s).

C TC

**Conditions/Cues** 1. Cue the examinee that the surveillance will be performed by another operator.

**Standards** 1. The examinee takes action to perform OP-903-010 until cue otherwise.

---

29 End of Task

C TC

---

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. SIT 1A LEVEL IS APPROX. 42% AFTER BEING DRAINED DUE TO LOW BORON CONCENTRATION
2. THE SYSTEM ENGINEER CALCULATES THAT THE BORON CONCENTRATION OF SIT 1A AFTER THE FILL WILL BE 2300 PPM.
3. SIT 1A PRESSURE IS BETWEEN 600 AND 675 PSIG
4. THE PLANT IS AT 100% POWER

#### Initiating Cue

THE CRS DIRECTS YOU TO RAISE SIT 1A LEVEL TO APPROX. 75% USING HPSI PUMP 'A'

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# Job Performance Measure Examination -

03-Oct-00

Review an Equipment Out of Service (EOS) form for completeness and accuracy. There are mistakes

**Site:** W3    **Job:** SRO    **System:** ADM    **Mode:** Admin    **Number:** 1

**Revision**            1        7/26/00

**Approved**

**Estimated Time(min)**            15

<b>References</b>	OP-100-010	EQUIPMENT OUT OF SERVICE	15	00
	OP-100-014	TECHNICAL SPECIFICATION COMPLIANCE	10	00
	MI-005-587	PRESSURIZER PRESSURE (LOW RANGE) LOOP CHECK AND CALIBRATION	02	02

<b>NRC KA</b>	2-2-24	2.6	3.8	<b>Evaluation Methods</b>	PERFORM
	2-1-12	2.9	4		SIMULATOR
	2-1-20	4.3	4.2		SIMULATE

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

You are the Shift Manager. Plant is at 100% power. I&C will be performing scheduled work on Pressurizer Low Pressure Loop RC-IP0105. A PAC card is being replaced, and a subsequent calibration is to be performed in accordance with MI-005-587, Pressurizer Pressure (Low Range) Loop Check and Calibration. This low pressure loop provides indication to a meter on CP-4 and LCP-43, an annunciator on Panel M, and the low pressure interlock for SI-405A, RC Loop 2 SDC Suction Inside Containment Isolation Valve. This will make SI-405A inoperable, and Shutdown Cooling Train 'A' inoperable during this card replacement and calibration. After discussions with several SRO's in the Work Management Center, determination has been made to de-energize SI-405A (per clearance #00-1031) to satisfy the TS requirements of TS 3.6.3. SI-405A will not be repositioned during this loop calibration. No retests will be required once calibration is complete, and clearance is removed.

**Task Standard**

Student recognizes that, in accordance with OP-100-014, entry into T.S. 3.5.2 is required in Mode 1 if a SDC train becomes inoperable. Student recognizes at least 1 additional error to the given EOS. Student notes errors and delivers EOS back to Admin NPO to correct.

**Tools**

none

**Safety Considerations**

none

**Initiating Cue**

Your Admin NPO hands you the Operational Impact Statement and EOS for the card replacement and calibration of RCS Low Pressure Loop RC-IP0105. The Admin NPO reports that the EOS is ready for your review and signature. Review the Operational Impact Statement. Review the EOS for completeness and accuracy, including TS completeness and accuracy. If errors are found, mark up EOS to return to the Admin NPO for correction. If no problems are found, sign and hand to Admin NPO to deliver to the SNPO. (NOTE: Any dates and times on the ALL paperwork are assumed to be the Present date and time.)

**Terminating Cue**

Student marks up copy of EOS for correction, or signs for approval, and hands back to the Admin NPO.

**Performance Consequences**

Regulatory Violation

**Human Interfaces**

Admin NPO

**Skills Knowledges**

none

**Task Element**

- 1 Student reviews the Operational Impact Statement to determine scope of the job.

**C** **TC**

**Conditions/Cues** Hand student the Operational Impact Statement and EOS for review.

**Standards** Student reviews content of the Operational Impact Statement for scope of job and listed impact on Tech Specs for reviewing the EOS.

- 
- 2 Student Reviews the EOS for Completeness in accordance with listed references.

**C** **TC**

**Conditions/Cues** Hand student the provided EOS form for review.

**Standards** Student reviews EOS for completeness. Student recognizes at least 1 non-Tech Spec error on EOS. Errors are: 1) Page 2 of the EOS has no check marks 2) The NPO signature is in the Closed section. Only recognizing 1 error is critical.

- 
- 3 Student reviews the EOS for Technical Specification Accuracy in accordance with listed references.

**C** **TC**

**Conditions/Cues** Conditions are guided by the references listed.

**Standards** Referring to the guidance of OP-100-014, student determines that entry into T.S. 3.5.2 is required due to SDC 'A' train being inoperable.

- 
- 4 Student marks up EOS with discrepancies found, or signs EOS for approval, and returns EOS to the Admin NPO.

**C** **TC**

**Conditions/Cues** Upon returning the EOS to the Admin NPO (proctor), student has completed this task.

**Standards** Student locates 1 Tech Spec error and at least 1 non-Tech Spec error and points them out to the Admin NPO (proctor). It is not critical that the student actually marks the EOS if the student verbalizes their answer.

---

5 End of Task

**C** **TC**

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

You are the Shift Manager. Plant is at 100% power. I&C will be performing scheduled work on Pressurizer Low Pressure Loop RC-IP0105. A PAC card is being replaced, and a subsequent calibration is to be performed in accordance with MI-005-587, Pressurizer Pressure (Low Range) Loop Check and Calibration. This low pressure loop provides indication to a meter on CP-4 and LCP-43, an annunciator on Panel M, and the low pressure interlock for SI-405A, RC Loop 2 SDC Suction Inside Containment Isolation Valve. This will make SI-405A inoperable, and Shutdown Cooling Train 'A' inoperable during this card replacement and calibration. After discussions with several SRO's in the Work Management Center, determination has been made to de-energize SI-405A (per clearance #00-1031) to satisfy the TS requirements of TS 3.6.3. SI-405A will not be repositioned during this loop calibration. No retests will be required once calibration is complete, and clearance is removed.

#### Initiating Cue

Your Admin NPO hands you the Operational Impact Statement and EOS for the card replacement and calibration of RCS Low Pressure Loop RC-IP0105. The Admin NPO reports that the EOS is ready for your review and signature. Review the Operational Impact Statement. Review the EOS for completeness and accuracy, including TS completeness and accuracy. If errors are found, mark up EOS to return to the Admin NPO for correction. If no problems are found, sign and hand to Admin NPO to deliver to the SNPO. (NOTE: Any dates and times on the ALL paperwork are assumed to be the Present date and time.)



# Job Performance Measure Examination -

03-Oct-00

As CRS, review and approve a Gaseous Waste Release Permit for a GDT 'B' release. Determine all a

**Site:** W3    **Job:** SRO    **System:** ELG    **Mode:** Norm    **Number:** 1

**Revision**            1        7/25/00

**Approved**

**Estimated Time(min)**            15

<b>References</b>	OP-007-003	GASEOUS WASTE MANAGEMENT	13	03
	CE-003-515	GASEOUS RADIOACTIVE WASTE RELEASE PERMIT (COMPUTER)	00	03
	CE-003-513	GASEOUS RADIOACTIVE WASTE RELEASE PERMIT (MANUAL)	00	03
	TRM 3.3.3	MONITORING INSTRUMENTATION		

<b>NRC KA</b>	2-3-8	2.3	3.2	<b>Evaluation Methods</b>	PERFORM SIMULATOR SIMULATE
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Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:



**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

You are the CRS. The Plant is in mode 5. The Shift Chemist has just brought you the Release Permit for GDT 'B'. Meteorological Data is as follows: Wind Speed (15 minute avg.): 2.55 m/s. Wind Direction (15 minute avg.): 181 degrees. Delta T (15 minute avg.): -0.25. Instantaneous Delta T reads -0.27 and becoming more negative. The GWM Rad Monitor (GWM-IRE-0648) and the GWM Flow Instrument (GWM-IFT-0648) are inoperable, and will not be back in service for two weeks. Flow Instrument GWM-IFT-0648 makes the Waste Gas Flow and Radiation Recorder, GWM-IFRR-0648, on CP-4 inoperable.

**Task Standard**

Identify all necessary actions to release GDT 'B'.

**Tools**

none

**Safety Considerations**

none

**Initiating Cue**

Review the Gas Decay Tank 'B' Release Permit for completeness and accuracy. Determine any restrictions and/or actions necessary to release GDT 'B', based on Meteorological Conditions and Equipment Availability. (NOTE: Any dates and times on the Release Permit are assumed to be the Present date and time.)

**Terminating Cue**

The actions for releasing GDT 'B' have been determined including any restrictions due to meteorological conditions.

**Performance Consequences**

Environmental Contamination, Regulatory Violation.

**Human Interfaces**

Chemist, NPO

**Skills Knowledges**

none

**Task Element**

- 1 Review the Release Permit for GDT 'B' for completeness and accuracy in accordance with the listed reference.

**C TC**

**Conditions/Cues** Hand Student the Release Permit for review.

**Standards** Review the Release permit in accordance with listed references.

- 
- 2 Review TRM 3.3.3.11 to determine action requirements for inoperable GWM Rad Monitor in order to release GDT 'B'.

**C TC**

**Conditions/Cues** Conditions are guided by OP-007-003.

**Standards** TRM 3.3.3.11 action b directs student to Table 3.3-13. Determine and apply correct action from Table 3.3-13. Action 1 requires that best efforts are made to repair the Rad Monitor, and prior to release: 1) At least two independent samples of the tank's contents are analyzed, and 2) At least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve lineup.

- 
- 3 Review TRM 3.3.3.11 to determine action requirements for inoperable GWM Flow Instrument in order to release GDT 'B'.

**C TC**

**Conditions/Cues** Conditions are guided by OP-007-003.

**Standards** TRM 3.3.3.11 action b directs student to Table 3.3-13. Determine and apply correct action from Table 3.3-13. Action 5 requires that best efforts are made to repair the flow rate monitor, and that flow rate is estimated at least once every four hours. Directions for this calculation are given in OP-007-003. It is not critical for the student to locate the directions in OP-007-003 for performing the required calculation to satisfy the TRM 3.3.3.11, as it appears in the operating procedure in steps which occur after the CRS signs the release permit.

---

- 4 Determine if Meteorological conditions support the release of GDT 'B'. Refer to Attachment 11.5 (of OP-007-003), Meteorological Conditions Requirements, to verify that proper meteorological conditions for release exist.

C TC

**Conditions/Cues** Conditions are guided by the GWM procedure.

**Standards** Student determines by utilizing procedure listed that meteorological conditions do support release of GDT 'B'.

- 
- 5 Student summarizes actions necessary for compliance with TRM actions, and that GDT 'B' has no meteorological restrictions based on current data.

C TC

**Conditions/Cues** If necessary to the examiner, prompt student to summarize which actions are necessary to release GDT 'B', and that meteorological conditions will support this. Once the student communicates required information, the task is complete.

**Standards** Student recognizes the actions necessary per references listed, and that meteorological conditions support the release of GDT 'B'. Student must state all of these requirements in list form or as a direction to the 'NPO'.

- 
- 6 End of Task

C TC

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## Information for Trainee

### Directions to Examinee:

#### Initial Condition

You are the CRS. The Plant is in mode 5. The Shift Chemist has just brought you the Release Permit for GDT 'B'. Meteorological Data is as follows: Wind Speed (15 minute avg.): 2.55 m/s. Wind Direction (15 minute avg.): 181 degrees. Delta T (15 minute avg.): -0.25. Instantaneous Delta T reads -0.27 and becoming more negative. The GWM Rad Monitor (GWM-IRE-0648) and the GWM Flow Instrument (GWM-IFT-0648) are inoperable, and will not be back in service for two weeks. Flow Instrument GWM-IFT-0648 makes the Waste Gas Flow and Radiation Recorder, GWM-IFRR-0648, on CP-4 inoperable.

#### Initiating Cue

Review the Gas Decay Tank 'B' Release Permit for completeness and accuracy. Determine any restrictions and/or actions necessary to release GDT 'B', based on Meteorological Conditions and Equipment Availability. (NOTE: Any dates and times on the Release Permit are assumed to be the Present date and time.)



# Job Performance Measure Examination -

03-Oct-00

Determine Protective Action Recommendations in a General Emergency.

**Site:** W3    **Job:** SRO    **System:** EP    **Mode:** Emerg    **Number:** 1

**Revision**            1        7/24/00

**Approved**

**Estimated Time(min)**            15

<b>References</b>	EP-002-052	PROTECTIVE ACTION GUIDELINES	16	00
	EP-002-050	OFFSITE DOSE ASSESSMENT (MANUAL)	15	03
	EP-002-010	NOTIFICATIONS AND COMMUNICATIONS	26	00

<b>NRC KA</b>	2-4-44	2.1	4	<b>Evaluation Methods</b>	PERFORM
					SIMULATE
					SIMULATOR

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

You are the Shift Manager/Emergency Coordinator. The Plant has had a LOCA concurrent with fuel failure and a Containment breach. An Off-site release is in progress. A General Emergency is declared with an IC of B/GE/III. The Emergency Communicator is stationed. Initial General Emergency PARs have been sent to the appropriate agencies, and evaluated PARs need to be determined. The Control Room Dose Assessment Program on the PC is currently down. Release Point is the Plant Stack at a rate of 92,190 cfm flow. The Plant Stack WRGM reads 1.0 uCi/cc. Meterological data (15 min averages) is as follows: Wind Speed: 3.6 M/S. Wind Direction: from 165 degrees. Delta T: (+) 1.93.

**Task Standard**

Determine Protective Action Recommendations (PAR) by utilizing the information and references given. Fill out the appropriate section for the PARs on the Short Message Form.

**Tools**

- Off Site Dose Assessment Nomogram (Rev 7)
- Pencil
- Straight Edge
- Calculator
- Copy of Attachment 7.2 of EP-002-052

**Safety Considerations**

none

**Initiating Cue**

The Emergency Communicator hands you the Short Message Form (SMF), requesting the updated Protective Action Recommendations (PARs) be filled in by you. Using the manual (Nomogram) method and appropriate procedures, determine PARs for the event. Fill out all paperwork completely for historical review. Complete, review, and sign the Short Message Form for the Emergency Communicator. (NOTE: Any dates and times on the SMF are assumed to be the Present date and time.)

**Terminating Cue**

Fill out the PARs section of the Short Message Form and hands to proctor.

**Performance Consequences**

Inappropriate PARs.

**Human Interfaces**

Emergency Communicator

**Skills Knowledges**

None

**Task Element**

- 1 Using Off-site Dose Assessment Nomogram and information provided, determine Noble Gas Release Rate (Line 'C' on Nomogram) by first marking the initial information required on Line 'A', Flow Rate in CFM, and Line 'B', Monitor Reading. Connect the values marked on Line 'A' to Line 'B' to get Line 'C'.

C TC

**Conditions/Cues** Provide student Off-site Dose Assessment Nomogram, Straight Edge, Calculator, Pencil, and Short Message Form.

**Standards** Determines value of Line 'C', Noble Gas Release Rate. ( 45 - 70 ci/sec)

- 
- 2 Using Off-site Dose Assessment Nomogram and information provided, determine Dispersion Rate, or X/Q (Line '3' on Nomogram) by first marking the initial information required on Line '1', Wind Speed, and Line '2', Delta-T. Connect the values marked on Line '1' to Line '2' to get Line '3'.

C TC

**Conditions/Cues** Conditions provided by the Nomegram Procedure.

**Standards** Determines the value of Line '3', Dispersion Rate (X/Q). ( 4.5E-5 - 7.0E-5)

- 
- 3 Using Off-site Dose Assessment Nomogram and information provided, determine EAB TEDE Dose Rate (Line '4' or 'D' on Nomogram) by connecting the values marked on Line 'C' and Line '3'.

C TC

**Conditions/Cues** Conditions provided by the Nomegram Procedure.

**Standards** Student determines correct TEDE Dose Rate at the EAB. (5.0E+3 - 1.5E+4 mrem/hr)

- 
- 4 Calculate the TEDE dose rates at 2, 5, and 10 miles by performing the multiplication operations shown near the bottom of the Nomogram.

C TC

**Conditions/Cues** Conditions provided by the Nomegram Procedure.

**Standards** Student calculates the correct TEDE dose rates at 2, 5, and 10 miles via the Nomegram. (1000 - 3000 @ 2 miles, 250 - 750 @ 5 miles, and 111 - 333 @ 10 miles)

---

Determine Protective Action Recommendations in a General Emergency.

---

- 5 Calculate the 2 hour committed TEDE doses at the EAB, 2, 5, and 10 miles by multiplying the TEDE dose rate by 2.

C TC

**Conditions/Cues** Conditions provided by the Nomegram Procedure.

**Standards** Student calculates the correct 2 hour committed TEDE doses at the EAB, and at 2, 5, and 10 miles. (  $10E+3$  -  $30E+3$  @ EAB,  $2E+3$  -  $6E+3$  @ 2 miles, 500 - 1500 @ 5 miles, and 222 - 666 @ 10 miles)

- 
- 6 Calculate the CDE Thyroid dose rates at 2, 5, and 10 miles by performing the multiplication operations shown near the bottom of the Nomogram.

C TC

**Conditions/Cues** Conditions provided by the Nomegram Procedure.

**Standards** Student calculates the correct CEDE dose rates at the EAB, and at 2, 5, and 10 miles. (  $12E+3$  -  $36E+3$  @ 2 miles,  $3E+3$  -  $9E+3$  @ 5 miles, and 1333 - 3996 @ 10 miles)

- 
- 7 Calculate the 2 hour committed CDE Thyroid doses at the EAB, 2, 5, and 10 miles by multiplying the CDE Thyroid dose rate by 2.

C TC

**Conditions/Cues** Conditions provided by the Nomegram Procedure.

**Standards** Student calculates the correct 2 hour committed CEDE doses at the EAB, and at 2, 5, and 10 miles. (  $120E+3$  -  $360E+3$  @ EAB,  $24E+3$  -  $72E+3$  @ 2 miles,  $6E+3$  -  $18E+3$  @ 5 miles, and 2,666 - 7992 @ 10 miles)

- 
- 8 Using the calculated TEDE and CDE Thyroid doses at the EAB, 2, and 5 mile boundaries, fill in necessary blocks on Attachment 7.2, Protective Action Guideline Worksheet, of EP-002-052, Protective Action Guidelines.

C TC

**Conditions/Cues** Provide student with copy of Attachment 7.2, Protective Action Guideline Worksheet, of EP-002-052, Protective Action Guidelines. Remaining conditions are guided by EP-002-052.

**Standards** Student fills in the required projected TEDE and CDE Thyroid Doses on all three columns. The 10 mile dose will not be used. It is not critical if the student overlooks the Name, Date, and Time lines.



---

Determine Protective Action Recommendations in a General Emergency.

---

- 9 Using the Wind Direction and Attachment 7.3, Affected Compass Sectors/ Protective Response Areas Chart, determine the affected sectors. Fill in appropriate sectors on Attachment 7.2.

C TC

**Conditions/Cues** Conditions are guided by EP-002-052.

**Standards** Student completes Attachment 7.2 by filling in the affected sectors of columns 2 and 3.

- 
- 10 Fill in the PARs on the Short Message Form. The PARs will be: "Evacuate Sectors A1, B1, C1, D1, A2, C2, A3, A4, C3. Shelter All Others" or words to that effect. Sign and return the Short Message Form to the Emergency Communicator (proctor).

C TC

**Conditions/Cues** Upon handing the Emergency Communicator (you, the proctor), the student has completed the task.

**Standards** PARs are correctly filled out, and the Short Message Form is ready to go to the Appropriate Off-site Agencies.

- 
- 11 End of Task

C TC

---

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

You are the Shift Manager/Emergency Coordinator. The Plant has had a LOCA concurrent with fuel failure and a Containment breach. An Off-site release is in progress. A General Emergency is declared with an IC of B/GE/III. The Emergency Communicator is stationed. Initial General Emergency PARs have been sent to the appropriate agencies, and evaluated PARs need to be determined. The Control Room Dose Assessment Program on the PC is currently down. Release Point is the Plant Stack at a rate of 92,190 cfm flow. The Plant Stack WRGM reads 1.0 uCi/cc. Meteorological data (15 min averages) is as follows: Wind Speed: 3.6 M/S. Wind Direction: from 165 degrees. Delta T: (+) 1.93.

#### Initiating Cue

The Emergency Communicator hands you the Short Message Form (SMF), requesting the updated Protective Action Recommendations (PARs) be filled in by you. Using the manual (Nomogram) method and appropriate procedures, determine PARs for the event. Fill out all paperwork completely for historical review. Complete, review, and sign the Short Message Form for the Emergency Communicator. (NOTE: Any dates and times on the SMF are assumed to be the Present date and time.)



# Job Performance Measure Examination -

03-Oct-00

Perform a Shutdown Margin Calculation

**Site:** W3    **Job:** SRO    **System:** ADM    **Mode:** Surv    **Number:** 4

**Revision**                      9/21/00

**Approved**

**Estimated Time(min)**              20

**References**    OP-903-090                      SHUTDOWN MARGIN                      10    01

<b>NRC KA</b>	2-1-11	3	3.8	<b>Evaluation Methods</b>	PERFORM
	2-1-20	4.3	4.2		SIMULATOR
	2-2-12	3	3.4		SIMULATE
	3.1-001-A4.11	3.5	4.1		
	3.1-004-A4.02	3.2	3.9		
	3.1-004-K5.19	3.5	3.9		
	3.1-004-K5.20	3.6	3.7		

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. The Plant is in MODE 3.
2. Core Burnup is 400 EFPD.
3. The plant tripped from 100% power and has been shutdown for 10 hours.
4. The plant operated at 100% power for 30 days prior to the plant trip.
5. Tave is 545 degrees F.
6. All CEAs are fully inserted.
7. Current RCS boron concentration is 1000 ppm.
8. The current Reactivity Bias Factor is 0.0.
9. The RHOBAL program is not available.

**Task Standard**

Student completes the Shutdown Margin Calculation within required tolerances

**Tools**

1. Plant Data Book.

**Safety Considerations**

None

**Initiating Cue**

The CRS requests that you perform a Shutdown Margin calculation for the Technical Specification surveillance requirement.

**Terminating Cue**

The Shutdown Margin calculation has been completed and forwarded for verification.

**Performance Consequences**

Failure to detect operation outside of Limiting Condition for Operation.

**Human Interfaces**

1. NPO
2. SM/CRS
3. STA
4. Chemistry Technician

**Skills Knowledge**

1. Knowledge of Reactivities used in the Shutdown Margin calculation.
2. Basic Mathematics Skills.
3. Ability to use the Plant Data Book.

**Task Elements**

- 0 Perform this task in accordance with OP-903-090, Section 7.1

**C TC**

- 
- 1 If performing after a Reactor Trip and Xenon was not at equilibrium prior to the shutdown, then Reactor and Nuclear Systems Engineering (R&NSE) shall be contacted for new RHOBAL Program data and provide Transient Xenon Worth for the next 72 hours.

**C TC**

**Conditions/Cues** 1. If the examinee attempts to contact R&NSE cue the examinee that the RHOBAL program is not available and the reactor operated at 100% power for 30 days prior to the shutdown.

**Standards** 1. The examinee determines that xenon was at equilibrium prior to the shutdown.

- 
- 2 Enter the following current plant data on Attachment 11.1.
1. Date and Time
  2. Plant Mode
  3. Cycle Burnup (Point ID C24110 or equivalent)
  4. RCS Boron Concentration
  5. TAVG
  6. Duration of Shutdown
  7. CEA Position

**C TC**

**Conditions/Cues** 1. If the examinee requests the above information, cue the examinee that the required information is contained in the initial conditions provided.

**Standards** 1. The examinee accurately transcribes initial conditions to Att. 11.1.

---

C TC

- 3 Determine current Xenon Free Shutdown Margin Boron Concentration as follows:
1. Determine current Xenon Free Shutdown Margin Boron Concentration for plant conditions recorded in step 7.1.2 using applicable Plant Data Book (PDB) Figure 1.3.4, SDM Boron Concentrations (PPM) Versus Burnup (EFPD). Record this value on Attachment 11.1.
  2. Enter the Reactivity BIAS Factor found in the Reactor Engineering Book on Attachment 11.1. Enter 0.0, if Reactivity BIAS factor is negative.
  3. Determine current HZP Inverse Boron Worth, using current EFPD and PDB Figure 1.4.1, HZP Inverse Boron Worth Versus Burnup. Record this value on Attachment 11.1.
  4. Using temperature recorded in step 7.1.2.5, Determine current Normalized Boron Worth from PDB Figure 1.4.2, Boron Worth Versus Moderator Temperature Normalized to 545 degrees F. Record this value on Attachment 11.1.
  5. Using the formula on Attachment 11.1, Calculate the current Xenon Free Shutdown Margin Boron Concentration. Record this value on Attachment 11.1.

- Conditions/Cues**
1. The Plant Data Book provides informational cues for Xenon Free SDM Boron Concentration, HZP Inverse Boron Worth, and Normalized Boron Worth.
  2. If the examinee attempts to locate the Reactor Engineering Book, cue the examinee that the current Reactivity Bias Factor was provided as part of the initial conditions or cue the examinee that the Reactivity Bias Factor is 0.0.

- Standards**
1. The examinee uses Plant Data Book Figure 1.3.4.2 to determine that Xenon Free SDM Boron Concentration is 800-820 ppm and records on Att. 11.1.
  2. The examinee correctly transcribes the Reactivity Bias Factor from the initial conditions to Att 11.1.
  3. The examinee uses Plant Data Book Figure 1.4.1 to determine that HZP Inverse Boron Worth is 120-122 ppm/% and enters value on Att 11.1. (This is only critical when Reactivity Bias factor is a value > 0.0)
  4. The examinee uses Plant Data Book Figure 1.4.2 to determine that the Normalized Boron Worth factor is .99-1.01 and enters value on Att. 11.1 (This is only critical when Reactivity Bias factor is a value > 0.0)
  5. The examinee calculates Xenon Free SDM Boron Concentration to be 800-820 ppm and enters value on Att. 11.1.

---

C TC

- 4 If a Reactor Trip occurs during non-equilibrium Xenon condition, then the RHOBAL Program shall be used to determine initial Xenon Worth, and R&NSE shall be contacted for new RHOBAL Program data to provide Transient Xenon worth for the next 72 hours.

- Conditions/Cues**
1. If examinee asks if Xenon equilibrium existed at time of shutdown, cue the examinee to refer to the initial conditions provided and make that determination.

- Standards**
1. The examinee determines that Xenon equilibrium conditions existed at the time of the shutdown.
-

C TC

- 5 Determine current Xenon Equivalent Boron Concentration as follows:
1. Determine current Xenon Reactivity Worth, for plant conditions recorded in step 7.1.2 using PDB Figure 1.6.3, Xenon Worth after Trip, or RHOBAL Program. Record this value on Attachment 11.1.
  2. Determine current HZP Inverse Boron Worth, using current EFPD the PDB Figure 1.4.1, HZP Inverse Boron Worth Versus Burnup. Record this value on Attachment 11.1.
  3. Using temperature from step 7.1.2.5, Determine current Normalized Boron Worth from PDB Figure 1.4.2, Boron Worth Versus Moderator Temperature Normalized to 545 degrees F. Record this value on Attachment 11.1.
  4. Using formula on Attachment 11.1, Calculate Xenon Equivalent Boron Concentration. Record value on Attachment 11.1.

**Conditions/Cues** 1. The Plant Data Book provides informational cues for Xenon Reactivity Worth, HZP Inverse Boron Worth, and Normalized Boron Worth.

- Standards**
1. The examinee uses Plant Data book Figure 1.6.3.3 to determine that current Xenon Reactivity Worth is 4.35-4.45% and enters the value on Att. 11.1.
  2. The examinee uses Plant Data Book Figure 1.4.1 to determine that HZP Inverse Boron Worth is 120-122 ppm/% and enters value on Att 11.1.
  3. The examinee uses Plant Data Book Figure 1.4.2 to determine that the Normalized Boron Worth factor is .99-1.01 and enters value on Att. 11.1.
  4. The examinee calculates the Xenon Equivalent Boron Concentration to be 516.8-548.4 ppm and enters value on Att. 11.1.

---

C TC

- 6 Verify Shutdown Margin meets requirements of Technical Specifications by verifying current RCS Boron Concentration (step 7.1.2.4) is > Required Shutdown Margin Boron Concentration (step 7.1.3.4.1). Document on Attachment 11.1.

**Conditions/Cues** 1. Att. 11.1 provides the informational cues required to complete this step.

- Standards**
1. The examinee transcribes the Xenon Free SDM Boron Concentration and Xenon Equivalent Boron Concentrations to the formula on Att. 11.1 and determines Required SDM Boron Concentration to be 271.7-327.5 ppm.
  2. The examinee compares the Required SDM Boron Concentration to actual RCS Boron Concentration, determines that SDM requirements are met and circles YES on Att. 11.1.
-

- 7 If Shutdown Margin does not meet requirements of Technical Specifications, then Commence Emergency Boration and go to OP-901-103, Emergency Boration.

C TC

**Conditions/Cues** 1. Att. 11.1 provides the informational cue to determine if this step needs to be performed.

**Standards** 1. The examinee determines that this step is not applicable and continues the procedure.

- 
- 8 If the Reactor has been shutdown less than 72 hours, then determine Boron Concentration required to meet Shutdown Margin for the next 24 hours as follows:
1. Determine Xenon Reactivity Worth 24 hours from present time using PDB Figure 1.6.3, Xenon Worth after Trip or RHOBAL Program. Record this value on Attachment 11.1.
  2. Obtain HZP Inverse Boron Worth from Step 7.1.3.3.2. Record on Attachment 11.1.
  3. Obtain Normalized Boron Worth from Step 7.1.3.3.3. Record on Attachment 11.1.
  4. Using Formula on Attachment 11.1, Calculate Xenon Equivalent Boron Concentration required to meet Shutdown Margin for the next 24 hour period. Record on Attachment 11.1.

C TC

**Conditions/Cues** 1. The Plant Data Book curves and Att. 11.1 provide the informational cues to perform this step.

**Standards**

1. The examinee uses Plant Data book Figure 1.6.3.3 to determine that current Xenon Reactivity Worth 24 hours from present is 1.4-1.6% and enters the value on Att. 11.1.
2. The examinee locates the HZP Inverse Boron Worth determined in step 7.1.3.3.2 (120-122 ppm/%) and enters value on Att 11.1.
3. The examinee locates the Normalized Boron Worth factor determined in step 7.1.3.3.3 (.99-1.01) and enters value on Att. 11.1.
4. The examinee calculates the Xenon Equivalent Boron Concentration for 24 Hours From Present to be 166.3-197.2 ppm and enters value on Att. 11.1.

- 
- 9 Using formula on Attachment 11.1, Calculate Required Shutdown Margin Boron Concentration. Record this value on Attachment 11.1.

C TC

**Conditions/Cues** 1. Att. 11.1 provides the informational cues to perform this step.

**Standards**

1. The examinee locates the Xenon Free SDM Boron Concentration from step 7.1.3.1.5 (800-820 ppm) and enters the value on Att. 11.1.
2. The examinee locates the Xenon Equivalent Boron Concentration for 24 Hours from Present calculated in step 7.1.6.1.4.1 (166.3-197.2 ppm) and enters the value on Att. 11.1.
3. The examinee calculates the Required SDM Boron Concentration for Next 24 Hours (651-706 ppm) and enters value on Att. 11.1.

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Perform a Shutdown Margin Calculation

---

- 10 Verify Shutdown Margin will be met for the next 24 hours by verifying current RCS Boron Concentration (step 7.1.2.4) is > Required Shutdown Margin Boron Concentration for the next 24 hours as calculated in Step 7.1.6.2.1.

C TC

**Conditions/Cues** 1. Att. 11.1 provides the informational cues required to perform this step.

**Standards** 1. The examinee compares the value obtained in step 7.1.6.2.1 to actual RCS boron concentration and determines that SDM is met 24 hours from present at the existing RCS boron concentration and circles YES on Att. 11.1.

- 
- 11 If RCS Boron Concentration is less than the Required Shutdown Margin Boron Concentration needed for the next 24 hours, then Borate the RCS equal to or greater than the Required Shutdown Margin Boron Concentration in accordance with OP-002-005, Chemical and Volume Control. Document the date and time the RCS was completed borated to meet the Required Shutdown Margin Boron Concentration requirements for the next 24 hours on Attachment 11.1. [N/A this step if the answer to step 7.1.6.3 was yes]

C TC

**Conditions/Cues** 1. Att 11.1 provides the informational cues to determine that this step is not applicable.

**Standards** 1. The examinee determines that this step is not applicable and continues the procedure.  
2. The examinee N/As the date and time block for borating the RCS on Att. 11.1.

- 
- 12 End of Task

C TC

---

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. The Plant is in MODE 3.
2. Core Burnup is 400 EFPD.
3. The plant tripped from 100% power and has been shutdown for 10 hours.
4. The plant operated at 100% power for 30 days prior to the plant trip.
5. Tave is 545 degrees F.
6. All CEAs are fully inserted.
7. Current RCS boron concentration is 1000 ppm.
8. The current Reactivity Bias Factor is 0.0.
9. The RHOBAL program is not available.

#### Initiating Cue

The CRS requests that you perform a Shutdown Margin calculation for the Technical Specification surveillance requirement.



# Job Performance Measure Examination -

24-Aug-00

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SYNCHRONIZE AND LOAD THE EDG

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**Site:** W3    **Job:** RO    **System:** EDG    **Mode:** Norm    **Number:** 3

**Revision**        5        7/31/00

**Approved** tbrown                      8/30/95

**Estimated Time(min)**                10

<b>References</b>	OP-009-002	6.4	EMERGENCY DIESEL GENERATOR	17	05
	OP-903-068	7.1	EMERGENCY DIESEL GENERATOR OPERABILITY VERIFICATION	12	02

<b>NRC KA</b>	2-1-20	4.3	4.2	<b>Evaluation Methods</b>	PERFORM
	3.6-064-A4 01	4	4.3		SIMULATE
	3.6-064-A4.07	3.4	3.4		SIMULATOR

Trainee:

Evaluator:

Observer:

Date:

Satisfactory:

Unsatisfactory:

**Directions to Examinee:**

I will explain the initial conditions, which step(s) to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Condition**

1. OP-903-068, Emergency Diesel Generator and Subgroup Relay Operability Verification, is being performed on EDG 'B'.
2. The section used for this run is section 7.1, Emergency Diesel Generator Operability Test Loaded.
3. Step 8 has been completed, and step 9 is ready to be performed.
4. Diesel Control is selected to the RTGB.
5. The RAB Watch is present at EDG 'B'.

**Task Standard**

Desired EDG synchronized and loaded

**Tools**

1. Key for Synchronizer

**Safety Considerations**

1. Personnel at the EDG should be kept informed of changes in Diesel status.

**Initiating Cue**

Continue performing OP-903-068, Emergency Diesel Generator and Subgroup Relay Operability Verification, starting at step 9 of section 7.1.

**Terminating Cue**

Emergency Diesel Generator 'B' is loaded approximately 1 MVAR and greater than or equal to 4.0 MW and less than or equal to 4.4 MW, and steady.

**Performance Consequences**

1. Potential equipment damage
2. Potential personnel injury

**Human Interfaces**

1. SM/CRS
2. NAO

**Skills Knowledges**

None

**Task Element**

0 Perform the task in accordance with OP-903-068 and OP-009-002, Section 6.4.

**C TC**

---

1 Verify Emergency Diesel Generator operating with voltage 3920 - 4580 VAC and frequency 58.8 - 61.2 Hz.

**C TC**

**Conditions/Cues** The Simulator provides the Cues.

**Standards**

1. Examinee uses CP-1 Generator Voltage indication for EDG B to verify EDG output voltage is between 3290 and 4580 VAC.
2. Examinee uses CP-1 or PMC Generator Frequency indication for EDG B to verify EDG B frequency is between 58.8 and 61.2 Hz.

---

2 Verify Volt Regulator Mode Select (Sevr Manual/Auto) Switch is in Auto.

**C TC**

**Conditions/Cues** The Simulator provides the Cues.

**Standards** 1. Examinee verifies Volt Regulator Mode Select switch on CP-1 is in the AUTO position.

---

3 Position the EDG B Synchronizer Switch to Gen Man .

**C TC**

**Conditions/Cues** The Simulator provides the Cues.

**Standards**

1. The examinee obtains the key for EDG B Synchronizer switch from the key locker.
2. The examinee positions the EDG B Synchronizer switch on CP-1 to the Gen Man position.

---

---

SYNCHRONIZE AND LOAD THE EDG

---

- 4 Verify proper voltage response using the Volt Adjust, then adjust EDG voltage to slightly higher than system voltage.

C TC

**Conditions/Cues** The Simulator provides the Cues.

- Standards**
1. The examinee verifies voltage response by placing the EDG B Volt Adjust switch on CP-1 alternately to the Raise and Lower positions while watching for response on the Incoming Voltage meter on CP-1. (Not Critical)
  2. The examinee adjusts the Incoming Voltage meter to slightly higher (within one meter increment difference) than the Running Voltage meter on CP-1. (Critical)

- 
- 5 Verify proper frequency response using the Speed Adjust (Engine Speed Adjustment), then adjust engine speed until the synchroscope is rotating slowly in the clockwise direction.

C TC

**Conditions/Cues** The Simulator provides the Cues.

- Standards**
1. The examinee alternately places the EDG B Speed Adjust switch on CP-1 to Raise and Lower and watches for deflection on the EDG B Frequency meter on CP-1. (Not Critical)
  2. The examinee adjusts EDG B engine speed by using the EDG B Speed Adjust switch on CP-1 until the synchroscope for EDG B is rotating slowly (One revolution ~ every 10 to 30 seconds) in the fast (clockwise) direction. (Critical)

- 
- 6 Verify EDG A(B) Red Start Light Illuminated.

C TC

**Conditions/Cues** The Simulator provides the Cues.

- Standards**
1. The examinee verifies that red light is illuminated on EDG B Start switch on CP-1.
-

---

SYNCHRONIZE AND LOAD THE EDG

---

- 7 Observing Synchroscope rotating slowly in the clockwise direction, Close the Diesel Generator output breaker at the 5 minutes to twelve position on the synchroscope.

C TC

**Conditions/Cues** The Simulator provides the Cues.

- Standards**
1. The examinee takes the EDG B Output Breaker control switch to CLOSE +/- 5 Minutes of 12 O'Clock position.
  2. The examinee verifies breaker closes by verifying the green light extinguishes and the red light illuminates on the EDG B output breaker control switch on CP-1.

- 
- 8 Immediately apply a small load, approximately 0.1 MW, to the Emergency Diesel Generator using the Speed Adjust Control Switch.

C TC

**Conditions/Cues** The Simulator provides the Cues.

- Standards**
1. The examinee takes action as necessary to apply load to EDG B to prevent a Reverse Power Trip.

- 
- 9 Position the EDG B Synchronizer Switch to Off.

C TC

**Conditions/Cues** The Simulator provides the Cues.

- Standards**
1. The examinee places the EDG B Synchronizer switch on CP-1 to OFF.

- 
- 10 Adjust the Volt Adjust to obtain 1 MVAR.

C TC

**Conditions/Cues** The Simulator provides the Cues.

- Standards**
1. The examinee takes the EDG B Volt Adjust switch to RAISE or LOWER as necessary to obtain 0.8-1.2 MVAR on either the EDG B Generator MVARs meter on CP-1 or PMC indication.
-

---

SYNCHRONIZE AND LOAD THE EDG

---

11 Adjust Diesel Generator Real Load (MW) to obtain greater than or equal to 1.0 MW and less than or equal to 1.2 MW. Maintain this load for 5 minutes.

C TC

**Conditions/Cues** The Simulator provides cues for MW and MVAR indication. The 5 minute wait can be waived once the student has the proper steady load as required in this step.

**Standards** The examinee uses the EDG B Speed Adjust control switch on CP-1 to raise load to greater than or equal to 1.0 MW and less than or equal to 1.2 MW on the the EDG B Generator MWatts meter on CP-1 or the PMC.

---

12 Adjust Diesel Generator Real Load (MW) to obtain greater than or equal to 2.1 MW and less than or equal to 2.3 MW. Maintain this load for 10 minutes.

C TC

**Conditions/Cues** The Simulator provides cues for MW and MVAR indication. The 10 minute wait can be waived once the student has the proper steady load as required in this step.

**Standards** The examinee uses the EDG B Speed Adjust control switch on CP-1 to raise load to greater than or equal to 2.1 MW and less than or equal to 2.3 MW on the the EDG B Generator MWatts meter on CP-1 or the PMC.

---

13 Adjust Diesel Generator Real Load (MW) to obtain greater than or equal to 3.2 MW and less than or equal to 3.4 MW. Maintain this load for 10 minutes.

C TC

**Conditions/Cues** The Simulator provides cues for MW and MVAR indication. The 10 minute wait can be waived once the student has the proper steady load as required in this step.

**Standards** The examinee uses the EDG B Speed Adjust control switch on CP-1 to raise load to greater than or equal to 3.2 MW and less than or equal to 3.4 MW on the the EDG B Generator MWatts meter on CP-1 or the PMC.

---



---

SYNCHRONIZE AND LOAD THE EDG

---

- 14 Adjust Diesel Generator Real Load (MW) to obtain greater than or equal to 4.0 MW and less than or equal to 4.4 MW.

C TC

**Conditions/Cues** The Simulator provides cues for MW and MVAR indication. The task is complete once student reaches a steady load at the desired loading of this step.

**Standards** The examinee uses the EDG B Speed Adjust control switch on CP-1 to raise load to greater than or equal to 4.0 MW and less than or equal to 4.4 MW on the the EDG B Generator MWatts meter on CP-1 or the PMC.

- 
- 15 End of Task

C TC

---

## Information for Trainee

### Directions to Examinee:

#### Initial Condition

1. OP-903-068, Emergency Diesel Generator and Subgroup Relay Operability Verification, is being performed on EDG 'B'.
2. The section used for this run is section 7.1, Emergency Diesel Generator Operability Test Loaded.
3. Step 8 has been completed, and step 9 is ready to be performed.
4. Diesel Control is selected to the RTGB.
5. The RAB Watch is present at EDG 'B'.

#### Initiating Cue

Continue performing OP-903-068, Emergency Diesel Generator and Subgroup Relay Operability Verification, starting at step 9 of section 7.1.