

REGION III

INITIAL LICENSE EXAM

JOB PERFORMANCE MEASURE

JPM: SYS A

**TITLE: PZR Pressure Control Using
 Auxiliary Spray**

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Establish Auxiliary Pressurizer Spray IAW EOP Supplement 37

Alternate Path: Charging Pump P-55A trips while attempting to control PZR Pressure using auxiliary spray requiring operator to start P-55C Charging Pump.

Facility JPM #: NEW

K/A: 010K6.03 Importance: RO: 3.2 SRO: 3.6

K/A Statement: Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: PZR sprays and heaters.

Task Standard: PZR Pressure controlled within given band.

Preferred Evaluation Location: Simulator X In Plant

Preferred Evaluation Method: Perform X Simulate

References: EOP-8.0, revision 14
EOP Supplement 37, revision 7
ARP-4, revision 56

Validation Time: 10 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments:

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

The plant has entered EOP-8.0, "Loss of all Forced Circulation" due to a loss of off-site power. EDGs 1-1 and 1-2 have started and loaded buses 1C and 1D. Charging pump P-55B is OOS for corrective maintenance.

INITIATING CUES:

The Control Room Supervisor has directed you to perform EOP Supplement 37 to control PZR Pressure Using Auxiliary Spray between 1700 psia and 1800 psia.

| Proc. Step | TASK ELEMENT 1 | STANDARD | Grade |
|------------|------------------------------------|------------------------------|-------|
| n/a | Operator locates EOP Supplement 37 | EOP Supplement 37 is located | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 2 | STANDARD | Grade |
|------------|--|---|-------|
| 1 | <p>MONITOR PZR Auxiliary spray line ΔT using the following instruments:</p> <ul style="list-style-type: none"> TI-0101, PZR Vapor Phase Temperature TI-0212, Charging Temperature | <p>Operator locates instrument readings:</p> <p>___ TI-0101 on panel C-12</p> <p>___ TI-0212 on panel C-02</p> <p style="text-align: center;"><u>OR</u></p> <p>Operator monitors instrument readings on the PPC</p> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 3 | STANDARD | Grade |
|------------|--|---|-------|
| 2 | <p>IF PZR Auxiliary Spray is operated when differential temperature between spray water and PZR vapor phase is greater than 200°F, THEN PERFORM the following:</p> <ol style="list-style-type: none"> LOG the time, differential temperature, and PZR pressure in the Narrative Log. RECORD the cumulative total of spray cycles with greater than 200°F differential temperature in the Narrative Log. INITIATE an Action Request. | <p>Operator monitors and determines if spray water and PZR vapor phase temperature ΔT is >200°F, then operator:</p> <p>___ Logs the time, differential temperature, and PZR Pressure.</p> <p>___ Records the cumulative total of spray cycles with ΔT >200°F.</p> <p>___ Recognizes the need to initiate an action request.</p> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 4 | STANDARD | Grade |
|-----------------------------|--|---|------------|
| 3 | ENSURE BOTH Pressurizer Spray valve Auto/Manual Switches in CLOSE: <u>PZR SPRAY VALVE</u> <u>AMS</u> CV-1057 AMS-1057 CV-1059 AMS-1059 | Operator places AMS-1057 and 1059 in CLOSE. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 5 | STANDARD | Grade |
|-----------------------------|--|--|------------|
| 4 | ENSURE OPERATING at least one Charging Pump. | Operator ensures charging pump P-55A in service. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 6 | STANDARD | Grade |
|-----------------------------|--|---|------------|
| 5 | ALIGN PZR Auxiliary Spray as follows: a. ENSURE OPEN HS-2111, Charging Line Stop Valve. b. ENSURE CLOSED MO-3072, Charging Pumps Discharge to Train 2. | Operator ensures: ____ CV-2111 is open (HS-2111) ____ MO-3072 is closed | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 7 | STANDARD | Grade |
|---|---|--|-------|
| 6 | OPERATE HS-2117, Aux Spray CV-2117 key switch, as desired. (Key: 151) | Operator takes handswitch HS-2117 to OPEN using Key 151 to lower PZR Pressure to within control band per initiating cue. | S U |
| Comment: Evaluator Note: Five seconds after HS-2117 is taken to open, charging pump P-55A will trip. Operator will determine that step 7 is required to be performed to raise charging flow. CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 8 | STANDARD | Grade |
|---|---|---|-------|
| 7 | IF additional flow through the PZR Auxiliary Spray Valve is required, THEN PERFORM ANY the following: a. START additional Charging Pumps as necessary. b. IF emergency boration is in progress, THEN CLOSE only one Charging Distribution Stop Valve: • CV-2113 • CV-2115 c. IF emergency boration is NOT required, THEN CLOSE the following Charging Distribution Stop valves, one at a time, until the desired flow is obtained: • CV-2113 • CV-2115 | Operator determines that step 'a' is applicable because there is currently zero charging flow. Operator then places charging pump, P-55C, in service by performing the following: ____ Places P-55C Control select switch on panel C-12 to MANUAL position. ____ Places P-55C control switch to CLOSE Operator determines that steps 'b' and 'c' are not applicable because there was zero charging flow | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 9 | STANDARD | Grade |
|--|---|---|-------|
| (6) | OPERATE HS-2117, Aux Spray CV-2117 key switch, as desired. (Key: 151) | Operator takes HS-2117 to CLOSE when PZR pressure is within control band given in initiating cue. | S U |
| Comment: Evaluator Cue: Terminate the JPM when PZR pressure is within the band given in initiating cue. CRITICAL STEP | | | |

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

The plant has entered EOP-8.0, "Loss of all Forced Circulation" due to a loss of off-site power. EDGs 1-1 and 1-2 have started and loaded buses 1C and 1D. Charging pump P-55B is OOS for corrective maintenance.

INITIATING CUES:

The Control Room Supervisor has directed you to perform EOP Supplement 37 to control PZR Pressure Using Auxiliary Spray between 1700 psia and 1800 psia.

SIMULATOR OPERATOR INSTRUCTIONS

- Reset to IC-17
- Manually trip the reactor.
- Perform EOP-1.0 actions
- Ensure Pressurizer pressure is >1850 psia.
- Secure all PCPs.
- Secure P-55C charging pump, if operating
- Open 152-203 and 152-105 to cause the EDGs to start and load
- Take manual control of ADVs to stabilize PCS Temperature
- Isolate Letdown
- Insert Remote CV33 on PID CVC01 (P-55B Breaker Rackout)
- Insert OR P-55B-G to OFF.
- Hang caution tag on P-55B hand switch that states "P-55B out of service"
- Insert event trigger 1 per the following
 - Enter ZDI2P(159) for event
 - Enter imf CV03A for action

REGION III

INITIAL LICENSE EXAM

JOB PERFORMANCE MEASURE

JPM: SYS B

TITLE: MAKEUP TO SIRWT

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Perform Safety Injection Refueling Water Tank Operations

Alternate Path: NO

Facility JPM #: PL-OPS-SIS-001J

K/A: 006A1.15 Importance: RO: 3.3 SRO: 3.9

K/A Statement: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: RWST Level and temperature

Task Standard:

Preferred Evaluation Location: Simulator X In Plant

Preferred Evaluation Method: Perform X Simulate

References: SOP-2A, revision 62

Validation Time: 20 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments:

Examiner: _____ Date: _____
Signature

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

- SOP-2A, revision 62

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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INITIAL CONDITIONS:

- Plant is at full power operation.
- The Shift Engineer has calculated a blend ratio for raising SIRWT Level by 300 gallons per SOP-2A section 7.6.1.a
- 52 gallons of Boric Acid from T-53B and 248 gallons of Primary Makeup water are to be added to the SIRWT.

INITIATING CUES:

- The Control Room Supervisor directs you to perform SOP-2A section 7.6.1.b through 7.6.1.h to add 300 gallons of borated water to SIRWT using the above blend ratio.

| Proc. Step | TASK ELEMENT 1 | STANDARD | Grade |
|------------|----------------------------|-----------------------------|-------|
| n/a | Locate SOP-2A step 7.6.1.b | SOP-2A step 7.6.1.b located | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 2 | STANDARD | Grade |
|------------|---|-------------------------|-------|
| 7.6.1.b.1 | IF adding boric acid to SIRW Tank, THEN perform the following: Ensure CV-2155 closed | CV-2155 checked closed. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 3 | STANDARD | Grade |
|---|--------------------------------|--|-------|
| 7.6.1.b.2 | Push reset button on FIC-0210B | Reset push button on FIC-0210B depressed | S U |
| Comment: Candidate may also refer to Operator Aid 116 for controller operation. | | | |

| Proc. Step | TASK ELEMENT 4 | STANDARD | Grade |
|------------|--------------------------|-------------------|-------|
| 7.6.1.b.3 | Ensure in AUTO FIC-0210B | FIC-0210B in AUTO | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 5 | STANDARD | Grade |
|-------------------------|---|----------------------------------|-------|
| 7.6.1.b.4 | Ensure FIC-0210B output signaling fully closed (zero output). | FIC-0210B signaling fully closed | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 6 | STANDARD | Grade |
|---|---|--|-------|
| 7.6.1.b.5 | SET BATCH on FIC-0210B, Concentrated Boric Acid Controller, to the desired quantity of Concentrated Boric Acid. | 52 gallons inputted in Batch mode of FIC-0210B | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 7 | STANDARD | Grade |
|---|---|--|-------|
| 7.6.1.b.6 | Set flow limit on FIC-0210B to desired flow rate. | Flow rate on FIC-0210B set at ≤ 25 gpm. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 8 | STANDARD | Grade |
|-------------------------|---|----------------|-------|
| 7.6.1.c.1 | IF adding Primary Makeup Water to SIRW Tank, THEN perform the following: ENSURE CLOSED CV-2155, Boric Acid Blender Outlet Control Valve. | CV-2155 closed | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 9 | STANDARD | Grade |
|------------|---|--|-------|
| 7.6.1.c.2 | PUSH RESET button FIC-0210A, Primary Makeup Water Controller. | Reset push button on FIC-0210A depressed | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 10 | STANDARD | Grade |
|------------|--|-------------------|-------|
| 7.6.1.c.3 | ENSURE in AUTO FIC-0210A, Primary Makeup Water Controller. | FIC-0210A in AUTO | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 11 | STANDARD | Grade |
|------------|--|-----------------------------------|-------|
| 7.6.1.c.4 | ENSURE FIC-0210A, Primary Makeup Water Controller, output signaling full closed. | FIC-0210A signaling fully closed. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 12 | STANDARD | Grade |
|----------------------|---|---|-------|
| 7.6.1.c.5 | SET BATCH on FIC-0210A, Primary Makeup Water Controller, to the desired quantity of Primary Makeup Water. | 248 gallons inputted in Batch mode of FIC-0210A | S U |
| Comment: | | | |
| CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 13 | STANDARD | Grade |
|---|--|--|-------|
| 7.6.1.c.6 | SET FLOW LIMIT on FIC-0210A, Primary Makeup Water Controller, to the desired Primary Makeup Water flow rate. | Flow rate on FIC-0210A set at ≥ 30 gpm. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 14 | STANDARD | Grade |
|---|--|------------------|-------|
| 7.6.1.d | OPEN MV-CVC2157, Blended Boric Acid to SIRW Tank T-58 Isolation Valve. | MV-CVC-2157 open | S U |
| Comment: Evaluator Note: If asked as Auxiliary Operator to open MV-CVC2157, report valve open. Simulator Operator: Use CV28 on PID CV01 to open MV-CVC2157 CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 15 | STANDARD | Grade |
|-----------------|--|--------------------------------------|-------|
| 7.6.1.e.1 | ENSURE 100% OPEN the appropriate Recirculation Control Valve: <ul style="list-style-type: none"> CV-2136, P-56B (preferred) CV-2130, P-56A | Operator verifies CV-2136 100% open. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 16 | STANDARD | Grade |
|---|---|--|-------|
| 7.6.1.e.2 | START a Boric Acid Pump. <ul style="list-style-type: none"> P-56B (preferred) P-56A | Operator takes P-56B hand switch to start and verifies pump running. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 17 | STANDARD | Grade |
|---|---|---|-------|
| 7.6.1.e.3 | PUSH the START button on FIC-0210B, Concentrated Boric Acid Controller. | START pushbutton on FIC-0210B is depressed. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 18 | STANDARD | Grade |
|-----------------|--|--|-------|
| 7.6.1.e.4 | WHEN FIC-0210B, Concentrated Boric Acid Controller, reaches its batch set value, THEN ENSURE: (a) CV-2153, Concentrated Boric Acid Makeup Valve, is closed (zero flow). (b) FIC-0210B, Controlled Boric Acid Controller, signals a zero output | ____ CV-2153 indicates fully closed ____ FIC-0210B signaling fully closed | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 19 | STANDARD | Grade |
|-----------------|---------------------------------|-----------------------------------|-------|
| 7.6.1.e.5 | STOP operating Boric Acid Pump. | P-56B hand switch is taken to OFF | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 20 | STANDARD | Grade |
|---|---|---|-------|
| 7.6.1.e.6 | FLUSH line with at least 150 gallons of PMW. Refer to Step f. | Operator determines that this step will be completed via step 7.6.1.f | S U |
| Comment: Evaluator Note: This task will be completed via next step | | | |

| Proc. Step | TASK ELEMENT 21 | STANDARD | Grade |
|------------|--|---|-------|
| 7.6.1.f.1 | ENSURE in MANUAL P-90A or P-90B, PMW Transfer Pump, and the other OFF. | Operator verifies P-90A or P-90B in manual and the other OFF. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 22 | STANDARD | Grade |
|----------------------|--|--|-------|
| 7.6.1.f.2 | PUSH the START button on FIC-0210A, Primary Makeup Water Controller. | START push button depressed on FIC-0210A | S U |
| Comment: | | | |
| CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 23 | STANDARD | Grade |
|------------|---|--|-------|
| 7.6.1.f.3 | WHEN FIC-0210A, Primary Makeup Water Controller, reaches its batch set value, THEN ENSURE: (a) CV-2165, Primary Makeup Water Control Valve, is closed (zero flow). (b) FIC-0210A, Primary Makeup Water Controller, signals a zero output. | ___ CV-2165 indicates fully closed ___ FIC-0210A signaling fully closed | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 24 | STANDARD | Grade |
|--|---|-----------------------|-------|
| 7.6.1.g | CLOSE MV-CVC2157, Blended Boric Acid to SIRW Tank T-58 Isolation. | MV-CVC2157 is closed. | S U |
| Comment: | | | |
| Evaluator Note: If asked as Auxiliary Operator to close MV-CVC2157, report valve is closed | | | |
| Simulator Operator: Use CV28 on PID CV01 to close MV-CVC2157 | | | |
| CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 25 | STANDARD | Grade |
|---|---|---|-------|
| 7.6.1.h | RECORD in appropriate log total gallons added from: <ul style="list-style-type: none"> FIC-0210B, Concentrated Boric Acid Controller FIC-0210A, Primary Makeup Water Controller | Operator simulates recording the following values for gallons added in the Operations Narrative log: FIC-0210B – 52 gallons FIC-0210A – 248 gallons | S U |
| Comment: Evaluator Note: Ensure the candidate verbalizes that they would make a narrative log entry. | | | |

| Proc. Step | TASK ELEMENT 26 | STANDARD | Grade |
|--|--|--------------|-------|
| n/a | Operator informs CRS that 300 gallons of borated water have been added to the Safety Injection Refueling Water Tank. | CRS Informed | S U |
| Comment: Evaluator Note: Role play as CRS | | | |

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- Plant is at full power operation.
- The Shift Engineer has calculated a blend ratio for raising SIRWT Level by 300 gallons per SOP-2A section 7.6.1.a
- 52 gallons of Boric Acid from T-53B and 248 gallons of Primary Makeup water are to be added to the SIRWT.

INITIATING CUES:

- The Control Room Supervisor directs you to perform SOP-2A section 7.6.1.b through 7.6.1.h to add 300 gallons of borated water to SIRWT using the above blend ratio.

SIMULATOR OPERATOR INSTRUCTIONS

- IC-17 or equivalent full power IC
- Use CV28 on PID CV01 to operate MV-CVC2157

REGION III

INITIAL LICENSE EXAM

JOB PERFORMANCE MEASURE

JPM: SYS C

TITLE: START A PCP

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Start a Primary Coolant Pump

Alternate Path: One lift pump fails to clear the lift oil pressure interlock requiring operator to start a second lift pump.

Facility JPM #: PL-OPS-PCS-001J

K/A: 003A4.02 Importance: RO:2.9 SRO: 2.9

K/A Statement: Ability to manually operate and/or monitor in the control room: RCP motor parameters

Task Standard: All 4 Primary Coolant Pumps in operation

Preferred Evaluation Location: Simulator ☒ In Plant ☐

Preferred Evaluation Method: Perform ☒ Simulate ☐

References: SOP-1A, revision 8

Validation Time: 12 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT _____ UNSAT _____

Comments:

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

- SOP-1A, revision 8

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

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INITIAL CONDITIONS:

Primary Coolant Pumps P-50B, 50C and 50D are in service. The plant is in MODE 3 with PCS Temperature of 532°F. Proper Shutdown margin has been verified. RPS Breakers 42-1 and 42-2 have been opened.

INITIATING CUES:

During a MODE 3 forced outage, P-50A was secured briefly for maintenance on breaker 252-103. The Control Room Supervisor directs you to start PCP P-50A in accordance with SOP-1A, Section 7.1.2, steps g through w. Testing of the oil system is NOT required.

| Proc. Step | TASK ELEMENT 1 | STANDARD | Grade |
|------------|---|-------------------|-------|
| n/a | Operator locates SOP-1A section 7.1.2.g | SOP-1A is located | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 2 | STANDARD | Grade |
|------------|---|---|-------|
| 7.1.2.g | CHECK Annunciator EK-0931 "PRI COOLANT PUMP P-50A CLG WTR LO FLOW" for P-50A NOT in alarm (Panel C-12). | Operator verifies that EK-0931 alarm tile is not in alarm, i.e., not lit. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 3 | STANDARD | Grade |
|------------|--|--|-------|
| 7.1.2.h | <p>ENSURE OPEN the following valves:</p> <ul style="list-style-type: none"> CV-2083, PCP Controlled Bleed Off Isolation CV-2191, PCP Controlled Bleed Off Relief Stop CV-2099, PCP Controlled Bleed Off Isolation | <p>Operator verifies valves are open, green light off and red light on.</p> <p>___ CV-2083, PCP Controlled Bleed Off Isolation</p> <p>___ CV-2191, PCP Controlled Bleed Off Relief Stop</p> <p>___ CV-2099, PCP Controlled Bleed Off Isolation</p> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 4 | STANDARD | Grade |
|------------|---|---|-------|
| 7.1.2.i | THROTTLE MV-CVC2194, PCP Controlled Bleed Off until PIA-0215, PCP Controlled Bleed Off Header Pressure Indicator (Panel C-02) indicates between 25 to 100 psig. | Operator verifies PIA-0215 on panel C-02 reads between 25 and 100 psig. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 5 | STANDARD | Grade |
|-------------------------|---|---|------------|
| 7.1.2.j | <p>VERIFY PCP Controlled Bleed Off Flow for pump(s) to be started by observing the following:</p> <ul style="list-style-type: none"> FRA-0133 and FRA-0143 (Panel C-11) Pressure breakdown across PCP seal stages | <p>Operator verifies flow on FRA-0133 (blue pen) is >0 gpm (normal value is ~1 gpm).</p> <p>Operator verifies proper pressure breakdown across P-50A seal on PR-0130A by observing the following:</p> <p>___ Middle seal (blue pen) pressure ~1400 psig.</p> <p>___ Upper seal (green pen) pressure ~750 psig.</p> <p>___ Vapor seal (red pen) pressure ~100 psig.</p> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 6 | STANDARD | Grade |
|-------------------------|--|--|------------|
| 7.1.2.k | <p>MAINTAIN PCS pressure within the limits of Emergency Operating Procedure EOP Supplement 1, "Pressure and Temperature Limit Curves," AND above the "Minimum Pressure for PCP Operation" curve.</p> | <p>Operator reviews EOP Supplement 1 page 1 and verifies PCS pressure is within the operating region of the curve.</p> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 7 | STANDARD | Grade |
|-------------------------|---|--|------------|
| 7.1.2.l | <p>IF PI-0104 "NARROW RANGE" is used, THEN...</p> | <p>Operator determines this step is not applicable because PI-0104 is selected to "WIDE RANGE" for the current plant conditions.</p> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 8 | STANDARD | Grade |
|------------|--|---|-------|
| 7.1.2.m | IF PCS T _C indications are less than 200°F AND VCT pressure is less than 50 psig, THEN... | Operator determines this step is not applicable because the plant is in MODE 3. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 9 | STANDARD | Grade |
|------------|---|--|-------|
| 7.1.2.n | IF limits of Step 7.1.2.k are exceeded at any time except during PCP air sweeps or as allowed by Step 7.1.2.l and Step 7.1.2.m, THEN... | Operator determines this step is not applicable because PCP air sweeps are not in progress and steps 7.1.2.l and 7.1.2.m are not applicable. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 10 | STANDARD | Grade |
|------------|--|--|-------|
| 7.1.2.o | WHEN starting P-50A, P-50B, or P-50C, THEN VERIFY the vibration indicator for the Primary Coolant Pump to be started indicates less than 2 mils. | Operator verifies P-50A vibration less than 2 mils by reading value on VIA-131A. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 11 | STANDARD | Grade |
|--|---|---|-------|
| 7.1.2.p | START the AC (preferred) or DC Oil Lift Pump for the PCP(s) to be started: <div style="display: flex; justify-content: space-around;"> <div>PCP P-50A</div> <div>AC Oil Lift Pump P-80A</div> <div>DC Oil Lift Pump P-81A</div> </div> | Operator starts P-80A or P-81A by placing hand switch to the "HAND" position and observes red light energized for pump. | S U |
| Comment: Evaluator Note: The lift oil pressure interlock will <u>not</u> be met after starting one lift pump. CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 12 | STANDARD | Grade |
|---|--|--|-------|
| 7.1.2.q | IF lift oil pressure interlock is NOT satisfied with one lift pump operating, THEN START the second Lift Oil Pump for the PCP to be started. | Operator notes that the white light that indicates the lift oil pressure interlock is met, does <u>not</u> illuminate and starts P-81A or P-80A (whichever pump was not started in previous step) and observes the white light for lift pump interlock illuminate. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 13 | STANDARD | Grade |
|-----------------|--|---|-------|
| 7.1.2.r | IF lift oil pressure interlock is NOT satisfied with both Lift Pumps in operation, THEN... | Operator determines this step is not applicable because lift oil pressure interlock is met. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 14 | STANDARD | Grade |
|-----------------|---|--|-------|
| 7.1.2.s | CHECK Annunciator EK-0937 "PRI COOLANT PUMP P-50A BACKSTOP OIL LOW FLOW" NOT in alarm (Panel C-12). | Operator resets or verifies that EK-0937 is not in alarm, i.e., not lit. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 15 | STANDARD | Grade |
|-----------------|---|---|-------|
| 7.1.2.t | VERIFY the PUMP START OIL PERMISSIVE white light illuminated for P-50A. | Operator verifies white light is illuminated above P-50A hand switch. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 16 | STANDARD | Grade |
|--|---|---|-------|
| 7.1.2.u | WHEN oil lift pump(s) have been operating for at least two minutes, THEN START the selected Primary Coolant Pump. | Operator verifies that at least two minutes have elapsed since the start of the second lift oil pump, then takes the hand switch for P-50A to "CLOSE". Operator then verifies pump has started by observing the following: ___ Red light illuminates for P-50A breaker ___ Green light extinguishes for P-50A breaker ___ Amps rise on P-50A ammeter | S U |
| Comment: CUE: Two minutes have elapsed. CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 17 | STANDARD | Grade |
|---|--|--|-------|
| 7.1.2.v | WHEN the following have occurred: <ul style="list-style-type: none"> Primary Coolant Pump amps have returned to normal PCS conditions are controlled A minimum of five minutes has elapsed THEN, if desired, START the other selected Primary Coolant Pump. | Operator determines this step is not applicable due to all four PCPs are in service. | S U |
| Comment: Evaluator Note: EK-0955 may alarm, role play as CRS and inform the candidate that it is expected for the PCS conditions and the second NCO will review and perform ARP actions. | | | |

| Proc. Step | TASK ELEMENT 18 | STANDARD | Grade |
|-----------------|---|--|-------|
| 7.1.2.w | WHEN both of the following conditions exist: <ul style="list-style-type: none"> PCP amps return to normal operating amps following the starting amp surge Two minutes have elapsed from the start of the PCP. THEN PERFORM the following: <ol style="list-style-type: none"> PLACE the DC Oil Lift Pump hand switch to AUTO. PLACE the AC Oil Lift Pump hand switch to OFF. | Operator verifies: <ul style="list-style-type: none"> ___ P-50A amps returned to normal. ___ At least two minutes have elapsed since start of pump. Operator then: <ul style="list-style-type: none"> ___ Places hand switch for P-81A (DC Pump) to AUTO ___ Places hand switch for P-80A (AC Pump) to OFF | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 19 | STANDARD | Grade |
|------------|--|--------------|-------|
| n/a | Notify the CRS that P-50A has been placed in operation per SOP-1A. | CRS notified | S U |
| Comment: | | | |

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Primary Coolant Pumps P-50B, 50C and 50D are in service. The plant is in MODE 3 with PCS Temperature of 532°F. Proper Shutdown margin has been verified. RPS Breakers 42-1 and 42-2 have been opened.

INITIATING CUES:

During a MODE 3 forced outage, P-50A was secured briefly for maintenance on breaker 252-103. The Control Room Supervisor directs you to start PCP P-50A in accordance with SOP-1A, Section 7.1.2, steps g through w. Testing of the oil system is NOT required.

SIMULATOR OPERATOR INSTRUCTIONS

SIMULATOR OPERATOR INSTRUCTIONS:

- Reset to IC-11
- Trip the reactor and stop P-50A
- Take handswitches for P-80A and P-81A to off
- Acknowledge and reset all alarms
- Override P-50A-W to off
- Develop event trigger 1 per the following
 - for event ZLO2P(107).and.ZLO2P(110)
 - for action dor P-50A-W

REGION III

INITIAL LICENSE EXAM

JOB PERFORMANCE MEASURE

JPM: SYS D

**TITLE: VENT NON-CONDENSIBLE GASES FROM
THE REACTOR VESSEL HEAD**

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Vent Non-Condensable Gases from the Reactor Vessel Head

Alternate Path: Vent path to Quench Tank, PRV-1072, fails to open when required.

Facility JPM #: PL-OPS-EOP-007J

K/A: 007A3.01 Importance: RO: 2.7 SRO: 2.9

K/A Statement: Ability to monitor automatic operation of the PRTS, including:
Components which discharge to the PRT.

Task Standard: Non-condensable gases have been vented from Reactor Vessel
Head to Containment atmosphere.

Preferred Evaluation Location: Simulator ☒ In Plant ☐

Preferred Evaluation Method: Perform ☒ Simulate ☐

References: EOP Supplement 26, "PCS Void Removal"

Validation Time: 15 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT _____ UNSAT _____

Comments:

Examiner: _____
Signature

Date: _____

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Tools/Equipment/Procedures Needed:

- EOP Supplement 26, revision 5

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

A large break LOCA has occurred. There are indications of non-condensable gases in the Reactor vessel head. The following Containment instruments are in service:

- One (1) Hydrogen Monitor
- One (1) Hydrogen Recombiner

INITIATING CUES:

You have been directed to vent the non-condensable gases from the Reactor vessel head using the preferred method in accordance with EOP Supplement 26, Section 3.0, Step 1.

| Proc. Step | TASK ELEMENT 1 | STANDARD | Grade |
|-----------------|----------------------------|---|-------|
| n/a | Obtains current procedure. | Refers to EOP Supplement 26, Section 3.0. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 2 | STANDARD | Grade |
|--|--|--|-------|
| 3.1.a | Ensure at least one Hydrogen Monitor in operation. | <i>Provided in Initial Conditions.</i> | S U |
| Comment: EVALUTATOR CUE: If candidate attempts to verify status using SOP-38, provide cue that this has already been performed. | | | |

| Proc. Step | TASK ELEMENT 3 | STANDARD | Grade |
|--|---|--|-------|
| 3.1.b | Ensure at least one Hydrogen Recombiner in operation. | <i>Provided in Initial Conditions.</i> | S U |
| Comment: EVALUATOR CUE: If candidate attempts to verify status using SOP-5, provide cue that this has already been performed. | | | |

| Proc. Step | TASK ELEMENT 4 | STANDARD | Grade |
|---|--|--|-------|
| 3.1.c | Open PRV-1072 (Vent Path to Quench Tank) by turning the key switch to RESET and OPEN (preferred method). | ____ Obtains Key 110. ____ Places HS-1072 to RESET and then to OPEN. ____ Identifies that PRV-1072 RED light remains OFF and GREEN light remains ON. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 5 | STANDARD | Grade |
|---|---|--|-------|
| n/a | Notifies Control Room Supervisor that preferred method is not available since PRV-1072 will NOT open. | Control Room Supervisor notified that preferred method is not available. | S U |
| Comment: EVALUATOR CUE: CRS directs: "We need to get the Reactor vessel head vented. What do you suggest"? If candidate then selects alternate method, concur with that decision. | | | |

| Proc. Step | TASK ELEMENT 6 | STANDARD | Grade |
|---|--|--|-------|
| 3.1.c | Open PRV-1071 by turning the key switch to RESET and OPEN. | ___ Obtains Key 109. ___ Places HS-1071 to RESET and then to OPEN. ___ Verifies that PRV-1072 has opened (RED light is ON and GREEN light is OFF). | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 7 | STANDARD | Grade |
|--|--|---|-------|
| 3.1.d | Vent the Reactor Vessel Head by opening ONE of the following valves for 5-10 minutes: <ul style="list-style-type: none">PRV-1067 | <div><div>___</div>Obtains Key 105.</div> <div><div>___</div>Places HS-1067 to RESET and then to OPEN.</div> <div><div>___</div>Verifies that PRV-1067 has opened (RED light is ON and GREEN light is OFF).</div> | S U |
| | OR | | |
| | <ul style="list-style-type: none">PRV-1068 | <div><div>___</div>Obtains Key 106.</div> <div><div>___</div>Places HS-1068 to RESET and then to OPEN.</div> <div><div>___</div>Verifies that PRV-1068 has opened (RED light is ON and GREEN light is OFF).</div> | |
| <div>Comment:</div> <div>CRITICAL STEP</div> <div>Note: Use of either valve is acceptable.</div> | | | |

| Proc. Step | TASK ELEMENT 8 | STANDARD | Grade |
|---|---|---|-------|
| 3.1.d | After 5-10 minutes, secure Reactor Vessel Head venting. | Vents Reactor Vessel Head for 5-10 minutes. | S U |
| Comment: EVALUATOR CUE: 10 minutes have elapsed. | | | |

| Proc. Step | TASK ELEMENT 9 | STANDARD | Grade |
|---------------|---|--|-------|
| 3.1.e | Secures Reactor Vessel Head venting by closing the appropriate valve which was opened: <ul style="list-style-type: none">PRV-1067 | <div>— Using Key 105 places HS-1067 to CLOSE.</div> <div>— Verifies that PRV-1067 has closed (RED light is OFF and GREEN light is ON).</div> | S U |
| | OR | | |
| | <ul style="list-style-type: none">PRV-1068 | <div>— Using Key 106 places HS-1068 to CLOSE.</div> <div>— Verifies that PRV-1068 has closed (RED light is OFF and GREEN light is ON).</div> | |
| Comment: | | | |
| CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 10 | STANDARD | Grade |
|---|--|---|-------|
| 3.1.e | Ensure closed PRV-1071, Vent Path to Containment Atmosphere. | ____ Using Key 109 places HS-1071 to CLOSE. ____ Verifies that PRV-1071 has closed (RED light is OFF and GREEN light is ON). | S U |
| Comment: CRITICAL STEP | | | |

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

A large break LOCA has occurred. There are indications of non-condensable gases in the Reactor vessel head. The following Containment monitoring instruments are in service:

- One (1) Hydrogen Monitor
- One (1) Hydrogen Recombiner

INITIATING CUES:

You have been directed to vent the non-condensable gases from the Reactor vessel head using the preferred method in accordance with EOP Supplement 26, Section 3.0, Step 1.

SIMULATOR OPERATOR INSTRUCTIONS

- Reset to IC-17
- INSERT MF RC01 (Large Break LOCA)
- Trip all PCPs.
- INSERT OVRD for PRV-1072 handswitch to prevent opening.
(HS-1072-1 OVRD OFF)
- Place 1 Hydrogen Monitor in service.

REGION III

INITIAL LICENSE EXAM

JOB PERFORMANCE MEASURE

JPM: SYS E

TITLE: UNLOAD AND SECURE D/G 1-1

CANDIDATE: _____

EXAMINER: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

- SOP-22, revision 43

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- The plant is at full power.
- 1C Bus is connected to Safeguards Transformer 1-1.
- D/G 1-1 has been manually placed in-service at full load in accordance with SOP-22.

INITIATING CUES:

- You have been directed by the Control Room Supervisor to unload and secure 1-1 D/G by performing SOP-22 section 7.5.6.
- All attachment 6 data will be taken for unloading and stopping the D/G by a separate operator.

| Proc.Step | TASK ELEMENT 1 | STANDARD | Grade |
|-----------|--|--|-------|
| n/a | Operator locates copy of SOP-22 section 7.5.6. | Copy of SOP-22 section 7.5.6 is located. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 2 | STANDARD | Grade |
|-----------|--|--|-------|
| 7.5.6.a | REFER TO Section 5.0, "Precautions and Limitations" prior to unloading and stopping a D/G. | Operator reviews section 5.0, precautions and limitations prior to unloading and stopping D/G. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 3 | STANDARD | Grade |
|--|--|--|-------|
| 7.5.6.b | WHEN unloading and stopping a D/G, THEN ENTER D/G information on Attachment 6, "Diesel Generator Log Sheet." | <i>Provided in initial conditions.</i> | S U |
| Comment: Evaluator or Simulator Operator Cue: If candidate asks about taking information (data), role play as CRS and inform them that data will be taken for unloading and stopping by another operator. | | | |

| Proc.Step | TASK ELEMENT 4 | STANDARD | Grade |
|--------------------------------------|--|--|-------|
| 7.5.6.c | UNLOAD the affected D/G to approximately 50 kW by operating the Governor Set Point switch: D/G 1-1 165-D1/CS, Governor Set Point | Load on D/G 1-1 is lowered to approximately 50 kW as read on EWI-1107. | S U |
| Comment: CRITICAL STEP | | | |

| Proc.Step | TASK ELEMENT 5 | STANDARD | Grade |
|---|---|--|------------|
| 7.5.6.d | OPEN the D/G output breaker: <u>D/G 1-1</u> 152-107, D/G 1-1 to Bus 1C. | 152-107, D/G 1-1 output breaker is open by verifying: ___ Green light on ___ Red light off | S U |
| Comment: CRITICAL STEP | | | |

| Proc.Step | TASK ELEMENT 6 | STANDARD | Grade |
|--|--|---|------------|
| 7.5.6.e | IF voltage regulator settings were changed, THEN PERFORM voltage regulator adjustment as follows | Operator determines that this step applies. | S U |
| Comment: Evaluator cue: If asked, provide information that voltage regulator settings were changed. | | | |

| Proc.Step | TASK ELEMENT 7 | STANDARD | Grade |
|------------------|--|--------------------------------------|------------|
| 7.5.6.e.1 | ENSURE Voltage Regulator switch to AUTO. <u>D/G 1-1</u> 190-D1/CS, Voltage Regulator | Voltage regulator switch is in AUTO. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 8 | STANDARD | Grade |
|------------------|---|---|------------|
| 7.5.6.e.2 | Using Field Rheostat switch, CHECK AND ADJUST, if necessary, generator voltage to between 2390V and 2410V as indicated on D/G volt meter (C-04). <u>D/G 1-1</u> G1-1/VSR, Field Rheostat EVI-1107, D/G Volt Meter | D/G 1-1 Output voltage between 2390 and 2410 volts as read on EVI-1107, D/G 1-1 voltage meter. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 9 | STANDARD | Grade |
|------------------|---|--|------------|
| 7.5.6.e.3 | PLACE Voltage Regulator switch to MANUAL. | Voltage regulator switch is in manual. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 10 | STANDARD | Grade |
|------------------|--|--|------------|
| 7.5.6.e.4 | Using Field Rheostat switch, CHECK AND ADJUST, if necessary, generator voltage to between 2390V and 2410V as indicated on D/G volt meter (C-04). | D/G 1-1 voltage is between 2390 and 2410 volts as read on EVI-1107, D/G 1-1 voltage meter. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 11 | STANDARD | Grade |
|------------------|---|--------------------------------------|------------|
| 7.5.6.e.5 | PLACE Voltage Regulator switch to AUTO. | Voltage regulator switch is in AUTO. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 12 | STANDARD | Grade |
|-----------------|---|--|------------|
| 7.5.6.f | ENSURE the Parallel/Unit Selector switch for the affected D/G in UNIT position: <u>D/G 1-1</u> G1-1/DSR, Parallel Unit Selector | <input type="checkbox"/> Red UNIT light ON <input type="checkbox"/> Parallel/Unit Selector switch for D/G 1-1 is in UNIT. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 13 | STANDARD | Grade |
|-----------------|--|---|-------|
| 7.5.6.g | ENSURE Generator Frequency is between 59.56 and 60.44 Hz. <u>D/G 1-1</u> SPI-1107, Frequency Indicator | D/G 1-1 frequency is between 59.56 and 60.44 Hz as read on SPI-1107, D/G 1-1 frequency meter. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 14 | STANDARD | Grade |
|----------------------|---|--|-------|
| 7.5.6.h | PLACE Engine Control switch to STOP. <u>D/G 1-1</u> G1-1/CS, Engine Control | ____ Engine control switch is in STOP ____ Red "RUNNING" light extinguishes | S U |
| Comment: | | | |
| CRITICAL STEP | | | |

| Proc.Step | TASK ELEMENT 15 | STANDARD | Grade |
|---|--|---|-------|
| 7.5.6.i.1 | WHEN engine has stopped, THEN CHECK local Engine Control switch in NORM position: <u>D/G 1-1</u> HS-G1-1/SSS, D/G 1-1 Engine Control | Local engine control switch is in NORM position | S U |
| Comment: Evaluator or Simulator Operator Cue: When asked, Auxiliary Operator reports that the local engine control switch is in the NORM position. | | | |

| Proc.Step | TASK ELEMENT 16 | STANDARD | Grade |
|--|--|--|-------|
| 7.5.6.i.3 | RESET voltage check relay targets by depressing target reset: <u>1-1 D/G (EC-22)</u> 127D-11 127D-12 127D-13 | Targets have been reset for relays: 127D-11 127D-12 127D-13 | S U |
| Comment: Evaluator or Simulator Operator Cue: When asked, Auxiliary Operator reports that relays have been reset. | | | |

| Proc.Step | TASK ELEMENT 17 | STANDARD | Grade |
|-----------------|---|--------------------------------------|-------|
| 7.5.6.i.4 | ENSURE Voltage Regulator on C-04 is in AUTO position. <u>D/G 1-1</u> 190-D1/CS, Voltage Regulator | Voltage regulator switch is in AUTO. | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 18 | STANDARD | Grade |
|-----------------|--|---|-------|
| 7.5.6.i.5 | ENSURE Diesel Generator Load Sequencer is reset. | Operator checks alarm EK-1121, "Sequencer Control Energized," and determines that Diesel Generator Load Sequencer does not need to be reset. AND/OR Operator resets sequencer by placing Sequencer Control Reset key switches to RESET position (Left AND Right Channels) on panel C-13 per EK-1121 (ARP-7). | S U |
| Comment: | | | |

| Proc.Step | TASK ELEMENT 19 | STANDARD | Grade |
|-----------|--|--------------|-------|
| n/a | Operator notifies CRS that D/G 1-1 has been unloaded and stopped | CRS Notified | S U |
| Comment: | | | |

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The plant is at full power.
- Bus 1C is being powered from D/G 1-1 and is paralleled to the grid via Safeguards Transformer
- D/G 1-1 has been manually placed in-service at full load in accordance with SOP-22.

INITIATING CUES:

- You have been directed by the Control Room Supervisor to unload and secure 1-1 D/G by performing SOP-22 section 7.5.6.
- All attachment 6 data will be taken for unloading and stopping the D/G by a separate operator.

SIMULATOR OPERATOR INSTRUCTIONS

- Reset to IC-17
- Manually start and load D/G 1-1 to 2300-2500 kW
- Clear Diesel Generator 1-1 trouble alarm.

REGION III

INITIAL LICENSE EXAM

JOB PERFORMANCE MEASURE

JPM: SYS F

**TITLE: PLACE A CONTAINMENT RADIATION
MONITOR IN SERVICE**

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Operate the Area Radiation Monitoring System

Alternate Path: Operate light fails to illuminate when tested

Facility JPM #: New

K/A: 072A4.01 Importance: RO: 3.0 SRO: 3.3

K/A Statement: Ability to manually operator and/or monitor in the Control Room: Alarm and setpoint checks and adjustments.

Task Standard: Candidate recognizes that the radiation monitor "operate" light will not illuminate and refers to attachment 2 to troubleshoot the monitor.
Implementation of attachment 2 will restore the "operate" light.

Preferred Evaluation Location: Simulator X In Plant

Preferred Evaluation Method: Perform X Simulate

References: SOP-39, revision 12

Validation Time: 11 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT UNSAT

Comments:

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

SOP-39, revision 12

Marked up copy of CL 39 for placing RIA-1805 in service with one step applicable (RIA-1805 Operate Switch)

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- Plant is operating at 100% power.
- I&C Department have just completed maintenance on Containment Radiation Monitor RIA-1805.

INITIATING CUES:

- The Control Room Supervisor directs you to place Containment Radiation Monitor, RIA-1805, in service per SOP-39, step 7.4.2.

| Proc. Step | TASK ELEMENT 1 | STANDARD | Grade |
|-------------------------|--|----------------------------------|-------|
| n/a | Operator locates SOP-39, section 7.4.2 | SOP-39, section 7.4.2 is located | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 2 | STANDARD | Grade |
|---|---|---------------------------------------|-------|
| 7.4.2.a | REFER TO Attachment 3, Checklist CL 39, "Area Monitors System Checklist." | Receives applicable portion of CL 39. | S U |
| Comment: Evaluator Cue: Provide candidate with a marked up copy of CL 39 for restoring RIA-1805 to service, all steps are N/A'd except for verifying RIA-1805 selector switch in ALL or OPERATE. | | | |

| Proc. Step | TASK ELEMENT 3 | STANDARD | Grade |
|-------------------------|---|--|-------|
| CL 39 | Verify RIA-1805 selector switch in ALL or OPERATE | RIA-1805 selector switch is in OPERATE | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 4 | STANDARD | Grade |
|---|----------------------------------|--|-------|
| 7.4.2.b | CHECK operate light illuminated. | Operator recognizes that the OPERATE light is not illuminated. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 5 | STANDARD | Grade |
|-------------------------|--|--|-------|
| 7.4.2.c | IF operate light NOT illuminated, THEN REFER TO Attachment 2, "System Malfunctions and Troubleshooting." | Operator refers to attachment 2, section 4.1 for Containment Radiation Monitors Operate light not illuminated. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 6 | STANDARD | Grade |
|---|-------------------------------|--------------------------------|-------|
| 4.1.a | PRESS AND HOLD operate light. | Operate light pressed and held | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 7 | STANDARD | Grade |
|-------------------------|---|--|-------|
| 4.1.b | CHECK other three monitors not tripped. | Operator verifies orange and red (Trip 1 and Trip 2) lights not illuminated for RIA-1806, 1807 and 1808. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 8 | STANDARD | Grade |
|---|--|---|-------|
| 4.1.c | PLACE Selector Switch momentarily to CHECK position AND RELEASE. | RIA-1805 selector switch placed in CHECK position and released. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 9 | STANDARD | Grade |
|---|------------------------|---------------------------|-------|
| 4.1.d | RELEASE operate light. | Operate light is released | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 10 | STANDARD | Grade |
|---|-------------------|---|-------|
| 4.1.e | RESET all alarms. | Operator resets: _____ AMBER Trip 1 _____ RED Trip 2 by depressing indicating light. | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 11 | STANDARD | Grade |
|-------------------------|--|---|-------|
| 4.1.f | IF operate light still not illuminated, THEN DECLARE the associated monitor inoperable AND REFER TO 4.2 below. | Operator determines this step is not applicable because Operate light is illuminated. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 12 | STANDARD | Grade |
|-------------------------|-------------------|-------------------------------------|-------|
| 7.4.2.d | RESET all alarms. | Operator verifies all alarms reset. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 13 | STANDARD | Grade |
|------------|--|---|-------|
| 7.4.2.e | IF operate light still NOT illuminated, THEN DECLARE the associated monitor inoperable. Refer to Attachment 2, "System Malfunctions and Troubleshooting. | Operator determines this step is not applicable because Operate light is illuminated. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 14 | STANDARD | Grade |
|------------|--|--------------|-------|
| n/a | Operator informs Control Room Supervisor that Containment Radiation Monitor RIA-1805 has been placed in service. | CRS Notified | S U |
| Comment: | | | |

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- Plant is operating at 100% power.
- I&C Department have just completed maintenance on Containment Radiation Monitor RIA-1805.

INITIATING CUES:

- The Control Room Supervisor directs you to place Containment Radiation Monitor, RIA-1805, in service per SOP-39, step 7.4.2.

SIMULATOR OPERATOR INSTRUCTIONS

- Insert OR RIA-1805-G to off on panel C-11A rear
- Need SOP-39, CL 39, with 1 step applicable.
- Insert Event Trigger per:

for Event .not.ZDI4P(341).and.ZDI4P(339)
for Action dor RIA-1805-G

REGION III

INITIAL LICENSE EXAM

JOB PERFORMANCE MEASURE

JPM: SYS G

**TITLE: RESPOND TO A LOSS OF REFUELING
 WATER ACCIDENT**

CANDIDATE: _____

EXAMINER: _____

JOB PERFORMANCE MEASURE
DATA PAGE

Task: Respond to the Loss of Refueling Water

Alternate Path: NO

Facility JPM #: New

K/A: 033A2.03 Importance: RO:3.1 SRO: 3.5

K/A Statement: Ability to (a) predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Abnormal spent fuel pool water level or loss of water level

Task Standard: LPSI Pump P-67A has been lined up to the Containment Sump and boron concentration has been verified.

Preferred Evaluation Location: Simulator ☒ In Plant ☐Preferred Evaluation Method: Perform ☒ Simulate ☐

References: ONP-23.3, revision 5

Validation Time: 20 minutes Time Critical: NO

Candidate: _____

Time Start: _____ Time Finish: _____

Performance Time: _____ minutes

Performance Rating: SAT _____ UNSAT _____

Comments:

Examiner: _____
Signature

Date: _____

EXAMINER COPY ONLY

Tools/Equipment/Procedures Needed:

Also see **Simulator Operator Instructions** (last page of this document).

READ TO CANDIDATE

DIRECTION TO CANDIDATE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- The plant is in MODE 6 during a Refueling Outage
- Fuel moves were in progress from Reactor to SFP.
- The Rx cavity seal has partially failed and a significant amount of water has leaked out of the cavity into the containment sump.
- Both trains of SDC are available.
- One train of SDC is in service using P-67B LPSI Pump.
- LPSI Pump P-67A has a flow path available from the Containment Sump.
- SFP Tilt Pit gate is removed.
- Containment has flooded above 591'.
- PCS Boron is 2800 ppm.
- Required shutdown boron concentration is 2650 ppm.

INITIATING CUES:

- You have been directed by the Control Room Supervisor to perform ONP-23.3 steps 4.12.1 through 4.12.7 to lineup to transfer water from the Containment Sump back to the Reactor Cavity without taking the in service Shutdown Cooling train out of service.

| Proc. Step | TASK ELEMENT 1 | STANDARD | Grade |
|------------|-------------------------------|--|-------|
| n/a | Located ONP-23.3 section 4.12 | Operator locates ONP-23.3 section 4.12 | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 2 | STANDARD | Grade |
|------------|--|--|-------|
| 4.12.1 | Ensure Containment flooded above 590' 4" El. | <i>Stated in task initial conditions</i> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 3 | STANDARD | Grade |
|------------|--|--|-------|
| 4.12.2 | Verify available shutdown cooling train(s) have a flow path from the Containment Sump. | <i>Stated in task initial conditions</i> | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 4 | STANDARD | Grade |
|---|--|------------------------------------|-------|
| 4.12.3.a | Ensure LPSI pump for train to be aligned to Containment Sump is stopped. | Operator verifies P-67A is stopped | S U |
| Comment: Evaluator Cue: If asked as Shift Manager, we do not want to secure the inservice SDC train for using both LPSI pumps. (info also provided in Initiating Cue) | | | |

| Proc. Step | TASK ELEMENT 5 | STANDARD | Grade |
|--|--|--|-------|
| 4.12.3.b | CLOSE LPSI pump suction valve from shutdown cooling for train being aligned to Containment Sump: P-67A MO-3199 (Key #113) | Operator: ___ Obtains Key #113 ___ Places MO-3199 key switch to CLOSE ___ Verifies green light ON and red light OFF | S U |
| Comment: This valve requires ~2 minutes closing time. CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 6 | STANDARD | Grade |
|-----------------|--|---|-------|
| 4.12.3.c | Ensure CLOSED SIRW outlet valve for train being aligned to Containment Sump: P-67A CV-3057 (Key #150) | Operator verifies green light ON and red light OFF for CV-3057. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 7 | STANDARD | Grade |
|---|--|---|-------|
| 4.12.3.d | OPEN LPSI pump suction valve from SIRW/Containment Sump for train being aligned to Containment Sump: P-67A MO-3198 (Key #114) | Operator: ___ Obtains Key #114 ___ Places MO-3198 key switch to OPEN ___ Verifies red light ON and green light OFF | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 8 | STANDARD | Grade |
|---|--|---|-------|
| 4.12.3.e | OPEN Containment Sump valve for train being aligned to Containment Sump: P-67A CV-3029 (Key #148) | Operator: ___ Obtains Key #148 ___ Places CV-3029 key switch to OPEN ___ Verifies red light ON and green light OFF | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 9 | STANDARD | Grade |
|--|--|---------------------------------------|-------|
| 4.12.3.f | CLOSE discharge valve for LPSI pump being aligned to Containment Sump P-67A MV-ES3202 | Operator ensures MV-ES3202 is closed. | S U |
| Comment: Simulator Operator: Close MV-ES3202 by: <ul style="list-style-type: none"> • Create event trigger • Set Event = 0 • Action: set sika3202=0.0 • Activate trigger Evaluator or Simulator Operator Cue: If called, inform candidate that MV-ES3202 is closed. (adjust sika3202 to 0.000) CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 10 | STANDARD | Grade |
|--|---|--------------------|-------|
| 4.12.3.g | OPEN mini-flow isolation valve for LPSI pump being aligned to Containment Sump P-67A MV-ES3203 | MV-ES3203 is open. | S U |
| Comment: Evaluator or Simulator Operator cue: If called as Auxiliary Operator, notify candidate that MV-ES-3203 is open. Simulator Operator: Open MV-ES-3203 by inserting a value of 100 for remote SI34 on PID SI01. CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 11 | STANDARD | Grade |
|--|---|--|-------|
| 4.12.3.h | Ensure OPEN the following valves: <ul style="list-style-type: none"> • MV-ES104 Flow Measurement FE-0404 Outlet Iso (Middle level CCW) • MV-ES106 Flow Measurement FE-0404 Inlet Iso (Middle level CCW) • CV-3027 SIRW Tank T-58 Recirculation • CV-3056 SIRW Tank T-58 Recirculation Shutoff | Operator ensures: ___ MV-ES104 and ES106 open. ___ CV-3027 and 3056 open | S U |
| Comment: Evaluator or Simulator Operator cue: If called as Auxiliary Operator, inform candidate that MV-ES104 and ES106 are open. | | | |

| Proc. Step | TASK ELEMENT 13 | STANDARD | Grade |
|---|---|--|-------|
| 4.12.4 | Start LPSI pump aligned to Containment Sump | Operator: ___ Starts P-67A ___ Verifies red light on, green light off ___ FI-0404 indicates recirc flow. ___ Signs procedure for starting pump | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 14 | STANDARD | Grade |
|-----------------|--|---|-------|
| 4.12.5 | IF aligning a second train to the Containment Sump, THEN.... | Operator determines this step to be not applicable as stated in initiating cue. | S U |
| Comment: | | | |

| Proc. Step | TASK ELEMENT 15 | STANDARD | Grade |
|--|---|---|-------|
| 4.12.6 | OBTAIN a sample from SX-3215, Recirculation to SIRW Tank (located next to CV-3027, SIRW Tank Recirc and southwest of P-8C AFW Pump) as follows: | Operator directs Auxiliary Operator to perform section 4.12.6 steps a → i to obtain sample. | S U |
| Comment: Evaluator or Simulator Operator Cue: If called to obtain sample, inform candidate that sample has been obtained, all valves have been returned to original position and sample bottle was delivered to Chemistry for analysis. Evaluator Cue: Role play as chemistry and notify candidate that boron sample has been analyzed and is 2700 ppm Boron. | | | |

| Proc. Step | TASK ELEMENT 16 | STANDARD | Grade |
|--|--|--|-------|
| 4.12.7 | WHEN required boron concentration has been verified, THEN perform the following: | Operator determines that this step can be completed because boron concentration of the sample matches refueling boron concentration. | S U |
| Comment: Evaluator Cue: It may be necessary to role play as CRS if candidate requests permission to proceed with this step based on sample boron concentration. If role play is necessary, notify candidate that sample boron concentration is acceptable for transfer. | | | |

| Proc. Step | TASK ELEMENT 17 | STANDARD | Grade |
|---|--|---|-------|
| 4.12.7.a | Stop all LPSI pumps aligned to the Containment Sump. | Operator: ____ Secures P-67A ____ Verifies green light ON and red light OFF | S U |
| Comment: CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 18 | STANDARD | Grade |
|---|---|---|-------|
| 4.12.7.b | Ensure CLOSED the following: <ul style="list-style-type: none"> MV-ES3203 Low Press SI Pump P-67A Miniflow MV-ES3194 Low Press SI Pump P-67B Miniflow CV-3027 SIRW Tank T-58 Recirculation CV-3056 SIRW Tank T-58 Recirculation Shutoff | Operator <ul style="list-style-type: none"> ___ Closes MV-ES3203 ___ Ensures MV-ES3194 closed. (not required since that train is not aligned) ___ Closes CV-3027 ___ Closes CV-3056 | S U |
| Comment: Evaluator or Simulator Operator Cue: If called as Auxiliary Operator to ensure MV-ES-3203 and ES-3194 are closed, inform candidate that they are closed. Simulator Operator: Close MV-ES-3203 by inserting a value of 0 for remote SI34 on PID SI01 CRITICAL STEP | | | |

| Proc. Step | TASK ELEMENT 19 | STANDARD | Grade |
|--|---|--|-------|
| 4.12.7.c | Ensure OPEN the following: <ul style="list-style-type: none"> MV-ES3202 Low Press Safety Inj PP P-67A Disch MV-ES3193 Low Press Safety Inj PP P-67B Disch | Operator: <ul style="list-style-type: none"> ___ Opens MV-ES3202 ___ Verifies open MV-ES3193 | S U |
| Comment: Simulator Operator: Open MV-ES3202 by: <ul style="list-style-type: none"> Create event trigger Set Event = 0 Action: set sika3202=180.0 Activate trigger Evaluator or Simulator Operator Cue: If called as Auxiliary Operator to open MV-ES3202 and verify MV-ES3193 open, inform candidate that they are open. | | | |

| Proc. Step | TASK ELEMENT 20 | STANDARD | Grade |
|-----------------|--|--------------|-------|
| n/a | Operator informs CRS that lineup to transfer water from the Containment Sump back to the Reactor Cavity using P-67A is complete. | CRS Notified | S U |
| Comment: | | | |

END OF TASK

CANDIDATE CUE SHEET

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- The plant is in MODE 6 during a Refueling Outage
- Fuel moves were in progress from Reactor to SFP.
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- Both trains of SDC are available.
- One train of SDC is in service using P-67B LPSI Pump.
- LPSI Pump P-67A has a flow path available from the Containment Sump.
- SFP Tilt Pit gate is removed.
- Containment has flooded above 591'.
- PCS Boron is 2800 ppm.
- Required shutdown boron concentration is 2650 ppm.

INITIATING CUES:

- You have been directed by the Control Room Supervisor to perform ONP-23.3 steps 4.12.1 through 4.12.7 to lineup to transfer water from the Containment Sump back to the Reactor Cavity without taking the in service Shutdown Cooling train out of service.

SIMULATOR OPERATOR INSTRUCTIONS

- Reset to IC-20
- Insert MF RC01 Hot Leg Rupture and run until Containment Sump Level reaches 591' 0"
- Delete RC01 and let Simulator run for 12 minutes.
- Use SI34 on PID SI01 to operate MV-ES3203, P-67A mini-flow isolation.
- When asked as the AO to operate MV-ES3202, adjust sika3202 to 0.000 (close) or 180.0 (open).
- Ensure TR-0351 is ON and recording.