

U.S. Nuclear Regulatory Commission
Surry Power Station

SR12301

Simulator Job Performance Measure 038EA1.32 (4.6 / 4.7)

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Locally Isolate the Secondary System (1-E-3, Attachment 1)

K/A: 038EA1.32 Ability to operate and monitor the following as they apply to a SGTR: Isolation of a ruptured S/G

Applicability

RO/SRO(I)

Estimated Time

10 Minutes

Actual Time

_____ Minutes

Conditions

- Task is to be SIMULATED in the Plant.
- A simulated SGTR has occurred on the Unit 1 "B" SG and the "B" MSTV and NRV will not close. The "A" and "C" SG MSTVs have been closed.

Standards

- Unit 1 secondary system isolated (AW 1-E-3, Attachment 1, Step 6 completed).

Initiating Cues

- Shift Manager Direction.
- 1-E-3, SGTR, (RNO column) Step 3.e RNO e.1.

Terminating Cues

- 1-E-3, SGTR, Attachment 1, Step 6 completed.

Procedures

- 1-E-3, Steam Generator Tube Rupture, Rev 43.

Tools and Equipment

- None

Safety Considerations

- Standard Personal Safety Equipment

Initiating Cues

- “B” Steam Generator Tube Rupture with the failure of “B” SG isolation from the Control Room.

Directions to the Applicant

- This task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves.
- I am the Nuclear Shift Manager. There has been a SGTR identified in Unit 1's "B" SG. We have attempted to isolate the “B” Steam Generator but its MSTV and NRV will not close. The other MSTVs have been closed and now we have to isolate the secondary system.
- Here's 1-E-3, Attachment 1. I need you to locally isolate Unit 1 secondary system IAW 1-E-3, Attachment 1, Steps 4 through 6.

Notes

- This task is to be SIMULATED. Do NOT allow the Candidate to manipulate controls, operate switches or reposition valves.

DRAFT

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded and denoted by an asterisk (*).
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>Auxiliary and Gland Steam Isolation (<i>Step 4</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Locally open auxiliary steam crosstie: 1-AS-8. (<i>Step 4a</i>) b) Locally close auxiliary steam isolation: 1-AS-1. (<i>Step 4b</i>) c) Locally verify gland steam supply from main steam closed: 1-MS-15 (<i>Step 4c</i>) <p>EVALUATOR'S NOTE:</p> <ul style="list-style-type: none"> a) 1-AS-8 located on right side of stairs, near Unit 1 side of Fire Door #28. When SIMULATING Opening: Valve freely moves when handwheel turned Counter-clockwise, and stem threads appear above handwheel. After several turns, handwheel motion stops. Candidate should move handwheel one half turn clockwise to ensure valve does not jam on backseat. b) 1-AS-1 located on Turbine Building Mezzanine level, west of 1-AS-PCV-100, six feet above floor. When valve handwheel turned Clockwise, valve freely moves and stem threads disappear into valve handwheel. After several turns of the handwheel, valve motion stops, and two threads showing above handwheel. c) 1-MS-15 located on Turbine Building Mezzanine, west of 1-MS-PCV-104, six feet above floor. When valve handwheel turned Clockwise, valve freely moves and stem threads disappear into valve handwheel. After several turns of the handwheel, valve motion stops, and two threads showing above handwheel. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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<p>STEP 2:</p> <p>Turbine Building Steam Trap Isolation, Main steam line and Turbine trap isolation valves: <i>(Step 5a)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews to Note prior to Step 5: NOTE: Steps 5 and 6 may be performed in any order. b) 1-MS-46 (mezz level north face of south stanchion under HP turb). c) 1-MS-50 (mezz level north face of south stanchion under HP turb). d) 1-MS-30 (mezz level south face of north stanchion under HP turb). e) 1-MS-35 (mezz level south face of north stanchion under HP turb). f) 1-MS-55 (mezz level west of grating over HP drain pp). <p>EVALUATOR'S NOTE:</p> <p>When valve handwheel turned Clockwise, valve moves freely. After several turns of the handwheel, valve motion stops.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 3:</p> <p>Turbine Building Steam Trap Isolation, Reheat steam line trap isolation valves: <i>(Step 5b)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) 1-SD-367 (mezz level; NW corner of condenser; between 2nd & 3rd point ES piping). b) 1-SD-382 (mezz level; SW corner of condenser). c) 1-SD-415 (mezz level; SE corner of condenser; left of stairs to H₂ area; ~2 feet below grating level). d) 1-SD-420 (mezz level; NE corner of condenser; behind VP tank). <p>EVALUATOR'S NOTE:</p> <p>When valve handwheel turned Clockwise, valve moves freely. After several turns of the handwheel, valve motion stops.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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K/A: 038EA1.32 Ability to operate and monitor the following as they apply to a SGTR: Isolation of a ruptured S/G

Applicability

RO/SRO(I)

Estimated Time

10 Minutes

Actual Time

_____ Minutes

Conditions

- Task is to be SIMULATED in the Plant.
- A simulated SGTR has occurred on the Unit 1 "B" SG and the "B" MSTV and NRV will not close. The "A" and "C" SG MSTVs have been closed.

Standards

- Unit 1 secondary system isolated IAW 1-E-3, Attachment 1, Step 6 completed.

Initiating Cues

- Shift Manager Direction.
- 1-E-3, SGTR, (RNO column) Step 3.e RNO e.1.

Terminating Cues

- 1-E-3, SGTR, Attachment 1, Step 6 completed.

Procedures

- 1-E-3, Steam Generator Tube Rupture, Rev 43.

Tools and Equipment

- None

Safety Considerations

- Standard Personal Safety Equipment

Initiating Cues

- “B” Steam Generator Tube Rupture with the failure of “B” SG isolation from the Control Room.

Directions to the Applicant

- This task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves.
- I am the Nuclear Shift Manager. There has been a SGTR identified in Unit 1's "B" SG. We have attempted to isolate the “B” Steam Generator but its MSTV and NRV will not close. The other MSTVs have been closed and now we have to isolate the secondary system.
- Here's 1-E-3, Attachment 1. I need you to locally isolate Unit 1 secondary system IAW 1-E-3, Attachment 1, Steps 4 though 6 .

Notes

- This task is to be SIMULATED. Do NOT allow the Candidate to manipulate controls, operate switches or reposition valves.

DRAFT

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded and denoted by an asterisk (*).
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>Auxiliary and Gland Steam Isolation (<i>Step 4</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Locally open auxiliary steam crosstie: 1-AS-8. (<i>Step 4a</i>) b) Locally close auxiliary steam isolation: 1-AS-1. (<i>Step 4b</i>) c) Locally verify gland steam supply from main steam closed: 1-MS-15 (<i>Step 4c</i>) <p>EVALUATOR'S NOTE:</p> <ul style="list-style-type: none"> a) 1-AS-8 located on right side of stairs, near Unit 1 side of Fire Door #28. When SIMULATING Opening: Valve freely moves when handwheel turned Counter-clockwise, and stem threads appear above handwheel. After several turns, handwheel motion stops. Candidate should move handwheel one half turn clockwise to ensure valve does not jam on backseat. b) 1-AS-1 located on Turbine Building Mezzanine level, west of 1-AS-PCV-100, six feet above floor. When valve handwheel turned Clockwise, valve freely moves and stem threads disappear into valve handwheel. After several turns of the handwheel, valve motion stops, and two threads showing above handwheel. c) 1-MS-15 located on Turbine Building Mezzanine, west of 1-MS-PCV-104, six feet above floor. When valve handwheel turned Clockwise, valve freely moves and stem threads disappear into valve handwheel. After several turns of the handwheel, valve motion stops, and two threads showing above handwheel. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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<p>STEP 2:</p> <p>Turbine Building Steam Trap Isolation, Main steam line and Turbine trap isolation valves: <i>(Step 5a)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews to Note prior to Step 5: NOTE: Steps 5 and 6 may be performed in any order. b) 1-MS-46 (mezz level north face of south stanchion under HP turb). c) 1-MS-50 (mezz level north face of south stanchion under HP turb). d) 1-MS-30 (mezz level south face of north stanchion under HP turb). e) 1-MS-35 (mezz level south face of north stanchion under HP turb) f) 1-MS-55 (mezz level west of grating over HP drain pp). <p>EVALUATOR'S NOTE:</p> <p>When valve handwheel turned Clockwise, valve moves freely. After several turns of the handwheel, valve motion stops.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 3:</p> <p>Turbine Building Steam Trap Isolation, Reheat steam line trap isolation valves: <i>(Step 5b)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) 1-SD-367 (mezz level; NW corner of condenser; between 2nd & 3rd point ES piping). b) 1-SD-382 (mezz level; SW corner of condenser). c) 1-SD-415 (mezz level; SE corner of condenser; left of stairs to H₂ area; ~2 feet below grating level) d) 1-SD-420 (mezz level; NE corner of condenser; behind VP tank). <p>EVALUATOR'S NOTE:</p> <p>When valve handwheel turned Clockwise, valve moves freely. After several turns of the handwheel, valve motion stops.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 4:</p> <p>Turbine Building Steam Trap Isolation, Steam Dumps. <i>(Step 5c)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) 1-SD-425 (Locally at the steam dumps on mezz level). b) 1-SD-430 (Locally at the steam dumps on mezz level). c) 1-SD-372 (north side of mezz level handrails at access platforms). d) 1-SD-377 (north side of mezz level handrails at access platforms). e) 1-SD-432 (TB bsmt; East end of condenser; left under TCV-MS-105B). f) 1-SD-436 (TB bsmt; East end of condenser; left under TCV-MS-106B). g) 1-SD-401 (TB bsmt; West end of condenser; right under TCV-MS-106A). h) 1-SD-405 (TB bsmt; West end of condenser; right under TCV-MS-105A). <p>EVALUATOR'S NOTE:</p> <p>When valve handwheel turned Clockwise, valve moves freely. After several turns of the handwheel, valve motion stops.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 5:</p> <p>Sample Line Isolation, on Sample Panel 1-SS-PNL-101. <i>(Step 6)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) 1-SS-711, "A" steam line sample isolation. b) 1-SS-626, "A" steam line sample isolation. c) 1-SS-710, "B" steam line sample isolation. d) 1-SS-627, "B" steam line sample isolation. e) 1-SS-709, "C" steam line sample isolation. f) 1-SS-628, "C" steam line sample isolation. <p>EVALUATOR'S NOTE:</p> <p>When valve handwheel turned Clockwise, valve moves freely. After several turns of the handwheel, valve motion stops.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STEP 7:

REPORT TO SHIFT MANAGER (EVALUATOR).

STANDARD:

Verbal status report made that E-3, Attachment 1 Steps 4 though 6 complete.

COMMENTS:

SAT
 UNSAT

STOP TIME:

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

Task

- Task is to be SIMULATED in the Plant.
- Locally isolate Unit 1 secondary system IAW 1-E-3, Attachment 1, Steps 4 though 6.

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 task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves.
- A simulated SGTR has occurred on the Unit 1 "B" SG and the "B" MSTV and NRV will not close. The "A" and "C" SG MSTVs have been closed.

Initiating Cues

- This task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves
- I am the Nuclear Shift Manager. A simulated SGTR has occurred on the Unit 1 "B" SG and the "B" MSTV and NRV will not close. The "A" and "C" SG MSTVs have been closed.
- Here's 1-E-3, Attachment 1. I need you to locally isolate Unit 1 secondary system IAW 1-E-3, Attachment 1, Steps 4 though 6.
- When you finish the actions necessary to accomplish this Task, please inform me.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- This task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves.
- A simulated SGTR has occurred on the Unit 1 "B" SG and the "B" MSTV and NRV will not close. The "A" and "C" SG MSTVs have been closed.

Initiating Cues

- This task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves
- I am the Nuclear Shift Manager. A simulated SGTR has occurred on the Unit 1 "B" SG and the "B" MSTV and NRV will not close. The "A" and "C" SG MSTVs have been closed.
- Here's 1-E-3, Attachment 1. I need you to locally isolate Unit 1 secondary system IAW 1-E-3, Attachment 1, Steps 4 through 6.
- When you finish the actions necessary to accomplish this Task, please inform me.

DRAFT

NUMBER 1-E-3	ATTACHMENT TITLE SECONDARY SYSTEM ISOLATION	ATTACHMENT 1
REVISION 43		PAGE 1 of 2

1. Steam Dump Isolation

a. Put the STM DUMP CONTR switch in OFF and verify the steam dumps close.

b. IF steam dump valves do NOT close, THEN locally close the following valves:

___ 1-MS-21 ___ 1-MS-61

2. Reheat Steam Isolation

a. Verify reheat FCVs closed.

b. Close MSR STM SUP valves:

___ 1-MS-MOV-100A ___ 1-MS-MOV-100B

___ 1-MS-MOV-100C ___ 1-MS-MOV-100D

3. Safeguards Steam Trap Isolation

a. Verify steam trap trip valves closed:

___ 1-MS-TV-109 ___ 1-MS-TV-110

b. IF trip valves will NOT close, THEN locally close the following steam trap header isolation valve:

___ 1-MS-3

4. Auxiliary and Gland Steam Isolation

a. Locally open auxiliary steam crosstie:

___ 1-AS-8

b. Locally close auxiliary steam isolation:

___ 1-AS-1

c. Locally verify gland steam supply from main steam closed:

___ 1-MS-15

NUMBER 1-E-3	ATTACHMENT TITLE SECONDARY SYSTEM ISOLATION	ATTACHMENT 1
REVISION 43		PAGE 2 of 2

NOTE: Steps 5 and 6 may be performed in any order.

5. Turbine Building Steam Trap Isolation

a. Locally close Main steam line and Turbine trap isolation valves:

___ 1-MS-55 ___ 1-MS-30 ___ 1-MS-46
___ 1-MS-35 ___ 1-MS-50

b. Locally close Reheat steam line trap isolation valves:

___ 1-SD-382 ___ 1-SD-420
___ 1-SD-415 ___ 1-SD-367

c. IF steam dumps were NOT locally isolated, THEN locally close the following isolation valves:

___ 1-SD-425 ___ 1-SD-372 ___ 1-SD-401 ___ 1-SD-432
___ 1-SD-430 ___ 1-SD-377 ___ 1-SD-405 ___ 1-SD-436

6. Sample Line Isolation

Locally close the following sample line isolation valves at west end of Sample Panel 1-SS-PNL-101.

___ 1-SS-711 MS line A
___ 1-SS-626 MS line A
___ 1-SS-710 MS line B
___ 1-SS-627 MS line B
___ 1-SS-709 MS line C
___ 1-SS-628 MS line C

U.S. Nuclear Regulatory Commission
Surry Power Station

SR12301
In Plant Job Performance Measure 076A2.01 (3.5 / 3.7)
[Alternate Path]

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Isolate Service Water to #5 MER During Flooding

K/A: 076A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of SWS.

Applicability

RO/SRO(I)/SRO(U)

Estimated Time

15 Minutes

Actual Time

____ Minutes

Conditions

- Task is to be SIMULATED in the Plant.
- Major Service Water Leak in #5 MER.

Standards

- 0-AP-13.00, Turbine Building or MER 3 Flooding, Step 22.

Initiating Cues

- Shift Manager Direction.
- 0-AP-13.00, Turbine Building or MER 3 Flooding, Step 22.

Terminating Cues

- 0-AP-13.00, Turbine Building or MER 3 Flooding, Step 22, complete.

Procedures

- 0-AP-13.00, Turbine Building or MER 3 Flooding, Rev 25
- Probabilistic Risk Assessment, SPS Units 1&2 IPE, FDS-1ME2
- SA-AA-104, Confined Space Entry

Tools and Equipment

- None

Safety Considerations

- Standard Personal Safety Equipment

DRAFT

Initiating Cues

- Report of a major Service Water leak in #5 MER

Directions to the Candidate

- This task is to be SIMULATED. Do NOT allow the Candidate to manipulate controls, operate switches or reposition valves
- I am the Nuclear Shift Manager. There is a major Service Water leak in #5 MER.
- Here is a copy of 0-AP-13.00, Turbine Building or #3 MER Flooding, Step 22. I need you to isolate Service Water to #5 MER in accordance with Step 22.
- The SW header from Unit 1D Waterbox is in service.
- The #5 MER chillers have been secured.
- When you finish the actions necessary to accomplish this Task, please inform me.

Notes

- This task is to be SIMULATED. Do NOT allow the Candidate to manipulate controls, operate switches or reposition valves

DRAFT

PERFORMANCE CHECKLIST

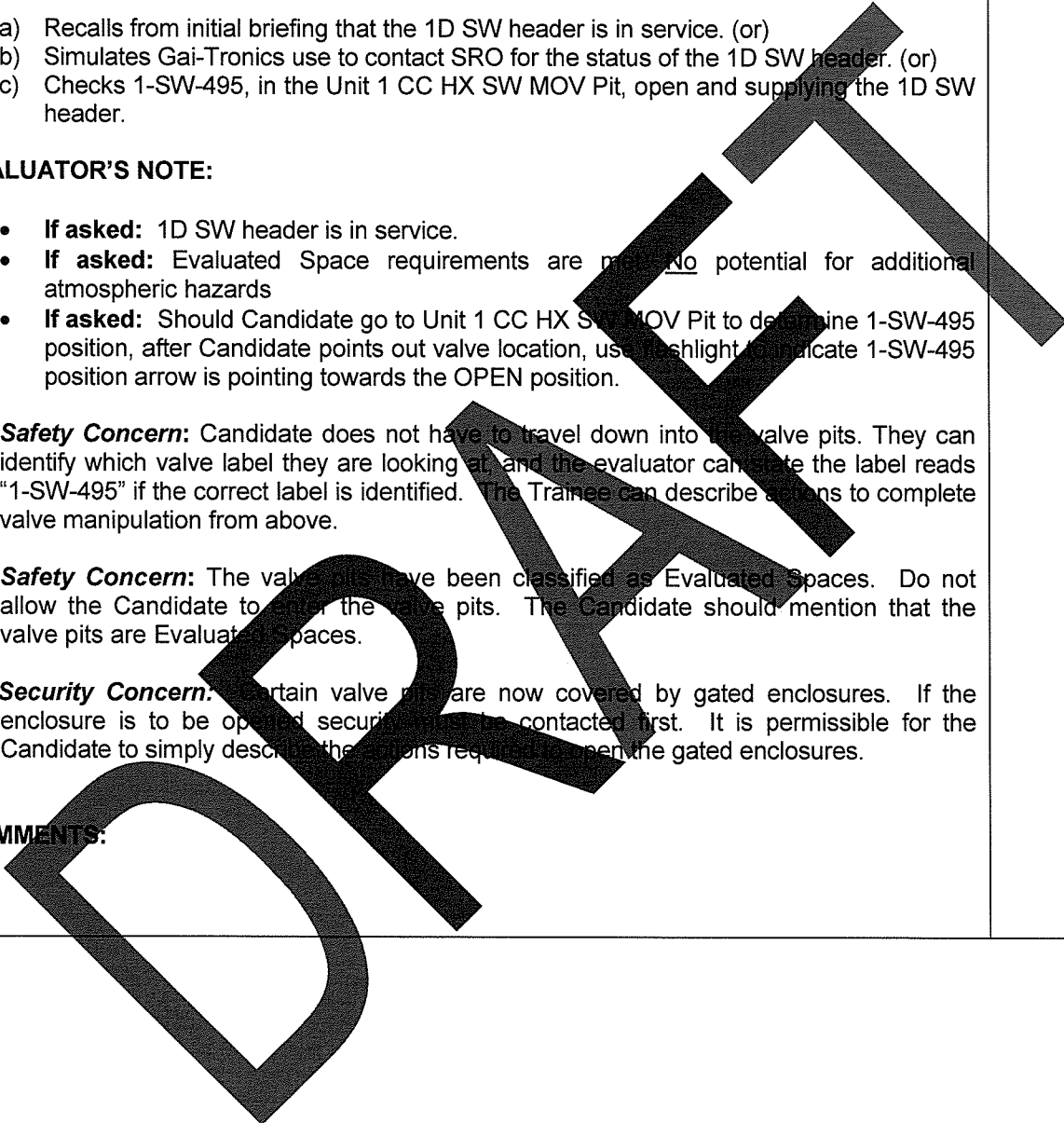
Notes to the Evaluator

- Task critical elements are bolded and denoted by an asterisk (*).
- **START TIME:**

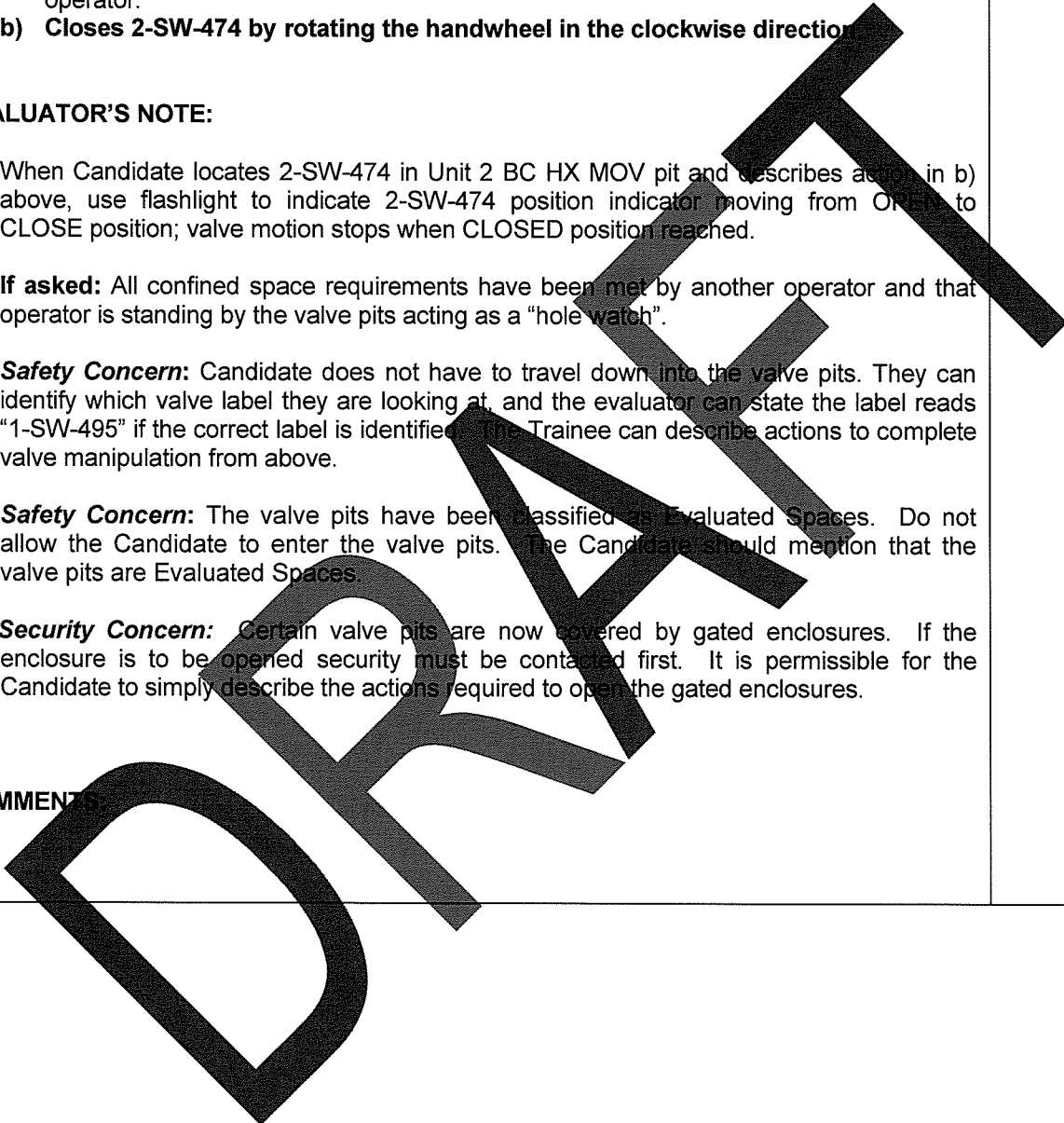
<p>STEP 1:</p> <p>CLOSE OR CHECK CLOSED 2-SW-530 TO ISOLATE SW TO MER 5 (Step 22a)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Proceeds to #5 MER. b) Locates 2-SW-530 in northwest corner of MER 5. c) 2-SW-530 by rotating the handwheel clockwise until valve stem is fully inserted. <p>EVALUATOR'S NOTE:</p> <p>If asked: Approximately 3" of water on floor.</p> <p>If asked: Flooding is from dike area next to electrical room, overflowing into chiller area.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>CLOSE OR CHECK CLOSED 2-SW-532 TO ISOLATE SW TO MER 5 (Step 22a)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> (a) Locates 2-SW-532 in northwest corner of MER 5. (b) Closes 2-SW-532 by rotating the handwheel clockwise until valve stem is fully inserted. <p>EVALUATOR'S NOTE:</p> <p>If asked: Flooding continues from dike area next to electrical room, overflowing into chiller area.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3: CLOSE OR CHECK CLOSED 2-SW-535 TO ISOLATE SW TO MER 5. <i>(Step 22a)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Locates 2-SW-535 in MER 5 on back wall 10 feet from the west wall, waist high. b) Closes 2-SW-535 by rotating the valve handle clockwise until the valve stem is fully inserted. c) Observes no flow indicated on 1-SW-FI-132D. <p>EVALUATOR'S NOTE:</p> <p>If asked: Flooding continues from dike area next to electrical room, overflowing into chiller area.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4: CLOSE OR CHECK CLOSED 2-SW-536 TO ISOLATE SW TO MER. <i>(Step 22a)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Locates 2-SW-536 in MER 5 on back wall 10 feet from the east wall, waist high. b) Closes 2-SW-536 by rotating the valve handle clockwise until the valve stem is fully inserted. c) Observes no flow indicated on 1-SW-FI-132E. <p>EVALUATOR'S NOTE:</p> <p>If asked: Flooding continues from dike area next to electrical room, overflowing into chiller area.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 5: Check flooding - STOPPED. <i>(Step 22b)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Identifies flooding continues b) Goes to 22b RNO. <p>EVALUATOR'S NOTE:</p> <p>If asked: Water still pouring over top of dike.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 6:</p> <p>Check or place in service SW Header 1D IAW 0-OP-SW-49.3, SWAPPING CONTROL ROOM CHILLER AND CHARGING PUMP SW SUPPLY HEADERS. (Step 22 b, RNO 1))</p> <p>STANDARD:</p> <ul style="list-style-type: none">a) Recalls from initial briefing that the 1D SW header is in service. (or)b) Simulates Gai-Tronics use to contact SRO for the status of the 1D SW header. (or)c) Checks 1-SW-495, in the Unit 1 CC HX SW MOV Pit, open and supplying the 1D SW header. <p>EVALUATOR'S NOTE:</p> <ul style="list-style-type: none">• If asked: 1D SW header is in service.• If asked: Evaluated Space requirements are met. <u>No</u> potential for additional atmospheric hazards• If asked: Should Candidate go to Unit 1 CC HX SW MOV Pit to determine 1-SW-495 position, after Candidate points out valve location, use flashlight to indicate 1-SW-495 position arrow is pointing towards the OPEN position. <p>Safety Concern: Candidate does not have to travel down into the valve pits. They can identify which valve label they are looking at, and the evaluator can state the label reads "1-SW-495" if the correct label is identified. The Trainee can describe actions to complete valve manipulation from above.</p> <p>Safety Concern: The valve pits have been classified as Evaluated Spaces. Do not allow the Candidate to enter the valve pits. The Candidate should mention that the valve pits are Evaluated Spaces.</p> <p>Security Concern: Certain valve pits are now covered by gated enclosures. If the enclosure is to be opened security must be contacted first. It is permissible for the Candidate to simply describe the actions required to open the gated enclosures.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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<p>STEP 7:</p> <p>Close 2-SW-474, located in Unit 2 BC HX SW MOV pit. <i>(Step 22b, RNO 2)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none">a) Locates 2-SW-474 in Unit 2 BC HX SW MOV Pit and pulls pin from 2-SW-474 valve operator.b) Closes 2-SW-474 by rotating the handwheel in the clockwise direction. <p>EVALUATOR'S NOTE:</p> <p>When Candidate locates 2-SW-474 in Unit 2 BC HX MOV pit and describes action in b) above, use flashlight to indicate 2-SW-474 position indicator moving from OPEN to CLOSE position; valve motion stops when CLOSED position reached.</p> <p>If asked: All confined space requirements have been met by another operator and that operator is standing by the valve pits acting as a "hole watch".</p> <p>Safety Concern: Candidate does not have to travel down into the valve pits. They can identify which valve label they are looking at, and the evaluator can state the label reads "1-SW-495" if the correct label is identified. The Trainee can describe actions to complete valve manipulation from above.</p> <p>Safety Concern: The valve pits have been classified as Evaluated Spaces. Do not allow the Candidate to enter the valve pits. The Candidate should mention that the valve pits are Evaluated Spaces.</p> <p>Security Concern: Certain valve pits are now covered by gated enclosures. If the enclosure is to be opened security must be contacted first. It is permissible for the Candidate to simply describe the actions required to open the gated enclosures.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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STEP 8:

CHECK THAT FLOODING HAS STOPPED. (*Step 22b, RNO 3*)

STANDARD:

- a) Candidate returns to #5 MER to determine status of #5 MER flooding.
- b) Locates 2-SW-11 in Unit 2 RS HX SW MOV (SW-MOV-203C/D) Pit.
- c) Pull pin from 2-SW-11 valve positioner.
- d) Closes 2-SW-11 by rotating the handwheel in the clockwise direction.**
- e) Returns to MER #5 and verifies flooding stopped.

EVALUATOR'S NOTE:

- a) above:** Inform Candidate that water is still flowing over the dike, has not slowed, and water level in #5 MER now 5" and rising.
- d) above:** When Candidate locates 2-SW-11 in Unit 2 RS HX SW MOV pit and describes action in d) above, use flashlight to indicate 2-SW-11 position indicator moving from OPEN to CLOSE position; valve motion stops when CLOSED position reached.
- e) above:** When Candidate returns to #5 MER to status of flooding, inform candidate that water has stopped flowing over the dike, and water level on the floor is 2" and decreasing.

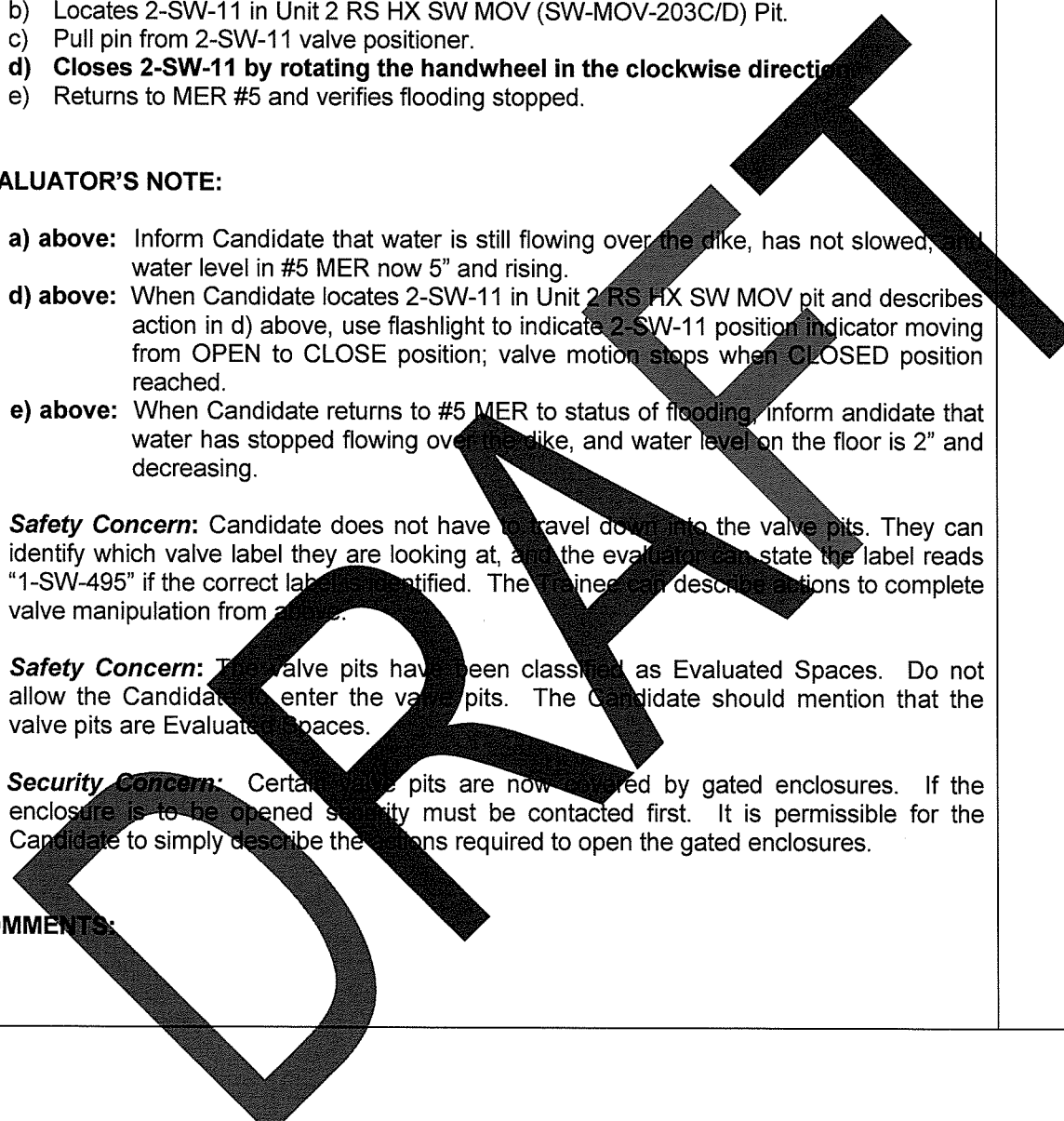
Safety Concern: Candidate does not have to travel down into the valve pits. They can identify which valve label they are looking at, and the evaluator can state the label reads "1-SW-495" if the correct label is identified. The trainee can describe actions to complete valve manipulation from above.

Safety Concern: The valve pits have been classified as Evaluated Spaces. Do not allow the Candidate to enter the valve pits. The Candidate should mention that the valve pits are Evaluated Spaces.

Security Concern: Certain valve pits are now covered by gated enclosures. If the enclosure is to be opened security must be contacted first. It is permissible for the Candidate to simply describe the actions required to open the gated enclosures.

COMMENTS:

_____ SAT
 _____ UNSAT



<p>STEP 9:</p> <p>REPORTS TO SHIFT MANAGER (EVALUATOR).</p> <p>STANDARD:</p> <p>Verbal report that 0-AP-13.00, Step 22 is complete.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
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STOP TIME:

DRAFT

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

Task

- Task is to be performed in the Plant.
- Perform 0-AP-13.00, Turbine Building or MER 3 Flooding, Step 22.

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

- Report of a major Service Water leak in #5 MER.
- The SW header from Unit 1D Waterbox is in service.

Initiating Cues

- This task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves.
- I am the Nuclear Shift Manager. There is a major Service Water leak in #5 MER.
- Here is a copy of 0-AP-13.00, Turbine Building or #3 MER Flooding, Step 22. I need you to isolate Service Water to #5 MER in accordance with Step 22.
- The #5 MER chillers have been secured.
- When you finish the actions necessary to accomplish this Task, please inform me.

DRAFT

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- Report of a major Service Water leak in #5 MER.
- The SW header from Unit 1D Waterbox is in service.

Initiating Cues

- This task is to be SIMULATED. Do NOT turn switches, manipulate controls or reposition valves.
- I am the Nuclear Shift Manager. There is a major Service Water leak in #5 MER.
- Here is a copy of 0-AP-13.00, Turbine Building or #3 MER Flooding, Step 22. I need you to isolate Service Water to #5 MER in accordance with Step 22.
- The #5 MER chillers have been secured.
- The SW header from Unit 1D Waterbox is in service.
- When you finish the actions necessary to accomplish this Task, please inform me..

DRAFT

NUMBER 0-AP-13.00	PROCEDURE TITLE TURBINE BUILDING OR MER 3 FLOODING	REVISION 25 PAGE 6 of 18
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21. ___ SECURE MER 5 CHILLERS: <input type="checkbox"/> • 1-VS-E-4D <input type="checkbox"/> • 1-VS-E-4E 22. ___ ISOLATE SW TO MER 5: a) Close or check closed the following isolation valves: <input type="checkbox"/> • 2-SW-530 (NW corner of MER 5) <input type="checkbox"/> • 2-SW-532 (NW corner of MER 5) <input type="checkbox"/> • 2-SW-535 (South wall, West side of MER 5) <input type="checkbox"/> • 2-SW-536 (South wall, East side of MER 5) <input type="checkbox"/> b) Check flooding - STOPPED		b) Do the following: <input type="checkbox"/> 1) Check or place in service SW Header 1D IAW 0-OP-SW-49.3, SWAPPING CONTROL ROOM CHILLER AND CHARGING PUMP SW SUPPLY HEADERS. <input type="checkbox"/> 2) Close 2-SW-474, located in Unit 2 BC HX SW MOV pit. <input type="checkbox"/> 3) <u>IF</u> flooding <u>NOT</u> stopped, <u>THEN</u> close 2-SW-11, located in Unit 2 RX HX SW MOV pit.
23. ___ CHECK CONTROL ROOM CHILLERS - ONE RUNNING		<input type="checkbox"/> Start Control Room Chiller IAW Shift Supervision direction using 0-OP-VS-006, CONTROL ROOM RELAY ROOM VENTILATION SYSTEM.
24. ___ GO TO STEP 49		

U.S. Nuclear Regulatory Commission
Surry Power Station

SR12301

**Simulator Job Performance Measure 024AK3.02 (4.2 / 4.4)
[Alternate Path]**

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Perform AP-3.00 Emergency Boration of the RCS.

K/A: 024AK3.02 Knowledge of the reasons for the following responses as they apply to Emergency Boration: Actions contained in EOP for emergency boration.

Applicability

Estimated Time

Actual Time

RO/SRO(I)

10 Minutes

____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- A BOL startup was in progress IAW 1-OP-RX-006, Withdrawal of the Control Banks to Critical Conditions, Step 5.2.6.h.3, withdrawing control bank rods in overlap from "B" bank at 15 steps to "C" bank at 15 steps to verify proper overlap, when doubling occurred at 35 steps on "B" control bank. Attachment 1 Plot of 1-OP-RX-006 has shows that the 1/M = 0.5 point is below the MIL Line.
- Rod withdrawal has been stopped, Reactor Trip breakers have been opened, 1-OP-RX-004 reevaluated, and current RCS boron resampled with the result that RCS boron is 150 ppm less than required critical boron concentration.
- The STA has performed a calculation of the amount of Boric Acid to be added to ensure an adequate Shutdown Margin while a new ECC is prepared and verified.

Standards

- Verify STA Calculation of amount of Boric Acid to be added IAW 1-DRP-003, Unit 1 Curve Book.
- Borate the required number of gallons IAW AP-3.00.

Initiating Cues

- Verify STA calculation of amount of Boric Acid necessary to achieve minimum critical boron concentration in the RCS.
- Emergency Borate the required amount IAW AP-3.00.

Terminating Cues

- AP-3.00, Emergency Boration, Step 11 complete.

Procedures

- 1-AP-3.00, Emergency Boration, Rev 5.

Tools and Equipment

- None

Safety Considerations

- None

DRAFT

Simulator Setup

- Call up BOL, 10^{-8} amps IC and initialize. Place simulator in RUN. Open reactor trip breakers. Using Remote function, RC, BORON_INIT_ALL set boron concentration 100 ppm less than current over 180 sec ramp.
- Set Auto trigger 1; Event Action: CHMOV350_OPEN.
- Trigger 1: MOV Control, CH, CHMOV350_Rackin, Rackout.
- Trigger 3: MOV Control, CH, CHMOV350, Remote Value 100, 30 Sec Ramp
- **Place the Reactivity Summary Sheet in the Simulator Control Booth.**

Initiating Cues

- A BOL startup was in progress IAW 1-OP-RX-006, Withdrawal of the Control Banks to Critical Conditions, Step 5.2.6.h.3, withdrawing control bank rods in overlap from "B" bank at 15 steps to "C" bank at 15 steps to verify proper overlap, when doubling occurred at 35 steps on "B" control bank. Attachment 1 Plot of 1-OP-RX-006 has shows that the 1/M = 0.5 point is below the MIL Line.
- Rod withdrawal has been stopped, Reactor Trip breakers have been opened, 1-OP-RX-004 reevaluated, and current RCS boron resampled with the result that RCS boron is 150 ppm less than required critical boron concentration.
- The STA has performed a calculation of the amount of Boric Acid to be added to ensure an adequate Shutdown Margin while a new ECC is prepared and verified.

Directions to the Applicant

- I am the Nuclear Shift Manager. You are the Unit 1 BOP. Here is a copy of the STAs calculation of the amount of Boric Acid to add for minimum shutdown margin.
- You are to verify the STAs Calculation of the amount of Boric Acid to add to meet minimum shutdown margin for Hot Shutdown, and borate that amount IAW 1-AP-3.00, Emergency Boration.
- When you finish the actions necessary to accomplish these tasks, please inform me.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>Verification of amount of Boric Acid Addition.</p> <p>STANDARD:</p> <p>a) Using 1-DRP-003, Unit 1 Curve Book, Page 46, Gallons of Boric Acid Needed to Increase RCS by 1 ppm at 2235 psig, 550°F, determine 4.2 gallons BA required at current RCS Cb of 1500 ppm and 8.0w/% in "A" BAST.</p> <p>b) Calculate required boron: 50 ppm x 4.2 gals/ppm = 210 gals.</p> <p>c) Identify value calculated matches STA calculation.</p> <p>EVALUATOR'S NOTE:</p> <p>If asked: "A" BAST concentration sampled 6 hours ago.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>Reviews NOTES prior to Step 1 of 1-AP-3.00. (<i>Step 1</i>)</p> <p>STANDARD:</p> <p>Review NOTE 1: If a Reactor Trip occurs or is required, 1-E-0, REACTOR TRIP OR SAFETY INJECTION, should be implemented.</p> <p>Review NOTE 2: When the Reactor is shutdown with the Shutdown Banks withdrawn, tripping the Shutdown Banks may eliminate the need for emergency boration.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>VERIFY CHARGING FLOW – GREATER THAN 75 GPM. <i>(Step 1)</i></p> <p>STANDARD:</p> <p>a) Verifies Charging flow > 75 gpm using 1-CH-FI-1122.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>START EMERGENCY BORATION. <i>(Step 2)</i></p> <p>STANDARD:</p> <p>a) Transfer the in-service B ATP to FAST (Step 2a).</p> <p>b) Verifies indicating lights above control switch change from Slow (RED) to Fast (RED).</p> <p>c) Open 1-CH-MOV-1350 by removing brass cap and placing control switch to OPEN position.</p> <p>d) Identifies GREEN indication light immediately goes out and RED light remains out.</p> <p>e) Contacts Service Building Operator and directs local checking of 1-CH-MOV-1350 power supply breaker 1H1-2S-7C.</p> <p>f) Contacts Auxiliary Building Operator and directs local check of 1-CH-MOV-1350 for abnormal indication.</p> <p>g) Contacts Auxiliary Building Operator to locally open 1-CH-MOV-1350.</p> <p>h) When report of 1-CH-MOV-1350 full open, verifies flow on 1-CH-FI-1110.</p> <p>i) Determines with indicated flow rate, 1-CH-MOV-1350 should remain open approximately 2 minutes.</p> <p>EVALUATOR'S NOTE:</p> <p>If asked: When 1-CH-MOV-1350 indication lost Candidate should notify Shift Manager. Evaluator should acknowledge report and direct Candidate to continue.</p> <p>Booth Operator: Will report as SBO that breaker 1H1-2S-7C is tripped. Will report as ABO that 1-CH-MOV-1350 – Normal. Initiates Trigger 3 when directed to open 1-CH-MOV-1350.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 5:</p> <p>STOP BORATION WHEN DESIRED. <i>(Step 3)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Close 1-CH-MOV-1350 after 2 minutes of full flow indicated on 1-CH-FI-1110 by directing Auxiliary Building Operator to close 1-CH-MOV-1350. b) Verifies flow on 1-CH-FI-1110 goes to zero (0) gpm. c) Transfer the in-service BATP to AUTO. d) Verifies 1-CH-P-2A shifts to slow, RED slow light lit, RED fast light out. <p>EVALUATOR'S NOTE:</p> <p>Booth Operator: When directed to close 1-CH-MOV-1350, double click on CHMOV350, set final value at 0, ramp 30 Secs, Insert.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6:</p> <p>TURN ALL PRZR HEATERS ON. <i>(Step 4)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Checks GRP E PRZR heater on by observing RED light ON, GREEN and AMBER lights OFF, and RED Flagged. b) Checks GRP B PRZR heater on by observing RED light ON, GREEN and AMBER lights OFF, and RED Flagged. c) Checks GRP C PRZR heater on by observing RED light ON, GREEN and AMBER lights OFF, and RED Flagged. d) Checks GRP D PRZR heater on by observing RED light ON, GREEN and AMBER lights OFF, and RED Flagged. e) Checks GRP A PRZR heater on by observing RED light ON, GREEN and AMBER lights OFF, and RED Flagged. f) Checks PRZR heater power using PCS Screen. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 7:</p> <p>CHECK UNIT - AT POWER . (Step 5)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Checks reactor power in Source Range using NI-131B (H I) and NI-1-32B (CH II). b) Goes to Step 8. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 8:</p> <p>CHECK CHARGING FLOW. (Step 8)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Review NOTE prior to Step 8: NOTE: Emergency boration has increased the boric acid concentration to the RCP seals. b) Charging flow control - IN AUTO (Step 8a). c) Checks 1-CH-FCV-1122 and 1-CH-LC-459G in automatic. d) Charging flow – STABLE (Step 8b). <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 9:</p> <p>VERIFY CHG PUMP SUCTION – ALIGNED TO THE VCT. (Step 9)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Checks 1-CH-MOV-1115C and 1115E OPEN, RED light LIT, GREEN light Out. b) Checks 1-CH-MOV-1115B and 1115D CLOSED, GREEN light LIT, RED light Out. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 10:</p> <p>CONSULT WITH CHEMISTRY AND SHIFT SUPERVISION AND DEENERGIZE PRZR HEATERS IAW 1-OP-RC-019, PRESSURIZER BACKUP HEATER OPERATION]. (<i>Step 10</i>)</p> <p>STANDARD:</p> <p>Report to Shift Manager (Evaluator) that Chemistry should be consulted concerning operation of PRZR heaters.</p> <p>EVALUATOR'S NOTE:</p> <p>Acknowledge need to consult with Chemistry.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 11:</p> <p>NOTIFY THE FOLLOWING: (<i>Step 11</i>)</p> <ul style="list-style-type: none"> • STA • Chemistry • OM on call • Reactor Engineer. <p>STANDARD:</p> <p>Notify Shift Manager(Evaluator) that notifications are required.</p> <p>EVALUATOR'S NOTE:</p> <p>Acknowledge need to make Notifications.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 10: NOTIFY NUCLEAR SHIFT MANAGER (EVALUATOR) STATUS OF TASK. When Step 11 completed, Candidate should report completion of task. COMMENTS:</p>	<p>_____ SAT _____ UNSAT</p>
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STOP TIME:

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

Task

- Task is to be performed in the simulator.
- Perform Steps 1 through 11 of 1-AP-3.00.

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

- A BOL startup was in progress IAW 1-OP-RX-006, Withdrawal of the Control Banks to Critical Conditions, Step 5.2.6.h.3, withdrawing control bank rods in overlap from "B" bank at 15 steps to "C" bank at 15 steps to verify proper overlap, when doubling occurred at 35 steps on "B" control bank. Attachment 1 Plot of 1-OP-RX-006 shows that the $1/M = 0.5$ point is below the MIL Line.
- Rod withdrawal has been stopped, Reactor Trip breakers have been opened, 1-OP-RX-004 reevaluated, and current RCS boron resampled with the result that RCS boron is 150 ppm less than required critical boron concentration.
- The STA has performed a calculation of the amount of Boric Acid to be added to ensure an adequate Shutdown Margin while a new ECC is prepared and verified

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform the following Tasks:
 - Verify STA calculation of amount of Boric Acid necessary to achieve minimum critical boron concentration in the RCS.
 - Emergency Borate the required amount IAW AP-3.00.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- A BOL startup was in progress IAW 1-OP-RX-006, Withdrawal of the Control Banks to Critical Conditions, Step 5.2.6.h.3, withdrawing control bank rods in overlap from "B" bank at 15 steps to "C" bank at 15 steps to verify proper overlap, when doubling occurred at 35 steps on "B" control bank. Attachment 1 Plot of 1-OP-RX-006 shows that the $1/M = 0.5$ point is below the MIL Line.
- Rod withdrawal has been stopped, Reactor Trip breakers have been opened, 1-OP-RX-004 reevaluated, and current RCS boron resampled with the result that RCS boron is 150 ppm less than required critical boron concentration.
- The STA has performed a calculation of the amount of Boric Acid to be added to ensure an adequate Shutdown Margin while a new ECC is prepared and verified

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform the following Tasks:
 - Verify STA calculation of amount of Boric Acid necessary to achieve minimum critical boron concentration in the RCS.
 - Emergency Borate the required amount IAW AP-3.00.

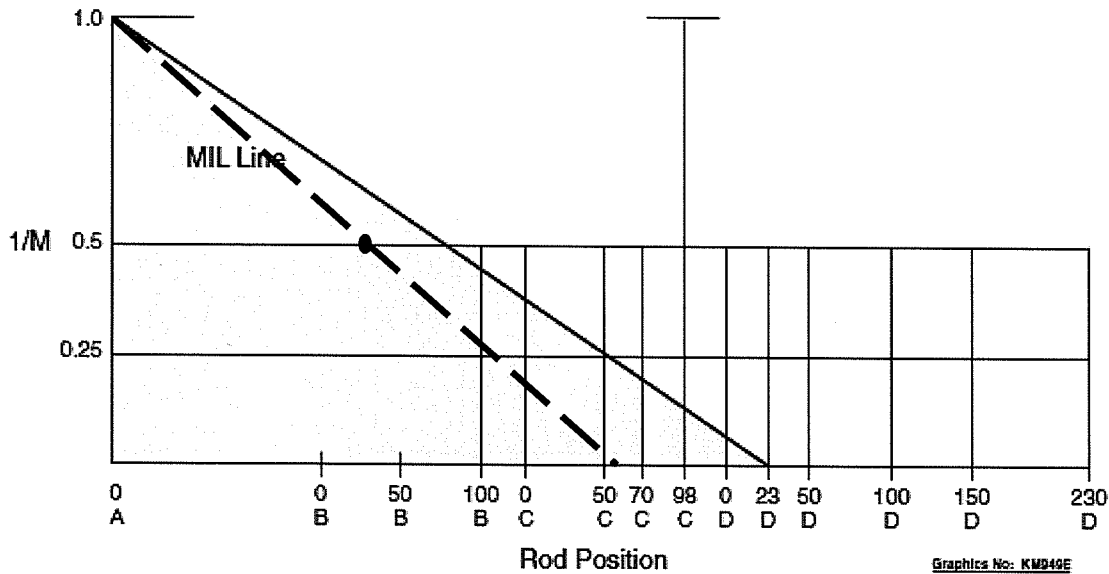
Attachment 1

INVERSE COUNT RATE RATIO PLOT (CONTROL BANKS A, B, AND C)

CAUTION

During rod withdrawal, if the second data point falls below the MIL Line, the rod withdrawal must be stopped, the Reactor Trip Breakers must be opened, and 1-OP-RX-004 must be reevaluated, to prevent a violation of Tech. Specs.

- JF 1. $(C_0) = \underline{288}$ cps (first data point) CONT BANK A at 000 steps
- JF FNG 2. $C_1 = 2 \times (C_0) = \underline{576}$ cps (second data point) (Ref. 2.4.11)
IV
- JF FNG 3. $C_2 = 4 \times (C_0) = \underline{1152}$ cps (third data point) (Ref. 2.4.11)
IV



INVERSE COUNT RATE RATIO PLOT

Performed by: _____

Signature	Initial	Print	Date
_____	_____	_____	_____
Signature	Initial	Print	Date
_____	_____	_____	_____

Required Cb increase for SDM = 50 ppm

"A" BAST = 8.0 w/%

Current CB in RCS = 1500 ppm

4.2 gals/ppm

$50 \text{ ppm} \times 4.2 \text{ gals/ppm} = 210 \text{ gals BA to add}$

DRAFT

U.S. Nuclear Regulatory Commission
Surry Power Station
Alternate Path

Simulator Job Performance Measure 006A2.11 (4.0 / 4.4)

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Manually Align Alternate High Head Safety Injection Flowpath

K/A: 006A2.11 Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Rupture of ECCS header

Applicability

RO/SRO(I)/SRO(U)

Estimated Time

5 Minutes

Actual Time

____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- A Safety Injection has occurred from 100% power due to a SBLOCA. 1-E-0, attachment 1 has been performed up to Step 12.

Standards

- Completion of 1-E-0, Reactor Trip or Safety Injection, attachment 1, Step 12.

Initiating Cues

- The operating team has initiated SI due to a SBLOCA on Unit 1 and has completed 1-E-0, Attachment 1 up to Step 12.

Terminating Cues

- Completion of 1-E-0, Reactor Trip or Safety Injection, Step 12.

Procedures

- 1-E-0, Reactor Trip or Safety Injection, Attachment 1, Step 12, Revision 65.

Tools and Equipment

- None

Safety Considerations

- None

Simulator Setup

- Call up 100% power IC and initialize. Place simulator in RUN.
- Implement malfunction for SBLOCA at 240 gpm. (RC04 at 20% deg)
- Implement malfunction for cold leg SI injection header break at 100% degradation (SI11)
- Implement meter overrides for SI cold leg individual loop flow indicators (SIF1961, 962, 963)
- Place following variables on a Trigger: SIMOV869A – Rackin; SIMOV869B – Rackin.
- Manually initiate SI. Perform 1-E-0 immediate actions and attachment 1 up to Step 12.
- Throttle AFW to approximately 200 gpm per generator.
- Place simulator in freeze until JPM performance.
- Have keys ready for 1869A/B (keys 46/47)

Initiating Cues

- Shift Manager Direction.
- 1-E-0, Reactor Trip or Safety Injection, Step 12.

Directions to the Applicant

- I am the Nuclear Shift Manager. A Safety Injection has occurred from 100% power due to a SBLOCA. 1-E-0 is being performed and the operating team is currently at step 12 of attachment 1.
- Here is a copy of 1-E-0, attachment 1, Step 12. I need you to perform Step 12 of attachment 1.
- When you finish the actions necessary to accomplish this task, please inform me.

Notes

- Operator is given a copy of 1-E-0, attachment 1, Step 12 during directions.
- Have keys ready for operation of 1-SI-MOV-1869A and 1869B (Keys 46/47).

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are **bolded**.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>ACKNOWLEDGES NOTES PRIOR TO STEP 12 OF ATTACHMENT 1 (Step 12)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Notes that CHG pumps should be run in the following order of priority: C, B, A. b) Notes that subsequent SI signals may be reset by reperforming step 12 <p>EVALUATOR'S NOTE:</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>CHECK SI FLOW: (Step 12 a)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) HHSI to cold legs - FLOW INDICATED <ul style="list-style-type: none"> • 1-SI-FI-1961 (NQ) • 1-SI-FI-1962 (NQ) • 1-SI-FI-1963 (NQ) • 1-SI-FI-1943 or 1-SI-FI-1943A. b) Identifies 0 (zero) indicated flow on 1-SI-FI-1961/1962/1963. c) Identifies greater than normal flow on 1-SI-FI-1943/1943A than expected for current RCS pressure. d) Identifies RCS pressure and subcooling decreasing. e) Diagnoses SI flow not reaching the core, notifies SM (Evaluator), and goes to Step 12 RNO. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>Reads Step 12, RNO a). (Step 12 a)</p> <p>STANDARD:</p> <p>a) Manually start pumps and align valves. IF flow NOT established, THEN consult with Shift Supervision to establish another high pressure injection flowpath while continuing with this procedure.</p> <ul style="list-style-type: none"> • Alternate SI to cold legs • Hot leg injection <p>EVALUATOR'S NOTE:</p> <p>If asked: Which flowpath of SI flow should be attempted, Ask the Candidate which flowpath is recommended and concur with recommendation.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>Aligns Hot Leg SI Isolation Valves 1-SI-MOV-1869A and/or 1869B. (Step 12 RNO a)</p> <p>STANDARD:</p> <p>(a) Consults with SM on establishing another path.</p> <p>(b) Opens 1-SI-MOV-1842, identifies no HHSI flow, closes 1-SI-MOV-1842.</p> <p>(c) Directs shift clerk (or another operator) to obtain keys from the Annex and bring keys to the MCR.</p> <p>(d) Directs an auxiliary operator to close breakers MCC 1H1-1-3C and MCC 1J1-1-9A.</p> <p>(e) After receiving report that breakers MCC 1H1-1-3C and MCC 1J1-1-9A are closed, verify red lights are off and green lights are on for 1-SI-MOV-1869A and 1869B.</p> <p>(f) Place the control switch(s) for 1-SI-MOV-1869A and/or 1-SI-MOV-1869B in the open position.</p> <p>(g) Verify 1-SI-MOV-1869A is open by observing red light on and green light off.</p> <p>(h) Verify 1-SI-MOV-1869B is open by observing red light on and green light off.</p> <p>(i) Verifies hot leg flow indicated on 1-SI-FI-1940 and 1940A.</p> <p>(j) Verifies hot leg flow indicated on individual loop flow transmitters 1-SI-FI-1933, 1960, and 1932</p> <p>EVALUATOR'S NOTE:</p> <p>If asked: Which flowpath of SI flow should be attempted, Ask the Candidate which flowpath is recommended and concur with recommendation.</p> <p>Notes: Candidate may elect to go straight to Th injection and not attempt to establish SI flow with 1-SI-MOV-1842. Also, the candidate can perform step 5 first.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 5:</p> <p>Closes Cold Leg Isolation Valves 1-SI-MOV-1867C and 1-SI-MOV-1867D. <i>(Step 12, RNO a)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> (a) Verify or reset SI by pushing the SI reset pushbuttons. (b) Place the control switch for 1-SI-MOV-1867C in the closed position. (c) Verify 1-SI-MOV-1867C is closed by observing red light off and green light on. (d) Place the control switch for 1-SI-MOV-1867D in the closed position. (e) Verify 1-SI-MOV-1867D is closed by observing red light off and green light on. (f) Verify no flow indicated on 1-SI-FI-1943 and 1943A. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6:</p> <p>CHECKS CHARGING PUMPS - THREE RUNNING. <i>(Step 12 b)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Checks 1-CH-P-1A breaker indication red light on and amps indicated. b) Checks 1-CH-P-1B breaker indication red light on and amps indicated. c) Checks 1-CH-P-1C breaker indication red light on and amps indicated <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 7:</p> <p>Reset SI. <i>(Step 12 c)</i></p> <p>STANDARD:</p> <p>Checks reset or resets SI by observing Annunciators 1A-F3 and 1A-F4 Not Lit.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 8:</p> <p>Stops One CHG Pump and Place in Auto. <i>(Step 12 d)</i></p> <p>STANDARD:</p> <p>a) Place the control switch for 1-CH-P-1A in the auto after stop position. b) Verify 1-CH-P-1A not running by observing zero amps and green breaker status light on and red status light off, and 0 (zero) amps indicated.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 9:</p> <p>Check RCS Pressure Greater than 185 PSIG. <i>(Step 12 e)</i></p> <p>STANDARD:</p> <p>a) Checks RCS pressure greater than 185 psig by observing pressure indicated on:</p> <ul style="list-style-type: none"> • PI-1-403, or • 1-RC-PI-1458, or • ICCM Train A, or • ICCM Train B. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 10:</p> <p>Stops One LHSI Pump and Place in Auto. <i>(Step 12 f)</i></p> <p>STANDARD:</p> <p>(a) Verifies SI reset by observing annunciators 1A-F3 and 1A-F4 not lit. (b) Stops either 1-SI-P-1A or 1B by placing the control switch for 1-SI-P-1A or 1B in the auto after stop position. (c) Verifies 1-SI-P-1A or 1B not running by observing zero amps and green breaker status light on and red status light off.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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

Task

- Task is to be performed in the simulator.
- Perform 1-E-0, Attachment 1, Step 12.

Directions to the Applicant

- I am the Nuclear Shift Manager. A Safety Injection has occurred from 100% power due to a SBLOCA. 1-E-0 is being performed and the operating team is currently at step 12 of attachment 1.
- Here is a copy of 1-E-0, attachment 1, Step 12. I need you to perform Step 12 of attachment 1.
- When you finish the actions necessary to accomplish this task, please inform me.

Notes

- Operator is given a copy of 1-E-0, attachment 1, Step 12 during directions.
- Have keys ready for operation of 1-SI-MOV-1869A and 1869B (Keys 46/47).

DRAFT

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- A Small Break LOCA has occurred on Unit 1.

Initiating Cues

- I am the Nuclear Shift Manager. A Safety Injection has occurred from 100% power due to a SBLOCA. 1-E-0 is being performed and the operating team is currently at step 12 of attachment 1.
- Here is a copy of 1-E-0, attachment 1, Step 12. I need you to perform Step 12 of attachment 1.
- When you finish the actions necessary to accomplish this task, please inform me.

DRAFT

NUMBER 1-E-0	ATTACHMENT TITLE SYSTEM ALIGNMENT VERIFICATION	ATTACHMENT 1
REVISION 65		PAGE 6 of 7

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>NOTE:</p> <ul style="list-style-type: none"> • CHG pumps should be run in the following order of priority: C, B, A. • Subsequent SI signals may be reset by reperforming Step 12. 	
12. ___	CHECK SI FLOW:	
	<p>a) HHSI to cold legs - FLOW INDICATED</p> <ul style="list-style-type: none"> <input type="checkbox"/> • 1-SI-FI-1961 (NQ) <input type="checkbox"/> • 1-SI-FI-1962 (NQ) <input type="checkbox"/> • 1-SI-FI-1963 (NQ) <input type="checkbox"/> • 1-SI-FI-1943 or 1-SI-FI-1943A <p>b) Check CHG pumps - THREE RUNNING</p> <p>c) Reset SI</p> <p>d) Stop one CHG pump and put in AUTO</p> <p>e) RCS pressure - LESS THAN 185 PSIG</p> <p>f) LHSI flow - INDICATED</p>	<ul style="list-style-type: none"> <input type="checkbox"/> a) Manually start pumps and align valves. <u>IF</u> flow <u>NOT</u> established, <u>THEN</u> consult with Shift Supervision to establish another high pressure injection flowpath while continuing with this procedure. <input type="checkbox"/> • Alternate SI to cold legs <input type="checkbox"/> • Hot leg injection <input type="checkbox"/> b) GO TO Step 12e. <input type="checkbox"/> e) <u>IF</u> two LHSI pumps are running, <u>THEN</u> do the following: <ul style="list-style-type: none"> <input type="checkbox"/> 1) Check reset or reset SI. <input type="checkbox"/> 2) Stop one LHSI pump and put in AUTO. <input type="checkbox"/> 3) GO TO Step 13. <input type="checkbox"/> <u>IF</u> one LHSI pump running, <u>THEN</u> GO TO Step 13. <input type="checkbox"/> f) Manually start pumps and align valves.

U.S. Nuclear Regulatory Commission
Surry Power Station

SR12301
Simulator Job Performance Measure E02EK1.3 (3.5 / 3.8)

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Respond to a Spurious SI <350°F

K/A: E02EK1.3 Knowledge of the operational implications of the following concepts as they apply to the (SI Termination): Annunciators and conditions indicating signals, and remedial actions associated with the (SI Termination).

Applicability

RO/SRO(I)/SRO(U)

Estimated Time

10 Minutes

Actual Time

____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- A spurious SI has occurred, with Unit operating < 350°F, and the "A" RHR pump and heat exchanger in service.

Standards

- Completion of 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F, Step 10.

Initiating Cues

- A spurious safety injection has occurred with Unit 1 operating less than 350°F.
- 1-RH-P-1A and 1-RH-E-1A are in service.
- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- You are to respond to a spurious SI by performing Steps 1 through 10 of 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F
- When you complete the actions necessary to accomplish this Task, please inform me.

Terminating Cues

- Completion of 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F, Step 10.

Procedures

- 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F, Rev 9

Tools and Equipment

- None

Safety Considerations

- None

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Simulator Setup

- Call up IC with RHR in service and RCS temperature <350 degrees.
- Insert malfunction SI1801 (Spurious Train A SI) and SI1802 (Spurious Train B SI).
- Place red magnets on RH-MOV-1700/1701/1720A.
- Place green magnets on SI-MOV-1865A/B/C.
- Check RCS pressure ~320 psig on 1-RC-PI-1403 and 1-RC-PI-1458.
- Allow all components to align, then freeze the simulator.

Initiating Cues

- A spurious safety injection has occurred with Unit 1 operating less than 350°F.
- 1-RH-P-1A and 1-RH-E-1A are in service.

Directions to the Applicant

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- You are to respond to the spurious SI by performing Steps 1 through 10 of 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F
- When you complete the actions necessary to accomplish this Task, please inform me.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>CHECK SAFETY INJECTION INITIATION (<i>Step 1</i>)</p> <p>STANDARD:</p> <p>a) Checks HHSI to cold legs flow indicated by observing flow on 1-SI-FI-1961/1962/1963/1943/1943A and/or PCS.</p> <p>b) Checks #1 and #3 EDG running by observing EDG RPM indicated on #1 and #3 EDG Panels.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>PRESS BOTH SI RESET TRAIN A AND TRAIN B PUSHBUTTONS (60 SECOND TD). (<i>Step 2</i>)</p> <p>STANDARD:</p> <p>Depresses both SI reset pushbuttons on benchboard 1-1.</p> <p>EVALUATOR'S NOTE:</p> <p>If asked: SI actuation occurred 2 minutes ago.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>CHECKS BOTH ANNUNCIATORS - NOT LIT. <i>(Step 3)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) 1A-F3, SI INITIATED TRAIN A. b) 1A-F4, SI INITIATED TRAIN B. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>CHECK CLOSED OR CLOSE SI TO COLD LEG MOVES: <i>(Step 4)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) 1-SI-MOV-1867C by placing and holding control switch in close. b) Checks 1-SI-MOV-1867C closed by observing GREEN Light Lit and RED Light OFF. c) 1-SI-MOV-1867D by placing and holding control switch in close. d) Checks 1-SI-MOV-1867D closed by observing GREEN Light Lit and RED Light OFF <p>EVALUATOR'S NOTE:</p> <p>Substeps a) and b) above may be performed Simultaneously.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 5:</p> <p>CHECK RHR - REQUIRED. <i>(Step 5)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Identifies RHR required based on initial brief or queries Shift Manager (Evaluator). b) Identifies 1-RH-P-1A in operation by observing 1-RH-P-1A breaker position, RED Light On and GREEN Light Off, Amps indicated for 1-RH-P-1A, and/or RHR flow indicated on 1-RH-FI-1605. <p>EVALUATOR'S NOTE:</p> <p>If asked: RHR is required.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6:</p> <p>CHECK CC TO RHR FLOW PATH. <i>(Step 6)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Check open or open the following Trip Valves: <ul style="list-style-type: none"> 1) 1-CC-TV-109A, RHR HX A CC RTN HDR TV 2) Identifies 1-CC-TV-109A closed and OPENS valve using OPEN pushbutton 3) Checks 1-CC-TV-109A OPEN by observing RED Light Lit and GREEN Light Off. 4) 1-CC-TV-109B, RHR HX A CC RTN-HDR TV 5) Identifies 1-CC-TV-109B closed and OPENS valve using OPEN pushbutton 6) Checks 1-CC-TV-109B OPEN by observing RED Light Lit and GREEN Light Off. b) Check CC to in-service RHR HX - NORMAL. <ul style="list-style-type: none"> 1) Observes flow on 1-CC-FI-110A, OUTLET HDR A FLOW. 2) Observes flow on 1-CC-FI-110B, OUTLET HDR B FLOW <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 7:</p> <p>CHECK RCPS - ANY RUNNING. <i>(Step 7)</i></p> <p>STANDARD:</p> <p>Observes 1-RC-P-1C running using breaker position indicating lights, RED Light On and GREEN Light OFF; 1-RC-P-1C amps indicated.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 8:</p> <p>CHECK IF RCPs MUST BE STOPPED: <i>(Step 8)</i></p> <p>STANDARD:</p> <p>Check the following:</p> <ul style="list-style-type: none"> a) RCS pressure - LESS THAN 240 PSIG b) Identify RCS pressure > 240 psig by observing 1-RC-PI-1403 and 1-RC-PI-1458. c) Seal leakoff flow – LESS THAN 0.2 gpm d) Identify seal leakoff >.2 gpm on 1-CH-FR-1190, Pen 3 <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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<p>STEP 9:</p> <p>CHECK IF RCP SEAL RETURN FLOW SHOULD BE ESTABLISHED: <i>(Step 9)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Check RCP Seal Return – REQUIRED FOR PLANT CONDITIONS. b) Check the following parameters – SATISFIED <ul style="list-style-type: none"> 1) CC pump – RUNNING 2) Identify 1-CC-P-1A and 1-CC-P-1B running by observing breaker indicating lights, RED Light Lit and GREEN Light Out; And amps indicated for both motors. 3) RCP seal injection flow - BETWEEN 6 GPM AND 10 GPM. 4) Identify Seal injection flow by observing 1-CH-FI-1124A. c) Open RCP Seal Return Valve 1-CH-MOV-1381 and observe RED Light On and GREEN Light Off. <p>EVALUATOR'S NOTE:</p> <p style="padding-left: 40px;">If asked: For substep a) above; Yes Seal Return flow required.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 10:</p> <p>STABILIZE RCS PRESSURE AS NECESSARY FOR PLANT CONDITIONS <i>(Step 10)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Operate heaters and normal spray to maintain pressure stable b) Identifies all pressurizer heaters - On. c) Adjusts 1-RC-PCV-1455B to stabilize RCS pressure <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 11:</p> <p>REPORTS TO SHIFT MANAGER (EVALUATOR).</p> <p style="padding-left: 40px;">Verbal status that 1-AP-10.20, steps 1-10 are complete.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME:

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

Task

- Task is to be performed in the simulator.
- Perform Steps 1 through 10 of 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F.

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

- A spurious safety injection has occurred with Unit 1 operating less than 350°F.
- 1-RH-P-1A and 1-RH-E-1A are in service.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- You are to respond to a spurious SI by performing Steps 1 through 10 of 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F
- When you complete the actions necessary to accomplish this Task, please inform me.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- A spurious safety injection has occurred with Unit 1 operating less than 350°F.
- 1-RH-P-1A and 1-RH-E-1A are in service.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- You are to respond to a spurious SI by performing Steps 1 through 10 of 1-AP-10.20, Response to Spurious Safety Injection with RCS Temperature Less Than 350°F
- When you complete the actions necessary to accomplish this Task, please inform me.

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U.S. Nuclear Regulatory Commission
Surry Power Station

**Simulator Job Performance Measure 039A4.04 (3.8 / 3.9)
[Alternate Path]**

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Respond to "B" SG High Level IAW 1-FR-H.3

K/A: 039A4.04 Ability to manually operate and/or monitor in the control room: Emergency feedwater pump turbines.

Applicability

RO/SRO(I)

Estimated Time

10 Minutes

Actual Time

_____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- Unit 1 "B" SG level at 95% following reactor trip.

Standards

- Isolation of feed sources to "B" SG IAW 1-FR-H.3, Response to Steam Generator High Level.

Initiating Cues

- An automatic reactor trip has occurred on Unit 1.
- "B" SG level has reached 95% NR level.
- I am the Nuclear Shift Manager. You are to take action IAW 1-FR-H.3, Response to Steam Generator High Level, for the "B" steam generator.
- When you have completed the Task, please inform me.

Terminating Cues

- Completion of Step 10 of 1-FR-H.3, Response to Steam Generator High Level.

Procedures

- 1-FR-H.3, Response to Steam Generator High Level (Rev 13).

Tools and Equipment

- None

Safety Considerations

- None

Simulator Setup

- Call up 50% power IC and initialize. Place simulator in RUN.
- Enter the following Malfunctions:
 - RD18, Failure of Auto Reactor Trip, ACTIVE
 - FW0201, Main Feed Reg Valve FCV-1478 Fails Shut, Trigger 1, 30 Sec TD
 - FW0203, Main Feed Reg Valve FCV-1498 Fails Shut, Trigger 1, 30 Sec TD
 - SI14, Spurious Initiation of AMSAC Train A&B, Trigger 1
 - EL0403 RSS XFMR C Pilot Wire Relay Actuation, Trigger 1, 210 Sec TD
- Enter the following Switch Overrides
 - FWSOV155A_RESET, Stm Gen Level Reset Train A PB, Active
 - FWSOV155B_RESET, Stm Gen Level Reset Train B PB, Active
- Enter FWMOV151(1) through (6) on monitor screen.
- Actuate Trigger 1
- After "C" RSST lockout occurs, Place 1-RC-PCV-1455B in manual and close.
- When "A" or "C" SG NR level > 12%, throttle AFW = 0.2 using Monitor. ("H" Train AFW will re-open fully when "H" bus is lost and regained by #1 EDG – AFW will require re-throttling.
- Ensure SG PORVs are returned to "L" and "A" after SVB re-energized.
- When "B" SG NR level reaches 90%, place the "B" FRV in manual and set demand at 10%.
- Adjust B SG PORV setpoint to 1005 psig.
- When "B" SG NR level reaches 93%, Freeze Simulator until JPM performance.

Initiating Cues

- Shift Manager Direction

Directions to the Applicant

- I am the Nuclear Shift Manager and you are the Unit 1 BOP. Unit 1 was initially operating at 50% with a ramp to 100% power in progress. A lightning strike near the Station caused a spurious AMSAC initiation, and reactor trip. Upon transition to 1-ES-0.1, a second lightning strike caused a Pilot wire lockout on the "C" RSST.
- The Unit 1 RO and SRO are performing 1-AP-10.07, Loss of Unit 1 Power.
- Reactor Trip breaker "A" and "B" are stuck closed, an Operator has been dispatched to locally open them.
- The STA has just noted that the "B" SG NR Level is above 85% level and increasing.
- Here is a copy of 1-FR-H.3, Response to Steam Generator High Level. You are to perform 1-FR-H.3.
- When you complete the actions necessary to accomplish this task, please inform me.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>CAUTIONS and NOTES Prior to <i>Step 1</i></p> <p>STANDARD:</p> <p>a) Reviews CAUTION: If SG narrow range level has increased to greater than 93% [82%], an evaluation should be made for SG overfill considerations. Steam should NOT be released from any SG with level greater than 93% [82%] before overfill evaluation.</p> <p>b) Reviews NOTE: Throughout this procedure, AFFECTED refers to any SG in which narrow range level is greater than 75%.</p> <p>EVALUATOR'S NOTE:</p> <p>If asked: Shift Manager is conducting a SG overfill evaluation. <i>Candidate may check for Adverse CTMT conditions by observing CTMT pressure indication < 20 psia on 1-LM-PI-100A/B/C/D, and CTMT Radiation < 1E5 R/hr on 1-RM-RR-127/128.</i></p> <p>If asked: CTMT Pressure and CTMT Radiation are as found.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>IDENTIFY AFFECTED SG(s). (<i>Step 1</i>)</p> <p>STANDARD:</p> <p>Identifies "B" SG is approximately 93% NR Level and increasing.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>VERIFY MFW ISOLATION TO AFFECTED SG(s): <i>(Step 2)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) MFW Pumps - STOPPED. <i>(STEP 2 a)</i> <ul style="list-style-type: none"> 1) Identifies 1-FW-P-1A running by observing breaker RED light Lit, GREEN Light NOT Lit and Amps indicated for both MFW Pump motors. 2) Secures 1-FW-P-1A by placing control switch for 1-FW-P-1A1 and 1-FW-P-1A2 in STOP/PTL. 3) Checks 1-FW-P-1A secure by verifying No amps indicated. 4) Checks 1-FW-P-1B by observing breaker GREEN light LIT and RED light NOT Lit for Both MFP motors, and No amps indicated for Both MFP Motors. b) Feed Pump discharge MOVs – CLOSED. <i>(Step 2 b))</i> <ul style="list-style-type: none"> 1) Monitors 1-FW-MOV-150A until fully closed, GREEN light Lit and Red Light Out. 2) Checks 1-FW-MOV-150B closed, GREEN light Lit and RED light Out. c) SG feed Reg valves – CLOSED. <i>(Step 2 c))</i> <ul style="list-style-type: none"> 1) Identifies 1-FW-FCV-1488 (B FRV) in Manual with Demand indicated. 2) Reduces Demand on B FRV until Zero (0) Demand Indicated and GREEN Closed light Lit and RED open light Not Lit. 3) Identifies A and B FRV full closed using GREEN Closed Light Lit and RED Open Light Not Lit. d) SG FW bypass flow valves – CLOSED <i>(Step 2 d))</i> <ul style="list-style-type: none"> 1) Checks A, B, and C feed bypass valves closed by turning pot counterclockwise with no rotation, and no demand indicated. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>ISOLATE AFW FLOW TO AFFECTED SG(s). <i>(Step 3)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Identifies AFW flow to B SG by observing 1-FW-MOV-151C and 1-FW-MOV-151D in intermediate position, RED and GREEN lights Lit; and AFW flow indicated on 1-FW-FI-100B. b) Throttles closed on 1-FW-MOV-151C and 1-FW-MOV-151D until No flow indicated on 1-FW-FI-100B, and GREEN lights Lit and RED Lights Out on 1-FW-MOV-151C and 1-FW-MOV-151D. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 5:</p> <p>CHECK AFFECTED SG(s) NARROW RANGE LEVEL: <i>(Step 4)</i></p> <p>STANDARD:</p> <p>a) Level - LESS THAN 93% [82%].</p> <p>1) Identifies containment Not Adverse by observing CTMT pressure indication < 20 psia on 1-LM-PI-100A/B/C/D, and CTMT Radiation < 1E5 R/hr on 1-RM-RR-127/128.</p> <p>2) Identifies B SG NR Level > 93% and Goes to Step 5.</p> <p>EVALUATOR'S NOTE:</p> <p>If asked: CTMT pressure is as found. If asked: CTMT Radiation is as found. <i>Adverse CTMT Conditions may have been verified during review of CAUTION prior to Step 1.</i></p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6:</p> <p>ADJUST AFFECTED SG(s) PORV CONTROLLER SETPOINT TO 1035.PSIG. <i>(Step 5)</i></p> <p>STANDARD:</p> <p>a) Checks setpoint on 1-MS-PC-101B and observes setpoint indicates 1005 psig.</p> <p>b) Adjusts setpoint using ▲ or ▼ pushbuttons to an indication of 1035 psig.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 7:</p> <p>Reviews CAUTION.Prior to Step 6. <i>(Step 6)</i></p> <p>STANDARD:</p> <p>Reviews CAUTION: If the TD AFW pump is the only available source of feed flow, steam supply to the TD AFW pump must be maintained from at least one SG.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 8:</p> <p>LOCALLY CLOSE AFFECTED SG(s) STEAM SUPPLY VALVES TO TD AFW PUMP: <i>(Step 6)</i></p> <p>STANDARD:</p> <p>Directs Operator to locally close 1-MS-120 for SG B.</p> <p>EVALUATOR'S NOTE:</p> <p>When Booth Operator Directed to close 1-MS-120, the Booth Operator will inform the Candidate that a time compression has occurred and 1-MS-120 is closed.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 9:</p> <p>CLOSE AFFECTED SG(s) MSTVs. <i>(Step 7)</i></p> <p>STANDARD</p> <ul style="list-style-type: none"> a) Identifies 1-NS-RV-101B Open, by observing RED light On and GREEN Light Off. b) Removes Brass Cap over control switch and places 1-MS-TV-101B control switch to close. c) Verifies 1-MS-TV-101B closed by observing GREEN Light Lit and RED Light Out. d) Silences and Acknowledges alarm 1H-A8, STM LINE ISOL TRIP V Vs CLOSED. <p>EVALUATOR'S NOTE:</p> <ul style="list-style-type: none"> • d) Action above may be performed by Booth Operator if Candidate requested Alarms to be Silenced and Acknowledged during JPM performance. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 10:</p> <p>CHECK AFFECTED SG(s) RADIATION - NORMAL. <i>(Step 8)</i></p> <p>STANDARD</p> <ul style="list-style-type: none"> a) Checks B MS line RM normal using PCS (MS Screen). b) Checks SG Blowdown Normal using PCS or 1-RM-RMS-113 (B/D RM for B/C SG). c) Samples. <p>EVALUATOR'S NOTE:</p> <p>If asked: PCS Indication as found. If asked: 1-RM-RMS-113 indication as found. If asked: Sampling will be considered following Blowdown Restoration.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 11:</p> <p>ESTABLISH BLOWDOWN FROM AFFECTED SG(s) IAW 1-OP-BD-001, STEAM GENERATOR BLOWDOWN SYSTEM OPERATION. <i>(Step 9)</i></p> <p>STANDARD</p> <ul style="list-style-type: none"> a) Identifies that Blowdown is isolated by observing 1-BD-TV-100C and 1-BD-TV-100D closed on VB1-1, and zero (0) blowdown flow indicated in FI-BD-103B/FI-BD-104B. <p>EVALUATOR'S NOTE:</p> <p>After Candidate identifies indications for Blowdown flow, inform Candidate that another Operator is currently being briefed and will place blowdown in service IAW 1-OP-BD-001.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 12:</p> <p>RETURN TO PROCEDURE AND STEP IN EFFECT (Step 10)</p> <p>NOTIFY NUCLEAR SHIFT MANAGER (EVALUATOR) STATUS OF TASK. When Step 10 reached, Candidate should report task complete.</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME:

DRAFT

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

Task

- Task is to be performed in the simulator.
- Perform 1-FR-H.3, Response to Steam Generator High Level

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 was initially operating at 50% with a ramp to 100% power in progress. A lightning strike near the Station caused a spurious AMSAC initiation, and reactor trip. Upon transition to 1-ES-0.1, a second lightning strike caused a Pilot wire lockout on the "C" RSST.
- The Unit 1 RO and SRO are performing 1-AP-10.07, Loss of Unit 1 Power.
- Reactor Trip breaker "A" and "B" are stuck closed, an Operator has been dispatched to locally open them
- The STA has just noted that the "B" SG NR Level is above 85% level and increasing.

Initiating Cues

- I am the Nuclear Shift Manager and you are the Unit 1 BOP.
- Here is a copy of 1-FR-H.3, Response to Steam Generator High Level. You are to perform 1-FR-H.3.
- When you complete the actions necessary to accomplish this task, please inform me.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- Unit 1 was initially operating at 50% with a ramp to 100% power in progress. A lightning strike near the Station caused a spurious AMSAC initiation, and reactor trip. Upon transition to 1-ES-0.1, a second lightning strike caused a Pilot wire lockout on the "C" RSST.
- The Unit 1 RO and SRO are performing 1-AP-10.07, Loss of Unit 1 Power.
- Reactor Trip breaker "A" and "B" are stuck closed, an Operator has been dispatched to locally open them
- The STA has just noted that the "B" SG NR Level is above 85% level and increasing.

Initiating Cues

- I am the Nuclear Shift Manager and you are the Unit 1 BOP.
- Here is a copy of 1-FR-H.3, Response to Steam Generator High Level. You are to perform 1-FR-H.3.
- When you complete the actions necessary to accomplish this task, please inform me.

DRAFT

U.S. Nuclear Regulatory Commission
Surry Power Station

Simulator Job Performance Measure 028A4.03 (3.1 / 3.3)

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Place the Containment Hydrogen Analyzer in Service

K/A: 028A4.03 Ability to predict and/or monitor changes in parameter (to prevent exceeding design limits) associated with operating the HRPS controls including: Location and operation of hydrogen sampling and analysis of containment atmosphere, including alarms and indications.

Applicability

RO/SRO(I)

Estimated Time

10 Minutes

Actual Time

____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- A LBLOCA has occurred from 100% power.
- A determination of Containment Hydrogen concentration is required.

Standards

- 1-E-1, Loss of Reactor or Secondary Coolant (Rev 37).

Initiating Cues

- 1-E-1, Loss of Reactor or Secondary Coolant, Step 26a
- Shift Manager direction.

Terminating Cues

- 1-E-1, Attachment 3, Step I.2.h.

Procedures

- 1-E-1, Loss of Reactor or Secondary Coolant, Attachment 3, Rev 37

Tools and Equipment

- None

Safety Considerations

- None

Simulator Setup

- Call up 100% power IC and initialize. Place simulator in RUN.
- Initiate LBLOCA malfunction. Perform E-0 and E-1 Actions up to Step 26.
- Allow CTMT pressure to increase and return to < 18 psia.
- Place selector switch for H2A-GW104 in the Unit 2 position.
- Verify selector switch for the H₂ ANALYZER (H2A-GW-104) HEAT TRACE PANEL 6, 1-HT-HTP-6, is in the AUTO position & reset SI. Check heat tracing de-energized.
- Freeze simulator until JPM performance.

Initiating Cues

- A LBLOCA has occurred on Unit 1.
- The Operating Team has reached Step 26 of 1-E-1, Loss of Reactor or Secondary Coolant.

Directions to the Applicant

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- You are to place Hydrogen Analyzer H2A-GW104 in service on Unit 1 Containment IAW 1-E-1, Attachment 3, Part I.
- When you complete the actions necessary to accomplish this Task, please inform me.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are **bolded**.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>Review NOTES prior to Step 1 of Attachment 3: <i>(Step 1)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews NOTE 1: Containment pressure should be between 9 and 60 PSIA. <ul style="list-style-type: none"> • Observes CTMT Pressure indication on 1-LM-PI-100A/100B/100C and 100D. b) Reviews NOTE 2: Containment temperature should be between 40°F and 290°F. <ul style="list-style-type: none"> • Observes CTMT Temperature on 1-LM-TI-100-1 and 100-2. <p>EVALUATOR'S NOTE:</p> <p>If asked: CTMT Pressure and Temperature Indications are as found.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>Select Hydrogen Analyzer to be placed in service: <i>(Step 1)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> • Determines from previous instructions that H2A-GW104 is the analyzer to be used. <p>EVALUATOR'S NOTE:</p> <p>If asked: H2A-GW-104 is to be used.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>IF H2A-GW104 is to be placed in service, THEN do the following: <i>(Step 2a)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Put selector switch XFER CKT UNIT #1 TO UNIT #2 in the UNIT 1 position (Switch is located on Unit 1 Post Accident Monitoring Panel). b) Checks that white analyzer indicating light for Unit 1 lit. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>Put selector switch H2 ANALYZER (H2A-GW-104) HEAT TRACE PANEL 6, 1-HT-HTP-6, in ON. <i>(Step 2b)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Places selector switch for H₂ ANALYZER (H2A-GW-104) HEAT TRACE PANEL 6, 1-HT-HTP-6, in the ON position. b) Checks RED light illuminates after switch is in ON position. c) Records the time Heat Tracing is energized _____. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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<p>STEP 5:</p> <p>Align H2 Analyzer valves to Detector. <i>(Step 2 c - f)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Open 1-GW-TV-100, H2 ANALYZER VLV. b) Checks valve open by observing RED light lit and GREEN off. c) Opens 1-GW-TV-101, H2 ANALYZER VLV. d) Checks valve open by observing RED light lit and GREEN off. e) Opens 1-GW-TV-103, H2 ANALYZER VLV. f) Checks valve open by observing RED light lit and GREEN off. g) Opens 1-GW-TV-102, H2 ANALYZER VLV. h) Checks valve open by observing RED light lit and GREEN off. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6:</p> <p>NOTE: Before the Hydrogen Analyzer is placed in service, the heat tracing circuit must be energized for 20 minutes. <i>(Step 2, Note prior to 2g)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> • Reviews Note Prior to Step 2g: Before the Hydrogen Analyzer is placed in service, the heat tracing circuit must be energized for 20 minutes <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 7:</p> <p>Energizes H2 Analyzer. (Step 2 g, h)</p> <p>STANDARD:</p> <ul style="list-style-type: none">a) Verify that 20 minutes have elapsed since the time recorded in Step 2b.b) Put selector switch H2 ANALYZER H2A-GW104 in the ANALYZE position.c) Checks RED light illuminates after switch is in ANALYZE position.d) Observes 10GW-H2A-104 TR A, CTMT H2 Analyzer, moves upscale to an indication of approximately 0.8%. <p>EVALUATOR'S NOTE:</p> <p>After Candidate reviews Step 2g, inform Candidate that a time compression has occurred and the current time is 20 minutes later than the time recorded in Step 2b.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 8:</p> <p>NOTIFY NUCLEAR SHIFT MANAGER (EVALUATOR) STATUS OF TASK.</p> <p>When Step 2 h) Completed, Candidate should report completion of task.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME:

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

Task

- Task is to be performed in the simulator.
- Place Hydrogen Analyzer H2A-GW104 in service on Unit 1 Containment IAW 1-E-1, Attachment 3, Part I.

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

- A LBLOCA has occurred on Unit 1.
- The Operating Team has reached Step 26 of 1-E-1, Loss of Reactor or Secondary Coolant.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- You are to place Hydrogen Analyzer H2A-GW104 in service on Unit 1 Containment IAW 1-E-1, Attachment 3, Part I.
- When you complete the actions necessary to accomplish this Task, please inform me.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- A LBLOCA has occurred on Unit 1.
- The Operating Team has reached Step 26 of 1-E-1, Loss of Reactor or Secondary Coolant.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- You are to place Hydrogen Analyzer H2A-GW104 in service on Unit 1 Containment IAW 1-E-1, Attachment 3, Part I.
- When you complete the actions necessary to accomplish this Task, please inform me.

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U.S. Nuclear Regulatory Commission
Surry Power Station

SR12301

Simulator Job Performance Measure 056AK3.02 (4.4 / 4.7)

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Load the AAC Diesel on the Unit One J Bus

K/A:056 AK3.02 Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Actions contained in EOP for loss of offsite power.

Applicability

RO

Estimated Time

10 Minutes

Actual Time

____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- Unit 1 has sustained a loss of all AC power and Unit 2 has only the "H" Bus energized from #2 EDG.
- The Operating Team is performing ECA-0.0.

Standards

- 0-AP-17.06, AAC Diesel Generator – Emergency Operations.

Initiating Cues

- **This JPM is **TIME CRITICAL**.**
- You are the Unit 1 BOP and I am the Nuclear Shift Manager.
- Unit 1 has sustained a loss of all AC power and Unit 2 has only the "H" Bus energized from #2 EDG.
- The Operating Team is performing ECA-0.0.
- Here is a copy of 0-AP-17.06, AAC Diesel Generator - Emergency Operations.
- I need you to restore power to Unit 1 "J" Bus with the AAC Diesel Generator by performing steps 1-6 of 0-AP-17.06, AAC Diesel Generator – Emergency Operations.
- When you finish the actions necessary to accomplish this, please inform me so I can have the Operating Team restore loads on the Unit 1 "J" Bus.

Terminating Cues

- Unit 1 "J" Bus re-energized.
- 0-AP-17.06, Step 6 complete.

Procedures

- 0-AP-17.06, AAC Diesel Generator – Emergency Operations (Rev 24)

Tools and Equipment

- None

Safety Considerations

- None

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Simulator Setup

- Call up 100% IC and initialize.
- Implement Failure of #1 and #3 EDGs to start (ED0201 and ED0203).
- Enter Loss of Offsite Power (EL01) with a 1 second time delay.
- Open SA_223 to valve in Temporary Air Compressor.
- Trigger 3, FW3102, FW-P-3B Spurious Trip.
- Place the simulator in run, implement all malfunctions, and perform the ECA-0.0 to Step 5c.
- Freeze the simulator and save this condition.

Initiating Cues

- Shift Manager direction
- ECA-0.0, Loss of all AC Power, Step 5c.

Directions to the Applicant

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- **This JPM is **TIME CRITICAL**.**
- Unit 1 has sustained a loss of all AC power and Unit 2 has only the "H" Bus energized from #2 EDG.
- The Operating Team is performing ECA-0.0.
- Here is a copy of 0-AP-17.06, AAC Diesel Generator - Emergency Operations.
- I need you to restore power to Unit 1 "J" Bus with the AAC Diesel Generator by performing steps 1-6 of 0-AP-17.06, AAC Diesel Generator – Emergency Operations.
- When you finish the actions necessary to accomplish this, please inform me so I can have the Operating Team restore loads on the Unit 1 "J" Bus.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are Bolded.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>REVIEWS NOTEs prior to Step 1 (<i>Step 1</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews NOTE 1: A one-line diagram showing the AAC Electrical distribution is provided in Attachment 1. b) Reviews NOTE 2: The AAC Diesel Generator should automatically start when Transfer Buses D and F OR E and F are deenergized. <p>EVALUATOR'S NOTE:</p> <p>JPM is TIME CRITICAL. 0-DRP-049, Time Critical Operator Actions, E11, allows 10 minutes to Align the AAC Diesel to respective emergency bus. Time starts when Simulator placed in RUN; Time Stops when breaker 15J8 closed and 1J bus energized.</p> <p>If asked: Unit 2 Transfer buses are de-energized, #2 EDG is supplying 2H emergency bus.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>CHECKS EMERGENCY BUSES 1J and 2H - EITHER OR BOTH DE-ENERGIZED. (<i>Step 1</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Identifies 1J Bus is de-energized by observing zero (0) volts indicated on 1J bus. b) Identifies from instructions or Unit 2 inquiry that 2H energized. <p>EVALUATOR'S NOTE:</p> <p>If asked: "2H" Bus is energized from the #2 EDG.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>GO TO APPROPRIATE STEP BASED ON DESIRED USE OF THE AAC DIESEL GENERATOR. <i>(Step 2)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews CAUTION prior to Step 2: Loading of the AAC Diesel should consider availability of Instrument Air from 1-IA-C-1 or the Temporary Diesel Air Compressor. b) Identifies 1J to be re-energized from the AAC Diesel from initial task briefing or Evaluator query. <p>EVALUATOR'S NOTE:</p> <p>If asked: Temporary Air Compressor is in service. If asked: Load the AAC on 1J Bus.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>CHECKS AAC DIESEL GENERATOR - AVAILABLE AND RUNNING. <i>(Step 3)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Observes 0-WD-C2, AAC SYSTEM AVAILABLE BUS 1D, is lit. b) Observes 0-WD-D1, AAC GENERATOR TRIP, is not lit. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 5:</p> <p>REVIEWS CAUTION AND NOTE PRIOR TO STEP 4. <i>(Step 4)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) An overcurrent fault on 15D1 will prevent 0-AAC-BKR-05L3 from closing. b) Annunciator 0-WD-C2, AAC SYSTEM AVAILABLE BUS 1D, should go out when 0-AAC-BKR-05L3 closes. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 6:</p> <p>ENERGIZE TRANSFER BUS D BY CLOSING 0-AAC-BKR-05L3. <i>(Step 4)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) At Unit 1 EDG 3 Control Panel, place Transfer Switch NORMAL/AAC, 0-AAC-43-15J8, in AAC position. b) Check Annunciator 1K-D3, BUS 1D UNDERVOLT - NOT LIT. c) Checks annunciator 0-WD-C2, AAC SYSTEM AVAILABLE BUS 1D extinguished (from NOTE prior to step). <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 7:</p> <p>CHECK OR PLACE THE FOLLOWING LOADS IN PTL. <i>(Step 5)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Places 1-VS-F-1B in PTL b) Places 1-SI-P-1B in PTL c) Places 1-RS-P-2B in PTL d) Places 1-RS-P-1B in PTL e) Places 1-CS-P-1B in PTL f) Places "A" PZR heater group in LOCKOUT g) Places 1-CH-P-1B in PTL h) Identifies 1-CH-P-1C ALT in PTL. i) Places 1-FW-P-3B in PTL j) Places 1-CC-P-1B in PTL k) Identifies 1-VS-F-58B is powered from its normal source and not required to be manipulated. l) Identifies 1-CS-P-1B breaker open (RED light off, GREEN light off). m) Identifies 1-RS-P-1B breaker open (RED light off, GREEN light off). n) Identifies 1-FW-P-3B breaker closed (RED light on, GREEN light off). o) Opens 1-FW-P-3B breaker by resetting AMSAC or dispatching an operator to locally open breaker 15J4. (p) Identifies 1-FW-P-3B breaker opened (RED light off, GREEN light off). <p>EVALUATOR'S NOTE:</p> <p>If 1-VS-F-58B placed in PTL in k) above – this action warrants a follow-up question if not corrected prior to completion of task.</p> <p>Booth Operator: If contacted to locally open 1-FW-P-3B breaker locally, actuate Trigger 3, inform Candidate that a time compression has occurred and 15J4 open.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 8:</p> <p>ENERGIZE EMERGENCY BUS 1J. (Step 6)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews NOTE Prior to Step 6: The control switch for Breaker 15J8 must be held in Closed position for at least five seconds. b) Locates the generator synch switch and places it in 15J8. c) Rotates the synch switch for 15J8 in the clockwise direction to the "ON" position. d) Verifies breaker 15J3 is open (green light on red light off). e) Rotates 15J8 breaker control switch in the clockwise direction to the close position and holds for 5 seconds, releases switch and verifies rotation back to 12:00 position. (NOTE: 15J8 amber light will need to be reset before closing breaker) <p>NOTE: TIME CRITICAL ACTION COMPLETE; TIME _____.</p> <ul style="list-style-type: none"> f) Verifies 15J8 breaker closed (Red light on, green light off). g) Verifies 1J Bus energized (frequency at approximately 60 HZ and voltage approximately 4200V). h) Rotates the synch switch for 15J8 in the counterclockwise direction to the "OFF" position. <p>EVALUATOR'S NOTE:</p> <p>The operator should not attempt to use the synch switch on the Liquid Waste Panel. Usage of this switch warrants a follow-up question.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 9:</p> <p>REPORTS TO SHIFT MANAGER (EVALUATOR)</p> <p><u>Standards</u></p> <p>Verbal status report that 1J Bus is energized and AP-17.06 is completed up to Step 7</p> <p>STOP TIME: _____</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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

Task

- Task is to be performed in the simulator.
- Load the AAC Diesel Generator on the 1J Bus IAW 0-AP-17.06, Steps 1-6.

•

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 sustained a loss of all AC power and Unit 2 has only the "H" Bus energized from #2 EDG.
- The Operating Team is performing ECA-0.0.

Initiating Cues

- **This JPM is **TIME CRITICAL**.**
- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- Here is a copy of 0-AP-17.06, AAC Diesel Generator - Emergency Operations.
- I need you to restore power to Unit 1 "J" Bus with the AAC Diesel Generator by performing steps 1-6 of 0-AP-17.06, AAC Diesel Generator – Emergency Operations.
- When you finish the actions necessary to accomplish this, please inform me so I can have the Operating Team restore loads on the Unit 1 "J" Bus.
- When you finish the actions necessary to accomplish this, please inform me.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- Unit 1 has sustained a loss of all AC power and Unit 2 has only the "H" Bus energized from #2 EDG.
- The Operating Team is performing ECA-0.0.

Initiating Cues

- **This JPM is **TIME CRITICAL**.**
- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- Here is a copy of 0-AP-17.06, AAC Diesel Generator - Emergency Operations.
- I need you to restore power to Unit 1 "J" Bus with the AAC Diesel Generator by performing steps 1-6 of 0-AP-17.06, AAC Diesel Generator – Emergency Operations.
- When you finish the actions necessary to accomplish this, please inform me so I can have the Operating Team restore loads on the Unit 1 "J" Bus.
- When you finish the actions necessary to accomplish this task, please inform me.

DRAFT

U.S. Nuclear Regulatory Commission
Surry Power Station

SR12301
Simulator Job Performance Measure 015K4.08 (3.4 / 3.7)
[Alternate Path]

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Adjust the PRNIs in accordance with 1-OPT-RX-001

K/A: 015K4.08 Knowledge of NIS design feature(s) and/or interlock(s) provide for the following: Automatic rod motion on demand signals.

Applicability

RO/SRO(I)

Estimated Time

10 Minutes

Actual Time

_____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- Unit 1 operating at 100% power. 1-OPT-RX-001 has been completed up to Section 6.2.

Standards

- Adjust N42 and N44 IAW 1-OPT-RX-001, Section 6.2 and Attachment 1.

Initiating Cues

- Unit 1 operating at 100% power.
- The Unit 1 RO has completed 1-OPT-RX-001, Section 6.1.
- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform 1-OPT-RX-001, Section 6.2.
- When you have completed the actions associated with this task, please inform me.

Terminating Cues

- Rods placed in Manual IAW AP-1.00.

Procedures

- 1-OPT-RX-001, Rev 46

Tools and Equipment

- None

Safety Considerations

- None

Simulator Setup

- Call up 100% power IC and initialize. Place simulator in RUN.
- Adjust N41 and N44 to 100% indication using drawer gain control.
- Adjust N42 to an indication of 97% power using the drawer gain control.
- Adjust N44 to an indication of 98% power using the drawer gain control.
- Trigger 1, enter malfunction RD0201, Continuous Rod Insertion Auto.

Initiating Cues

- Init 1 is operating at 100%.
- 1-OPT-RX-001, Section 6.2 and Attachment 1.

Directions to the Applicant

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- The Unit 1 RO has completed 1-OPT-RX-001, Section 6.1.
- You are to perform Section 6.2 of 1-OPT-RX-001.
- When you finish the actions necessary to accomplish this task, please inform me.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>Reviews Purpose, Initial Conditions, and Precautions and Limitations of 1-OPT-RX-001.</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews Purpose 1.1, 1.2, and 1.3. b) Reviews Initial Conditions 3.1 and 3.2. c) Reviews Precautions and Limitations 4.1 through 4.22; noting 4.3, and 4.6. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>Adjusting NI Channels. (<i>Section 6.2, Step 6.2.1</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reads and Initials Step 6.2.1: Compare each NI channel percent power indication with the Calcalc Total Thermal Pwr (UFM, Venturi or Normalized Feedwater) or Calcalc 10-Min Avg Pwr (Steam Flow), whichever is the standard. (Each NI should be within + 2% and - 0% of the Calorimetric value if Reactor power is greater than or equal to 90%, OR within + 4% and - 0% of the Calorimetric value if Reactor power is less than 90%). b) Refers to Step 6.1.12 to determine Calcalc Total Thermal Power: 99.94%. c) Locates to PRNI drawers and observes N41 indicating 100%, N42 indicating 97%, N43 indicating 100%, and N44 indicating 98%. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>Adjusting NI Channels. (Section 6.2, Step 6.2.2)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews Note prior to Step 6.2.2: Gain potentiometer adjustment can cause average flux deviation alarms as well as high flux rod stop alarms. This should be anticipated when adjusting gain potentiometers. (Reference 2.4.6) b) Enters N/A and Initials Step 6.2.2: IF the NI Channel is within tolerance but adjustment will better align it with the calorimetric, THEN obtain Shift Supervision concurrence AND adjust NI Channel IAW Attachment 1 to the value recorded in Step 6.1.12 or Step 6.1.13. Record initials on Attachment 1. IF no NI adjustment is made, OR NI is NOT within tolerance, THEN enter N/A. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>Adjusting NI Channels. (Section 6.2, Step 6.2.3)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Initials Step 6.2.3: IF NI channel is NOT within tolerance, THEN obtain Shift Supervision concurrence AND adjust the gain potentiometer on the front panel of each NI Channel IAW Attachment 1 to the value recorded in Step 6.1.12 or Step 6.1.13. Record initials on Attachment 1. IF all NI channels are within tolerance, THEN enter N/A. b) Reports to Shift Manager (Evaluator) that N42 and N44 require adjustment, and requests authorization to make these adjustments. c) Initiates Attachment 1. <p>EVALUATOR'S NOTE:</p> <p>When asked: Initial Step 6.2.3 to authorize adjustment of PRNIs.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 5:</p> <p>Attachment, 1-OPT-RX-001, NI Calibration. <i>(Step 1)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews CAUTION Prior to Step 1 of Attachment 1: CAUTION: To prevent introducing non-conservative High Flux Trip and High Flux Rod Stop setpoints, setpoint changes required by the following step must be completed before any associated Gain Potentiometer adjustments are performed. b) Enters N/A and Initials Step 1 of Attachment 1: IF Reactor power is less than 90% AND the Gain Potentiometer on any NI will be decreased, THEN before adjusting NIs, have I & C lower the High Flux Trip and High Flux Rod Stop setpoints on all NIs based on current Reactor power level. Otherwise, enter N/A. (Reference 2.4.5). <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6:</p> <p>Attachment 1 Table, N41. <i>(Attachment 1, Step 1)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Enters N/A in Item 3) block, N41 column of the Table. b) Enters N/A in item 4) block, N41 Column of the Table. c) Enters N/A in Item 5) block, N41 column of the Table. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 7:</p> <p>Attachment 1 Table, N42. <i>(Attachment 1, Step 1)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Enters 97% in Item 3) block, N42 column of the Table. b) Checks alternate indications of reactor Power (i.e., N41, N43, Turbine Impulse Pressure, Calorimetric power) prior to adjustment of N42 IAW P&L 4.6. c) Adjusts gain control on N42 Drawer to 100% indication. (Band: 99.95 – 102%) d) Enters Initials in item 4) block, N42 Column of the Table. e) Records 100% in Item 5) block, N42 column of the Table. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 8:</p> <p>Attachment 1 Table, N43. (<i>Attachment 1, Step 1</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Enters N/A in Item 3) block, N43 column of the Table. b) Enters N/A in item 4) block, N43 Column of the Table. c) Enters N/A in Item 5) block, N43 column of the Table. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 9:</p> <p>Attachment 1 Table, N44. (<i>Attachment 1, Step 1</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Places Rod control in manual, and initials item 2) block, N44 column of the Table. a) Enters 98% in Item 3) block, N44 column of the Table. b) Checks alternate indications of reactor Power (i.e., N41, N43, Turbine Impulse Pressure, Calorimetric power) prior to adjustment of N44 IAW P&L 4.6. c) Adjusts gain control on N44 Drawer to 100% indication. (Band: 99.95 – 102%) d) Enters Initials in item 4) block, N44 Column of the Table. e) Records 100% in Item 5) block, N44 column of the Table. f) Allows at least one (1) minute to pass before placing rod control in automatic following gain control manipulation. g) Places Rod control in Automatic. h) Identifies Rod Inward rod motion with no Tave/Tref deviation. i) Returns rod control to manual. j) Check Rod Motion stopped. k) Reports completion of Immediate Action Steps of AP-1.00. <p>EVALUATOR'S NOTE:</p> <p>Booth Operator: When rod control placed in manual for item a) above, actuate Trigger 1.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

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

Task

- Task is to be performed in the simulator.
- Perform Steps perform Section 6.2 of 1-OPT-RX-001.

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 operating at 100%.
- The Unit 1 RO has completed 1-OPT-RX-001, Section 6.1.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- The Unit 1 RO has completed 1-OPT-RX-001, Section 6.1 and recorded CALCALC Total Thermal Power on Step 6.1.12.
- You are to perform Section 6.2 of 1-OPT-RX-001.
- When you finish the actions necessary to accomplish this task, please inform me.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- Unit 1 is operating at 100%.
- The Unit 1 RO has completed 1-OPT-RX-001 Section 6.1.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP.
- The Unit 1 RO has completed 1-OPT-RX-001, Section 6.1 and recorded CALCALC Total Thermal Power on Step 6.1.12.
- You are to perform Section 6.2 of 1-OPT-RX-001.
- When you finish the actions necessary to accomplish this task, please inform me.

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U.S. Nuclear Regulatory Commission
Surry Power Station

SR12301

Simulator Job Performance Measure 059AK3.01 (3.5 / 3.9)

Applicant _____

Start Time _____

Examiner _____

Date _____

Stop Time _____

Title

Isolate Leaking RSHX ("D")

K/A: 059AK3.01 Knowledge of the reasons for the following responses as they apply to the Accidental Liquid Radwaste Release: Termination of a release of radioactive liquid

Applicability

RO/SRO(I)/SRO(U)

Estimated Time

10 Minutes

Actual Time

_____ Minutes

Conditions

- Task is to be PERFORMED in the simulator.
- A LBLOCA has occurred on Unit 1. Following completion of 1-E-0, Attachment 1, Step 9d (Check OSRS pumps – NOT CAVITATING), Annunciator RM-C8, RS/SW HX D ALERT/FAILURE was received followed by Annunciator RM-D8, 1-SW-RI-117 High.

Standards

- Completion of Annunciator Response Procedure 1-RM-D8, 1-SW-RI-117 HIGH, Step 12.

Initiating Cues

- A LBLOCA has occurred on Unit 1. Unit 2 is operating at stable power level of 100%.
- The Operating Team is currently performing 1-E-1, Loss of Reactor or Secondary Coolant.
- 1-E-0, Attachment 1, Step 9d, Check OSRS pump –NOT CAVITATING has just been completed.
- Annunciator 1-RM-C8, RS/SW HX D ALERT/FAILURE, and 1-RM-D8. 1-SW-RI-117 HIGH have just been received.
- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform Annunciator Response Procedure 1-RM-D8, 1-SW-RI-117 HIGH.
- When you have completed the actions to accomplish this Task, please inform me.

Terminating Cues

- Report of completion of Annunciator Response Procedure 1-RM-D8, 1-SW-RI-117 HIGH, Step 12.

Procedures

- 1-RM-D8, 1-SW-RI-117 HIGH (Rev 3)

Tools and Equipment

- None

Safety Considerations

- None

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Simulator Setup

- Call up 100% power IC and initialize. Place simulator in RUN.
- Enter Malfunctions:
 - RC0101, RCS Cold Leg A Pipe Rupture
 - RS0504, Malf Leak Flow from RS-E-1D to SW System
- Place Simulator in Run. Perform Actions of E-0 until ORS Pumps start.
- Ensure RM-D8, 1-SW-RI-117 HI goes into alarm.
- Reset CLS signal when Containment decreases to < 14.2 psia.
- Place Simulator in Freeze until JPM performance.

Initiating Cues

- A LBLOCA has occurred on Unit 1. Unit 2 is operating at stable power level of 100%.
- The Operating Team is currently performing 1-E-1, Loss of Reactor or Secondary Coolant.
- 1-E-0, Attachment 1, Step 9d, Check OSRS pump –NOT CAVITATING has just been completed.
- Annunciator 1-RM-C8, RS/SW HX D ALERT/FAILURE, and 1-RM-D8, 1-SW-RI-117 HIGH have just been received.
- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform Annunciator Response Procedure 1-RM-D8, 1-SW-RI-117 HIGH.
- When you have completed the actions to accomplish this Task, please inform me.

Directions to the Applicant

- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform Annunciator Response Procedure 1-RM-D8, 1-SW-RI-117 HIGH.
- When you have completed the actions to accomplish this Task, please inform me.

Notes

PERFORMANCE CHECKLIST

Notes to the Evaluator

- Task critical elements are bolded.
- *An additional instructor may be needed to silence and acknowledge alarms for the examinee.*
- **START TIME:**

<p>STEP 1:</p> <p>VERIFY ALARM - READINGS ON MONITOR OR CHART RECORDER GREATER THAN OR EQUAL TO HIGH SETPOINT (<i>Step 1</i>)</p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews CAUTION prior to Step 1: Operation of the RSHX SW radiation monitors is not required to directly support RS functional requirements. b) Verifies 1-SW-RI-117 greater than the High alarm setpoint by pressing the drawer High pushbutton and observing indication less than current reading. c) Verifies 1-RM-RR-150A, Pen 4 is trending with drawer indication. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 2:</p> <p>CHECK UNIT 2 - OPERATIONS NORMAL. (<i>Step 2</i>)</p> <p>STANDARD:</p> <p>Asks Unit 2 if Unit 2 Operation Normal or remembers Unit 2 status from initial briefing.</p> <p>EVALUATOR'S NOTE:</p> <p>If asked: Unit 2 is stable at 100% power.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 3:</p> <p>CHECK AFFECTED HX IN SERVICE. <i>(Step 3)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Checks SW Flow to 1-RS-E-1D by observing 1-SW-MOV-103A through 103 D OPEN, GREEN lights Lit, RED Lights Out. b) Check SW flow to RS-E-1D by observing 1-SW-MOV-104D and 1-SW-MOV-105D OPEN, GREEN Lights Lit, RED Lights Out. c) Check SW flow by observing SW flow through 1-SW-FI-106D, RS HX D SW OUTLET FLOW. d) Checks 1-RS-P-2B running by observing breaker closed indications, RED Light Lit and GREEN Light Out. e) Check amps indicated for 1-RS-P-2B and discharge pressure indication on 1-RS-PI-156B, DISCH PRESS PUMP B. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 4:</p> <p>PLACE ADDITIONAL RS HX(s) IN SERVICE AS REQUIRED. <i>(Step 4)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Identifies RS-E-1A, RS-E-1B, and 1-RS-E-1C in service by observing SW valves Open, SW Flow through the HXs, and 1RS-P-1A/1B/2A running. b) Determines sufficient HXs in service to maintain heat sink for Reactor Core following shift to RMT. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 5:</p> <p>CONSULT WITH SHIFT SUPERVISION AND OMOC TO DETERMINE IF THE AFFECTED RSHX SHOULD BE REMOVED FROM SERVICE. <i>(Step 5)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews CAUTION prior to Step 5: CAUTION: An operating RS train should NOT be secured unless sufficient redundant trains are available for containment heat removal. b) Consults with Shift Manager (Evaluator) to determine if affected RSHX should be removed from service. <p>EVALUATOR'S NOTE:</p> <p>When asked: State that the OMOC has been consulted and will concur with Candidates decision.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 6:</p> <p>CHECK AFFECTED RSHX TO BE REMOVED FROM SERVICE. <i>(Step 6)</i></p> <p>STANDARD:</p> <p>Identifies 1-RS-E-1D to be removed from service .</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 7:</p> <p>STOP ASSOCIATED RS PUMP AND PLACE IN PTL: <i>(Step 7)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Places control switch for 1-RS-P-2B in PTL. b) Checks 1-RS-P-2B secured by observing zero (0) amps indicated, GREEN Light Lit and RED Light Out on breaker control switch, and pump discharge pressure on 1-RS-PI-156B, DISCH PRESS PUMP B. c) Acknowledges Annunciator 1A-H8, RS PP 2B LOCKOUT OR OL TRIP. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 8:</p> <p>STOP ASSOCIATED RSHX SW PUMP: <i>(Step 8)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Places 1-SW-P-5D control switch to Stop. b) Verifies 1-SW-P-5D stopped by observing GREEN Light On, RED Light Off. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 9:</p> <p>ISOLATE SW TO 1-RS-E-1D BY CLOSING THE ASSOCIATED MOVS: <i>(Step 9)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Reviews NOTE prior to Step 9: NOTE : If an undervoltage condition occurs before CLS reset, the SW MOVs will reopen when voltage is returned to normal. b) Closes 1-SW-MOV-104D by placing control switch in close position. c) Verifies 1-SW-MOV-104D closed by observing GREEN Light Lit, and RED Light Off. d) Closes 1-SW-MOV-105D by placing control switch in close position. e) Verifies 1-SW-MOV-105D closed by observing GREEN Light Lit, and RED Light Off. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 10:</p> <p>INCREASE SURVEILLANCE ON INSERVICE MONITORS. <i>(Step 10)</i></p> <p>STANDARD:</p> <ul style="list-style-type: none"> a) Locates to RM Panel and observes videographic recorder 1-RM-RR-150A,. and 1-SW-RI-114, 1-SW-RI-115, and 1-SW-RI-116. b) Observes trend stable on 1-RM-RR-150A, pen 1 through 3. c) Observes trend stable on 1-RM-RI-114, 115, and 116. <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

<p>STEP 11:</p> <p>INITIATE A CONDITION REPORT. <i>(Step 11)</i></p> <p>STANDARD:</p> <p>Candidate states need to initiate a Condition Report (CR) to Shift Manager (Evaluator).</p> <p>EVALUATOR'S NOTE:</p> <p>Inform Candidate that the STA will initiate the CR.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 12:</p> <p>PROVIDE NOTIFICATIONS AS NECESSARY. <i>(Step 12)</i></p> <p>STANDARD:</p> <p>Candidate notifies Shift Manager (Evaluator) that the following Notifications are required:</p> <ul style="list-style-type: none"> • Shift Supervision • OMOG • STA • Health Physics • Instrumentation Department <p>EVALUATOR'S NOTE:</p> <p>Acknowledge Notifications are required.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>
<p>STEP 13:</p> <p>NOTIFY NUCLEAR SHIFT MANAGER (EVALUATOR) STATUS OF TASK.</p> <p>Candidate should report completion of task.</p> <p>COMMENTS:</p>	<p>_____ SAT</p> <p>_____ UNSAT</p>

STOP TIME:

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

Task

- Task is to be performed in the simulator.
- Perform Steps 1-RM-D8, 1-SW-RI-117 HIGH, Step 12.

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

- A LBLOCA has occurred on Unit 1. Unit 2 is operating at stable power level of 100%.
- The Operating Team is currently performing 1-E-1, Loss of Reactor or Secondary Coolant.
- 1-E-0, Attachment 1, Step 9d, Check OSRS pump –NOT CAVITATING has just been completed.
- Annunciator 1-RM-C8, RS/SW HX D ALERT/FAILURE, and 1-RM-D8, 1-SW-RI-117 HIGH have just been received.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform Annunciator Response Procedure 1-RM-D8, 1-SW-RI-117 HIGH.
- When you have completed the actions to accomplish this Task, please inform me.

**Operator Directions Handout
(TO BE GIVEN TO APPLICANT)**

Initial Conditions

- A LBLOCA has occurred on Unit 1. Unit 2 is operating at stable power level of 100%.
- The Operating Team is currently performing 1-E-1, Loss of Reactor or Secondary Coolant.
- 1-E-0, Attachment 1, Step 9d, Check OSRS pump –NOT CAVITATING has just been completed.
- Annunciator 1-RM-C8, RS/SW HX D ALERT/FAILURE, and 1-RM-D8. 1-SW-RI-117 HIGH have just been received.

Initiating Cues

- I am the Nuclear Shift Manager. You are the Unit 1 BOP. You are to perform Annunciator Response Procedure 1-RM-D8, 1-SW-RI-117 HIGH.
- When you have completed the actions to accomplish this Task, please inform me.

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