U.S. Nuclear Regulatory Commission
Surry Power Station

FINAL

SR2012301
Administrative Job Performance Measure G2.1.25

Applicant_____ Start Time_____

Examiner_____

Date _____ Stop Time_____

Title

PERFORM AN AT-POWER SHUTDOWN MARGIN CALCULATION

K/A: G2.1.25 Ability to Interpret Reference Materials, Such as Graphs, Curves, Tables, etc. (3.9/4.2)

Applicability	**Estimated Time**	**Actual Time**
RO/SRO	30 Minutes	

Conditions

- Task may be PERFORMED in the simulator (or any area with access to a Station Curve Book).
- Unit 2 is at 72% power with Rod M12 dropped and stuck at 123 steps in the core.

Standards

- 2-OP-RX-001, Shutdown Margin (Calculated at Power) complete within 30 minutes.

Initiating Cues

- Nuclear Shift Manager direction.

Terminating Cues

- 2-OP-RX-001, Shutdown Margin (Calculated at Power), step 5.1.12 completed.

Procedures

- 0-AP-1.00, Rod Control System Malfunction, Revision 25
- 2-OP-RX-001, Shutdown Margin (Calculated At Power), Revision 11.
- 2-DRP-003R, Curve Book, Revision 09

Tools and Equipment

- None

Safety Considerations

- None

Initial Conditions

- During normal steady state operation on Unit 2, Control Bank C Rod M12 dropped and stuck at a height of 123 steps. 0-AP-1.00, Rod Control System Malfunction, is in progress on Unit 2. Unit 2 has been ramped to 72% power IAW 0-AP-23.00, Rapid Load Reduction.

- IAW step 16, RNO b) of 0-AP-1.00, Perform Shutdown Margin Calculation IAW 2-OP-RX-001, Shutdown Margin (Calculated At Power).

- The following unit conditions exist:

  Core Burnup: 14,500 MWD/MTU
  CB : 352 ppm, measured 1 hour ago. No dilutions have taken place.
  D-Bank rod height at 72% - 192 Steps

Initiating Cues

- I am the Nuclear Shift Manager and you are the Unit 1 BOP. You are to perform 2-OP-RX-001, Shutdown Margin (Calculated At Power).

Notes

- Ensure use of current (Cycle 24) 2-DRP-003R (Curve Book) values.

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- **START TIME:**

STEP 1: Reviews Administrative Section of Procedure: **STANDARD:** a) Reviews and initials Section 1.0, Purpose. b) Reviews Section 2.0, References. c) Reviews and initials Section 3.0, Initial Conditions. d) Reviews and initials Section 4.0, Precautions and Limitations. **EVALUATOR'S NOTE:** Candidate may complete Signature Table, Step 3.4, at this time. Table should be completed prior to informing Shift Manager (Evaluator) that task is complete. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 2: Completes Step 5.1.1. *(Step 5.1.1)* **STANDARD:** a) Reviews NOTE prior to Step 5.1.1: NOTE: Meeting the conditions in Step 5.1.1 verifies that the SDM is at least -1770 pcm. A stuck / dropped rod (10 or more steps from the bottom) requires a full SDM. b) Check ALL of the following to determine if an abbreviated SDM can be performed: 1) Places check (✓) in blank: The Unit is operating between HZP and HFP. 2) No check (✓) in blank: A single fully dropped (less than 10 steps) control rod exists. 3) Places a check (✓) in blank: All other rods are greater than the minimum rod insertion limit. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 3: Completes Steps 5.1.2 and 5.1.3. *(Step 5.1.2 / 5.1.3)* **STANDARD:** a) Initials Step 5.1.2: IF any of the above conditions are NOT met, THEN enter N/A for Step 5.1.3, AND GO TO Step 5.1.4. Otherwise, enter N/A. b) Places N/A and initials blank for Step 5.1.3.a. Draws a single line below blank for Step 5.1.3.c. Draws arrow down from Step 5.1.3.a blank to line below Step 5.1.3.c. **EVALUATOR'S NOTE:** Completed Step 5.1.3 appears as follows: 5.1.3 IF all of the above conditions are met, THEN perform the following: RO N/A a. Enter N/A for Steps 5.1.4 through 5.1.9. ____ b. Record -1770 pcm in Step 5.1.10. ____ c. GO TO Step 5.1.11. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 4: Completes Step 5.1.4 using the information provided on the Candidate Directions Page. *(Step 5.1.4)* **STANDARD:** a) Initials Step 5.1.4.a., and enters Time/date in blanks of Step 5.1.4.a. b) Initials Step 5.1.4.b, and enters **14,500** on Step 5.1.4.b blank. c) Initials Step 5.1.4.c, and enters **192** in Step 5.1.4.c blank. d) Initials Step 5.1.4.d, and enters **352** in Step 5.1.4.d blank. e) Initials Step 5.1.4.e, and enters **72** in Step 5.1.4.e blank. **EVALUATOR'S NOTE:** **If asked:** Use current date and time for item a) above. **If asked:** Use 72% for power level. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 5: Completes Step 5.1.5. *(Step 5.1.5)* **STANDARD:** a) Places N/A and initials blank for Step 5.1.5. b) Enter "**0**" pcm in Step 5.1.8.a (Page 8, 2-OP-RX-001) **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 6: Completes Step 5.1.6. *(Step 5.1.6)* **STANDARD:** a) Uses Step 2.3.1.e to determine curve reference – Stuck Rod Worth vs Burnup. b) Refers to 2-DRP-003R, Attachment 40, Page 81 (Surry Unit 2 – Cycle 24 Stuck Rod Worth VS Burnup). c) Refers to NOTE: For Use In Shutdown Margin Calculations Only. d) Finds 14,500 MWD/MTU line along "X" axis of graph and traces upward to intersect with line. e) Traces horizontally to "Y" axis of graph to determine intersection point. f) Noting "Y" axis label (25 pcm/div), determines that stuck rod worth **2220 pcm (range 2207.5 to 2225** based on ± 12.5 band or 1/2 of a division for low, 2225 line for high). g) Enters this value in blank above "Ref 2.3.1.e". h) Using Step 5.1.6 guidance, enters "2" in Actual No. of Stuck Rods Plus One blank. i) **Performs multiplication, and enters "4440" in blank next to pcm (range 4415 to 4450** based on ± 12.5 band or 1/2 of a division for low, 2225 line for high.) j) **Enters value above in blank for Step 5.1.8.b.** k) Initials Blank for Step 5.1.6. **EVALUATOR'S NOTE:** **If asked**: Candidate should use provided reference copy of 2-DRP-003R. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 7: Completes Step 5.1.7. *(Step 5.1.7)* **STANDARD:** a) Enters "0" in blank next to pcm. b) Enters "0" in blank, Step 5.1.8.c. c) Initials blank for Step 5.1.7. **EVALUATOR'S NOTE:** **If asked:** Control Rod M12 is the only Affected Rod, all others at the specified height or are fully withdrawn. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 8: Initials Steps 5.1.8.a. through 5.1.8.c.*(Step 5.1.8)* **STANDARD:** a) Checks blank filled in on Step 5.1.8.a (performed JPM Step 5), and Initials blank for Step 5.1.8.a. b) Checks blank filled in on Step 5.1.8.b (performed JPM Step 6), and Initials blank for Step 5.1.8.b. c) Checks blank filled in on Step 5.1.8.c (performed JPM Step 7), and Initials blank for Step 5.1.8.c. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 9: Completes Step 5.1.8.d. *(Step 5.1.8.d)* **STANDARD:** a) Uses Step 2.3.1a to determine curve reference – Power Defect. b) Refers to 2-DRP-003R, Attachment 31, Page 71 (Surry Unit 2 – Cycle 24 Power Defect). c) Refers to NOTE: For Use Through Nominal Full Power End Of Reactivity. d) Finds 14,500 MWD/MTU line along "X" axis of graph and traces upward to intersect with line with the 50% and 75% lines. e) Traces horizontally to the "Y" axis and notes the intersection points. f) Notes the "Y" axis label (-50 pcm/div) determine Power defect at 75% = 1600 pcm; Power Defect at 50% = 1040 pcm. g) **Interpolates Power defect values to determine Power Defect at 72% = 1533 pcm** (**range 1508 to 1558 pcm** based on ± 25 band or 1/2 of a division.) h) Enters this value in blank for Step 5.1.8.d. and Initials Step 5.1.8.d. **EVALUATOR'S NOTE:** **If asked**: Candidate should use provided reference copy of 2-DRP-003R. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 10: Completes Step 5.1.8.e. *(Step 5.1.8.e)* **STANDARD:** a) Uses Step 2.3.1b to determine curve reference – Reactivity Redistribution Factor. b) Refers to 2-DRP-003R, Attachment 42, Page 83 (Surry Unit 2 – Cycle 24 Reactivity Redistribution Factor VS Burnup). c) Refers to NOTE: For Use In Shutdown Margin Calculations Only. d) Finds 14,500 MWD/MTU line along "X" axis of graph and traces upward to intersect curve. e) Traces horizontally to the "Y" axis and notes the intersection point. f) **Notes the "Y" axis label (10 pcm/div) determine RRF at 188 pcm (range 183 to 190** based on ± 5 band or 1/2 of a division for low, 190 line for high.) g) Enters this value in blank for Step 5.1.8.e. and Initials Step 5.1.8.e. **EVALUATOR'S NOTE:** **If asked**: Candidate should use provided reference copy of 2-DRP-003R. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 11: Completes Step 5.1.8.f. *(Step 5.1.8.f)* **STANDARD:** a) Uses Step 2.3.1c to determine curve reference – At Power Integral Worth Table – Control Banks C & D in Overlap. b) Refers to 2-DRP-003R, Attachment 29, Page 62 (Surry Unit 2 – Cycle 24 At-Power Integral Rod Worth Table for Control Banks C and D in overlap). c) Refers to NOTE: Worth At Nominal HFP Conditions. d) Finds 14000.1 TO 16000.0 MWD/MTU column and traces down to intersect with 193/191 Rows D-Bank Pos Steps. e) **Interpolates to determine Worth at 192 Steps = 223.2 pcm**. (**223** pcm acceptable). Bank "D" worth at 193 steps = 214.9 pcm, worth at 191 steps = 231.5 pcm. (231.5 – 214.9) ÷ 2 = 8.3 pcm. 8.3 pcm + 214.9 pcm = 223.2 pcm. f) Enters this value in blank for Step 5.1.8.f. and Initials Step 5.1.8.f. **EVALUATOR'S NOTE:** **If asked**: Candidate should use provided reference copy of 2-DRP-003R. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 12: Completes Step 5.1.8.g and 5.1.8.h. *(Step 5.1.8.g / 5.1.8.h)* **STANDARD:** a) Uses Step 2.3.1d to determine curve reference – Total Rod Worth. b) Refers to 2-DRP-003R, Attachment 38, Page 79 (Surry Unit 2 – Cycle 24 Total Rod Worth vs Burnup). c) Refers to NOTE: For Use In Shutdown Margin Calculations Only. d) Finds 14, 500 MWD/MTU along the "X" axis and traces upward to intersect with the curve. e) Traces horizontally to the "Y" axis and notes the intersection point. e) **Notes the "Y" axis label (25 pcm/div) to determine Total Rod Worth = 7788 pcm (range 7775.5 to 7800** based on ± 12.5 band or 1/2 of a division for low, 7800 line for high.) f) Enters this value in blank for Step 5.1.8.g. and Initials Step 5.1.8.g. g) Reads and initials blank for Step 5.1.8.h. **EVALUATOR'S NOTE:** **If asked**: Candidate should use provided reference copy of 2-DRP-003R. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 12: Completes Step 5.1.9 and 5.1.10. *(Step 5.1.9 / 5.1.10)* **STANDARD:** a) Calculates the Shutdown Margin by adding the values in Substeps 5.1.8.a through Substep 5.1.8.h. b) Enters **Value of -1254 pcm in blank in Step 5.1.10 (range -1195 to -1554** pcm based on sum of high and low range values through Step 5.1.8. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 13: Completes Step 5.1.11 and 5.1.12. *(Step 5.1.11 / 5.1.12)* **STANDARD:** a) Informs Nuclear Shift Manager (Evaluator) that the Shutdown Margin independent review required. b) Informs Nuclear Shift Manager (Evaluator) that the calculated Shutdown Margin is less than Section 4.0 requirements (-1770 pcm), power must be reduced IAW TS 3.12, and the minimum Shutdown Margin must be met. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 14: Report to Shift Manager (Evaluator) completion of Task. **COMMENTS:** ** **JPM COMPLETE** **	_____ **SAT** _____ **UNSAT**

STOP TIME: _____

Comments: _____

INSTRUCTIONS TO APPLICANT (EXAMINER COPY)

Initial Conditions

- During normal steady state operation on Unit 2, Control Bank C Rod M12 dropped and stuck at a height of 123 steps. 0-AP-1.00, Rod Control System Malfunction, is in progress on Unit 2.

- Unit 2 has been ramped to 72% power IAW 0-AP-23.00.

- IAW step 16, RNO b) of 0-AP-1.00, Perform Shutdown Margin Calculation IAW 2-OP-RX-001, Shutdown Margin (Calculated At Power).

- The following unit conditions exist:

  Core Burnup: 14,500 MWD/MTU
  CB : 352 ppm, measured 1 hour ago. No dilutions have taken place.
  D-Bank rod height at 72% - 192 Steps

Initiating Cues

- I am the Nuclear Shift Manager and you are the Unit 1 BOP. You are to perform 2-OP-RX-001, Shutdown Margin (Calculated At Power).

INSTRUCTIONS TO APPLICANT (CANDIDATE COPY)

Initial Conditions

- During normal steady state operation on Unit 2, Control Bank C Rod M12 dropped and stuck at a height of 123 steps. 0-AP-1.00, Rod Control System Malfunction, is in progress on Unit 2.

- Unit 2 has been ramped to 72% power IAW 0-AP-23.00, Rapid Load Reduction.

- IAW step 16, RNO b) of 0-AP-1.00, Perform Shutdown Margin Calculation IAW 2-OP-RX-001, Shutdown Margin (Calculated At Power).

- The following unit conditions exist:

  Core Burnup: 14,500 MWD/MTU
  CB : 352 ppm, measured 1 hour ago. No dilutions have taken place.
  D-Bank rod height at 72% - 192 Steps

Initiating Cues

- I am the Nuclear Shift Manager and you are the Unit 1 BOP. You are to perform 2-OP-RX-001, Shutdown Margin (Calculated At Power).

U.S. Nuclear Regulatory Commission
Surry Power Station

FINAL

Administrative Job Performance Measure GEN2.1.7 (4.4/4.7)

Applicant_____ Start Time_____

Examiner_____

Date _____ Stop Time_____

Title

DETERMINE REQUIRED NITROGEN DILUTION FOR OUT OF SPEC WASTE GAS DECAY TANK

K/A: G2.1.7 **Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and *instrument interpretation*. (4.4/4.7)**

Applicability	**Estimated Time**	**Actual Time**
ALL	20 Minutes	

Conditions

- Task is to be PERFORMED in the classroom.
- Annunciator 0-WD-D9, Waste Gas Decay Tanks HI O_2 has alarmed with an indicated oxygen concentration of 4.2%.

Standards

- Applicant lists closure of 1-BR-79 to suspend all additions to 1B WGDT as required
- Applicant recognizes that 1B WGDT must be reduced to less than or equal to 2% per OP-23.2.4 and associated required valve manipulations to achieve dilution.
- Applicant correctly calculates 1B WGDT pressure for O2 dilution, per OP-23.2.4, within +1, -0 psig.
- SRO Applicant – correctly lists TS 3.11 A requirements.

Initiating Cues

- I am the Shift Manager and you are a licensed operator assigned to the control room. Alarm WD-D9 (WASTE GAS DECAY TANKS HI O_2) has just been received.
- Both units are stable at 100%.
- No maintenance or testing activities are in progress.
- The indication on the oxygen analyzer has been trending up slowly with NO spiking or other abnormalities noted (both Local and MCR indications are NORMAL with NO indications of analyzer failure present)
- You are to perform the actions of WD-D9 and list the following:
  - All - required actions to correct the given condition
  - SRO – All required actions to correct the given condition and applicable Tech Spec LCOs and applicable time requirements (if any)
- Due to activity level in the "B" WGDT, release is not desired at this time.

Terminating Cues

- Final WGDT pressure after dilution determined using Attachment 2 of OP-23.2.4, Release of Waste Gas Decay Tank 1B.

Procedures

- 0-WD-D9, Waste Gas Decay Tank HI O_2.
- OP-23.2.4, Release of Waste Gas Decay Tank 1B.
- Surry Technical Specifications.

Tools and Equipment

- None

Safety Considerations

- None

Simulator Setup for Screen Captures

- Call up IC-1 and initialize.
- Meter override 1B Waste Gas Decay Tank pressure to 30 psig (0.136), and override GW-AIT-150A, pen # (green) to an indicated concentration of 4.2% (0.42).
- Verify in service / isolated tanks swapped ("Isolated" magnet on WGDT "A").

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded and noted at the end of the step as CRITICAL STEP.
- **START TIME:**

STEP 1: (WD-D9) ***STEP 1 -*** Step 1. CHECK I&C TESTING - IN PROGRESS • 1-GW-AIT-150A OR • 1-GW-AIT-150B **STANDARD:** • Recognizes from initial cue that no maintenance or testing activities are in progress and GOES TO STEP 6. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 2: (WD-D9) ***STEP 2 -*** Notes prior to step 6: • Recorder Trace spiking is indicative of a clogged or worn sensing device. • Red pen indicates for Analyzer A. Green pen indicates for Analyzer B. Step 6 - CHECK RECORDER FOR IN-SERVICE TANK ANALYZER - FAILED • Recorder Trace - SPIKING OR • Local Power Light - OFF OR • Local oxygen concentration – NOT INDICATED **STANDARD:** • Recognizes from initial cue that no indications exist that analyzer has failed and goes to RNO column. **EVALUATOR'S NOTE:** **If asked:** No spiking has been noted. **If asked:** Local power is Lit. **If asked:** Local Oxygen concentration is indicated. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 3: (WD-D9)

STEP 3 - Step 6 RNO Actions: IF oxygen concentration is greater than 4%, THEN do the following:

a) Immediately suspend all additions of waste gases to the affected tank by **closing 1-BR-79** and reduce oxygen concentration to less than or equal to 4%.

b) GO TO Step 13.

STANDARD:

- Identifies oxygen concentration is greater than 4% and lists the closure of 1-BR-79 as a required action and goes to step 13. **IDENTIFIES AND DIRECTS CLOSURE OF 1-BR-79.**

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 4: (WD-D9)

STEP 4 - Note prior to step 13:

- The maximum pressure allowed in the WGDT is 115 psig. (Actual Pressure 30 psig – See Handout)

Step 13 - REDUCE OXYGEN TO LESS THAN OR EQUAL TO 2.0% WITHIN 48 HOURS ON OUT-OF-SPEC TANK IAW APPROPRIATE OPERATING PROCEDURE:

- OP-23.2.3, RELEASE OF WASTE GAS DECAY TANK 1A

OR

- OP-23.2.4, RELEASE OF WASTE GAS DECAY TANK 1B

STANDARD:

- Trainee requests copy of OP-23.2.4 to reduce Oxygen concentration.

EVALUATOR'S NOTE: OP-23.2.4 actions begin on next Step (Step 5) of the JPM. Remaining ARP actions for WD-D9 are on Page 8 of 16.

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 5: (OP-23.2.4)

STANDARD:

Candidate Reviews Initial Conditions and Precautions and Limitations of OP-23.2.4.

3.0 INITIAL CONDITIONS

3.1 Check that the Waste Gas Decay Tank has been on Holdup for as long as possible. (Holdup is **not** required for purging the tank after maintenance.) (Ref. 2.4.1)
3.2 Neither unit PRT is aligned to the Process Vent System.

4.0 PRECAUTIONS AND LIMITATIONS

4.1 To ensure the maximum Holdup time for the Waste Gas Decay Tank, an evaluation of existing plant conditions must be made before release. (Ref. 2.4.1)
4.2 When the Waste Gas Decay Tank H2 concentration is greater than 4 percent by volume, the O2 concentration must **not** be greater than 2 percent by volume. (Ref. 2.4.2)
4.3 The minimum operable channels for the Surry Radioactive Gaseous Effluent Monitoring Instrumentation for the Process Vent System are listed in VPAP-2103S.
4.4 If the MGPI Process Vent skid is inoperable, Health Physics must adjust Process Vent Accountability Sampler Flow to between 1.0 to 3.0 cfm.
4.5 With both WGDT Gas Analyzer A and Analyzer B out of service, a WGDT in service, and 1-BR-79, 1-BR-TK-6 to 1-GW-TK-2 Isol, open, grab samples shall be collected at least once each 4 hours during degassing operations to the WGDT and at least once each 24 hours during other operations. Samples shall be analyzed within four hours after collection. (Ref. 2.4.2)
4.6 The WGDT maximum pressure is 115 psig. (Ref. 2.4.2)
4.7 If the Operations Computer Calculation Program is used, the procedure revision number and the calculation revision number must be the same.

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 6: (OP-23.2.4)

STEP 6- Section 5.1 Waste Gas Decay Tank 1B Sampling and/or Dilution

Note: A Chemistry sample is required to determine H2 concentration for release rate adjustments.

Step 5.1.1 - Sample 1-GW-TK-1B IAW OP-23.2.12. IF WGDT is NOT being Prepared for release, THEN enter N/A.

STANDARD: Candidate N/A's step

EVALUATOR'S NOTE:

If Candidate lists actions of Section 5.5 of OP-23.2.4 Incorrectly, this constitutes Failure Criteria: This section is designed for maintenance; it releases the tank to atmosphere to a final pressure of 0 psig for tank entry.

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 7: (OP-23.2.4)

STEP 7- 5.1.2 IF the O2 concentration is greater than 1.65 percent and N2 addition is desired OR the tank is being purged after maintenance, THEN **open 1-GW-755**, 1-GW-FCV-104B Outlet Isolation. Otherwise, enter N/A. (Ref. 2.4.4)

STANDARD: Candidate lists OPENING 1-GW-755 as a required action.

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 8: (OP-23.2.4)

STEP 8- 5.1.3 IF O2 concentration is greater than 1.65 percent and N2 addition is Desired OR the tank is being purged for maintenance, THEN dilute the O2 concentration using Attachment 2 and/or Attachment 3 as applicable By performing the following Substeps. Otherwise, enter N/A. (Ref. 2.4.2)

a) **Place 1-GW-43-GW-104B, 1-GW-FCV-104B Control Switch, in open**.
b) Locally check that 1-GW-FCV-104B is open.
c) Adjust nitrogen flow as necessary using 1-GW-PCV-140, N2 Regulator.

STANDARD:

- Candidate may determine final WGDT pressure for O2 < 4% at 34 psig.
  Evaluator's Cue: If asked, O2 indication at 34 psig is 3.9%.
- **Candidate lists determination that final WGDT pressure as (84 +1, -0 psig)**
  Evaluator's Cue: If asked, O2 indication at 84 psig is 1.95%.
- **Candidate lists locally opening 1-GW-43-GW-104B as a required action**
- Candidate may list locally adjusting N2 flow as a required action.

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 9: (OP-23.2.4)

STEP 9- 5.1.4 WHEN tank pressure is at desired pressure, THEN perform the following. IF tank was NOT diluted in Step 5.1.3, THEN enter N/A.
a. Place 1-GW-43-GW-104B, 1-GW-FCV-104B Control Switch, in close.
b. Locally check that 1-GW-FCV-104B is closed.

STANDARD:

- Candidate lists locally closing 1-GW-43-GW-104B as a required action

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 10: (OP-23.2.4)

STEP 10- 5.1.5 Close 1-GW-755. IF 1-GW-755 was NOT opened in Step 5.1.2, THEN enter N/A. (Ref. 2.4.4)

STANDARD:

- Candidate lists locally closing 1-GW-755 as a required action

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 11: (OP-23.2.4)

STEP 11- **NOTE:** After the WGDT Discharge Record has been assigned a number, the form must be accounted for and **not** destroyed.

5.1.6 Get the WGDT Discharge Record from Health Physics. Record the number and the release rate. IF WGDT is NOT being prepared for release, THEN enter N/A.

Number: _____

Release Rate: _____ cfm

STANDARD:

- Candidate enters N/A for step

EVALUATOR'S NOTE:

Since the WGDT was pressurized to 84 psig, the Applicant may ask if the tank is being prepared for release.

If asked: The WGDT is **not** being prepared for release.

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 12: (WD-D9)

STEP 12 - Step 14 - VERIFY OXYGEN CONCENTRATION - LESS THAN OR EQUAL TO 2.0% WITHIN 48 HOURS ON THE OUT-OF-SPEC TANK

Step 14 RNO actions: Review Tech Spec 3.11.A.1.c.

STANDARD:

- SRO candidates review applicable specification listed in Step 14 of JPM.

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 13: (TECH SPECS)

_____ SAT

_____ UNSAT

STEP 13- **SRO TECH SPEC REVIEW:**

3.11 - RADIOACTIVE GAS STORAGE

A. Explosive Gas Mixture

1. The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration could exceed 4% by volume.

   a. With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.

   b. With the concentration of oxygen in the waste gas holdup system greater than 4% by volume, immediately suspend all additions of waste gases to the affected tank and reduce the concentration of oxygen to less than or equal to 4% by volume, then take the action in 1.a above.

   c. With the requirements of action 1.a above not satisfied, immediately suspend all additions of waste gases to the affected tank until the oxygen concentration is restored to less than or equal to 2% by volume, and submit a special report to the Commission within the next 30 days outlining the following:
   (1) The cause of the waste gas decay tank exceeding the 2% oxygen limit.
   (2) The reason why the oxygen concentration could not be returned to within the limits.
   (3) The actions taken and the time required to return the oxygen concentration to within limits.

2. The requirements of Specification 3.0.1 are not applicable.

STANDARD:

- SRO CANDIDATE LISTS REQUIRED TECH SPEC ACTIONS AS:
  - **Immediately suspend ALL additions of waste gases to the "B" WGDT and that concentration must be <4%, then the concentration must be <2% within 48 hours.**

EVALUATOR'S NOTE:

Technical Specification requirements do not apply for RO Candidates.

COMMENTS:

STEP 14: (WD-D9) ***STEP 14 -*** Step 15 - PROVIDE NOTIFICATIONS AS NECESSARY: o OMOC o Shift Supervision o STA **STANDARD:** **EVALUATOR'S NOTE: N/A** **COMMENTS:** ** **JPM COMPLETE** **	_____ **SAT** _____ **UNSAT**

KEY

Required actions (**SRO/RO**) - Bolded items are Critical Steps.

1. Step 3 of JPM: **IDENTIFIES AND DIRECTS CLOSURE OF 1-BR-79.**

2. Step 6 of JPM: Candidate N/A's step.
   If Candidate lists actions of Section 5.5 of OP-23.2.4 Incorrectly, this constitutes Failure Criteria: This section is designed for maintenance; it releases the tank to atmosphere to a final pressure of 0 psig for tank entry.

3. Step 7 of JPM: **Candidate lists OPENING 1-GW-755 as a required action.**

4. Step 8 of JPM: Candidate may determine final WGDT pressure for O2 < 4% at 34 psig.
   Evaluator's Cue: If asked, O2 indication at 34 psig is 3.9%.
   Candidate lists determination that final WGDT pressure as _____ (84 +1, -0 psig)
   Evaluator's Cue: If asked, O2 indication at 84 psig is 1.95%.
   Candidate lists locally opening 1-GW-43-GW-104B as a required action
   Candidate may list locally adjusting N2 flow as a required action.

5. Step 9 of JPM: Candidate lists locally closing 1-GW-43-GW-104B as a required action.

6. Step 10 of JPM: Candidate lists locally closing 1-GW-755 as a required action.

Required actions (**SRO**) Bolded items are Critical Steps

1. SRO CANDIDATE LISTS REQUIRED TECH SPEC ACTIONS AS:
   Immediately suspend ALL additions of waste gases to the "B" WGDT and that concentration must be <4%, then the concentration must be <2% within 48 hours.

INSTRUCTIONS TO APPLICANT (Evaluator Copy)

Conditions

- Unit 1and 2 are operating at 100% power.
- WGDT "A" is isolated.
- WGDT "B" is in service on the "A" Oxygen analyzer.
- Annunciator WD-D9, Waste Gas Decay Tanks HI O_2, has just been received.

Initiating Cues

- I am the Shift Manager and you are a licensed operator assigned to the control room.
- No maintenance or testing activities are in progress.
- The indication on the oxygen analyzer has been trending up slowly with NO spiking or other abnormalities noted (both **Local** and **MCR** indications are NORMAL with NO indications of analyzer failure present)
- You are to perform the actions of WD-D9 and **list** the following:
  - RO/SRO – All required actions to correct the given condition.
  - SRO – All required actions to correct the given condition and applicable Tech Spec LCOs and applicable time requirements (if any)
- Due to activity level in the "B" WGDT, release is not desired at this time.

INSTRUCTIONS TO APPLICANT (Candidate Copy)

Conditions

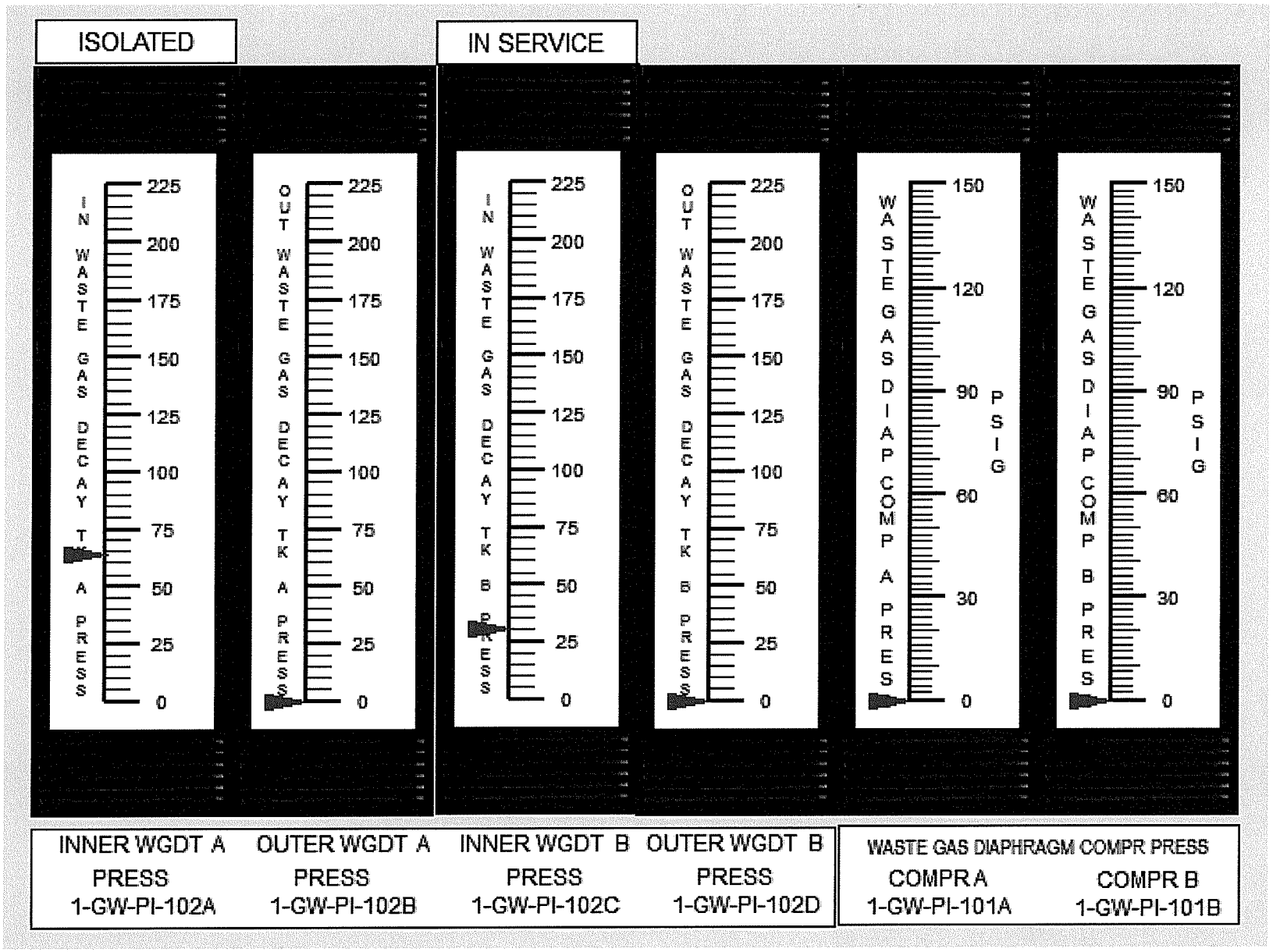
- Unit 1and 2 are operating at 100% power.
- WGDT "A" is isolated.
- WGDT "B" is in service on the "A" Oxygen analyzer.
- Annunciator WD-D9, Waste Gas Decay Tanks HI O_2, has just been received.

Initiating Cues

- I am the Shift Manager and you are a licensed operator assigned to the control room.
- No maintenance or testing activities are in progress.
- The indication on the oxygen analyzer has been trending up slowly with NO spiking or other abnormalities noted (both **Local** and **MCR** indications are NORMAL with NO indications of analyzer failure present)
- You are to perform the actions of WD-D9 and **list** the following:
    - RO/SRO – All required actions to correct the given condition.
    - SRO – All required actions to correct the given condition and applicable Tech Spec LCOs and applicable time requirements (if any)
- Due to activity level in the "B" WGDT, release is not desired at this time.

Required actions (**SRO/RO**):

Applicable Tech Spec LCOs and Required Actions (**SRO ONLY**):


ISOLATED
IN SERVICE
IN WASTE GAS DECAY TK A PRESS
OUT WASTE GAS DECAY TK A PRESS
IN WASTE GAS DECAY TK B PRESS
OUT WASTE GAS DECAY TK B PRESS
WASTE GAS DIAP COMP A PRES
WASTE GAS DIAP COMP B PRES
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125
150
175
200
225
30
60
90
120
INNER WGDT A PRESS 1-GW-PI-102A
OUTER WGDT A PRESS 1-GW-PI-102B
INNER WGDT B PRESS 1-GW-PI-102C
OUTER WGDT B PRESS 1-GW-PI-102D
WASTE GAS DIAPHRAGM COMPR PRESS
COMPR A 1-GW-PI-101A
COMPR B 1-GW-PI-101B


YOKOGAWA
GW-AR-150A
%
4.20
GW-AR-150B
%
0.00
WGDT OXYGEN ANALYZER
1-GW-AR-150 A & B
PEN 1 (RED)
150A
PEN 2 (GRN)
150B
DISP/
ENTER

U.S. Nuclear Regulatory Commission
Surry Power Station

FINAL

Administrative Job Performance Measure GEN2.1.7 (4.4/4.7)

Applicant_____ Start Time_____

Examiner_____

Date _____ Stop Time_____

Title

DETERMINE REQUIRED NITROGEN DILUTION FOR OUT OF SPEC WASTE GAS DECAY TANK

K/A: G2.1.7 **Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and *instrument interpretation*. (4.4/4.7)**

Applicability	**Estimated Time**	**Actual Time**
ALL	20 Minutes	

Conditions

- Task is to be PERFORMED in the classroom.
- Annunciator 0-WD-D9, Waste Gas Decay Tanks HI O_2 has alarmed with an indicated oxygen concentration of 4.2%.

Standards

- Applicant lists closure of 1-BR-79 to suspend all additions to 1B WGDT as required
- Applicant recognizes that 1B WGDT must be reduced to less than or equal to 2% per OP-23.2.4 and associated required valve manipulations to achieve dilution.
- Applicant correctly calculates 1B WGDT pressure for O2 dilution, per OP-23.2.4, within +1, -0 psig.
- SRO Applicant – correctly lists TS 3.11 A requirements.

Initiating Cues

- I am the Shift Manager and you are a licensed operator assigned to the control room. Alarm WD-D9 (WASTE GAS DECAY TANKS HI O_2) has just been received.
- Both units are stable at 100%.
- No maintenance or testing activities are in progress.
- The indication on the oxygen analyzer has been trending up slowly with NO spiking or other abnormalities noted (both Local and MCR indications are NORMAL with NO indications of analyzer failure present)
- You are to perform the actions of WD-D9 and list the following:
  - All - required actions to correct the given condition
  - SRO – All required actions to correct the given condition and applicable Tech Spec LCOs and applicable time requirements (if any)

Terminating Cues

- Final WGDT pressure after dilution determined using Attachment 2 of OP-23.2.4, Release of Waste Gas Decay Tank 1B.

Procedures

- 0-WD-D9, Waste Gas Decay Tank HI O_2.
- OP-23.2.4, Release of Waste Gas Decay Tank 1B.
- Surry Technical Specifications.

Tools and Equipment

- None

Safety Considerations

- None

Simulator Setup for Screen Captures

- Call up IC-1 and initialize.
- Meter override 1B Waste Gas Decay Tank pressure to 30 psig (0.136), and override GW-AIT-150A, pen # (green) to an indicated concentration of 4.2% (0.42).
- Verify in service / isolated tanks swapped ("Isolated" magnet on WGDT "A").

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded and noted at the end of the step as CRITICAL STEP.
- **START TIME:**

STEP 1: (WD-D9) ***STEP 1 -*** Step 1. CHECK I&C TESTING - IN PROGRESS • 1-GW-AIT-150A OR • 1-GW-AIT-150B **STANDARD:** • Recognizes from initial cue that no maintenance or testing activities are in progress and GOES TO STEP 6. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 2: (WD-D9) ***STEP 2*** - Notes prior to step 6: • Recorder Trace spiking is indicative of a clogged or worn sensing device. • Red pen indicates for Analyzer A. Green pen indicates for Analyzer B. Step 6 - CHECK RECORDER FOR IN-SERVICE TANK ANALYZER - FAILED • Recorder Trace - SPIKING OR • Local Power Light - OFF OR • Local oxygen concentration – NOT INDICATED **STANDARD:** • Recognizes from initial cue that no indications exist that analyzer has failed and goes to RNO column. **EVALUATOR'S NOTE:** **If asked:** No spiking has been noted. **If asked:** Local power is Lit. **If asked:** Local Oxygen concentration is indicated. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 3: (WD-D9) ***STEP 3 -*** Step 6 RNO Actions: IF oxygen concentration is greater than 4%, THEN do the following: a) Immediately suspend all additions of waste gases to the affected tank by **closing 1-BR-79** and reduce oxygen concentration to less than or equal to 4%. b) GO TO Step 13. **STANDARD:** • Identifies oxygen concentration is greater than 4% and lists the closure of 1-BR-79 as a required action and goes to step 13. **IDENTIFIES AND DIRECTS CLOSURE OF 1-BR-79.** **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 4: (WD-D9) ***STEP 4 -*** Note prior to step 13: • The maximum pressure allowed in the WGDT is 115 psig. (Actual Pressure 30 psig – See Handout) Step 13 - REDUCE OXYGEN TO LESS THAN OR EQUAL TO 2.0% WITHIN 48 HOURS ON OUT-OF-SPEC TANK IAW APPROPRIATE OPERATING PROCEDURE: ▪ OP-23.2.3, RELEASE OF WASTE GAS DECAY TANK 1A OR ▪ OP-23.2.4, RELEASE OF WASTE GAS DECAY TANK 1B **STANDARD:** • Trainee requests copy of OP-23.2.4 to reduce Oxygen concentration. **EVALUATOR'S NOTE:** OP-23.2.4 actions begin on next Step (Step 5) of the JPM. Remaining ARP actions for WD-D9 are on Page 8 of 16. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 5: (OP-23.2.4)

STANDARD:

Candidate Reviews Initial Conditions and Precautions and Limitations of OP-23.2.4.

3.0 INITIAL CONDITIONS

3.1 Check that the Waste Gas Decay Tank has been on Holdup for as long as possible. (Holdup is **not** required for purging the tank after maintenance.) (Ref. 2.4.1)
3.2 Neither unit PRT is aligned to the Process Vent System.

4.0 PRECAUTIONS AND LIMITATIONS

4.1 To ensure the maximum Holdup time for the Waste Gas Decay Tank, an evaluation of existing plant conditions must be made before release. (Ref. 2.4.1)
4.2 When the Waste Gas Decay Tank H2 concentration is greater than 4 percent by volume, the O2 concentration must **not** be greater than 2 percent by volume. (Ref. 2.4.2)
4.3 The minimum operable channels for the Surry Radioactive Gaseous Effluent Monitoring Instrumentation for the Process Vent System are listed in VPAP-2103S.
4.4 If the MGPI Process Vent skid is inoperable, Health Physics must adjust Process Vent Accountability Sampler Flow to between 1.0 to 3.0 cfm.
4.5 With both WGDT Gas Analyzer A and Analyzer B out of service, a WGDT in service, and 1-BR-79, 1-BR-TK-6 to 1-GW-TK-2 Isol, open, grab samples shall be collected at least once each 4 hours during degassing operations to the WGDT and at least once each 24 hours during other operations. Samples shall be analyzed within four hours after collection. (Ref. 2.4.2)
4.6 The WGDT maximum pressure is 115 psig. (Ref. 2.4.2)
4.7 If the Operations Computer Calculation Program is used, the procedure revision number and the calculation revision number must be the same.

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 6: (OP-23.2.4)

STEP 6- Section 5.1 Waste Gas Decay Tank 1B Sampling and/or Dilution

Note: A Chemistry sample is required to determine H2 concentration for release rate adjustments.

Step 5.1.1 - Sample 1-GW-TK-1B IAW OP-23.2.12. IF WGDT is NOT being Prepared for release, THEN enter N/A.

STANDARD: Candidate N/A's step

EVALUATOR'S NOTE:

If Candidate lists actions of Section 5.5 of OP-23.2.4 Incorrectly, this constitutes Failure Criteria: This section is designed for maintenance; it releases the tank to atmosphere to a final pressure of 0 psig for tank entry.

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 7: (OP-23.2.4)

STEP 7- 5.1.2 IF the O2 concentration is greater than 1.65 percent and N2 addition is desired OR the tank is being purged after maintenance, THEN **open 1-GW-755**, 1-GW-FCV-104B Outlet Isolation. Otherwise, enter N/A. (Ref. 2.4.4)

STANDARD: Candidate lists OPENING 1-GW-755 as a required action.

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 8: (OP-23.2.4)

STEP 8- 5.1.3 IF O2 concentration is greater than 1.65 percent and N2 addition is Desired OR the tank is being purged for maintenance, THEN dilute the O2 concentration using Attachment 2 and/or Attachment 3 as applicable By performing the following Substeps. Otherwise, enter N/A. (Ref. 2.4.2)

a) **Place 1-GW-43-GW-104B, 1-GW-FCV-104B Control Switch, in open.**
b) Locally check that 1-GW-FCV-104B is open.
c) Adjust nitrogen flow as necessary using 1-GW-PCV-140, N2 Regulator.

STANDARD:

- Candidate may determine final WGDT pressure for O2 < 4% at 34 psig.
  Evaluator's Cue: If asked, O2 indication at 34 psig is 3.9%.
- **Candidate lists determination that final WGDT pressure as (84 +1, -0 psig)**
  Evaluator's Cue: If asked, O2 indication at 84 psig is 1.95%.
- **Candidate lists locally opening 1-GW-43-GW-104B as a required action**
- Candidate may list locally adjusting N2 flow as a required action.

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 9: (OP-23.2.4)

STEP 9- 5.1.4 WHEN tank pressure is at desired pressure, THEN perform the following. IF tank was NOT diluted in Step 5.1.3, THEN enter N/A.
a. Place 1-GW-43-GW-104B, 1-GW-FCV-104B Control Switch, in close.
b. Locally check that 1-GW-FCV-104B is closed.

STANDARD:

- Candidate lists locally closing 1-GW-43-GW-104B as a required action

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 10: (OP-23.2.4)

STEP 10- 5.1.5 Close 1-GW-755. IF 1-GW-755 was NOT opened in Step 5.1.2, THEN enter N/A. (Ref. 2.4.4)

STANDARD:
- Candidate lists locally closing 1-GW-755 as a required action

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 11: (OP-23.2.4)

STEP 11- **NOTE:** After the WGDT Discharge Record has been assigned a number, the form must be accounted for and **not** destroyed.

5.1.6 Get the WGDT Discharge Record from Health Physics. Record the number and the release rate. IF WGDT is NOT being prepared for release, THEN enter N/A.
Number: _____
Release Rate: _____ cfm

STANDARD:
- Candidate enters N/A for step

EVALUATOR'S NOTE:

Since the WGDT was pressurized to 84 psig, the Applicant may ask if the tank is being prepared for release.
If asked: The WGDT is **not** being prepared for release.

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 12: (WD-D9)

STEP 12 - Step 14 - VERIFY OXYGEN CONCENTRATION - LESS THAN OR EQUAL TO 2.0% WITHIN 48 HOURS ON THE OUT-OF-SPEC TANK

Step 14 RNO actions: Review Tech Spec 3.11.A.1.c.

STANDARD:
- SRO candidates review applicable specification listed in Step 14 of JPM.

EVALUATOR'S NOTE: N/A

COMMENTS:

_____ **SAT**

_____ **UNSAT**

STEP 13: (TECH SPECS)

_____ SAT

_____ UNSAT

STEP 13- **SRO TECH SPEC REVIEW:**

3.11 - RADIOACTIVE GAS STORAGE

A. Explosive Gas Mixture

1. The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration could exceed 4% by volume.

   a. With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.

   b. With the concentration of oxygen in the waste gas holdup system greater than 4% by volume, immediately suspend all additions of waste gases to the affected tank and reduce the concentration of oxygen to less than or equal to 4% by volume, then take the action in 1.a above.

   c. With the requirements of action 1.a above not satisfied, immediately suspend all additions of waste gases to the affected tank until the oxygen concentration is restored to less than or equal to 2% by volume, and submit a special report to the Commission within the next 30 days outlining the following:
   (1) The cause of the waste gas decay tank exceeding the 2% oxygen limit.
   (2) The reason why the oxygen concentration could not be returned to within the limits.
   (3) The actions taken and the time required to return the oxygen concentration to within limits.

2. The requirements of Specification 3.0.1 are not applicable.

STANDARD:

- SRO CANDIDATE LISTS REQUIRED TECH SPEC ACTIONS AS:
  - **Immediately suspend ALL additions of waste gases to the "B" WGDT and that concentration must be <4%, then the concentration must be <2% within 48 hours.**

EVALUATOR'S NOTE:

Technical Specification requirements do not apply for RO Candidates.

COMMENTS:

STEP 14: (WD-D9) ***STEP 14 -*** Step 15 - PROVIDE NOTIFICATIONS AS NECESSARY: o OMOC o Shift Supervision o STA **STANDARD:** **EVALUATOR'S NOTE: N/A** **COMMENTS:** ** **JPM COMPLETE** **	_____ **SAT** _____ **UNSAT**

KEY

Required actions (**SRO/RO**) - Bolded items are Critical Steps.

1. Step 3 of JPM: **IDENTIFIES AND DIRECTS CLOSURE OF 1-BR-79.**

2. Step 6 of JPM: Candidate N/A's step.
   If Candidate lists actions of Section 5.5 of OP-23.2.4 Incorrectly, this constitutes Failure Criteria: This section is designed for maintenance; it releases the tank to atmosphere to a final pressure of 0 psig for tank entry.

3. Step 7 of JPM: **Candidate lists OPENING 1-GW-755 as a required action.**

4. Step 8 of JPM: Candidate may determine final WGDT pressure for O2 < 4% at 34 psig.
   Evaluator's Cue: If asked, O2 indication at 34 psig is 3.9%.
   Candidate lists determination that final WGDT pressure as _____ (84 +1, -0 psig)
   Evaluator's Cue: If asked, O2 indication at 84 psig is 1.95%.
   Candidate lists locally opening 1-GW-43-GW-104B as a required action
   Candidate may list locally adjusting N2 flow as a required action.

5. Step 9 of JPM: Candidate lists locally closing 1-GW-43-GW-104B as a required action.

6. Step 10 of JPM: Candidate lists locally closing 1-GW-755 as a required action.

Required actions (**SRO**) Bolded items are Critical Steps

1. SRO CANDIDATE LISTS REQUIRED TECH SPEC ACTIONS AS:
   Immediately suspend ALL additions of waste gases to the "B" WGDT and that concentration must be <4%, then the concentration must be <2% within 48 hours.

INSTRUCTIONS TO APPLICANT (Evaluator Copy)

Conditions

- Unit 1and 2 are operating at 100% power.
- WGDT "A" is isolated.
- WGDT "B" is in service on the "A" Oxygen analyzer.
- Annunciator WD-D9, Waste Gas Decay Tanks Hl O_2, has just been received.

Initiating Cues

- I am the Shift Manager and you are a licensed operator assigned to the control room.
- No maintenance or testing activities are in progress.
- The indication on the oxygen analyzer has been trending up slowly with NO spiking or other abnormalities noted (both **Local** and **MCR** indications are NORMAL with NO indications of analyzer failure present)
- You are to perform the actions of WD-D9 and **list** the following:
    - RO/SRO – All required actions to correct the given condition.
    - SRO – All required actions to correct the given condition and applicable Tech Spec LCOs and applicable time requirements (if any)

INSTRUCTIONS TO APPLICANT (Candidate Copy)

Conditions

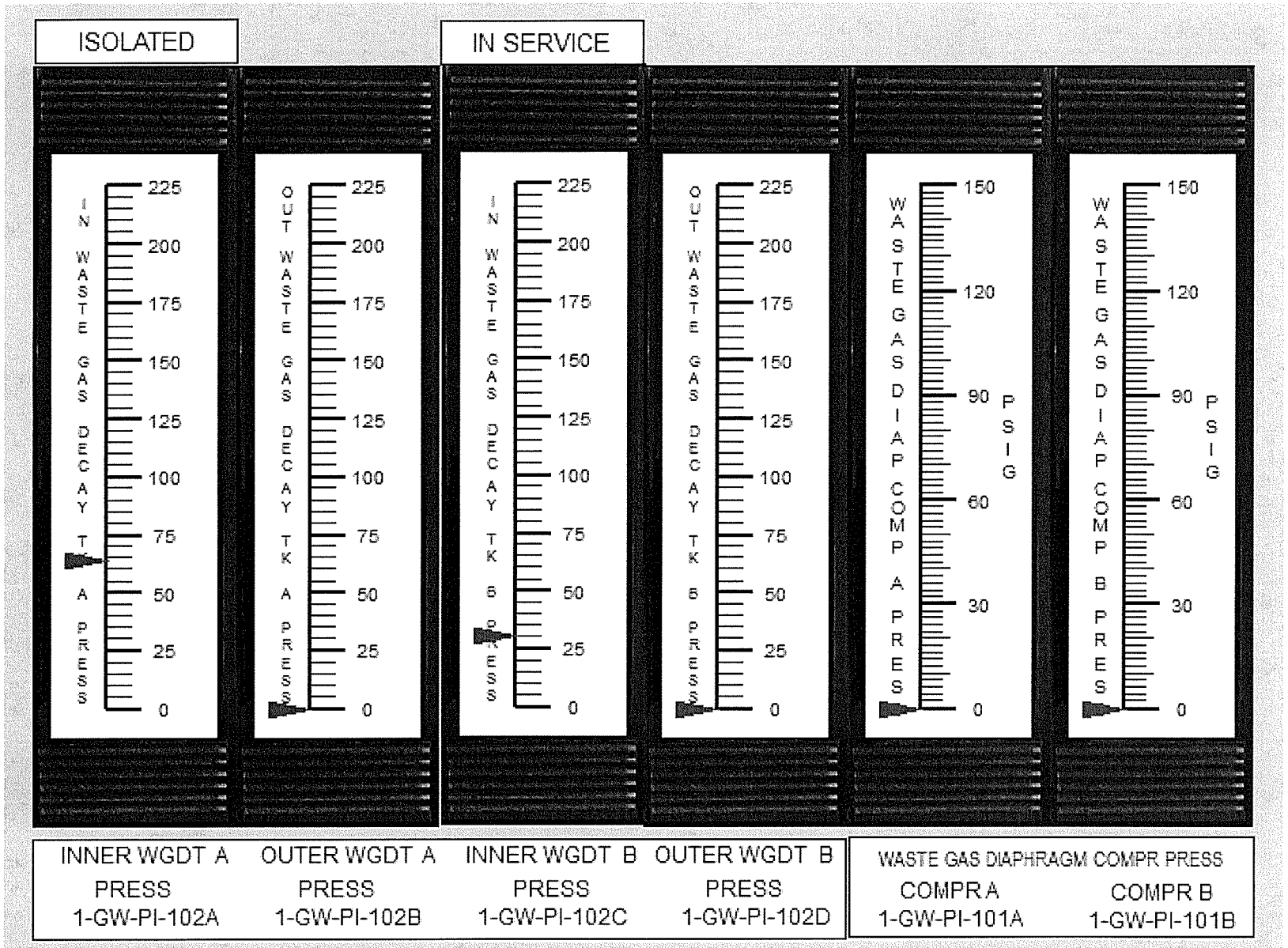
- Unit 1and 2 are operating at 100% power.
- WGDT "A" is isolated.
- WGDT "B" is in service on the "A" Oxygen analyzer.
- Annunciator WD-D9, Waste Gas Decay Tanks HI O_2, has just been received.

Initiating Cues

- I am the Shift Manager and you are a licensed operator assigned to the control room.
- No maintenance or testing activities are in progress.
- The indication on the oxygen analyzer has been trending up slowly with NO spiking or other abnormalities noted (both **Local** and **MCR** indications are NORMAL with NO indications of analyzer failure present)
- You are to perform the actions of WD-D9 and **list** the following:
    - RO/SRO – All required actions to correct the given condition.
    - SRO – All required actions to correct the given condition and applicable Tech Spec LCOs and applicable time requirements (if any)

Required actions (**SRO/RO**):

Applicable Tech Spec LCOs and Required Actions (**SRO ONLY**):


ISOLATED
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WASTE GAS DIAPH COMP A PRES
WASTE GAS DIAPH COMP B PRES
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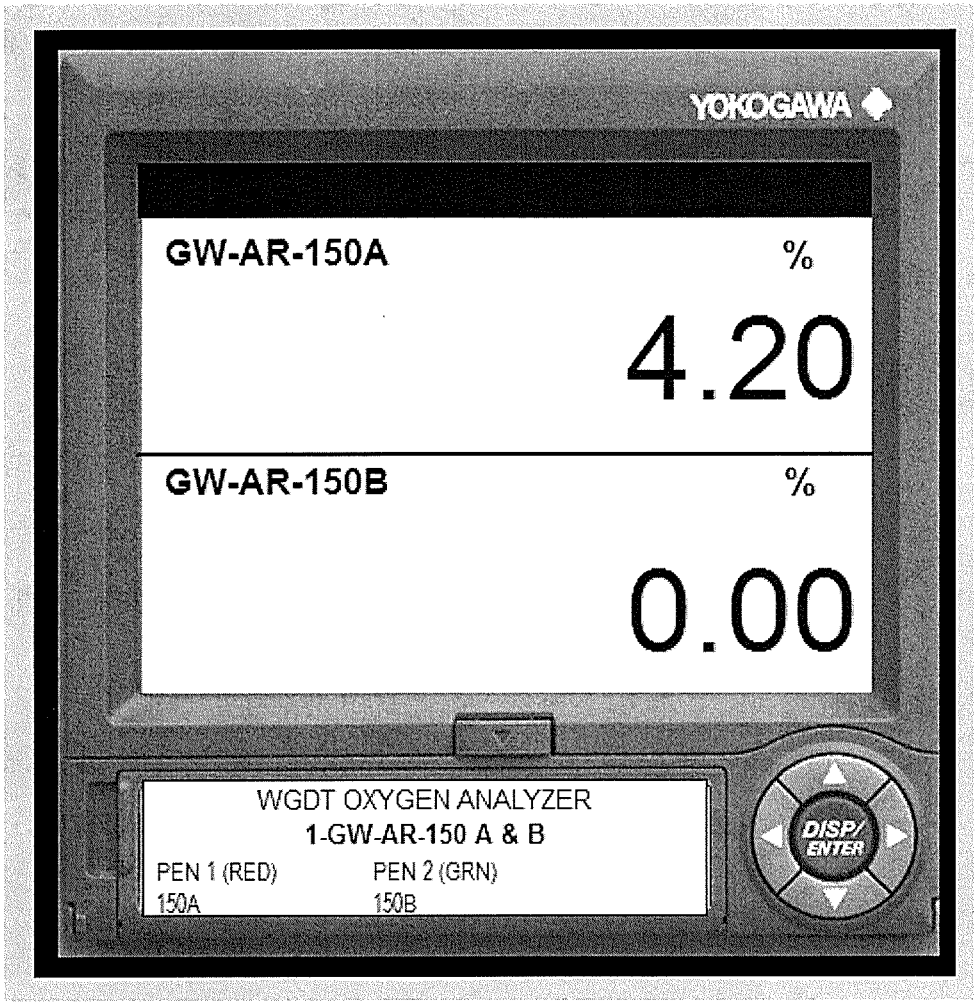
INNER WGDT A PRESS 1-GW-PI-102A
OUTER WGDT A PRESS 1-GW-PI-102B
INNER WGDT B PRESS 1-GW-PI-102C
OUTER WGDT B PRESS 1-GW-PI-102D
WASTE GAS DIAPHRAGM COMPR PRESS
COMPR A 1-GW-PI-101A
COMPR B 1-GW-PI-101B


YOKOGAWA
GW-AR-150A
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4.20
GW-AR-150B
%
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WGDT OXYGEN ANALYZER
1-GW-AR-150 A & B
PEN 1 (RED)
150A
PEN 2 (GRN)
150B
DISP/
ENTER

U.S. Nuclear Regulatory Commission
Surry Power Station

FINAL

Administrative Job Performance Measure GEN2.2.12 (3.7/4.1)

Applicant_____ Start Time_____

Examiner_____

Date _____ Stop Time_____

Title

Periodic Test Review 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST

K/A: GEN2.2.12 - Knowledge of surveillance procedures.

Applicability	**Estimated Time**	**Actual Time**
SRO(I)/SRO(U)	45 Minutes	

Conditions

- Task is to be PERFORMED in the classroom.

Standards

- Reviews completed 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, for accuracy and determines operability.

Initiating Cues

- I am the Shift Manager and you are the Unit Supervisor. Here is a copy of 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, which has just been completed.
- This was a quarterly test.
- Review 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, for completeness and accuracy.
- Document any issues identified during review and operability requirements, if any, on the answer sheet provided.

Terminating Cues

- Applicant has completed the procedure review and discussed problems with examiner.

Tools and Equipment

- Calculator
- Copy of completed 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST.
- Copy of Surry Technical Specifications

Safety Considerations

- None

Notes:

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded and noted at the end of the step as CRITICAL STEP.
- **START TIME:**

STEP 1: ***STEP 1 -*** Review the purpose of the procedure (Section 1.0) **STANDARD:** • Reviews purpose of procedure step 1.1. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 2: ***STEP 2*** - Review the References section (Section 2.0) **STANDARD:** • Reviews section 2.1, Source Documents, 2.2 Technical Specifications, 2.3 Technical References, and 2.4 Commitment Documents. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 3: ***STEP 3*** - Reviews the Initial Conditions section (Section 3.0) **STANDARD:** • Reviews Initial Conditions steps 3.1. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 4: ***STEP 4*** - Reviews the Precautions and Limitations section (Section 4.0) **STANDARD:** • Reviews precautions and limitations steps 4.1 - 4.4. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 5: ***STEP 5*** - Reviews the Special Tools and Equipment section (Section 5.0) **STANDARD:** • Reviews Special Tools and Equipment section steps 5.1 - 5.2. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 6: ***STEP 6.1*** - Reviews Work Preparation section (Section 6.1). **STANDARD:** • Verifies proper placekeeping on all steps. • Verifies step 6.1.1 is initialed and SQC numbers and Cal Due Dates are recorded. **CANDIDATE IDENTIFIES THAT ONE STOPWATCH USED IS NOT IN CAL – THIS IS A CRITICAL STEP** **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 7: ***STEPS 6.2-6.5*** - Reviews Steps 6.2 - 6.5 of 1-OPT-RS-007 **STANDARD:** • Verifies proper placekeeping on all steps, notes, and cautions. • Verifies step 6.2. – 6.5 are properly initialed (including substeps). • Verifies step 6.4.3, 6.4.5, 6.5.3, and 6.5.5 are checked **SAT** **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 8: ***STEP 7.0***- Reviews Follow-On section of procedure (Section 7.1 – 7.4). **STANDARD:** • Verifies proper placekeeping on all steps, notes, and cautions. • Evaluates the acceptance criteria in step 7.1.1 by reviewing attachment data referenced for each bulleted item. **CANDIDATE IDENTIFIES THAT TWO ITEMS ARE CHECKED AS ACCEPTABLE THAT WERE NOT – THIS IS A CRITICAL STEP** ▪ ____ Test values recorded on Attachment 1 are satisfactory. ▪ ____ Test values recorded on Attachment 2 are satisfactory. • Candidate identifies that 7.1.2 has Satisfactory checked vs. Unsatisfactory – **THIS IS A CRITICAL STEP** • Candidate identifies that 7.2.3 should not be N/A and substeps a, b, & c need to be performed. • Candidate identifies that step 7.2.4 was N/A by mistake. **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 9: ***ATTACHMENT 1-*** Reviews Attachment 1 Data. **STANDARD:** • Reviews Attachment 1 data (reference step 6.2.1) and **IDENTIFIES THAT 1-RS-MOV-156A CLOSE TIME IS UNACCEPTABLE – THIS IS A CRITICAL STEP** **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 10: ***ATTACHMENT 2-*** Reviews Attachment 2 Data. **STANDARD:** • Reviews Attachment 2 data (reference step 6.3.1) and **IDENTIFIES THAT 1-RS-MOV-156B CLOSE TIME IS UNACCEPTABLE – THIS IS A CRITICAL STEP** **EVALUATOR'S NOTE: N/A** **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 11: Determines administrative actions required: **STANDARD:** • Reviews Tech Spec section 3.4 ▪ Identifies non-compliance with 3.4.A.2 ▪ Identifies non-compliance with 3.4.A.5 • Determines that current plant conditions are not in compliance with 3.4.B.2 (only one pump allowed to be inoperable, but currently two pumps are inoperable) • SRO determines that a 3.0.1 clock exists (6 hours to HSD and 30 hours to CSD) due to NO operable outside recirc spray pumps. **THIS IS A CRITICAL STEP**	_____ **SAT** _____ **UNSAT**
JPM Complete	

STOP TIME:

ANSWER KEY

NOT FOR TRAINEE

1-OPT-RS-007 REVIEW

1. **Step 6.1.1 – Listed stopwatch is out of CAL. (CRITICAL TASK)**
2. **Step 7.1.1 – Attachment 1 and 2 are checked as acceptable when they contain UNACCEPTABLE data. (CRITICAL TASK)**
3. **Step 7.1.2 – Test marked as Satisfactory when actually Unsatisfactory. (Critical Task)**
4. Step 7.2.3 – step is N/A and should have been performed. (NOT CRITICAL TASK)
5. Step 7.2.4 - Candidate identifies that step 7.2.4 was N/A by mistake (NOT CRITICAL TASK)
6. **Attachment 1, identifies that 1-RS-MOV-156A close time is unacceptable – (CRITICAL TASK)**
7. **Attachment 2, identifies that 1-RS-MOV-156B close time is unacceptable – (CRITICAL TASK)**
8. **They are in violation of Tech Spec 3.4 (A.2 and A.5) because there are NO OPERABLE OUTSIDE RECIRC SPRAY PUMPS. They are in a 6/30 clock iaw Tech Spec 3.0.1. (CRITICAL TASK)**

Operator Directions Handout
(TO BE READ TO APPLICANT BY EXAMINER)

Task

- Task is to be performed in the classroom.
- Review 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, for completeness and accuracy.

Directions

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

Initial Conditions:

- Unit 1 is at 100% power.
- 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, which has just been completed.

Initiating Cues

- I am the Shift Manager and you are the Unit Supervisor. Here is a copy of 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, which has just been completed.
- This was a quarterly test.
- Review 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, for completeness and accuracy.
- Document any issues identified during review and operability requirements, if any, on the answer sheet provided.

Operator Directions Handout
(TO BE GIVEN TO APPLICANT)

Initial Conditions:

- Unit 1 is at 100% power.
- 1-OPT-CH-002 (REV 47), CHARGING PUMP OPERABILITY AND PERFORMANCE TEST FOR 1-CH-P-1B, has just been completed..

Initiating Cues

- I am the Shift Manager and you are the Unit Supervisor. Here is a copy of 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, which has just been completed.
- This was a quarterly test.
- Review 1-OPT-RS-007 (REV 12), CONTAINMENT OUTSIDE RECIRCULATION SPRAY PUMPS MOV STROKE TEST, for completeness and accuracy.
- Document any issues identified during review and operability requirements, if any, on the answer sheet provided.

ANSWER SHEET
1-OPT-RS-007 REVIEW

U.S. Nuclear Regulatory Commission
Surry Power Station

FINAL

Administrative Job Performance Measure G2.3.4

Applicant_____ Start Time_____

Examiner_____

Date _____ Stop Time_____

Title

Calculate Dose and Best Work Method

K/A: G2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions. (3.2/3.7)

Applicability	**Estimated Time**	**Actual Time**
ALL	25 Minutes	

Conditions

- Task is to be PERFORMED in the classroom.

Standards

- Determines the dose for opening 1-RH-MOV-1700 while traveling via the spiral staircase.
- Determines that operator 2 is capable of performing the given evolution without exceeding admin dose limits.

Initial Conditions:

- Unit 1 has experienced a small break LOCA with a safety injection.
- The Operating Team is attempting to place the Residual Heat Removal System in service, but they are unable to open 1-RH-MOV-1700 from the Main Control Room.
- General area radiation levels have been manually estimated based on installed radiation monitor readings.
- Survey maps of the Unit 1 Containment are available, showing dose rates and one way travel time to reach the valve.
- The estimated time in the "A" room to open the valve is 8 minutes.
- Health Physics personnel are currently unavailable to provide assistance for dose determination.

- On the 3'6" elevation, travel time (one way) is all the way to 1-RH-MOV-1700. Calculate dose received on travel on the 3'6" based on pathway dose and not dose rate in loop room- time to walk across loop room floor to 1-RH-MOV-1700 is negligible.

- Assess each individual to determine which individuals could be assigned to perform this task ensuring admin dose limits will not be exceeded. ***Assume a dose upgrade to the ADMIN LIMIT has been received.***

  - Operator #1: Annual Dose = 317 mrem TEDE
  - Operator #2: Annual Dose = 275 mrem TEDE at Surry, but also has 750 mr exposure this year from previous employment for another utility's power station.

Initiating Cues

You have been directed to determine:

1. The total dose to open 1-RH-MOV-1700, including travel to and from the valve.

2. Which operator(s) could be assigned to perform this task ensuring admin dose limits will not be exceeded. *Assume a dose upgrade to the ADMIN LIMIT has been received.*

Terminating Cues

- Determines the dose for opening 1-RH-MOV-1700 is 1700 mr and that operator 2 can be used.

Tools and Equipment

- Calculator
- Survey Data
- VPAP-2101

Safety Considerations

- None

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded and noted at the end of the step as CRITICAL STEP.
- **START TIME:**

STEPS CAN BE PERFORMED IN ANY ORDER STEP 1: Calculate exposure at valve. **STANDARD:** __ 1. To open the valve - (6 R/HR)(1000 MR/R)(1 HR/60 MIN)(8 MIN)= 800 MR **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEPS CAN BE PERFORMED IN ANY ORDER STEP 2: Calculate exposure from using spiral staircase. **STANDARD:** ___ 1. (1 R/HR)(1000 MR/R)(1 HR/60 MIN)(2 MIN)(2 TRIPS) = 67 MR. (Personnel Hatch to Spiral Staircase) ___ 2. (3 R/HR)(1000 MR/R)(1 HR/60 MIN)(3 MIN)(2 TRIPS) = 300 MR. (Spiral Staircase) ___ 3. (4 R/HR)(1000 MR/R)(1 HR/60 MIN)(4 MIN)(2 TRIPS) = 533 MR. (Spiral Staircase on –3'6" to valve) ___ 4. (67 MR)+(300 MR)+(533 MR)+(800MR) = **1700 MR**. ***EVALUATOR'S NOTES:*** Total exposure via this path including time at the valve: 1700 mr. (acceptable band – **1699-1701 mr**). **THIS IS A CRITICAL STEP** **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEPS CAN BE PERFORMED IN ANY ORDER STEP 3: Determines the operator that can perform the task. **STANDARD:** Operator #1: **CANNOT** be assigned the task. **The dose received would cause the operator to exceed admin limit of 2.0 rem/year** Operator #2: **CAN be assigned the task without exceeding limits. Will remain within 3 rem/year admin limit.** ***EVALUATOR'S NOTES:*** Determines Operator 2 is capable of performing the task. **THIS IS A CRITICAL STEP** **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STOP TIME:

Operator Directions Handout
(TO BE READ TO APPLICANT BY EXAMINER)

Task

- Task is to be performed in the classroom.
- You have been directed to determine:
  1. The total dose to open 1-RH-MOV-1700, including travel to and from the valve.
  2. Which operator(s) could be assigned to perform this task ensuring admin dose limits will not be exceeded. *Assume a dose upgrade to the ADMIN LIMIT has been received.*

Directions

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

Initial Conditions:

- Unit 1 has experienced a small break LOCA with a safety injection.
- The Operating Team is attempting to place the Residual Heat Removal System in service, but they are unable to open 1-RH-MOV-1700 from the Main Control Room.
- General area radiation levels have been manually estimated based on installed radiation monitor readings.
- Survey maps of the Unit 1 Containment are available, showing dose rates and one way travel time to reach the valve.
- The estimated time in the "A" room to open the valve is 8 minutes.
- Health Physics personnel are currently unavailable to provide assistance for dose determination.
- On the 3'6" elevation, travel time (one way) is all the way to 1-RH-MOV-1700. Calculate dose received on travel on the 3'6" based on pathway dose and not dose rate in loop room- time to walk across loop room floor to 1-RH-MOV-1700 is negligible.

Initiating Cues

You have been directed to:

1. Calculate the total dose to open 1-RH-MOV-1700, including travel to and from the valve.
2. Determine which operator(s) could be assigned to perform this task ensuring admin dose limits will not be exceeded. *Assume a dose upgrade to the ADMIN LIMIT has been received.*
   - Operator #1: Annual Dose = 317 mrem TEDE
   - Operator #2: Annual Dose = 275 mrem TEDE at Surry, but also has 750 mr exposure this year from previous employment for another utility's power station.

Operator Directions Handout
(TO BE GIVEN TO APPLICANT)

Task

- Task is to be performed in the classroom.
- You have been directed to determine:
  1. The total dose to open 1-RH-MOV-1700, including travel to and from the valve.
  2. Which operator(s) could be assigned to perform this task ensuring admin dose limits will not be exceeded. *Assume a dose upgrade to the ADMIN LIMIT has been received.*

Initial Conditions:

- Unit 1 has experienced a small break LOCA with a safety injection.
- The Operating Team is attempting to place the Residual Heat Removal System in service, but they are unable to open 1-RH-MOV-1700 from the Main Control Room.
- General area radiation levels have been manually estimated based on installed radiation monitor readings.
- Survey maps of the Unit 1 Containment are available, showing dose rates and one way travel time to reach the valve.
- The estimated time in the "A" room to open the valve is 8 minutes.
- Health Physics personnel are currently unavailable to provide assistance for dose determination.
- On the 3'6" elevation, travel time (one way) is all the way to 1-RH-MOV-1700. Calculate dose received on travel on the 3'6" based on pathway dose and not dose rate in loop room- time to walk across loop room floor to 1-RH-MOV-1700 is negligible.

Initiating Cues

You have been directed to:

1. Calculate the total dose to open 1-RH-MOV-1700, including travel to and from the valve.
2. Determine which operator(s) could be assigned to perform this task ensuring admin dose limits will not be exceeded. *Assume a dose upgrade to the ADMIN LIMIT has been received.*
   - Operator #1: Annual Dose = 317 mrem TEDE
   - Operator #2: Annual Dose = 275 mrem TEDE at Surry, but also has 750 mr exposure this year from previous employment for another utility's power station.

Candidate Answer Form

1. The total Dose for opening 1-RH-MOV-1700 is: _____ mr.

2. Operator(s) that are capable of performing this task WITHOUT exceeding ADMIN DOSE limits are (circle answer for each operator):

   - Operator 1 – is CAPABLE of performing the Task within dose limits: YES / NO
   - Operator 2 – is CAPABLE of performing the Task within dose limits: YES / NO

Spiral Staircase Pathway

ATTACHMENT B
(Page 1 of 1)

p Number	Location/Description	Reactor Power
100	**Unit 1 Containment 47' Elevation**	Unit(s) Unit 1 ISD% Unit 2 100%

Purpose:	Type: Radiation	Contamination	Air Sample
☐ Routine ☒ Special ☐ RWP	☒ Gamma ☐ Beta ☐ Neutron	☐ GA ☐ LA ☐ DRP	☐ GA ☐ WS ☐ BZ

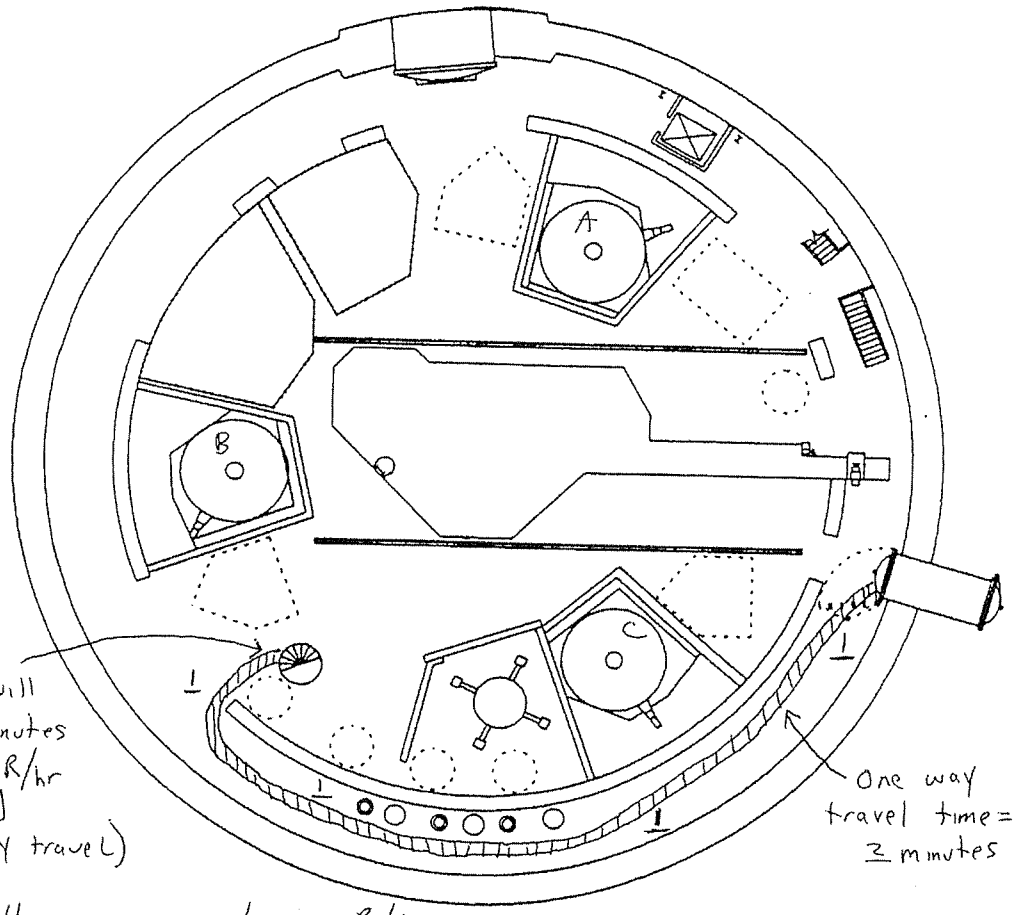
Instrument Model	Serial #
Installed	N/A
Radiation	
monitors	
throughout	
containment	

☐ All GA Smears < 1000 dpm/100cm^2
☐ All GA Smears < 20 dpm/100cm^2 Alpha
☐ All LA Smears < 1000 dpm/LAS

☐ Air Sample Results ____%DAC
☐ No DRP Detected
☒ All Gamma readings in mr/hr unless noted on map

Comments: General area based on Containment Radiation Monitors. 1000mr=1R
▭▭▭▭▭▭ Denotes Travel Path

Surveyed By (Print/Signature)	Date	Time	Reviewed By (Print/Signature)	Date
	Today	Now		



* All measurements in R/hr

. = Radiation Area	CA = Contaminated Area	LDWA = Low Dose Waiting Area
.HRA = High Radiation Area	RCA = Radiological Control Area	HPA = Hot Particle Area
LHRA = Locked High Radiation Area	ARA = Airborne Radioactivity Area	NEA = Neutron Exposure Area
VHRA = Very High Radiation Area	RMA = Radioactive Material(s) Area	DRP = Discrete Radioactive Particle

① =Smear Location △ = A/S Location # = G/A Dose Rate #* = Contact Dose Rate ~~X X X~~ = Radiological Boundary

Spiral Staircase Pathway

ATTACHMENT B
(Page 1 of 1)

Rp Number	Location/Description	Reactor Power
150	**Unit One Containment -3'6" Elevation**	Unit(s) Unit 1 ISD% Unit 2 100%

Purpose:	Type: Radiation	Contamination	Air Sample
☐ Routine ☒ Special ☐ RWP	☒ Gamma ☐ Beta ☐ Neutron	☐ GA ☐ LA ☐ DRP	☐ GA ☐ WS ☐ BZ

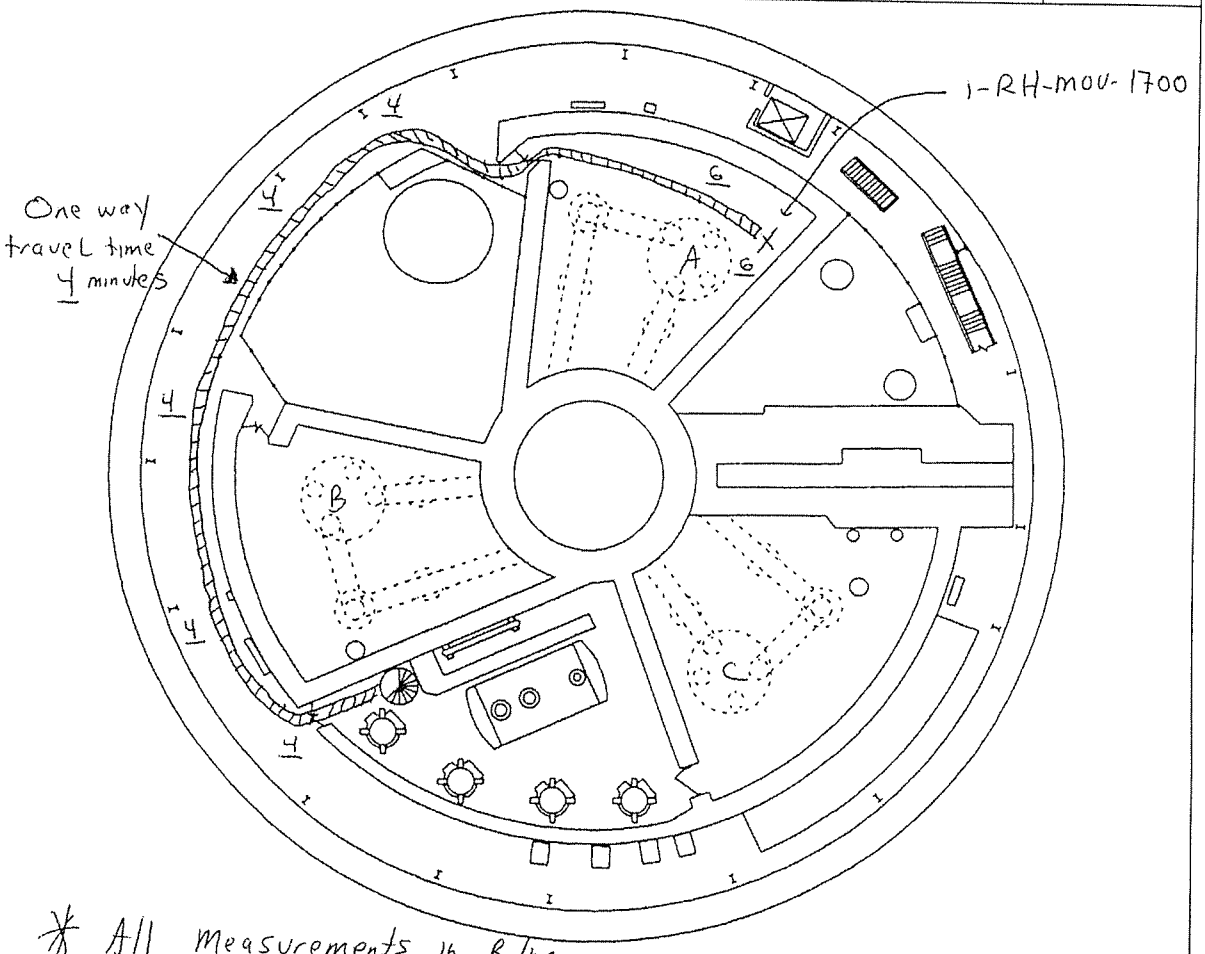
Instrument Model	Serial #
Installed Rad Monitors throughout Containment	

☐ All GA Smears < 1000 dpm/100cm^2
☐ All GA Smears < 20 dpm/100cm^2 Alpha
☐ All LA Smears < 1000 dpm/LAS

☐ Air Sample Results ____%DAC
☐ No DRP Detected
☒ All Gamma readings in mr/hr unless noted on map

Comments: General area based on Containment Radiation Monitors. 1000mr=1R
Denotes Travel Path

Surveyed By (Print/Signature)	Date	Time	Reviewed By (Print/Signature)	Date
	Today	Now		



* All Measurements in R/hr

= Radiation Area	CA = Contaminated Area	LDWA = Low Dose Waiting Area
HRA = High Radiation Area	RCA = Radiological Control Area	HPA = Hot Particle Area
LHRA = Locked High Radiation Area	ARA = Airborne Radioactivity Area	NEA = Neutron Exposure Area
VHRA = Very High Radiation Area	RMA = Radioactive Material(s) Area	DRP = Discrete Radioactive Particle

① =Smear Location △= A/S Location #= G/A Dose Rate #*= Contact Dose Rate ~~X X X~~ = Radiological Boundary

Surry Power Station

FINAL

Audit Examination
Administrative Job Performance Measure G2.4.39
TIME CRITICAL

FINAL

Applicant_____ Start Time_____

Examiner_____

Date _____ Stop Time_____

Title

Complete EPIP-2.01, Attachment 3, Update Message.

K/A: G.2.4.39 – Knowledge of RO responsibilities in emergency plan implementation. (3.9/3.8)

Applicability	**Estimated Time**	**Actual Time**
RO	10 Minutes	

Conditions
- Task is to be PERFORMED in the CLASSROOM.

Standards
- Update message complete IAW EPIP-2.01.

Initiating Cues
- Significant event notification.
- EPIP-1.01, Emergency Manager Controlling Procedure.
- EPIP-2.01, Notification of State and Local Governments, continuous action page

Terminating Cues

- EPIP 2.01, Attachment 2 update message completed.

Tools and Equipment

- EPIP-2.01, Notification of State and Local Governments, Revision 41
- EMCOMM Printout for MET Data
- EPIP-2.01, Message #2 copy
- EPIP-2.01, Attachment 2, Blank Form

Safety Considerations

- None

Initial Conditions:

- Unit 1 and 2 at 100% power. Unit 1 manually tripped and safety injection actuated due to a Steam Generator Tube Rupture on "B" SG.
- When 1-MS-TV-101B closed, 1-MS-RV-101B failed to operate causing 1-MS-SV-101B to lift and subsequently failed to close.

Initiating Cues

- This is a **TIME CRITICAL JPM**.
- I am the SEM and you are the State and Local Communicator. Currently located in the TSC
- A Site Area Emergency was declared based on FS1.1 at 0953, today.
- When "B" SG MSTV manually closed, "B" SG PORV failed to operate causing 1-MS-SV-101B to lift and subsequently failed to close. A team is currently being briefed to attempt to gag 1-MS-SV-101B.
- Forty-Five (45) minutes have elapsed since the start time of Message #2. You are to complete Message #3 and submit it to me for approval. You are currently at Step 17 of EPIP-2.01, Notification of State and Local Governments.
- The WEB EOC program is out of service for software maintenance.
- Here is a copy of the last message transmitted.
- When you finish the actions necessary to accomplish this, please inform me.

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- **START TIME (critical time start): _____**

STEP 1: Reviews Step 17 of EPIP-2.01, and returns to step 3. OR Reviews Continuous Actions Page of EPIP-2.01, Item 1.b 2), Report of Emergency Change Criteria, and returns to Step 3. **STANDARD:** a) Returns to EPIP-2.01, Step 3. **EVALUATOR NOTES:** • A **KEY** is provided on Pages 12 and 13 of the JPM to assist in responses to Candidate during EPIP-2.01, Attachment 2, form completion. Bracketed items are Critical Steps. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
STEP 2: Reviews notes prior to step 3: • The initial notification of any emergency classification must be made (meaning contact initiated with the first agency) within 15 minutes of declaring the emergency class. • Attachment 1, Instructions for Completing Report of Emergency to State and Local Governments, may be referenced as needed. • Items 5 through 9 on the Report of Emergency to State and Local Governments are optional for a message reporting initial entry into the Emergency Plan or an emergency class change. **STANDARD:** a) Acknowledges notes. **EVALUATOR NOTES:** • If asked: Classification remains Site Area Emergency (SAE), FS1.1. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

STEP 3: Step 3 - CHECK EMERGENCY - REMAINS IN EFFECT: **STANDARD:** a) Reviews initial conditions or asks Evaluator if emergency remains in effect. **EVALUATOR NOTES:** If asked: Site Area Emergency (SAE), FS1.1 in effect. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Step 4: Step 4: RECORD INFORMATION ON REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS **Standard:** a) Candidate obtains a copy of EPIP-2.01, Attachment 2. b) Candidate uses Message #2 (provided) as necessary for pertinent information. c) Candidate uses EPIP-2.01 as necessary to complete attachment 2. **EVALUATOR NOTES:** If asked: Site Area Emergency (SAE), FS1.1 in effect. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

Attachment 2, EPIP-2.01, Page 1 **Step 5:** Candidate fills out top of form: **Standard:** a) **Records Message #3 on MESSAGE # line.** b) Selects checkbox TSC. c) Leaves APPROVAL line, Roll Call checkboxes, and The time is: line, blank. **EVALUATOR NOTES:** Candidate may elect to check the TSC box (step b above) when transmitting the message. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 1 **Step 6:** Candidate completes Item 1. Status **Standard:** a) **Checks Drill Event box.** **EVALUATOR NOTES:** None. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

Attachment 2, EPIP-2.01, Page 1 **Step 7:** Candidate completes Item 2. Emergency Classification. **Standard:** a) Checks Site Area Emergency box. b) Checks Category F box. c) Checks Classification S box. d) Enters FS1.1 Declared at 0953 on TODAYS DATE. e) Checks Fission Product Barriers Affected, Reactor Coolant, and Containment boxes. **EVALUATOR NOTES:** a) through c) – None d) If asked: What is todays date, answer with current date. e) If asked: Reactor Coolant and Containment barriers affected. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 1 **Step 8:** Candidate completes Item 3. Release of Radioactive Material **Standard:** a) Checks B. Radiological release in progress. Will transmit Report of Radiological Conditions to Virginia EOC. **EVALUATOR NOTES:** a) If asked: Radiological release in progress. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

Attachment 2, EPIP-2.01, Page 1 **Step 9:** Candidate completes Item 4. Meteorological Data. **Standard:** a) **Checks Based On On-Site Measurements box.** b) Candidate places time in appropriate blank. c) **Candidate Enters 260.2 in AVE Wind Direction From ____ degrees (0° to 360 °) blank.** d) **Candidate enters 13.5 in AVE Wind Speed ___ mph blank.** **EVALUATOR NOTES:** **Provide candidate with a printout of EMCOMM Page** **If asked:** Item a), Time of EMCOMM printout, 1045. **If asked:** For Peer Check on Wind direction and Wind Speed, items c) and d), Acknowledge request for Peer check. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 1 **Step 10:** Candidate acknowledges Note: **NOTE**: Items 5 - 9 optional for message reporting initial Emergency Plan entry or emergency classification change and "Excluded from message" may be checked. "Items 5 - 9 are excluded from message" may be read in lieu of reading each item. **Standard:** a) Candidate determines Note is not applicable. **EVALUATOR NOTES:** **None**. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

Attachment 2, EPIP-2.01, Page 1 **Step 11:** Candidate completes Item 5. Assistance requested or Being Provided. **Standard:** a) Candidate Checks None box. **EVALUATOR NOTES:** If asked: No offsite assistance has been requested. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 1 **Step 12:** Candidate completes Item 6. Emergency Response Actions Underway. **Standard:** a) Candidate Checks Station emergency personnel called in box. b) Candidate Checks Station monitoring teams dispatched off-site box. **EVALUATOR NOTES:** **If asked:** Station monitoring teams dispatched off-site, and Station emergency personnel called in. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 1 **Step 13:** Candidate completes Item 7. Evacuation or Company Dismissal of Site Personnel. **Standard:** a) Candidate Checks No box, or checks Other and fills in "Currently Being Evaluated". **b) Critical step only if Candidate <u>Incorrectly</u> Checks Evacuation to Primary Remote Assembly Area, Evacuation to Secondary Remote Assembly Area, or Company Dismissal check box(es).** **EVALUATOR NOTES:** If asked: Evacuation or Company Dismissal is currently being evaluated. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

Attachment 2, EPIP-2.01, Page 1 **Step 14:** Candidate completes Item 8. Prognosis of Situation Since Last Report. **Standard:** a) Candidate Checks Stable box. **EVALUATOR NOTES:** **If asked**: Situation is Stable. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 1 **Step 15:** Candidate completes Item 9: ADDITIONAL INFORMATION. **Standard:** a) Candidate enters: **"**Isolation of steam release path to atmosphere expected in 45 minutes"**.** **EVALUATOR NOTES:** **If asked:** for item 9: "Isolation of steam release path to atmosphere expected in 45 minutes". **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 1 **Step 16:** Candidate completes Bottom of form **Standard:** a) **Candidate enters NAME on This is (name) line.** b) Candidate checks TSC box. c) Candidate enters current Date in appropriate blank. **EVALUATOR NOTES:** • The candidate may elect to complete steps "b" and "c" when transmitting the message and not complete at this time. If asked: Provide Candidate with current Date and Time. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

Attachment 2, EPIP-2.01, Page 2 **Step 17:** Candidate completes Top of form. **Standard:** a) **Candidate enters "3" in Message # line.** b) Candidate checks TSC box. **EVALUATOR NOTES:** Candidate may elect to check the TSC box (step b above) when transmitting the message. If asked: Provide Candidate with current Date and Time. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 2 **Step 18:** Candidate completes Item 10: PROTECTIVE ACTION RECOMMENDATIONS: **Standard:** a) Candidate checks NONE box **EVALUATOR NOTES:** **If asked:** Item 10, None. **COMMENTS:**	_____ **SAT** _____ **UNSAT**
Attachment 2, EPIP-2.01, Page 2 **Step 19:** Candidate completes Item 11: SITE ACCESS **Standard:** a) Candidate checks AVAILABLE box **EVALUATOR NOTES:** **If asked:** Item 11, Site Access is Available. **COMMENTS:**	_____ **SAT** _____ **UNSAT**

Attachment 2, EPIP-2.01, Page 2 **Step 20**: Candidate completes form. **Standard:** a) Candidate leaves Item 12 blank. b) Candidate checks TSC box. c) Candidate enters current Date in appropriate blank. d) Candidate submits completed form to the Evaluator for Approval. **EVALUATOR NOTES:** Candidate may elect perform steps b & c above when transmitting the message. Accepts form. **Time Critical:** 15 minutes from acceptance of task. **COMMENTS:** ** **JPM Complete** **	_____ **SAT** _____ **UNSAT**

STOP TIME: _____

Notes:

Key

REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS Key

MESSAGE # [3] APPROVAL: _____
(Station Emergency Manager or Recovery Manager)

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF. Standby for roll-call and following emergency message. Use a Report of Emergency form to copy message. **(Conduct a roll-call and check boxes as each party answers.)**

☐ Virginia EOC ☐ Surry County ☐ Isle of Wight County ☐ James City County ☐ Williamsburg ☐ Newport News ☐ York County

The time is: _____ (24-hr time). The emergency message is as follows: **(READ SLOWLY)**

Item 1. STATUS: ☐ Actual Event [☑ Drill] ☐ Actual Event terminated at _____ (24-hr time) on _____ (date) ☐ Drill terminated

Item 2. EMERGENCY CLASSIFICATION: ☐ NOUE ☐ Alert ☐ Site Area Emergency ☐ General Emergency

Category	Classification
☐ R ☐ S	☐ U ☑ S
☐ H ☐ C	☐ A ☐ G
☐ E ☑ F	

1.1 Declared at 0953 (24-hr time) on TODAY (date)

Fission Product Barriers affected: ☐ N/A ☐ Fuel Clad ☐ Reactor Coolant ☐ Containment

Item 3. RELEASE OF RADIOACTIVE MATERIAL: Routine releases ongoing due to plant operations.

Additional radiological releases associated with the event:

☐ A. No radiological release. Will NOT transmit Report of Radiological Conditions to Virginia EOC.
☑ B. Radiological release in progress. Will transmit Report of Radiological Conditions to Virginia EOC.
☐ C. Radiological release now terminated. Will transmit Report of Radiological Conditions to Virginia EOC.
☐ D. Radiological release projected to occur. Will transmit Report of Radiological Conditions to Virginia EOC.

Item 4. METEOROLOGICAL DATA: Based on: [☑ On-site Measurements] ☐ Off-site Measurements ☐ Not Available

Time: 1045 (24-hr time) AVE Wind Direction from [260.2] degrees (0^0 to 360^0)

AVE Wind Speed [13.5] mph

NOTE: Items 5 - 9 optional for message reporting initial Emergency Plan entry or emergency classification change and "Excluded from message" may be checked. **"Items 5 - 9 are excluded from message"** may be read in lieu of reading each item.

Item 5. ASSISTANCE REQUESTED OR BEING PROVIDED: ☐ Excluded from message

☑ None

_____ (#) Fire Units from _____ _____ (#) Police Units from _____

_____ (#) Rescue Units from _____ _____ (#) Other _____

Item 6. EMERGENCY RESPONSE ACTIONS UNDERWAY: ☐ Excluded from message

☐ None ☑ Station emergency personnel called in

☑ Station monitoring teams dispatched off-site ☐ Other _____

Item 7. EVACUATION OR COMPANY DISMISSAL OF SITE PERSONNEL: ☐ Excluded from message

☑ No

[☑ Evacuation to **Primary** Remote Assembly Area: ☐ Planned ☐ In progress ☐ Completed ☐ Released from RAA

☑ Evacuation to **Secondary** Remote Assembly Area: ☐ Planned ☐ In progress ☐ Completed ☐ Released from RAA

☑ Company Dismissal: ☐ Planned ☐ In progress ☐ Completed]

☑ Other EVACUATION OF COMPANY DISMISSAL CURRENTLY being EVACUATED

Item 8. PROGNOSIS OF SITUATION SINCE LAST REPORT: ☐ Excluded from message

☑ Stable ☐ Worsening

☐ Improving ☐ Other _____

Item 9. ADDITIONAL INFORMATION (Do not use abbreviations, mark numbers or acronyms.): ☐ Excluded from message

ISOLATION of steam release path to Atmosphere expected in 45 minutes

This is (name) [CANDIDATE Name] /Emergency Communicator

Please acknowledge receipt of this message. **(Conduct roll-call and check boxes as each party answers.)**

☐ Virginia EOC ☐ Surry County ☐ Isle of Wight County ☐ James City County ☐ Williamsburg ☐ Newport News ☐ York County

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF out at _____ (24-hr time) on TODAY (date)

CONTINUED ON REVERSE FOR STATE

MESSAGE # [3] KEY

NOTE: • If this is a termination message, the remainder of this report is not transmitted.

• Transmit to Virginia EOC only using the VEOC ARD, VEOC autodial or direct dial (804) 674-2400.

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF continuing the message.

The time is: _____ (24-hr time) **(READ SLOWLY)**

Item 10. PROTECTIVE ACTION RECOMMENDATIONS:

☑ None

☐ Shelter-in-place: _____ Mile radius (360°) and _____ Miles downwind in the following Sectors _____.

☐ Evacuate: _____ Mile radius (360°) and _____ Miles downwind in the following Sectors _____.

☐ Beyond 10 Mile EPZ:

☐ Evacuate Area: _____ Centerline (degrees); _____ Distance (Miles); _____ Width (feet)

☐ Shelter-in-place: _____ Centerline (degrees); _____ Distance (Miles); _____ Width (feet)

☐ Potassium Iodide: Recommend implementation of Potassium Iodide (KI) strategies for the general public. The projected dose at the site boundary is ≥ 5 Rem Thyroid CDE.

Item 11. SITE ACCESS: ☑ Available ☐ Not Available

Item 12. UPDATE SCHEDULE: ☐ 60 minute; ☐ Other _____

Name of Virginia EOC Duty Officer: _____

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF out at _____ (24-hr time) on TODAY (date)

EVALUATOR'S REFERENCE COPY
Operator Directions Handout
(TO BE READ TO APPLICANT BY EXAMINER)

Task

- Task is to be performed in the simulator or in the classroom.

Directions

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

Initial Conditions:

- Unit 1 and 2 at 100% power. Unit 1 manually tripped and safety injection actuated due to a Steam Generator Tube Rupture on "B" SG.
- When 1-MS-TV-101B closed, 1-MS-RV-101B failed to operate causing 1-MS-SV-101B to lift and subsequently failed to close.

Initiating Cues

- This is a **TIME CRITICAL JPM**.
- I am the SEM and you are the State and Local Communicator. Currently located in the TSC
- A Site Area Emergency was declared based on FS1.1 at 0953, today.
- When "B" SG MSTV manually closed, "B" SG PORV failed to operate causing 1-MS-SV-101B to lift and subsequently failed to close. A team is currently being briefed to attempt to gag 1-MS-SV-101B.
- Forty-Five (45) minutes have elapsed since the start time of Message #2. You are to complete Message #3 and submit it to me for approval. You are currently at Step 17 of EPIP-2.01, Notification of State and Local Governments.
- The WEB EOC program is out of service for software maintenance.
- Here is a copy of the last message transmitted.
- When you finish the actions necessary to accomplish this, please inform me.

Operator Directions Handout
(TO BE GIVEN TO APPLICANT)

Initial Conditions:

- Unit 1 and 2 at 100% power. Unit 1 manually tripped and safety injection actuated due to a Steam Generator Tube Rupture on "B" SG.
- When 1-MS-TV-101B closed, 1-MS-RV-101B failed to operate causing 1-MS-SV-101B to lift and fail to close.

Initiating Cues

- This is a **TIME CRITICAL JPM**.
- I am the SEM and you are the State and Local Communicator. Currently located in the TSC
- A Site Area Emergency was declared based on FS1.1 at 0953, today.
- When "B" SG MSTV manually closed, "B" SG PORV failed to operate causing 1-MS-SV-101B to lift and subsequently failed to close. A team is currently being briefed to attempt to gag 1-MS-SV-101B.
- Forty-Five (45) minutes have elapsed since the start time of Message #2. You are to complete Message #3 and submit it to me for approval. You are currently at Step 17 of EPIP-2.01, Notification of State and Local Governments.
- The WEB EOC program is out of service for software maintenance.
- Here is a copy of the last message transmitted.
- When you finish the actions necessary to accomplish this, please inform me.

U.S. Nuclear Regulatory Commission
Surry Power Station

FINAL

SR08301
Administrative Job Performance Measure G2.4.41
TIME CRITICAL

Applicant_____ Start Time_____

Examiner_____

Date _____ Stop Time_____

Title

Classify an event in accordance with EPIP-1.01

K/A: G2.4.41 Knowledge of the emergency action level thresholds and classifications. (2.3/4.1)

Applicability	**Estimated Time**	**Actual Time**
SRO(I)/SRO(U)	29 Minutes	

Conditions

- Task may be PERFORMED in the simulator or classroom.

Standards

- "Site Area Emergency" declared IAW EPIP-1.01.

Initiating Cues

- Significant event notification.
- EPIP-1.01, Emergency Manager Controlling Procedure.

Terminating Cues

- Report received of event classification and approval for transmitting EPIP-2.01.

Procedures

- EPIP-1.01, EMERGENCY MANAGER CONTROLLING PROCEDURE (REV 53)
- EPIP-2.01, NOTIFICATION OF STATE AND LOCAL GOVERNMENTS (REV 41)
- EAL Tables (Rev 2)
- Surry EAL Basis Document (Rev 1)

Safety Considerations

- None

Initial Conditions:

- This is a **TIME CRITICAL JPM**.
- You are the Nuclear Shift Manager. I will act as Emergency Communicators, if required.
- With both units at 100% power, a fire broke out in the main control room that necessitated control room evacuation (MCR personnel have left the Main Control Room).
- When the fire in the control room was announced, smoke from the control room fire was observed in the Emergency Switchgear Room; craft personnel in the area responded by dumping Halon in **BOTH** Unit One and Unit Two Emergency Switchgear Rooms.
- The Incident Commander has determined that the entire Emergency Switchgear room is uninhabitable until the area can be ventilated. It is estimated that this process will be complete in 25 minutes.
- You and the Emergency Communicators have re-located to the TSC.

Initiating Cues

- Review EALs for applicability and review and approve the Notification of State and Local Governments form.
- On-site weather instruments indicate wind is from the North East (45 degrees) with an average wind speed of 10 mph.

If performed in the classroom, announcing classification (if required) out loud is not required.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- **START TIME:**

EPIP-1.01 STEP 1: REVIEWS CAUTION AND NOTE PRIOR TO STEP 1 OF EPIP-1.01. **Standards** a) Reviews the following CAUTION: Declaration of the highest emergency class for which an Emergency Action Level is exceeded shall be made. b) Reviews the following NOTE: The PCS is potentially unreliable in the event of an earthquake. Therefore, PCS parameters should be evaluated for accuracy should an earthquake occur. **Evaluator's Comments**	_____ **SAT** _____ **UNSAT**

EPIP-1.01

STEP 2: Step 1. EVALUATE EMERGENCY ACTION LEVELS:

Standards

a) Determine event category using the applicable Emergency Action Level Matrix:
- Hot Conditions (RCS > 200 °F)
- Cold Conditions (RCS ≤ 200 °F)

Turns to EPIP-1.01, Attachment 1, Page 1, EAL Table Index.

b) Review EAL associated with event category.

Determines event category to be HAZARDS.

c) Use Control Room monitors, PCS, and outside reports to get indications of emergency conditions listed in the EAL Matrix.

Determines event is HS5.1 and classifies the event as a SITE AREA EMERGENCY.

d) Verify EAL – CURRENTLY EXCEEDED

e) Initiate a chronological log of events

Evaluator Note

TIME CRITICAL for JPM ends upon declaration of the Site Area Emergency.

DECLARATION TIME:

Evaluator's Comments

_____ **SAT**

_____ **UNSAT**

EPIP-1.01

STEP 3: Step 2. RECORD EAL TAB, TIME EMERGENCY DECLARED AND SM/SEM NAME:

Standards

Completes the table below as shown:

Emergency Classification	EAL Identifier	Time Declared	SM /SEM Name
Notification of Unusual Event			
Alert			
Site Area Emergency	**HS 5.1**	Enters time	Enters Name
General Emergency			

Evaluator Note

Evaluator's Comments

_____ **SAT**

_____ **UNSAT**

EPIP-1.01

STEP 4: Step 3. ANNOUNCES THE FOLLOWING DECLARATIONS:

Standards

Announces the following information:

- Station Emergency Manager position
- Emergency Classification
- EAL
- Time Declared

Evaluator's Comments

_____ **SAT**

_____ **UNSAT**

EPIP-1.01

STEP 5: Note: Assembly, accountability and/or initiation of facility staffing may not be desired during certain situations (e.g., security event or condition, severe weather, anticipated grid disturbance) or may have already been completed. These activities should be implemented as quickly as achievable given the specific situation.

Step 4. CHECK – CONDITIONS ALLOW FOR NORMAL IMPLEMENTATION OF EMERGENCY RESPONSE ACTIONS

Standards

Determines that plant conditions allow for normal implementation of the emergency response organization

Evaluator Note

If asked: State that there are no other events in progress that could hinder the activation of the emergency response organization.

Evaluator's Comments

_____ **SAT**

_____ **UNSAT**

EPIP-1.01

_____ **SAT**

_____ **UNSAT**

STEP 6: Step 5. NOTIFY PLANT STAFF OF ALERT OR HIGHER CLASSIFICATION:

Standards

a) Check classification – ALERT OR HIGHER

b) Check if emergency assembly and accountability – PREVIOUSLY CONDUCTED

Step b) RNO actions: 1) Sound emergency alarm and make announcement on the station Gai-Tronics system as follows:

"Site Area Emergency has been declared due to fire in the MCR and inability to establish control from the Aux Shutdown Panel. All emergency response personnel report to your assigned stations. All other personnel report to your Emergency Assembly Area" (*or words to this effect*)

2) Repeat RNO 5.b.1.

3) GO TO Step 6.

Evaluator Note

If asked: As TSC, sound the emergency alarm for 15 seconds.
If asked: Accountability was not previously conducted.

Evaluator's Comments

EPIP-1.01

STEP 7: Step 6. INITIATE SUPPORTING PROCEDURES:

_____ **SAT**

_____ **UNSAT**

Standards

Reviews the following CAUTION: All further instructions should be continued unless otherwise directed.

a) Determine if a radiological release is in progress:

RNO a) RNO actions: IF radiological release NOT in progress, THEN GO TO Step 6.b.

b) Inform Emergency Communicators of the following:
- Emergency Classification
- Emergency Action Level
- Time of Declaration
- Radiological release status
- PARs, if applicable

c) Direct Emergency Communicators to initiate the following:

1) EPIP-2.01, NOTIFICATIONS OF STATE AND LOCAL GOVERNMENTS

2) EPIP-2.02, NOTIFICATION OF NRC

Evaluator's Cue

Provide the previously completed EPIP-2.01 to the Candidate.

Evaluator Note

Candidate determines that EPIP-2.01 is incorrectly filled out. **Alert is checked instead of Site Area Emergency and category is checked as "S" instead of "H".**

Evaluator's Comments

STEP 8:	APPLICANT REPORTS COMPLETION OF TASK. **Standards** Applicant reports completion of the task. ***Evaluator's Cue*** If the Candidate continues in EPIP-1.01, inform Candidate that this is the end of the JPM. **Evaluator's Comments** ** JPM COMPLETE **	_____ **SAT** _____ **UNSAT**

STOP TIME:

Operator Directions Handout
(TO BE READ TO CANDIDATE BY EXAMINER)

Task

- Task may be PERFORMED in the simulator or classroom.

Directions

The evaluator will explain the initial conditions of the task to be performed and will provide the initiating cue. Ensure you indicate to the evaluator when you understand your assigned task.

Initial Conditions:

- This is a **TIME CRITICAL JPM**.
- You are the Nuclear Shift Manager. I will act as Emergency Communicators, if required.
- With both units at 100% power, a fire broke out in the main control room that necessitated control room evacuation (MCR personnel have left the Main Control Room).
- When the fire in the control room was announced, smoke from the control room fire was observed in the Emergency Switchgear Room; craft personnel in the area responded by dumping Halon in **BOTH** Unit One and Unit Two Emergency Switchgear Rooms.
- The Incident Commander has determined that the entire Emergency Switchgear room is uninhabitable until the area can be ventilated. It is estimated that this process will be complete in 25 minutes.
- You and the Emergency Communicators have re-located to the TSC.

Initiating Cues

- Review EALs for applicability and review and approve the Notification of State and Local Governments form.
- On-site weather instruments indicate wind is from the North East (45 degrees) with an average wind speed of 10 mph.
- If performed in the classroom, announcing classification (if required) out loud is not required.

Operator Directions Handout
(TO BE GIVEN TO CANDIDATE)

Initial Conditions:

- This is a **TIME CRITICAL JPM**.
- You are the Nuclear Shift Manager. I will act as Emergency Communicators, if required.
- With both units at 100% power, a fire broke out in the main control room that necessitated control room evacuation (MCR personnel have left the Main Control Room).
- When the fire in the control room was announced, smoke from the control room fire was observed in the Emergency Switchgear Room; craft personnel in the area responded by dumping Halon in **BOTH** Unit One and Unit Two Emergency Switchgear Rooms.
- The Incident Commander has determined that the entire Emergency Switchgear room is uninhabitable until the area can be ventilated. It is estimated that this process will be complete in 25 minutes.
- You and the Emergency Communicators have re-located to the TSC.

Initiating Cues

- Review EALs for applicability and review and approve the Notification of State and Local Governments form.
- On-site weather instruments indicate wind is from the North East (45 degrees) with an average wind speed of 10 mph.
- If performed in the classroom, announcing classification (if required) out loud is not required.

REPORT OF EMERGENCY TO STATE AND LOCAL GOVERNMENTS

MESSAGE # 1 APPROVAL: _____
(Station Emergency Manager or Recovery Manager)

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF. Standby for roll-call and following emergency message. Use a Report of Emergency form to copy message. **(Conduct a roll-call and check boxes as each party answers.)**

☐ Virginia EOC ☐ Surry County ☐ Isle of Wight County ☐ James City County ☐ Williamsburg ☐ Newport News ☐ York County

The time is: _____ (24-hr time). The emergency message is as follows: **(READ SLOWLY)**

Item 1. STATUS: ☐ Actual Event ☑ Drill ☐ Actual Event terminated at _____ (24-hr time) on _____ (date) ☐ Drill terminated

Item 2. EMERGENCY CLASSIFICATION: ☐ NOUE ☑ Alert ☐ Site Area Emergency ☐ General Emergency

Category		Classification	
☐ R	☑ S	☐ U	☑ S
☐ H	☐ C	☐ A	☐ G
☐ E	☐ F		

5.1 Declared at _____ (24-hr time) on TODAY (date)

Fission Product Barriers affected: ☑ N/A ☐ Fuel Clad ☐ Reactor Coolant ☐ Containment

Item 3. RELEASE OF RADIOACTIVE MATERIAL: Routine releases ongoing due to plant operations.

Additional radiological releases associated with the event:

☑ A. No radiological release. Will NOT transmit Report of Radiological Conditions to Virginia EOC.
☐ B. Radiological release in progress. Will transmit Report of Radiological Conditions to Virginia EOC.
☐ C. Radiological release now terminated. Will transmit Report of Radiological Conditions to Virginia EOC.
☐ D. Radiological release projected to occur. Will transmit Report of Radiological Conditions to Virginia EOC.

Item 4. METEOROLOGICAL DATA: Based on: ☑ On-site Measurements ☐ Off-site Measurements ☐ Not Available

Time: _____ (24-hr time) AVE Wind Direction from 45 degrees (0^0 to 360^0)

AVE Wind Speed 10 mph

NOTE: Items 5 - 9 optional for message reporting initial Emergency Plan entry or emergency classification change and "Excluded from message" may be checked. **"Items 5 - 9 are excluded from message"** may be read in lieu of reading each item.

Item 5. ASSISTANCE REQUESTED OR BEING PROVIDED: ☑ Excluded from message

☐ None
_____ (#) Fire Units from _____ _____ (#) Police Units from _____
_____ (#) Rescue Units from _____ _____ (#) Other _____

Item 6. EMERGENCY RESPONSE ACTIONS UNDERWAY: ☑ Excluded from message

☐ None ☐ Station emergency personnel called in
☐ Station monitoring teams dispatched off-site ☐ Other _____

Item 7. EVACUATION OR COMPANY DISMISSAL OF SITE PERSONNEL: ☑ Excluded from message

☐ No
☐ Evacuation to **Primary** Remote Assembly Area: ☐ Planned ☐ In progress ☐ Completed ☐ Released from RAA
☐ Evacuation to **Secondary** Remote Assembly Area: ☐ Planned ☐ In progress ☐ Completed ☐ Released from RAA
☐ Company Dismissal: ☐ Planned ☐ In progress ☐ Completed
☐ Other _____

Item 8. PROGNOSIS OF SITUATION SINCE LAST REPORT: ☑ Excluded from message

☐ Stable ☐ Worsening
☐ Improving ☐ Other _____

Item 9. ADDITIONAL INFORMATION (Do not use abbreviations, mark numbers or acronyms.): ☑ Excluded from message

_____
_____
_____

This is (name) Jim Burley /Emergency Communicator

Please acknowledge receipt of this message. **(Conduct roll-call and check boxes as each party answers.)**

☐ Virginia EOC ☐ Surry County ☐ Isle of Wight County ☐ James City County ☐ Williamsburg ☐ Newport News ☐ York County

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF out at _____ (24-hr time) on TODAY (date)

CONTINUED ON REVERSE FOR STATE

MESSAGE # 1

NOTE: • If this is a termination message, the remainder of this report is not transmitted.

• Transmit to Virginia EOC only using the VEOC ARD, VEOC autodial or direct dial (804) 674-2400.

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF continuing the message.

The time is: _____. **(READ SLOWLY)**
(24-hr time)

Item 10. PROTECTIVE ACTION RECOMMENDATIONS:

☑ None

☐ Shelter-in-place: _____ Mile radius (360°) and _____ Miles downwind in the following Sectors _____.

☐ Evacuate: _____ Mile radius (360°) and _____ Miles downwind in the following Sectors _____.

☐ Beyond 10 Mile EPZ:

☐ Evacuate Area: _____ Centerline (degrees); _____ Distance (Miles); _____ Width (feet)

☐ Shelter-in-place: _____ Centerline (degrees); _____ Distance (Miles); _____ Width (feet)

☐ Potassium Iodide: Recommend implementation of Potassium Iodide (KI) strategies for the general public. The projected dose at the site boundary is ≥ 5 Rem Thyroid CDE.

Item 11. SITE ACCESS: ☑ Available ☐ Not Available

Item 12. UPDATE SCHEDULE: ☐ 60 minute; ☐ Other _____

Name of Virginia EOC Duty Officer: _____

This is Surry Power Station ☐ Control Room ☑ TSC ☐ LEOF ☐ CEOF out at _____ (24-hr time) on TODAY (date)