Final JPM A

NRC Job Performance Measure "a"

Facility: Vogtle

Task No: V-LO-TA-09028

Task Title: Perform a Manual Makeup to the VCT

JPM No: V-NRC-JP-13009-HL19

K/A Reference: 004A4.12 RO 3.8 SRO 3.3

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

NOTE TO EXAMINER: For time considerations, the candidates should "pre-brief" and review 13009-1 prior to starting the JPM.

Read to the examinee:

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

Initial Conditions: **Automatic VCT makeup is not available due to a problem with the level control circuit.**

Current VCT level is 32%.

Current RCS boron concentration is 907 ppm.

Current BAST concentration is 7000 ppm.

Initiating Cue: **The Shift Supervisor has directed you to perform a manual makeup to the VCT to raise level to 50% using 13009-1, "CVCS Reactor Makeup Control System." No recent makeups have been recorded in the logs.**

Task Standard:	Candidate correctly initiates a manual makeup to raise VCT level and then manually stops the makeup when the BA FLOW DEVIATION alarm is received prior to adding an additional 200 gallons of diluted makeup.
Required Materials:	13009-1, “CVCS Reactor Makeup Control System” (rev. 50) 17007-1, “Annunciator Response Procedures for ALB07 on Panel 1A2 on MCB” (rev. 29.1)
General References:	None
Time Critical Task:	No
Validation Time:	10 minutes

SIMULATOR SETUP:

Reset to IC163 for HL19 NRC Exam

Simulator Setup from Scratch:

1. Reset to IC14 (MOL 100%) and verify 120 gpm letdown is in service
2. Verify BATP #1 is in AUTO and BATP #2 is in STOP
3. Verify RMUWP #1 is in AUTO and RMUWP #2 is in STOP
4. Lower VCT level to 32% and then allow VCT pressure to stabilize
5. Override ALB07-F01 BA FLOW DEVIATION to ON on Trigger 1
6. Override meter 1FI-110A to ~8 gpm on Trigger 1
7. Insert malfunction CV17 on Trigger 1
8. Override 1HS-110A closed on Trigger 1
9. Override 1HS-110A red light ON and green light OFF on Trigger 1
10. Acknowledge / Reset alarms
11. Reset both digital Integrators to zero
12. Freeze simulator
13. Ensure RCS boron status board is updated for RCS 907 ppm and BAST 7000 ppm

NOTE TO SIMULATOR OPERATOR:

Reset Integrators to zero. *This must be done for each reset.*

Ensure RCS boron status board is updated for RCS 907 ppm and BAST 7000 ppm

Setup time: 10 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Section 4.6 of 13009-1, "CVCS Reactor Makeup Control System," is selected to perform a manual makeup to the VCT.

Standard: Candidate selects Section 4.6 of 13009-1, "CVCS Reactor Makeup Control System."

Comment:

***JPM 2.** 4.6 Manual Makeup

CAUTIONS
• If Manual Makeup is being performed to maintain VCT level when letdown is being diverted, letdown should not exceed 75 gpm. • BAST concentration is inaccurate until sampled following batching. Temperature and power should be closely monitored following manual makeup to the VCT with the BAST concentration inaccurate.

NOTE
Volumetric change in VCT is equal to 19.2 gallons per percent change in level.

4.6.1.1 Set TOTAL MAKEUP Integrator 1-FQI-0111 to the desired amount of Total Makeup Water.

Standard: Candidate reviews CAUTIONS and NOTE and **calculates the total makeup required to raise VCT level from 32% to 50% (18%) using: (19.2 gallons / % x 18% = 345.6 gallons) and sets 1-FQI-0111 to ~~345 – 346~~ 326.4 – 364.8 gallons by depressing the gray pushbutton under the digit to be changed (red pushbutton will reset reading to all zeros).**

Comment:

***JPM 3.**

CAUTION
Digital counters and thumbwheel settings on BORIC ACID TO BLENDER Integrator 1-FQI-0110 read in tenth-gallon increments.

4.6.1.2 Set BORIC ACID TO BLENDER Integrator 1-FQI-0110 to the amount of boric acid as follows:

a. Calculate estimated volume of boric acid using the following calculation.

$$\text{Gallons of Boric Acid} = \frac{\text{Total M/U x RCS Cb}}{\text{BAST Cb}}$$

Standard: Candidate reviews CAUTION and **correctly calculates amount of boric acid to add using the total makeup number calculated in Step 4.6.1.1 (345 – 346 gallons) and the equation:**

$$\frac{\text{345.6 gallons x 907 ppm}}{\text{7000 ppm}} = \text{44.8 gallons (44.7 – 44.9 gallons)}$$

Note: This range may be expanded, based on the value determined in JPM step 2.

Comment:

JPM 4. 4.6.1.2 Set BORIC ACID TO BLENDER Integrator 1-FQI-0110 to the amount of boric acid as follows:

b. Review logs for recent makeups to confirm calculated volume of Boric Acid is appropriate.

CUE: If requested, "Refer to initiating cue sheet."

Standard: Candidate confirms no recent makeup has occurred (initial conditions).

Comment:

***JPM 5.**

NOTE
Minor adjustments from the calculated boric acid volume and recent makeup data may be required based on burnup, plant conditions, and desired RCS temperature response.

CUE: If requested, "Use the calculated boric acid volume. No adjustments are required."

4.6.1.2 Set BORIC ACID TO BLENDER Integrator 1-FQI-0110 to the amount of boric acid as follows:

c. Adjust Boric Acid to Blender Integrator 1-FQI-0110 to the desired volume based on plant conditions and desired reactivity response.

Standard: Candidate reviews NOTE and **sets 1-FQI-0110 to 44.7 – 44.9 gallons by depressing the gray pushbutton under the digit to be changed (red pushbutton will reset reading to all zeros).**

Comment:

***JPM 6.** **4.6.1.3 Adjust BORIC ACID Flow Controller 1-FIC-0110 pot setting using the following formula and verify controller is in AUTO:**

$$\textbf{1-FIC-0110 pot setting} = \frac{\textbf{RCS Cb x 25}}{\textbf{BAST Cb}}$$

NOTE TO EXAMINER: Potentiometer may require slight adjustment by the candidate depending on simulator reset.

Standard: **Candidate correctly calculates 1-FIC-0110 potentiometer setting using: (907 ppm x 25 / 7000 ppm) = 3.24 and adjusts 1-FIC-0110 potentiometer, if required, to 3.23 – 3.25.** Candidate also checks controller in AUTO by observing AUTO light lit on 1-FIC-0110.

Comment:

***JPM 7.** **4.6.1.4 Place VCT MAKEUP CONTROL 1-HS-40001B in STOP.**

Standard: **Candidate disables makeup control system by placing 1-HS-40001B to STOP (green light ON, red light OFF).**

Comment:

***JPM 8.** **4.6.1.5 Place VCT MAKEUP MODE SELECT 1-HS-40001A in MAN.**

Standard: **Candidate selects the manual makeup mode by placing 1-HS-40001A to MAN (one click clockwise).**

Comment:

JPM 9. 4.6.1.6 Verify the following:

- BA TO BLENDER 1-HS-0110A in AUTO.
- RX MU WTR TO BA BLENDER 1-HS-0111A in AUTO.
- One Boric Acid Transfer Pump in AUTO or START.
- One Reactor Makeup Water Pump in AUTO or START.
- Verify TOTAL MAKEUP Flow controller 1-FIC-0111 is in AUTO with pot set for 100 gpm (approximately 6.25) total flow rate.

NOTE TO EXAMINER: This is the normal line-up for these components.

Standard: Candidate checks handswitches and controller to verify:

- 1-HS-0110A is in the AUTO position
- 1-HS-0111A is in the AUTO position
- BATP #1, 1-HS-276A, is in the AUTO position (placing in START is acceptable)
- RMUWP #1, 1-HS-7762, is in the AUTO position (placing in START is acceptable)
- 1-FIC-0111 is in AUTO (AUTO light lit) and set at ~ 6.25 (making a slight adjustment is allowed, if required)

Comment:

***JPM 10.**

NOTE

- While letdown is configured for 120 gpm, the preferred flow path for Manual Makeup is through 1-FV-0110B BLENDER OUTLET TO CHARGING PUMPS SUCT unless RMWST dissolved oxygen level is out of specification.
- The design capacity of the VCT spray nozzles allow makeup with 120 gpm letdown in service IF VCT pressure can be maintained less than 25 psig.
- If VCT pressure cannot be maintained less than 25 psig and makeup to the top of the VCT is required, then letdown should be reduced to 75 gpm, otherwise total flow may be reduced below 100 gpm due to backpressure.

CAUTION

With either Blender Outlet valve handswitch in the open position, an automatic isolation will not occur due to a Boric Acid and/or Total Makeup Flow Deviations.

CUE: If requested, "RMWST dissolved oxygen level is within specification."

4.6.1.7 Open one of the following valves:

BLENDER OUTLET TO CHARGING PUMPS SUCT 1-FV-0110B

OR

NOTE

1-FV-0111B should be selected if oxygen level of water in RMWST is out of specification.

BLENDER OUTLET TO VCT 1-FV-0111B

Standard: Candidate reviews NOTES and CAUTION and **opens 1-FV-0110B by placing 1-HS-0110B to OPEN (green light OFF, red light ON).** Based on the previous NOTE and 120 gpm letdown in service, the candidate should NOT open 1-FV-0111B.

Comment:

***JPM 11.**

NOTES

- Manual makeup can be stopped at any time by placing 1-HS-40001B in STOP.
- VCT level should be maintained between 30 and 87 percent. (1-LIC-0185 controller pot should normally be set to 8.7)
- VCT Pressure 1-PI-115 should be maintained between 20 and 45 psig.

4.6.1.8 Place VCT MAKEUP CONTROL 1-HS-40001B in START and perform the following:

- Verify Boric Acid Transfer Pump is running.
- Verify Reactor Makeup Water Pump is running.
- Verify BORIC ACID TO BLENDER 1-FV-0110A throttles open to provide the correct flow of boric acid.
- Verify REACTOR MU WTR TO BLENDER 1-FV-0111A throttles open to provide correct total flow.
- If desired, control Boric Acid Flow controller 1-FIC-0110 by adjusting pot OR using up/down pushbuttons to control boric acid at the desired flow rate.

NOTE TO EXAMINER: All bulleted items will operate correctly.

Standard: Candidate reviews NOTES and **initiates makeup to the VCT by placing 1-HS-40001B to START (green light OFF, red light ON).**

Comment:

JPM 12. 4.6.1.9 Monitor counters on BORIC ACID TO BLENDER Integrator 1-FQI-0110 and TOTAL MAKEUP Integrator 1-FQI-0111 and perform the following:

- WHEN counter on 1-FQI-0110 BORIC ACID TO BLENDER Integrator reaches its setpoint, verify 1-FV-0110A BORIC ACID TO BLENDER is closed.
- WHEN counter on 1-FQI-0111 TOTAL MAKEUP Integrator reaches its setpoint, verify 1-FV-0111A REACTOR MAKEUP WATER TO BLENDER is closed.

CUE: Simulator operator inserts Trigger 1 for BA FLOW DEVIATION annunciator and to lower boric acid flow rate.

GALLONS READ ON 1-FQI-111 WHEN ANNUNCIATOR IS RECEIVED: _____

NOTE TO EXAMINER: Candidate may refer to the ARP for the annunciator, which lists the probable cause as a boric acid transfer system malfunction or a 1-FV-0110A malfunction.

Standard: Candidate acknowledges the ALB07-F01 BA FLOW DEVIATION annunciator.

Comment:

***JPM 13. Manual makeup to VCT is terminated due to abnormal boric acid flow deviation.**

GALLONS READ ON 1-FQI-111 WHEN MAKEUP IS TERMINATED: _____

Standard: Candidate terminates the manual makeup by placing 1-HS-40001B to STOP before 200 gallons of makeup are added AFTER receipt of the BA FLOW DEVIATION annunciator. NOTE: 200 gallon addition takes about two minutes and equates to ~1% power increase.

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-13009-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **Automatic VCT makeup is not available due to a problem with the level control circuit.**

Current VCT level is 32%.

Current RCS boron concentration is 907 ppm.

Current BAST concentration is 7000 ppm.

Initiating Cue: **The Shift Supervisor has directed you to perform a manual makeup to the VCT to raise level to 50% using 13009-1, "CVCS Reactor Makeup Control System." No recent makeups have been recorded in the logs.**

Final JPM B

NRC Job Performance Measure "b"

Facility: Vogtle

Task No: V-LO-TA-13012

Task Title: Transfer ECCS Pumps to Hot Leg Recirculation

JPM No: V-NRC-JP-19014-HL19

K/A Reference: 011EA1.11 RO 4.2 SRO 4.2

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

Initial Conditions: **A large break LOCA occurred approximately 7.5 hours ago. The crew is at Step 31 of 19010-C, "Loss of Reactor or Secondary Coolant," which directs the transfer to hot leg recirculation.**

Initiating Cue: **The Shift Supervisor has directed you to, "Transfer the ECCS pumps to hot leg recirculation using 19014-C."**

Task Standard:	Candidate realigns available ECCS pumps to the hot leg recirculation mode. Train 'B' SI cannot be aligned to the hot leg recirculation mode due to a valve failure, so it will be realigned for cold leg recirculation.
Required Materials:	19014-C, "Transfer to Hot Leg Recirculation" (rev. 15.2)
General References:	None
Time Critical Task:	No
Validation Time:	8 minutes

SIMULATOR SETUP:

Reset to IC162 for HL-19 NRC Exam

Simulator Setup from Scratch:

1. Reset to IC14 (100% MOL).
2. Insert Malfunction RC03C (DBA LOCA).
3. Place all ECCS Lockout switches to ON.
4. Trip all RCPs.
5. Use Remote Function TK09 at 100,000 gpm to transfer RWST mass to the CNMT sumps.
6. Verify RWST level is < 29% and set TK09 to 0 gpm, then delete it.
7. Perform 19013-C, Steps 1 and 2, Attachment A, and then Steps 3 through 15.
8. Use remote functions CV-17 and CV-18 for LOCAL control of LV-112D and E.
9. Override HS-8802B to CLOSE.
10. Acknowledge / Reset alarms.
11. Freeze simulator.

Setup time: 20 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

***JPM 1.** **Align RHR system flow path for Hot Leg recirculation:**

1.a. Align RHR Train A for Hot Leg Recirculation as follows:

1) Close HV-8809A – RHR PMP-A TO COLD LEG 1&2 ISO VLV.

2) Open HV-8716A – RHR TRAIN A TO HOT LEG CROSSOVER ISO.

CUE: If candidate responds to the CSFST alarms, "An extra operator will evaluate the CSFSTs."

Standard: **Candidate closes 1-HV-8809A by placing 1HS-8809A to CLOSE (green light ON, red light OFF) and opens 1-HV-8716A by placing 1HS-8716A to OPEN (green light OFF, red light ON).**

Comment:

***JPM 2.** **Align RHR system flow path for Hot Leg recirculation:**

1.b. Align RHR Train B for HL Recirculation as follows:

1) Close HV-8809B – RHR PMP-B TO COLD LEG 3&4 ISO VLV.

2) Open HV-8716B – RHR TRAIN B TO HOT LEG CROSSOVER ISO.

Standard: **Candidate closes 1-HV-8809B by placing 1HS-8809B to CLOSE (green light ON, red light OFF) and opens 1-HV-8716B by placing 1HS-8716B to OPEN (green light OFF, red light ON).**

Comment:

JPM 3. Align RHR system flow path for Hot Leg recirculation:

1.c. At least one Train of RHR realigned for Hot Leg recirculation.

Standard: Candidate determines both RHR Trains are realigned for Hot Leg recirculation (candidate may check RHR pumps operating, all valves positioned as required, and system parameters are as expected).

Comment:

***JPM 4. Align RHR system flow path for Hot Leg recirculation:**

1.d. Open RHR TO HL ISO VLV HV-8840.

Standard: Candidate opens 1-HV-8840 by placing 1HS-8840 to OPEN (green light OFF, red light ON).

Comment:

JPM 5. 2. Consult TSC before starting or realigning CCPs or SIPs that have been stopped or realigned to normal charging.

CUE: "TSC has been notified."

Standard: Candidate determines this step is not applicable since CCPs and SIPs have not been realigned to their normal charging lineups at this time.

Comment:

***JPM 6.** **Align SI Train A flow path for Hot Leg recirculation:**

3.a. Stop SI Pump A.

NOTE TO EXAMINER: Stopping SI Pump 'A' is critical because the next step will secure the pump discharge flow path with mini-flow isolated.

Standard: **Candidate stops SI Pump 'A' by placing 1HS-998A to STOP (green light ON, red light OFF).**

Comment:

***JPM 7.** **Align SI Train A flow path for Hot Leg recirculation:**

3.b. Shut SI PMP-A TO COLD LEG ISO VLV HV-8821A.

3.c. Open SI PMP-A TO HOT LEG 1&4 ISO VLV HV-8802A.

Standard: **Candidate closes 1-HV-8821A by placing 1HS-8821A to CLOSE (green light ON, red light OFF), and opens 1-HV-8802A by placing 1-HV-8802A to OPEN (green light OFF, red light ON).**

Comment:

***JPM 8.** **Align SI Train A flow path for Hot Leg recirculation:**

3.d. Start SI Pump A.

Standard: **Candidate starts SI Pump 'A' by placing 1HS-998A to START (green light OFF, red light ON).**

Comment:

JPM 9. 4. Check SI Pump A flow – GREATER THAN 100 GPM.

Standard: Candidate checks that SI Pump 'A' discharge flow indicates greater 100 gpm on 1FI-918 on the QMCB or on the IPC.

Comment:

***JPM 10. Align SI Train B flow path for Hot Leg recirculation:**

5.a. Stop SI Pump B.

NOTE TO EXAMINER: Stopping SI Pump 'B' is critical because the next step will secure the pump discharge flow path with mini-flow isolated.

Standard: Candidate stops SI Pump 'B' by placing 1HS-999A to STOP (green light ON, red light OFF).

Comment:

JPM 11. Align SI Train B flow path for Hot Leg recirculation:

5.b. Shut SI PMP-B TO COLD LEG ISO VLV HV-8821B.

5.c. Open SI PMP-B TO HOT LEG 2&3 ISO VLV HV-8802B.

Standard: Candidate closes 1-HV-8821B by placing 1HS-8821B to CLOSE (green light ON, red light OFF), and determines that 1-HV-8802B will NOT open (green light ON, red light OFF).

Comment:

JPM 12. 5. RNO IF Train B SI can NOT be aligned for Hot Leg recirculation, THEN realign for Cold Leg recirculation:

1) Stop SI Pump B.

2) Shut SI PMP-B TO HOT LEGS 2&3 ISO VLV HV-8802B.

3) Verify open CL INJ FROM SIS HV-8835.

Standard: Candidate checks SI Pump 'B' is stopped (green light ON, red light OFF), 1-HV-8802B is closed (green light ON, red light OFF), and 1-HV-8835 is open (green light OFF, red light ON).

Comment:

***JPM 13. 5. RNO IF Train B SI can NOT be aligned for Hot Leg recirculation, THEN realign for Cold Leg recirculation:**

4) Open SI PMP-B TO COLD LEG ISO VLV HV-8821B.

Standard: Candidate opens 1-HV-8821B by placing 1HS-8821B to OPEN (green light OFF, red light ON).

Comment:

***JPM 14. 5. RNO IF Train B SI can NOT be aligned for Hot Leg recirculation, THEN realign for Cold Leg recirculation:**

5) Start SI Pump B.

Standard: Candidate starts SI Pump 'B' by placing 1HS-999A to START (green light OFF, red light ON).

Comment:

JPM 15. 6. Check SI Pump B flow – GREATER THAN 100 GPM.

Standard: Candidate checks that SI Pump 'B' discharge flow indicates greater 100 gpm on 1FI-922 on the QMCB or on the IPC.

Comment:

JPM 16. 7. Complete SI alignment:

a. Check both SI trains – ALIGNED TO HOT LEG RECIRCULATION.

Standard: Candidate determines that SI Train 'B' is NOT aligned to hot leg recirculation.

Comment:

JPM 17. 7.a. RNO Consult TSC for actions to realign second SI train to Hot Leg recirculation.

Go to Step 8.

7.b. Shut CL INJ FROM SIS HV-8835.

CUE: "The Shift Supervisor will consult with the TSC."

*** NOTE TO EXAMINER: Performing Step 7.b. (shutting 1-HV-8835) instead of going directly to Step 8 will constitute failure of a critical step since all SI pump flow to the cold legs will be isolated.**

Standard: Candidate goes directly to Step 8, and does NOT perform Step 7.b. (does NOT close 1-HV-8835).

Comment:

JPM 18. 8. Return to procedure and step in effect.

Standard: N/A

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-19014-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **A large break LOCA occurred approximately 7.5 hours ago. The crew is at Step 31 of 19010-C, "Loss of Reactor or Secondary Coolant," which directs the transfer to hot leg recirculation.**

Initiating Cue: **The Shift Supervisor has directed you to, "Transfer the ECCS pumps to hot leg recirculation using 19014-C."**

Final JPM C

NRC Job Performance Measure "c"

Facility: Vogtle

Task No: V-LO-TA-37008

Task Title: Isolate Accumulators During Post-LOCA Cooldown

JPM No: V-NRC-JP-19012-HL19

K/A Reference: WE03EA1.1 RO 4.0 SRO 4.0

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

Initial Conditions: **Unit 1 was at 100% power when a LOCA occurred.**

The crew is currently at Step 38 of 19012-C, "Post-LOCA Cooldown and Depressurization," to isolate the SI Accumulators.

A Systems Operator has been dispatched and has closed all ACCUM ISO VLV MOV breakers.

Initiating Cue: **The Shift Supervisor has directed you to, "Isolate the SI Accumulators using Step 38 of 19012-C."**

Task Standard:	Candidate isolates three SI accumulators using 19012-C. One accumulator isolation valve, 1-HV-8808B, will fail to close, which will require venting of the non-isolable accumulator.
Required Materials:	19012-C, “Post-LOCA Cooldown and Depressurization” (rev. 33.3). Previous steps will be marked as complete by an exam team member. Step 38 will be circled to indicate it has been initiated.
General References:	None
Time Critical Task:	No
Validation Time:	8 minutes

SIMULATOR SETUP:

Reset to IC161 for HL-19 NRC Exam

Simulator Setup from Scratch:

1. Reset to IC14 (100% MOL)
2. Insert malfunction RC04A at 75%
3. Verify SI is actuated
4. Throttle AFW to ~100 gpm per SG
5. Reset SI
6. Reset CIA and open 1-HV-9378
7. Establish ~ 100 F/hour cooldown
8. Depressurize RCS until pressurizer level > 9%
9. Wait for subcooling to exceed 24 F
10. Close accumulator breakers (RFs SI1 through SI4)
11. Insert handswitch override for 1HS-8808B to OPEN
12. Acknowledge / Reset alarms and freeze simulator

Setup time: 20 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Isolate SI Accumulators:

38.a. Dispatch an operator to close ACCUM ISO VLV MOV breakers:

MOV	UNIT 1	UNIT 2
	CB ROOM	CB ROOM
HV-8808A	1ABE-19 (B79)	2ABE-19 (B01)
HV-8808B	1BBC-19 (B61)	2BBC-19 (B18)
HV-8808C	1ABC-19 (B76)	2ABC-19 (B04)
HV-8808D	1BBE-19 (A77)	2BBE-19 (A79)

CUE: If status requested, "Refer to initial conditions."

Standard: N/A

Comment:

JPM 2. Isolate SI Accumulators:

38.b. Reset SI if necessary.

NOTE TO EXAMINER: SI will have been reset at this point. Candidate will check that the SI ACTUATED light on the BPLB is not lit. Candidate can also check that the SI indicator at the top of the IPC screen is not lit.

Standard: Candidate determines that SI is reset by checking the control board indicators.
NOTE: It is acceptable if the SI reset handswitches are cycled again.

Comment:

***JPM 3.** **Isolate SI Accumulators:**

38.c. Close ACCUM ISO VLVs:

- **HV-8808A**
- HV-8808B
- **HV-8808C**
- **HV-8808D**

NOTE TO EXAMINER: 1-HV-8808B will fail to close.

Standard: **Candidate places the handswitches for 1-HV-8808A,** 1-HV-8808B**, 1-HV-8808C, and 1-HV-8808D to CLOSE. 1-HV-8808A, 1-HV-8808C, and 1-HV-8808D close (green lights ON, red lights OFF),** but 1-HV-8808B will NOT close (green light OFF, red light ON).

Comment:

JPM 4. 38.c. RNO Vent any non-isolable Accumulators:

1) Verify N2 supply valve HV-8880 is closed.

Standard: Candidate verifies that 1-HV-8880 is closed (green light ON, red light OFF).

Comment:

***JPM 5.** **38.c. RNO Vent any non-isolable Accumulators:**

2) Open ACCUM N2 SUPPLY/VENT VLVs:

ACCUM #2	**HV-8875B**
	HV-8875F

NOTE TO EXAMINER: Accumulator #2 is the non-isolable accumulator (1-HV-8808B failed open). 1-HV-8875B and 1-HV-8875F are in parallel, so opening one of the valves will meet the critical step.

Standard: **Candidate places the handswitch(es) for 1-HV-8875B and / or 1-HV-8875F to OPEN (green light OFF, red light ON).**

Comment:

***JPM 6** **38.c. RNO Vent any non-isolable Accumulators:**

3) Open common vent valve HV-0943A or HV-0943B.

IF an Accumulator can NOT be isolated or vented, THEN consult the TSC to determine contingency actions.

NOTE TO EXAMINER: 1-HV-0943A and 1-HV-0943B are in parallel, so opening one of the valves will meet the critical step. The valves are opened using controllers 1-HC-943A or 1-HC-943B, which are on the vertical QMCB panel. Accumulator pressure may be checked on the vertical QMCB panel or on the IPC.

CUE: ***If candidate is waiting for accumulator to fully depressurize, "Another operator will monitor accumulator pressure during venting."***

Standard: **Candidate opens 1-HV-0943A or 1-HV-0943B by depressing the UP arrow on the manual controller.**

Comment:

JPM 7. Isolate SI Accumulators:

38.d. Open ACCUM ISO VLV MOV breakers.

NOTE TO EXAMINER: This step should be performed with the venting in progress. Candidate may choose to de-energize all MOVs except 1HV-8808B (failed MOV). This is acceptable.

CUE: When requested, "A Systems Operator will be dispatched to open the accumulator isolation valve breakers."

Standard: Candidate dispatches operator to open breakers.

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-19012-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **Unit 1 was at 100% power when a LOCA occurred.**

The crew is currently at Step 38 of 19012-C, "Post-LOCA Cooldown and Depressurization," to isolate the SI Accumulators.

A Systems Operator has been dispatched and has closed all ACCUM ISO VLV MOV breakers.

Initiating Cue: **The Shift Supervisor has directed you to, "Isolate the SI Accumulators using Step 38 of 19012-C."**

Final JPM D

NRC Job Performance Measure "d"

Facility: Vogtle

Task No: V-LO-TA-20010

Task Title: Restore TDAFW Flow with Actuation Signal Present

JPM No: V-NRC-JP-13610-HL19

K/A Reference: WE05EA1.1 RO 4.1 SRO 4.0

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

Initial Conditions: **A loss of heat sink is in progress.**

RCS bleed and feed has been initiated.

The TDAFW pump tripped on overspeed and is now ready to be returned to service.

Initiating Cue: **The Shift Supervisor has directed you to, "Restore Auxiliary Feedwater Flow to at least one steam generator beginning with Step 52 of 19231-C, 'Response to Loss of Secondary Heat Sink.'"**

Task Standard:	Candidate resets the TDAFW pump using 13610-1, “Auxiliary Feedwater System,” and restores AFW flow to one steam generator.
Required Materials:	13610-1, “Auxiliary Feedwater System” (rev. 50.4) 19231-C, “Response to Loss of Secondary Heat Sink” (rev. 34)
General References:	None
Time Critical Task:	No
Validation Time:	15 minutes

SIMULATOR SETUP:

Reset to IC169 for HL-19 NRC Exam

Simulator Setup from Scratch:

1. Reset to IC14 (MOL 100%)
2. Insert malfunctions ES01, AF02B, AF02C, and AF04
3. Trip both MFPs
4. Trip the reactor when all SG WR levels are < 9%
5. Actuate SI
6. Stop all RCPs
7. Arm Train 'A' COPS and open PORV-455
8. Open reactor vessel head vents
9. Danger tag PORV-456 closed
10. Verify all SG WR levels are still < 9% and remove malfunction AF04
11. Acknowledge / Reset alarms
12. Freeze simulator

NOTE TO SIMULATOR OPERATOR: Place danger tag on 1PORV-456.

Simulator operator may seal-in ALB11-D03 PRZR LIQUID HI TEMP, if it cycles continuously.

Setup time: 15 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1.

CAUTION Feed flow rates should be controlled to prevent excessive RCS cool down.

Try to establish TDAFW flow to at least one SG:

52.a. Check TDAFW Pump – AVAILABLE:

- Steam admission valve HV-5106 – OPEN
- Trip & Throttle valve PV-15129 – OPEN (HS-15111)
- Governor valve SV-15133 – OPERATING PROPERLY (PDIC-5180A)

NOTE TO EXAMINER: Trip and Throttle valve, 1PV-15129, (1HS-15111) will be closed due to overspeed trip.

Standard: Candidate determines that the Trip and Throttle valve, 1PV-15129, is closed by checking 1HS-15111 (green light ON, amber light ON, red light OFF).

Comment:

JPM 2. 52. RNO Try to establish TDAFW flow to at least one SG:

a. Perform the following:

- Initiate 13610-1, “Auxiliary Feedwater System,” to operate TDAFW pump as necessary.

Standard: Candidate initiates Section 4.4.7 of 13610-1, “Auxiliary Feedwater System,” for resetting the TDAFW pump Trip and Throttle valve.

Comment:

JPM 3.

NOTE TO EXAMINER: The following steps are from 13610-1, “Auxiliary Feedwater System.”

4.4.7 Resetting of TDAFW Pump Trip and Throttle Valve Following an Overspeed Trip Actuation (Actual Overspeed or Surveillance / Maintenance Testing)

CAUTION
If this reset of the Trip & Throttle valve is following an actual overspeed trip and the potential exists to initiate AFW flow to a “hot dry S/G”, closing of the TDAFW discharge valves should be considered prior to reset of the Trip & Throttle valve.

CUE: If requested, “The Shift Supervisor directs closure of the TDAFW discharge valves.”

NOTE TO EXAMINER: If valves are not closed at this step, 19231-C, Step 52.a. will direct closure of the valves after the SOP section is complete.

Standard: Candidate reviews CAUTION and closes TDAFW pump throttle valves using 1HS-5122, 5125, 5127, and 5120 (green lights ON, red lights OFF) OR at Step 52.a. of 19231-C.

Comment:

JPM 4.

NOTE TO EXAMINER: Steps 4.4.7.1 through 4.4.7.7 are completed locally at the TDAFW pump. After the candidate directs the completion of these steps, the TDAFW pump mechanical overspeed trip linkage will reset.

4.4.7.1 Verify motor actuator has driven the shaft to approximately 80% closed as indicated by T&T VALVE OPERATOR CLOSED green light lit on the local valve panel (PAFT).

CUE: If requested separately from the following steps, "Trip and Throttle Valve green light is lit on the local panel."

4.4.7.2 On the governor, lift and release Tappet several times to ensure that there is no binding.

4.4.7.3 If binding is observed, contact the Shift Supervisor.

4.4.7.4 Verify that the flat part of the tappet nut is in contact with the head lever. (See Figure 4)

4.4.7.5 Reset the mechanical linkage by pushing the trip linkage towards the Trip And Throttle Valve and observe trip lever moves up (see Figures 3 and 4).

4.4.7.6 Push the Tappet down to ensure proper seating.

4.4.7.7 Verify mechanical overspeed trip indicator limit switch roller arm is properly positioned (Figure 4).

CUE: Simulator operator inserts Remote Function AF22 to reset the TDAFW pump mechanical overspeed trip linkage and notifies candidate, "Steps 4.4.7.1 through 4.4.7.7 are complete."

Standard: Candidate directs the completion of Steps 4.4.7.1 through 4.4.7.7 to reset the TDAFW pump mechanical overspeed trip linkage.

Comment:

JPM 5. 4.4.7.8 Place TDAFW Pump Steam Admission Valve 1-HV-5106 handswitch 1HS-5106A (QMCB) in CLOSE.

CUE: "CV request noted."

Standard: Candidate places 1HS-5106A to CLOSE (handswitch turned counterclockwise).

Comment:

***JPM 6.**

NOTE
Holding 1HS-5106A in the CLOSE position allows the speed controller startup logic to reset when the T&T valve is electrically opened.

4.4.7.9 If AFW Actuation signal is present, hold 1HS-5106A in the CLOSE position until completion of Step 4.4.7.10.

NOTE TO EXAMINER: 1-HV-5106 will re-open when 1HS-5106A is released. The intent of the step is to hold 1HS-5106A in CLOSE while opening 1HS-15111 in Step 4.4.7.10. The critical step is met if 1HS-15111 is opened while holding 1HS-5106A in CLOSE.

Standard: Candidate reviews NOTE and holds 1HS-5106A in CLOSE (handswitch turned counterclockwise).

Comment:

***JPM 7.**

NOTE
When Handswitch 1HS-15111 is placed in OPEN, the Trip And Throttle Valve latches and then opens.

4.4.7.10 Place Handswitch 1HS-15111 (QMCB) in OPEN, THEN release.

Standard: Candidate place 1HS-15111 to OPEN, then releases handswitch (handswitch turned clockwise, then released).

Comment:

JPM 8.

CAUTIONS
• Steam Admission Valve 1-HV-5106 will open when 1HS-5106A is released if an open signal is present. • If pump speed cannot be controlled or overspeed trip occurs again when 1HS-5106 is released in the next step, do not attempt to reset again until the speed control problem has been corrected.

4.4.7.11 Verify proper latching between the latch up lever and the trip hook lever. (Figure 3 and 3a).

NOTE TO EXAMINER: This step is performed locally at the TDAFW pump.

CUE: When candidate directs completion of the step, "The latch up lever and the trip hook lever are properly latched."

Standard: Candidate reviews CAUTIONS and verifies proper latching of the latch up lever and the trip hook lever.

Comment:

***JPM 9.** **4.4.7.12 WHEN the Trip and Throttle Valve is fully open as indicated at MLB13-4.2 or 1HS-15111 (QMCB), release 1HS-5106A if applicable.**

NOTE TO EXAMINER: MLB13-4.2 is on the QMCB vertical 'A' panel above the accumulators and SI indicators.

Standard: **Candidate checks the Trip and Throttle Valve, 1PV-15129, fully open by observing MLB13-4.2 lit or 1HS-15111 green light OFF and red light ON and releases 1HS-5106A (1HS-5106A may have been released prior this step).**

Comment:

JPM 10.

NOTE TO EXAMINER: The candidate will now return to 19231-C, "Response to Loss of Secondary Heat Sink."

52 RNO. Try to establish TDAFW flow to at least one SG:

a. Perform the following:

- Verify TDAFW pump throttle valves closed.

Standard: Candidate verifies TDAFW pump throttle valves closed on 1HS-5122, 5125, 5127, and 5120 (green lights ON, red lights OFF).

Comment:

JPM 11. 52 RNO. Try to establish TDAFW flow to at least one SG:

a. Perform the following:

- WHEN TDAFW Pump is started, THEN go to Step 52.b.

Standard: Candidate transitions to Step 52.b.

Comment:

JPM 12. Try to establish TDAFW flow to at least one SG:

52.b. Select SG(s) to feed:

1) All SG WR levels – LESS THAN 9% [31% ADVERSE].

Standard: Candidate checks all SG WR levels are less than 9% on QMCB or IPC.

Comment:

JPM 13. Try to establish TDAFW flow to at least one SG:

52.c. Check Core Exit TCs – STABLE OR LOWERING

NOTE TO EXAMINER: The Core Exit temperatures at this time will be controlled by the code safeties. The IPC will indicate a generally stable saw-tooth trend. However, the candidate may decide temperatures are rising due to no heat sink. If so, feed flow to the selected SG will NOT be limited.

Standard: Candidate checks Core Exit Thermocouple temperatures on the IPC or PSMS to determine if they are stable or lowering. If candidate decides Core Exit temperatures are rising, then the Step 52.c. RNO will direct candidate to go directly to Step 52.f.

Comment:

***JPM 14.** **Try to establish TDAFW flow to at least one SG:**

52.d. Restore feed flow to selected SG – BETWEEN 30 GPM AND 100 GPM:

- IPC POINT – UF5403

NOTE TO EXAMINER: The Core Exit temperatures at this time will be controlled by the code safeties. The IPC will indicate a generally stable saw-tooth trend. However, the candidate may decide temperatures are rising due to no heat sink. If so, feed flow to the selected SG will NOT be limited.

Standard: **Candidate establishes feed flow to the selected SG at 30 – 100 gpm.** NOTE: If Core Exit temperatures are rising, candidate will have correctly skipped this step.

Comment:

JPM 15. Try to establish TDAFW flow to at least one SG:

52.e. Check Dry SG WR level – GREATER THAN 9% [31% ADVERSE].

Standard: Candidate checks all SG WR levels are less than 9% on QMCB or IPC. NOTE: If Core Exit temperatures are rising, candidate will have correctly skipped this step.

Comment:

JPM 16. 52 RNO. Try to establish TDAFW flow to at least one SG:

e. WHEN Dry SG WR level is greater than 9% [31% ADVERSE] THEN raise feed flow to restore NR level greater than 10% [32% ADVERSE].

Go to Step 69.

CUE: "An Extra Operator will complete the procedure."

Standard: Candidate maintains feed flow to the selected SG. NOTE: If Core Exit temperatures are rising, candidate will have correctly skipped this step.

Comment:

JPM 17.

NOTE TO EXAMINER: If candidate earlier decided Core Exit temperatures were rising, then the following step will be performed.

Try to establish TDAFW flow to at least one SG:

52.f. Raise feed flow to restore NR level greater than 10% [32% ADVERSE] and go to Step 69.

CUE: "An Extra Operator will complete the procedure."

Standard: Candidate maintains or raises feed flow to the selected SG.

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-13610-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **A loss of heat sink is in progress.**

RCS bleed and feed has been initiated.

The TDAFW pump tripped on overspeed and is now ready to be returned to service.

Initiating Cue: **The Shift Supervisor has directed you to, "Restore Auxiliary Feedwater Flow to at least one steam generator beginning with Step 52 of 19231-C, 'Response to Loss of Secondary Heat Sink.'"**

Final JPM E

NRC Job Performance Measure "e"

Facility: Vogtle

Task No: V-LO-TA-29006

Task Title: Reduce Containment Pressure Following an Inadvertent CVI

JPM No: V-NRC-JP-13125-HL19

K/A Reference: 103A1.01 RO 3.7 SRO 4.1

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

NOTE TO EXAMINER: For time considerations, the candidates should "pre-brief" and review 13125-1 prior to starting the JPM.

Initial Conditions: **Unit 1 was performing a containment pressure relief using 13125-1, "Containment Purge System," when a spurious CVI occurred due to a faulty slave relay.**

The CVI signal was reset after the faulty relay was repaired.

The Shift Supervisor has verified with Chemistry that the existing Gaseous Release Permit is still valid for the duration of the pressure relief.

The IPC is NOT available.

Initiating Cue: **The Shift Supervisor has directed you to, "Perform containment pressure relief using 13125-1."**

Task Standard:	Candidate reduces containment pressure and initiates termination of containment pressure relief at zero ±0.1 psig using 13125-1, “Containment Purge System.”
Required Materials:	13125-1, “Containment Purge System” (rev. 54)
General References:	None
Time Critical Task:	No
Validation Time:	18 minutes

SIMULATOR SETUP:

Reset to IC158 for HL-19 NRC Exam

Simulator Setup from Scratch:

1. Reset to IC14
2. Place Mini-Purge supply fan in service per 13125-1, Section 4.4.2, to raise containment pressure
3. Remove Mini-Purge from service when containment pressure is ~ 0.4 psig
4. Acknowledge / Reset alarms
5. Turn off IPC monitors.
6. Freeze simulator

Setup time: 10 minutes

NOTE TO SIMULATOR OPERATOR: Turn off IPC monitors prior to start of JPM.

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Section 4.4.1 of 13125-1, “Containment Purge System,” is selected for Containment Pressure Relief.

Standard: 13125-1, “Containment Purge System,” is opened to Section 4.4.1.

Comment:

JPM 2.

> NOTE
>
> When monitoring and changing containment pressure during this procedure, computer point P-9871 OR 1-PI-10945 (QHVC) should be used. These are the only containment pressure instruments that will indicate a negative pressure.

4.4.1 Containment Pressure Relief

Standard: Candidate reviews NOTE prior to Step 4.4.1.

Comment:

JPM 3. 4.4.1.1 IF the Unit is in MODE 1, 2, 3, or 4:

a. Review Limitations 2.2.5c, 2.2.7, 2.2.8, and 2.2.10.

Standard: Candidate reviews Limitations.

Comment:

JPM 4. 4.4.1.1 IF the Unit is in MODE 1, 2, 3, or 4:

b. Place additional containment cooling units in service IF required to correct the high pressure condition.

CUE: If requested, "The Shift Supervisor does not desire to start additional containment coolers."

Standard: Candidate reviews step.

Comment:

JPM 5. 4.4.1.2 Notify Chemistry of the upcoming Mini-Purge operation OR Pressure Relief operation:

a. Obtain the current approved Containment Gaseous Release Permit.

OR

b. IF an updated permit is unavailable, request that Chemistry sample the containment atmosphere and prepare for the gaseous release.

CUE: If requested, "Refer to the initial conditions."

Standard: Candidate determines a current, approved Gaseous Release Permit is available.

Comment:

JPM 6. 4.4.1.3 WHEN a current approved Containment Gaseous Release Permit is obtained, perform the following:

NOTE
Magenta color for 1RE-2565 on Com Console may indicate inoperability.

CUE: The Com Console is not modeled in the simulator. If candidate requests status of 1RE-2565A, B, and C on the Com Console, provide, "1RE-2565A, B, and C are operable."

a. Verify at least TWO of the following radiation monitors are operable for CVI purposes (TS 3.3.6):

- 1-RE-2565A&B OR 1-RE-2565C
- 1-RE-002
- 1-RE-003

b. Verify at least ONE of the following radiation monitors is operable for ODCM purposes:

- 1-RE-12442C
- 1-RE-12444C

CUE: If requested, "The Shift Supervisor reports that all radiation monitors are operable."

Standard: Candidate checks that radiation monitors are operable.

Comment:

JPM 7.

> CAUTION
>
> The pressure relief should not be initiated until the current approved Containment Gaseous Release Permit is obtained.

4.4.1.4 Releases may not continue beyond the date/time on the “Release may not continue beyond (Date/Time)” block indicated on 36022-C, Data Sheet 1.

CUE: If requested, "Refer to the initial conditions."

Standard: Candidate determines that the current Gaseous Release Permit is valid.

Comment:

JPM 8. 4.4.1.5 IF containment pressure is less than or equal to +0.3 psig, initiate pressure relief to zero ±0.1 psig as follows:

Standard: Candidate determines this step is not applicable since pressure is greater than +0.3 psig.

Comment:

JPM 9.

NOTES

- Heater will not energize until CTB Mini-Purge Fan is started and pressure in Filter Housing is negative.
- Annunciator ALB-52-B07, CNMT PURGE EXH FLTR HI MSTR alarm may ILLUMINATE when pressure relief is initiated. It should EXTINGUISH after approximately 5 minutes of CTB Mini-Purge Fan operation.
- Containment pressure should be maintained between -0.1 psig and 1.0 psig.

CAUTION

The pressure relief should not be initiated until the current approved Containment Gaseous Release Permit is obtained.

CUE: If requested, "The Shift Supervisor acknowledges incoming annunciator."

4.4.1.6 IF containment pressure is greater than +0.3 psig and less than or equal to +4.4 psig, initiate pressure relief to zero ±0.1 psig as follows:

NOTE

The following pressure relief is via Flow Orifice 1-FO-12593.

a. Verify CTB MINI-PURGE EXH DMPR 1-HV-12592 is CLOSED using 1-HS-12592 (C34).

Standard: Candidate reviews NOTES and CAUTION and verifies 1-HV-12592 is closed (green light ON, red light OFF).

Comment:

***JPM 10.** **4.4.1.6 IF containment pressure is greater than +0.3 psig and less than or equal to +4.4 psig, initiate pressure relief to zero ±0.1 psig as follows:**

b. Open CTB MINI PURGE EXH ORC ISO VLV-MINI 1-HV-2629B using 1-HS-2629B (B34).

NOTE TO EXAMINER: Handswitch must be held in the OPEN position for the valve to fully open. If switch is released early, the damper will re-close.

Standard: **Candidate opens 1-HV-2629B by placing 1-HS-2629B to OPEN (green light OFF, red light ON).**

Comment:

***JPM 11.** **4.4.1.6 IF containment pressure is greater than +0.3 psig and less than or equal to +4.4 psig, initiate pressure relief to zero ±0.1 psig as follows:**

c. Open CTB NORM PURGE EXH IRC ISO VLV-MINI 1-HV-2628B using 1-HS-2628B (A34).

NOTE TO EXAMINER: Handswitch must be held in the OPEN position for the valve to fully open. If switch is released early, the damper will re-close.

Standard: **Candidate opens 1-HV-2628B by placing 1-HS-2628B to OPEN (green light OFF, red light ON).**

Comment:

JPM 12. 4.4.1.6 IF containment pressure is greater than +0.3 psig and less than or equal to +4.4 psig, initiate pressure relief to zero ±0.1 psig as follows:

d. Log the Initial Containment pressure, START TIME, and DATE on the Containment Gaseous Release Permit.

CUE: If requested, "The Shift Supervisor will log the information on the Release Permit."

Standard: Candidate ensures data is logged on the permit.

Comment:

JPM 13. 4.4.1.7 Notify Chemistry that pressure relief has commenced and record the name of the person contacted in the Unit Control Log.

CUE: If requested, "The Shift Supervisor will contact chemistry."

Standard: Candidate ensures chemistry is notified.

Comment:

***JPM 14.** **4.4.1.8 Per SS direction, <u>WHEN</u> CTB pressure drops below +0.3 psig, perform the following:**

a. Open CTB MINI-PURGE EXH DMPR 1-HV-12592 using 1-HS -12592 (C34).

NOTE TO EXAMINER: 1-PI-10945 has a bar graph display and is high on the QHVC panel. It may be difficult to see 0.3 psig clearly on the indicator.

CUE: If requested, "The Shift Supervisor directs performance of Step 4.4.1.8."

Standard: **Candidate opens 1-HV-12592 by placing 1-HS-12592 to OPEN when containment pressure is < +0.3 psig (green light OFF, red light ON).** NOTE: Step 4.4.1.8 must be performed when containment pressure < +0.3 psig to protect downstream ductwork from overpressure. This is the basis of the critical step actions in Step 4.4.1.8.a.

Comment:

***JPM 15.** **4.4.1.8 Per SS direction, WHEN CTB pressure drops below +0.3 psig, perform the following:**

b. Start the CTB MINI-PURGE EXH FAN using 1-HS-2631B (D34).

Standard: **Candidate starts Mini-Purge Exhaust Fan by placing 1-HS-2631B to START (green light OFF, red light ON).** NOTE: Step 4.4.1.8 must be performed when containment pressure < +0.3 psig to protect downstream ductwork from overpressure. This is the basis of the critical step actions in Step 4.4.1.8.b.

Comment:

JPM 16. 4.4.1.8 Per SS direction, WHEN CTB pressure drops below +0.3 psig, perform the following:

c. Place the CTB MINI-PURGE EXH DMPR 1-HS-12592 in AUTO (C34).

Standard: Candidate places 1-HV-12592 in AUTO by taking 1-HS-12592 to AUTO.

Comment:

JPM 17.

CAUTION Containment pressure must be maintained above -0.3 psig.

4.4.1.9 Monitor containment pressure.

Standard: Candidate monitors containment pressure on 1-PI-10945.

Comment:

JPM 18. 4.4.1.10 IF pressure relief was performed as part of Mini-Purge System Startup, perform the following:

Standard: Candidate determines step is not applicable.

Comment:

***JPM 19. 4.4.1.11 WHEN containment pressure falls to zero ±0.1 psig, terminate pressure relief as follows:**

a. IF mini purge exhaust fan was started in Step 4.4.1.8, stop the CTB MINI-PURGE EXH FAN using 1-HS-2631B (D34).

NOTE TO EXAMINER: Mini-Purge Exhaust Fan was started in Step 4.4.1.8 based on Shift Supervisor cue.

Standard: Candidate stops Mini-Purge Exhaust Fan by placing 1-HS-2631B to STOP (green light ON, red light OFF). NOTE: The actions in Step 4.4.1.11 must initiated, not fully completed, when containment pressure lowers to zero ±0.1 psig. The intent is to maintain containment pressure above -0.3 psig.

Comment:

***JPM 20. 4.4.1.11 WHEN containment pressure falls to zero ±0.1 psig, terminate pressure relief as follows:**

b. Close CTB MINI PURGE EXH ORC ISO VLV-MINI 1-HV-2629B using 1-HS-2629B (B34).

Standard: Candidate closes 1-HV-2629B by placing 1-HS-2629B to CLOSE (green light ON, red light OFF).

Comment:

***JPM 21.** **4.4.1.11 WHEN containment pressure falls to zero ±0.1 psig, terminate pressure relief as follows:**

c. Close CTB NORM PURGE EXH IRC ISO VLV-MINI 1-HV-2628B using 1-HS-2628B (A34).

Standard: **Candidate closes 1-HV-2628B by placing 1-HS-2628B to CLOSE (green light ON, red light OFF).**

Comment:

***JPM 22.** **4.4.1.11 WHEN containment pressure falls to zero ±0.1 psig, terminate pressure relief as follows:**

d. Verify CTB MINI PURGE EXH DMPR 1-HS-12592 (C34) in CLOSE.

Standard: **Candidate closes 1-HV-12592 by placing 1-HS-12592 to CLOSE (green light ON, red light OFF).**

Comment:

JPM 23. 4.4.1.11 WHEN containment pressure falls to zero ±0.1 psig, terminate pressure relief as follows:

e. Log the Final Containment pressure and pressure relief STOP TIME and DATE on the Chemistry data sheet provided.

f. Notify Chemistry that containment pressure relief has been terminated.

g. Record the name of the person contacted in the Unit Control Log.

CUE: If requested, "The Shift Supervisor will complete the log and contact chemistry."

Standard: Candidate ensures data is logged and chemistry is contacted.

Comment:

JPM 24. 4.4.1.11 WHEN containment pressure falls to zero ±0.1 psig, terminate pressure relief as follows:

h. Restore the Mini-Purge System per Checklist 3.

CUE: "An Extra Operator will complete Checklist 3."

Standard: N/A

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-13125-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **Unit 1 was performing a containment pressure relief using 13125-1, "Containment Purge System," when a spurious CVI occurred due to a faulty slave relay.**

The CVI signal was reset after the faulty relay was repaired.

The Shift Supervisor has verified with Chemistry that the existing Gaseous Release Permit is still valid for the duration of the pressure relief.

The IPC is NOT available.

Initiating Cue: **The Shift Supervisor has directed you to, "Perform containment pressure relief using 13125-1."**

Final JPM F

NRC Job Performance Measure "f"

Facility: Vogtle

Task No: V-LO-TA-31008

Task Title: Synchronize Main Generator to the Grid

JPM No: V-NRC-JP-13830-HL19

K/A Reference: 062A4.07 RO 3.1* SRO 3.1*

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

NOTE TO EXAMINER: For time considerations, the candidates should "pre-brief" and review 13830-1 prior to starting the JPM.

Read to the examinee:

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

Initial Conditions: **The unit is starting up following a refueling outage. The main turbine is at 1800 rpm and main generator field excitation has been established. The System Operator has given approval to synchronize the main generator to the grid.**

Initiating Cue: **The Shift Supervisor has directed you to, "Synchronize the Main Generator to the grid and assume 60 to 80 MWe in accordance with 13830-1, 'Main Generator Operation.' Perform the initial synchronization using PCB 161710."**

Task Standard:	Candidate synchronizes the Main Generator to the grid, and then trips the Main Turbine when no generator current is observed on Phase B.
Required Materials:	13830-1, “Main Generator Operation,” (rev. 69) with previously completed steps initialed by exam team Switch Operating Handles
General References:	None
Time Critical Task:	No
Validation Time:	15 minutes

SIMULATOR SETUP:

Reset to IC165 for HL-19 NRC exam.

Simulator Setup from Scratch:

1. Reset to IC17 (20% power EOL ready to synch to grid).
2. Verify main generator field excitation.
3. Insert remote functions CM03a, CM03b, CM03c set to OVERRIDE.
4. Insert remote functions CM04a and CM04c to 4% on Trigger 1.
5. Insert remote function CM04b to 0% on Trigger 1.
6. Ensure generator synch switch positions are correct (vertical), they do not switch check.

IMPORTANT NOTES TO SIMULATOR OPERATOR:

1. On each reset verify CM03a, CM03b, and CM03c are set to OVERRIDE.

2. On each reset verify sync switch positions are correct (vertical).

Setup time: 10 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Section 4.1.3 of 13830-1, "Main Generator Operation," selected for synchronizing the Main Generator to the grid.

Standard: 13830-1, "Main Generator Operation," is opened to Section 4.1.3.

Comment:

JPM 2. 4.1.3 Synchronizing the Main Generator to the Grid

NOTES
• Phone number for the System Operator is 8-506-6965. • Phone number for HVSH is 3702.

4.1.3.1 Perform the following:

a. Contact Switchyard Coordinator (or his designee).

b. Notify him that the Unit one Main Generator Output breaker will be closed.

c. Request Switchyard Coordinator (or his designee) to alert personnel working in the HVSW to stand clear.

d. Switchyard Coordinator (or his designee) has verified that personnel in HVSW are clear of area.

CUE: "The Switchyard Coordinator has been contacted and personnel are clear of the HVSW."

Standard: Candidate ensures the Switchyard Coordinator is contacted and personnel are clear of the HVSW.

Comment:

JPM 3. 4.1.3.2 Select one PCB for synchronizing:

230kV PCB NORM SPLY TO BUS-1 161710

230kV PCB NORM SPLY TO GOS-WHT (3) 161810

CUE: "Refer to Initial Conditions."

Standard: Candidate selects PCB 161710 for synchronizing.

Comment:

***JPM 4. 4.1.3.3 Place the Synchronize Switch for the selected PCB in the R (running) position:**

PCB 161710	**1-SS-BUS 1**
PCB 161810	1-SS-GOS WHT (3)

NOTE TO EXAMINER: The switch handle is normally removed.

Standard: Candidate places synchronizing switch 1-SS-BUS 1 in the R (running) position (turns handle clockwise).

Comment:

***JPM 5. 4.1.3.4 Place Unit 1 Synchronize Switch 1-SS-U1 in the I (incoming) position.**

NOTE TO EXAMINER: The switch handle is normally removed.

Standard: Candidate places synchronizing switch 1-SS-U1 in the I (incoming) position (turns handle counterclockwise).

Comment:

JPM 6. 4.1.3.5 Verify rotation of 230 kV System Synchroscope 1SI-40125.

Standard: Candidate verifies 1SI-40125 is rotating (meter on vertical panel).

Comment:

JPM 7. 4.1.3.6 Using the 230 kV Voltage/Frequency Selector Switch 1-VS-US1:

a. Select the PCB to be closed and note the 230 kV System voltage (1EI-40124).

PCB-161710	BUS-1
PCB-161810	GOS-WHT (3)

Standard: Candidate selects Bus 1 on 1-VS-US1 and records the system voltage indicated on 1EI-40124 (meter on vertical panel).

Comment:

JPM 8. 4.1.3.6 Using the 230 kV Voltage/Frequency Selector Switch 1-VS-US1:

b. Select Unit 1 position and note the Unit 1 230 kV voltage (1EI-40124).

Standard: Candidate selects Unit 1 on 1-VS-US1 and records the system voltage indicated on 1EI-40124 (meter on vertical panel).

Comment:

JPM 9. 4.1.3.7 Use the Volts/VARs RAISE/LOWER Pushbutton on the COI display to slowly adjust Unit 1 230 kV voltage to read between zero and 1.0 kV higher than 230 kV System voltage for selected PCB.

CUE: "CV request is noted."

Standard: Candidate adjusts 230 kV voltage using the Volts/VARs Raise / Lower pushbuttons on the COI to between 0 and 1.0 kV higher than 230 kV system voltage. NOTE: Due to the meter scale, adjustments may not be required.

Comment:

JPM 10. 4.1.3.8 Adjust Turbine speed using the INCREASE LOAD and DECREASE LOAD Pushbuttons until 1SI-40125 Pointer is rotating very slowly in FAST (clockwise) direction.

CUE: "CV request is noted."

NOTE TO EXAMINER: 1SI-40125 is on the vertical panel. The INCREASE LOAD and DECREASE LOAD pushbuttons are left of the breaker controls, on the horizontal panel.

Standard: Candidate adjusts turbine speed using the INCREASE LOAD and/or DECREASE LOAD pushbuttons until 1SI-40125 is rotating slowly in the FAST (clockwise) direction. NOTE: Step 4.1.3.10.c. will direct a specific rotation speed of 10 – 15 seconds / rotation.

Comment:

JPM 11. 4.1.3.9 Make plant page announcement that the Unit One Main Generator Output breaker will be closed and to stand clear.

Standard: Candidate makes page announcement.

Comment:

***JPM 12.** **4.1.3.10 If automatic synchronizing is required:**

a. Position Synch Mode Sel Switch 1-TS-US1 to the PCB selected for synchronizing:

PCB-161710

PCB-161810

Standard: **Candidate places 1-TS-US1 in the PCB-161710 position (turns switch counterclockwise).**

Comment:

JPM 13. 4.1.3.10 If automatic synchronizing is required:

b. Monitor 230 kV System Synchroscope 1SI-40125.

Standard: Candidate monitors rotation of 1SI-40125.

Comment:

~~***JPM 14.**~~ JPM 14. (not critical)
4.1.3.10 If automatic synchronizing is required:

c. Verify the Synchroscope Pointer is rotating very slowly (approximately 10 to 15 second rotation) in the FAST (clockwise) direction.

CUE: "CV request is noted."

NOTE TO EXAMINER: Candidate may use INCREASE LOAD and/or DECREASE LOAD pushbuttons to adjust 1SI-40125 rotation speed.

Standard: **Candidate verifies 1SI-40125 is rotating very slowly (~ 10 to 15 second rotation) in the FAST (clockwise) direction by adjusting turbine speed using the INCREASE and/or DECREASE LOAD pushbuttons as necessary.**

Comment:

JPM 15. 4.1.3.10 If automatic synchronizing is desired:

d. When the Synchroscope Pointer nears the 12 o'clock (straight up) position, observe the red AUTO SYNC PERMISSIVE light illuminates.

Standard: Candidate observes the AUTO SYNC PERMISSIVE light lit near the 12 o'clock position.

Comment:

***JPM 16. 4.1.3.10 If automatic synchronizing is desired:**

NOTE
Pushbutton should be depressed and held several seconds until the PCB closes.

e. As the Synchroscope Pointer passes the 11 o'clock position, depress and release the Automatic Synchronizing Pushbutton for the selected PCB:

BUS-1	**AUTO SYNC PERMISSIVE PCB 161710**
GOS-WHT (3)	AUTO SYNC PERMISSIVE PCB 161810

CUE: Simulator operator actuates Trigger 1 when PCB 161710 is closed.

Standard: Candidate depresses AUTO SYNC PERMISSIVE PCB 161710 when the synchroscope passes the 11 o'clock position to close PCB 161710.

Comment:

JPM 17. 4.1.3.10 If automatic synchronizing is desired:

f. Verify the selected PCB closes by observing the following:

- Red light indication on the selected PCB handswitch
- Current indicated on amp meter on each phase of Main Generator output or on IPC Computer Points:

IPC Point	Amp Meter
J2832	1II-40127
J2833	1II-40128
J2834	1II-40129

Standard: Candidate observes red light indication on PCB 161710 handswitch. Candidate checks current on each phase and determines NO current is indicated on Phase B (J2833 and/or 1II-40128)

Comment:

***JPM 18. 4.1.3.10 If automatic synchronizing is desired:**

g. If current is NOT indicated on all three phases, then trip the Turbine and initiate 18011-C, "Turbine Trip Below P-9."

CUE: "The Shift Supervisor will initiate 18011-C."

Standard: Candidate trips the Main Turbine by depressing the red TRIP pushbutton.

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-13830-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions:	**The unit is starting up following a refueling outage. The main turbine is at 1800 rpm and main generator field excitation has been established. The System Operator has given approval to synchronize the main generator to the grid.**
Initiating Cue:	**The Shift Supervisor has directed you to, "Synchronize the Main Generator to the grid and assume 60 to 80 MWe in accordance with 13830-1, 'Main Generator Operation.' Perform the initial synchronization using PCB 161710."**

Final JPM G

NRC Job Performance Measure "g"

Facility: Vogtle

Task No: V-LO-TA-23005

Task Title: Manually Align Control Room Isolation on High Radiation

JPM No: V-NRC-JP-13301-HL19

K/A Reference: 061AA1.01 RO 3.6 SRO 3.6

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

Initial Conditions: **The unit is at 100% power.**

Initiating Cue: **The Shift Supervisor has directed you to, "Assume the duties of the Unit Operator. Correctly diagnose plant conditions and complete any required corrective actions."**

Task Standard:	Candidate acknowledges the Control Room high radiation alarm and identifies the failure of Control Room Isolation (CRI) to automatically actuate. The candidate then manually actuates and aligns Control Room Isolation using 13301-C, Section 4.4.1.
Required Materials:	13301-C, “CBCR Normal HVAC and Emergency Filtration System” (rev. 30) 17102-1, “Annunciator Response Procedures for the Safety Related Display Console QRM2” (rev. 20.3)
General References:	None
Time Critical Task:	No
Validation Time:	12 minutes

SIMULATOR SETUP:

Reset to IC170 for HL-19 NRC Exam

Simulator Setup from Scratch:

1. Reset to IC14 (MOL 100%)
2. Insert malfunction ES04A (Failure of Train 'A' CRI)
3. Insert malfunction ES04B (Failure of Train 'B' CRI)
4. Insert malfunctions RM12116 and RM12117 at 100% severity with one minute ramp on Trigger 1
5. Override BOTH SSMP TROUBLE alarms to OFF
6. Acknowledge / Reset alarms
7. Freeze simulator

Setup time: 5 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

JPM 1.

CUE: With Examiner concurrence, simulator operator actuates Trigger 1 to generate control room radiation alarms (1 minute ramp time).

START TIME: _____

Annunciators ALB05-B03, INTMD RADIATION ALARM, and ALB05-C03, HIGH RADIATION ALARM, are received.

Standard: Candidate acknowledges annunciators.

Comment:

JPM 2. 17102-1, "Annunciator Response Procedure for the Safety Related Display Console QRM2," is entered.

NOTE TO EXAMINER: Candidate may reference 17005-1 for the ALB05 annunciators. 17005-1 will direct the candidate to 17102-1.

NOTE TO EXAMINER: Candidate may look at the IPC or the SRDC to determine which radiation monitors are in alarm.

Standard: Candidate enters 17102-1, "Annunciator Response Procedure for the Safety Related Display Console QRM2," for windows B5 (1RE-12116) and/or C5 (1RE-12117).

Comment:

JPM 3.

NOTE
For other than HIGH conditions see Pages 5 and 6.

1.0 PROBABLE CAUSE

1. Gaseous radioactivity in the incoming air.
2. Equipment malfunction.

NOTE TO EXAMINER: Candidate may check the trends of 1RE-12116 and 1RE-12117 on the IPC to rule out equipment malfunction as a probable cause.

CUE: If requested, "2RE-12116 and 2RE-12117 are in high alarm."

Standard: Candidate reviews probable cause of the alarm.

Comment:

JPM 4. 2.0 AUTOMATIC ACTIONS

Control Room and Technical Support Center Ventilation switches to the Post Accident Mode.

NOTE TO EXAMINER: Candidate may attempt to actuate CRI using handswitches 1-HS-12195A and 1-HS-12196A (clockwise to ACTUATE) as a verification of an automatic action that should have occurred.

Standard: Candidate determines Control Room and Technical Support Center Ventilation did NOT switch to the Post Accident Mode by checking 1-HS-12195A (green light ON, red light OFF) and 1-HS-12196A (green light ON, red light OFF).

Comment:

JPM 5. 3.0 INITIAL OPERATOR ACTIONS

NONE

Standard: N/A

Comment:

JPM 6. 4.0 SUBSEQUENT OPERATOR ACTIONS

1. Verify a Control Room Filtration Unit is running. If not, manually start per 13301-C, “CBCR Normal HVAC and Emergency Filtration System,” section for manually initiating Control Room Isolation.

NOTE TO EXAMINER: Candidate may attempt to actuate CRI at this time using handswitches 1-HS-12195A and 1-HS-12196A (turned clockwise to ACTUATE), since this is a “verify” step.

Standard: Candidate determines Control Room Isolation did NOT actuate and enters 13301-C, “CBCR Normal HVAC and Emergency Filtration System,” Section 4.4.1.

Comment:

JPM 7.

NOTES

- This section is written using Unit 1, Unit 2, and Common component designations. Some Unit 2 designations are shown in parentheses.
- If the TRAIN B CR FLTR UNIT SUPPLY FAN fails to start on actuation, the Train A Fan will start after a 30 second time delay.
- The TSC Air Filtration System will automatically start on manual initiation of Control Room Isolation.

ALB05-D05 GROUP 4 MONITOR LIGHT COMP OFF NORM

ALB39-D05 480V SWGR ANB30 TROUBLE

ALB50-B03 CR HI/LO DIFF PRESS

4.4.1.1 Manually initiate Control Room Isolation on Unit One:

a. Place either CR ISO MANUAL ACTUATION Switch in ACTUATE:

- 1-HS-12195A [A4] (TRAIN A) to ACTUATE.
- 1-HS-12196A [A6] (TRAIN B) to ACTUATE.

CUE: If requested, "The control room has been notified of the incoming annunciators."

NOTE TO EXAMINER: The simulator booth operator will acknowledge the annunciators in the at-the-controls area (those not on the QHVC panel).

Standard: Candidate reviews NOTES and rotates 1-HS-12195A and 1-HS-12196A to the ACTUATE position (green lights ON, red lights OFF) and determines CRI does NOT occur.

Comment:

***JPM 8.** **4.4.1.1** Manually initiate Control Room Isolation on Unit One:

b. Verify that TRAIN B CR FLTR UNIT SUPPLY FAN (LEAD), 1-1531-N7-002 [B10] starts.

Standard: **Candidate starts Train 'B' Control Room Filter Unit Supply Fan (lead) by placing 1-HS-12121 to START (green light OFF, red light ON).**

Comment:

JPM 9. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

c. Verify that TRAIN A CR FLTR UNIT SUPPLY FAN (STANDBY), 1-1531-N7-001 [B8] does NOT start.

Standard: Candidate determines Train 'A' Control Room Filter Unit Supply Fan (standby) is not running by checking 1-HS-12120 (green light ON, red light OFF).

Comment:

***JPM 10.** **4.4.1.1** Manually initiate Control Room Isolation on Unit One:

d. Verify that both KIT TOIL + CONF RM EXH ISO DMPRs close:

A-HV-12162 [D6], TRAIN A, CLOSED
A-HV-12163 [D7], TRAIN B, CLOSED

Standard: **Candidate closes exhaust isolation dampers by placing A-HV-12162 and A-HV-12163 to CLOSE (green lights ON, red lights OFF).** NOTE: These dampers are in series, so closing either damper meets the critical step.

Comment:

***JPM 11.** **4.4.1.1** Manually initiate Control Room Isolation on Unit One:

NOTES
• All positions in Step 4.4.1.1.e may be verified in any order.

e. Verify the following damper positions:

(1) CR NORM AIR SUPPLY ISO DMPRs:

1-HV-12146 [C6], TRAIN A CLOSED
2-HV-12146 [C6], TRAIN A CLOSED
1-HV-12147 [C7], TRAIN B CLOSED
2-HV-12147 [C7], TRAIN B CLOSED

CUE: "The Unit 2 UO verified 2-HV-12146 and 2-HV-12147 are closed."

Standard: **Candidate closes normal supply isolation damper by placing 1-HV-12146 to CLOSE (green light ON, red light OFF)** and checks 1-HV-12147 closed (green light ON, red light OFF). Candidate requests Unit 2 verify closed 2-HV-12146 and 2-HV-12147 (cue provided).

Comment:

***JPM 12.** **4.4.1.1** Manually initiate Control Room Isolation on Unit One:

e. Verify the following damper positions:

(2) CR NORM AIR RTN ISO DMPRs:

1-HV-12149 [E6], TRAIN A CLOSED
2-HV-12149 [E6], TRAIN A CLOSED
1-HV-12148 [E7], TRAIN B CLOSED
2-HV-12148 [E7], TRAIN B CLOSED

CUE: "The Unit 2 UO verified 2-HV-12149 and 2-HV-12148 are closed."

Standard: **Candidate closes normal return isolation damper by placing 1-HV-12149 to CLOSE (green light ON, red light OFF)** and checks 1-HV-12148 closed (green light ON, red light OFF). Candidate requests Unit 2 verify closed 2-HV-12149 and 2-HV-12148 (cue provided).

Comment:

JPM 13. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

f. Verify the following for the Filter Unit that started:

(1) If Train B Filter Unit, 1-1531-N7-002 [B10] started:

(a) Verify that the Train B CR FILTER UNIT OUTLET AIR DMPR, 1-HV-12129 [C11] OPEN.

Standard: Candidate verifies 1-HV-12129 is open on 1-HS-12129 (green light OFF, red light ON).

Comment:

JPM 14. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

f. Verify the following for the Filter Unit that started:

(1) If Train B Filter Unit, 1-1531-N7-002 [B10] started:

(b) Verify that the Train B CR RTN FAN INLET AIR DMPR on the running train, 1-HV-12131 [D10] OPEN.

Standard: Candidate verifies 1-HV-12131 is open on 1-HS-12131 (green light OFF, red light ON).

Comment:

JPM 15. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

f. Verify the following for the Filter Unit that started:

(1) If Train B Filter Unit, 1-1531-N7-002 [B10] started:

(c) Verify that the Train B CR NORMAL HVAC UNIT INTAKE ISO DMPR on the running train, A-HV-12152 [B7] CLOSED.

Standard: Candidate verifies A-HV-12152 is closed on 1-HS-12152 (green light ON, red light OFF).

Comment:

JPM 16. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

f. Verify the following for the Filter Unit that started:

(2) If Train A Filter Unit, 1-1531-N7-001 [B8] started:

Standard: Candidate determines Steps 4.4.1.1.f.(2)(a) – (c) are N/A.

Comment:

JPM 17. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

g. Verify that the CR NORM AC UNIT SUPPLY FANs shut down:

- A-1531-A7-001 [C4] STOPPED
- A-1531-A7-002 [C5] STOPPED

Standard: Candidate checks Normal Supply Fans are STOPPED on A-HS-12143 and A-HS-12144 (green lights ON, red lights OFF).

Comment:

JPM 18. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

h. Verify that the CR NORM AC UNIT EXH FANs shut down:

- A-1531-B7-009 [D4] STOPPED
- A-1531-B7-010 [D5] STOPPED

Standard: Candidate checks Normal Supply Fans are STOPPED on A-HS-12150 and A-HS-12151 (green lights ON, red lights OFF).

Comment:

JPM 19. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

i. Verify that the KITCH TOILET AND CONF RM EXH FAN, A-HS-12164, in the Shift AA's Office, stops.

CUE: "The Control Building Operator reports A-HS-12164's green light is LIT and the fan has stopped."

Standard: Candidate checks that the Kitchen, Toilet, and Conference Room exhaust fan is stopped.

Comment:

JPM 20. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

> NOTE
>
> If it is necessary to isolate outside air to the Control Room in the next step due to smoke or toxic gas intake, both the Unit 1 and Unit 2 dampers should be shut.

j. If Control Room outside air is restricted for Control Room habitability due to smoke or toxic gas intake, THEN close the CR Outside Air Supply Dampers for BOTH Units:

CUE: "There is no indication of smoke or toxic gas."

Standard: Candidate determines this step is N/A.

Comment:

JPM 21. 4.4.1.1 Manually initiate Control Room Isolation on Unit One:

k. Verify proper operation of the TSC Air Filtration System per 13303-C, "Technical Support Center and Central Alarm Station HVAC Systems."

CUE: "An extra operator will complete the procedure."

Standard: N/A

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-13301-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **The unit is at 100% power.**

Initiating Cue: **The Shift Supervisor has directed you to, "Assume the duties of the Unit Operator. Correctly diagnose plant conditions and complete any required corrective actions."**

Final JPM H

NRC Job Performance Measure "h"

Facility: Vogtle

Task No: V-LO-TA-32007

Task Title: Respond to High Containment Radiation

JPM No: V-NRC-JP-19253-HL19

K/A Reference: WE16EA1.1 RO 3.1 SRO 3.2

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

Initial Conditions: **Unit 1 was at 100% power when a LOCA occurred.**

After transition to 19010-C, "Loss of Reactor or Secondary Coolant," CSFSTs indicate a yellow path for Containment.

Initiating Cue: **The Shift Supervisor has directed you to, "Perform 19253-C, 'Response to High Containment Radiation Level.'"**

Task Standard:	Candidate manually aligns containment ventilation dampers and starts containment Pre-Access Filter Units per 19253-C, “Response to High Containment Radiation Level,” and 13125-1, “Containment Purge System.”
Required Materials:	19253-C, “Response to High Containment Radiation Level” (rev. 9) 13125-1, “Containment Purge System” (rev. 54)
General References:	None
Time Critical Task:	No
Validation Time:	12 minutes

SIMULATOR SETUP:

Reset to IC167 for HL-19 NRC Exam

Simulator Setup from Scratch:

1. Reset to IC14 (100% MOL)
2. Insert malfunctions ES19A and ES19B (failure of CVI)
3. Override handswitches 1HS-40004, 1HS-40005, 1HS-40006, 1HS-40009, 1HS-40010, and 1HS-40011 to NORMAL
4. Insert RC04A with a Final Value of 100%
5. Manually trip the reactor and actuate SI
6. Insert RM06 for high radiation in containment
7. Place 1HS-2548 and 1HS-2549, Piping Penetration Units, to START
8. Allow 1RE-002 and 1RE-003 to exceed 750 mrem/hour
9. Acknowledge / Reset alarms and freeze simulator

Setup time: 15 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Verify Containment Ventilation Isolation:

1.a. Dampers and Valves – CLOSED:

CVI MLB indication
-OR-
Reference ATTACHMENT 1 as necessary

NOTE TO EXAMINER: Candidate may attempt to actuate CVI using CIA/CVI handswitch 1HS-40006 or 1HS-40009, but CVI will not actuate.

NOTE TO EXAMINER: Candidate may align components in any order. JPM is written in the Attachment 1 order (copy is at the end of the JPM). The individual dampers and valves to be operated are listed in the subsequent steps of this JPM.

Standard: Candidates checks CVI MLB indication on the QMCB and recognizes that a CVI did not occur.

Comment:

***JPM 2. Verify Containment Ventilation Isolation:**

1.a. Dampers and Valves – CLOSED:

HV-12975 CNMT AIR RAD MON SPLY ISO IRC
HV-12976 CNMT AIR RAD MON SPLY ISO ORC

Standard: Candidate places the handswitches for 1HV-12975 and 1HV-12976 on the QPCP to CLOSE (green light ON, red light OFF). NOTE: These valves are in series, so closing either valve meets the critical step.

Comment:

***JPM 3.** **Verify Containment Ventilation Isolation:**

1.a. Dampers and Valves – CLOSED:

HV-12977 CNMT AIR RAD MON RTN ISO ORC
HV-12978 CNMT AIR RAD MON RTN ISO IRC

Standard: **Candidate places the handswitches for 1HV-12977 and 1HV-12978 on the QPCP to CLOSE (green light ON, red light OFF).** NOTE: These valves are in series, so closing either valve meets the critical step.

Comment:

JPM 4. Verify Containment Ventilation Isolation:

1.a. Dampers and Valves – CLOSED:

HV-2626A CTB NORM PURGE SPLY IRC ISO VLV-MAIN
HV-2627A CTB NORM PURGE SPLY ORC ISO VLV-MAIN

Standard: Candidate checks the handswitch status for 1HV-2626A and 1HV-2627A on the QHVC. NOTE: These dampers are de-energized closed when the unit is at power and diverse indication is available on the MLBs or IPC.

Comment:

JPM 5. Verify Containment Ventilation Isolation:

1.a. Dampers and Valves – CLOSED:

HV-2626B CTB NORM PURGE SPLY IRC ISO VLV-MINI
HV-2627B CTB NORM PURGE SPLY ORC ISO VLV-MINI

Standard: Candidate checks the handswitches for 1HV-2626B and 1HV-2627B on the QHVC indicate CLOSED (green light ON, red light OFF).

Comment:

JPM 6. Verify Containment Ventilation Isolation:

1.a. Dampers and Valves – CLOSED:

HV-2628A	CTB NORM PURGE SPLY IRC ISO VLV-MAIN
HV-2629A	CTB NORM PURGE SPLY ORC ISO VLV-MAIN

Standard: Candidate checks the handswitch status for 1HV-2628A and 1HV-2629A on the QHVC. NOTE: These dampers are de-energized closed when the unit is at power and diverse indication is available on the MLBs or IPC.

Comment:

JPM 7. Verify Containment Ventilation Isolation:

1.a. Dampers and Valves – CLOSED:

HV-2628B	CTB NORM PURGE SPLY IRC ISO VLV-MINI
HV-2629B	CTB NORM PURGE SPLY ORC ISO VLV-MINI

Standard: Candidate checks the handswitches for 1HV-2628B and 1HV-2629B on the QHVC indicate CLOSED (green light ON, red light OFF).

Comment:

JPM 8. Verify Containment Ventilation Isolation:

1.a. Dampers and Valves – CLOSED:

HV-2624A	CTB POST LOCA PURGE EXH IRC ISO VLV
HV-2624B	CTB POST LOCA PURGE EXH IRC ISO VLV

Standard: Candidate checks the handswitches for 1HV-2624A and 1HV-2624B on the QHVC indicate CLOSED (green light ON, red light OFF).

Comment:

***JPM 9.** **Verify Containment Ventilation Isolation:**

1.a. Dampers and Valves – CLOSED:

HV-12604 PIPING PEN RM OUTLET ISO DMPR
HV-12607 PIPING PEN RM OUTLET ISO DMPR

Standard: **Candidate places the handswitches for 1HV-12604 and 1HV-12607 on the QHVC to CLOSE (green light ON, red light OFF).** NOTE: These dampers are in series, so closing either damper meets the critical step.

Comment:

***JPM 10.** **Verify Containment Ventilation Isolation:**

1.a. Dampers and Valves – CLOSED:

HV-12605 PIPING PEN RM INLET ISO DMPR
HV-12606 PIPING PEN RM INLET ISO DMPR

Standard: **Candidate places the handswitches for 1HV-12605 and 1HV-12606 on the QHVC to CLOSE (green light ON, red light OFF).** NOTE: These dampers are in series, so closing either damper meets the critical step.

Comment:

***JPM 11. Verify Containment Ventilation Isolation:**

1.a. Dampers and Valves – CLOSED:

HV-12596 RECYCLE HOLD-UP TANK ISO VENT VLV
HV-12597 RECYCLE HOLD-UP TANK ISO VENT VLV

NOTE TO EXAMINER: Attachment 1 is complete at this time.

Standard: Candidate places the handswitches for 1HV-12596 and 1HV-12597 on the QHVC to CLOSE (green light ON, red light OFF). NOTE: These valves are in series, so closing either valve meets the critical step.

Comment:

JPM 12. 2. Check Piping Penetration Filtration and Exhaust Units – BOTH RUNNING.

Standard: Candidate checks the Piping Penetration Filtration and Exhaust Units are running using handswitches 1HS-2548 and 1HS-2549 on the QHVC (green lights OFF, red lights ON).

Comment:

JPM 13. 3. Place the Containment Preaccess Filter units in service by initiating 13125-1, "Containment Purge System."

Standard: Candidate selects Section 4.2 of 13125-1 to place the Containment Preaccess Filter units in service.

Comment:

***JPM 14.**

NOTE TO EXAMINER: The following steps are from 13125-1, "Containment Purge System."

4.2 System Operation

4.2.1 Preaccess Filter Unit Operation

NOTE
The Containment Coordinator should be notified prior to start if filters are to be started as part of outage activities.

4.2.1.1 As directed by SS, start one OR both Preaccess Filter Unit Fans:

- **1-HS-2620 for Fan 1 (A30)**
- **1-HS-2621 for Fan 2 (C30)**

Cue: "The Shift Supervisor directs the start of both Preaccess Filter Unit Fans."

Standard: Candidate starts both Preaccess Filter Unit Fans by placing handswitches 1-HS-2620 and 1-HS-2621 to START (green lights OFF, red lights ON).

Comment:

JPM 15. 4.2.1.2 WHEN containment airborne cleanup is no longer required, stop the Preaccess Filter Unit Fans:

- 1-HS-2620 for Fan 1 (A30)
- 1-HS-2621 for Fan 2 (C30)

Standard: N/A

Comment:

JPM 16.

NOTE TO EXAMINER: The following steps are from 19253-C, “Response to High Containment Radiation Level.”

4. Notify TSC of Containment radiation level to obtain recommended action.

Cue: ***If requested, “The Shift Supervisor will notify the TSC of containment radiation levels.”***

Standard: Candidate ensures the TSC is notified of radiation levels.

Comment:

JPM 17. 5. Return to procedure and step in effect.

Standard: Candidate notifies the Shift Supervisor of procedure completion.

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Attachment 1

CONTAINMENT VENTILATION ISOLATION

PLANT COMPUTER POINT	VALVE (LOCATION) UNIT 1	VALVE (LOCATION) UNIT 2	DESCRIPTION
ZD9044	HV-12975 (CNMT)	HV-12975 (CNMT)	*CNMT AIR RAD MON SPLY ISO IRC
ZD9046	HV-12976 (AB-B08)	HV-12976 (AB-B131)	*CNMT AIR RAD MON SPLY ISO ORC
ZD9048	HV-12977 (AB-B08)	HV-12977 (AB-B131)	*CNMT AIR RAD MON RTN ISO ORC
ZD9050	HV-12978 (CNMT)	HV-12978 (CNMT)	*CNMT AIR RAD MON RTN ISO IRC
ZD9204	HV-2626A (CNMT)	HV-2626A (CNMT)	**CTB NORM PURGE SPLY IRC ISO VLV-MAIN
ZD9208	HV-2627A (EB-125)	HV-2627A (EB-125)	**CTB NORM PURGE SPLY ORC ISO VLV-MAIN
ZD9206	HV-2626B (CNMT)	HV-2626B (CNMT)	**CTB NORM PURGE SPLY IRC ISO VLV-MINI
ZD9210	HV-2627B (EB-125)	HV-2627B (EB-125)	**CTB NORM PURGE SPLY ORC ISO VLV-MINI
ZD9212	HV-2628A (CNMT)	HV-2628A (CNMT)	**CTB NORM PURGE EXH IRC ISO VLV-MAIN
ZD9216	HV-2629A (EB-117)	HV-2629A (EB-116)	**CTB NORM PURGE EXH ORC ISO VLV-MAIN
ZD9214	HV-2628B (CNMT)	HV-2628B (CNMT)	**CTB NORM PURGE EXH IRC ISO VLV-MINI
ZD9218	HV-2629B (EB-117)	HV-2629B (EB-116)	**CTB MINI PURGE EXH ORC ISO VLV-MINI
ZD9236	HV-2624A (CNMT)	HV-2624A (CNMT)	**CTB POST LOCA PURGE EXH IRC ISO VLV
ZD9238	HV-2624B (CNMT)	HV-2624B (CNMT)	**CTB POST LOCA PURGE EXH IRC ISO VLV
ZD9583	HV-12604 (AB-209)	HV-12604 (AB-220)	**PIPING PEN RM OUTLET ISO DMPR
ZD9587	HV-12605 (AB-209)	HV-12605 (AB-220)	**PIPING PEN RM INLET ISO DMPR
ZD9589	HV-12606 (AB-209)	HV-12606 (AB-220)	**PIPING PEN RM INLET ISO DMPR
ZD9585	HV-12607 (AB-209)	HV-12607 (AB-220)	**PIPING PEN RM OUTLET ISO DMPR
NONE***	HV-12596 (AB-C83 Above Block Out To Tank)	HV-12596 (AB-C49 Above Block Out To Tank)	**RECYCLE HOLD-UP TANK ISO VENT VLV
NONE***	HV-12597 (AB-C83 Above Block Out To Tank)	HV-12597 (AB-C49 Above Block Out To Tank)	**RECYCLE HOLD-UP TANK ISO VENT VLV

* HANDSWITCH ON QPCP
** HANDSWITCH ON QHVC
*** USE QHVC INDICATION IF AVAILABLE OR LOCALLY VERIFY

Verification of Completion

Job Performance Measure No.: V-NRC-JP-19253-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **Unit 1 was at 100% power when a LOCA occurred.**

After transition to 19010-C, "Loss of Reactor or Secondary Coolant," CSFSTs indicate a yellow path for Containment.

Initiating Cue: **The Shift Supervisor has directed you to, "Perform 19253-C, 'Response to High Containment Radiation Level.'"**

Final JPM I

NRC Job Performance Measure "i"

Facility: Vogtle

Task No: V-LO-TA-60040

Task Title: Place Train 'B' Battery Charger 1BD1CA in Service

JPM No: V-NRC-JP-13405-HL19

K/A Reference: 058AA1.03 RO 3.1 SRO 3.3

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

The recommended starting point for this JPM is adjacent to the main HP Control Point. The candidates will be sequestered in the TSC or OSC.

Initial Conditions: **Unit 1 experienced a loss of 1BD1 due to a fault on the bus, and the crew is performing the actions of 18034-1, "Loss of Class 1E 125 VDC Power."**

The faulted load was removed from 1BD1.

Battery 1BD1B has been restored to service.

No 'B' Train Battery Charger is in service.

Initiating Cue: **The Shift Supervisor has directed you to place Battery Charger 1BD1CA in service using 13405-1, "125 VDC 1E Electrical Distribution System."**

Task Standard:	Candidate places Battery Charger 1BD1CA in service using 13405-1.
Required Materials:	13405-1, “125 VDC 1E Electrical Distribution System” (rev. 48)
Time Critical Task:	No
Validation Time:	12 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Section 4.1.4 of 13405-1, "125 VDC 1E Electrical Distribution System," is selected to place Train 'B' battery charger 1BD1CA in service.

Standard: Candidate selects Section 4.1.4 of 13405-1, "125 VDC 1E Electrical Distribution System."

Comment:

JPM 2. 4.1.4 Placing Train B Battery Charger 1BD1CA or 1BD1CB in Service

NOTES

- Both Battery Chargers should be in service when the batteries are tied to the bus. Load will be equalized by load sharing circuitry.
- Load sharing is verified by observing both chargers output current (Amps) indicating some nominal value.
- The SS should be notified if amps are not indicated on BOTH chargers.
- ALB34-B04 may be received while performing this section.

CUE: If requested, "Shift Supervisor has been notified."

4.1.4.1 To place charger 1BD1CA in service, perform the following:

a. Check if the Battery Breaker 1BD1-01 is closed. If the Battery Breaker is not closed, do not start a second Battery Charger.

CUE: If requested, "CV request noted."

NOTE TO EXAMINER: The breaker should be closed during the JPM, but if not, cue with the indications listed below.

Standard: Candidate reviews NOTES and checks closed 1BD1-01 using available indications (on HS-1BD101 red light ON, green light OFF, red flag visible or CLOSED flag visible on face of breaker).

Comment:

JPM 3. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

b. At charger 1BD1CA verify:

- Battery Charger AC Input, open
- DC Output Breaker, open

CUE: Indicate breaker switches are in the OFF position (down).

NOTE TO EXAMINER: The breakers were left in the open position when the charger was previously removed from service.

Standard: Candidate checks Battery Charger AC Input and DC Output Breakers are open (switches in the OFF position).

Comment:

JPM 4. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

c. Verify the Battery Charger 1BD1CA 480 VAC SUPPLY Breaker 1BBA-04 is CLOSED.

CUE: Indicate breaker switch is in the ON position (up).

NOTE TO EXAMINER: 1BBA is on Level 3 of the Control Building. The breaker was left in the closed position when the charger was previously removed from service.

Standard: Candidate checks breaker 1BBA-04 is closed (switch in the ON position).

Comment:

JPM 5. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

d. IF Battery Charger 1BD1CB is already in service on switchgear 1BD1, verify the following:

- Battery Charger 1BD1CB "Float" lamp is illuminated.

CUE: If 1BD1CB status is requested, "Refer to initial conditions."

CUE: If 1BD1CB 'Float' lamp is checked, "Lamp is NOT illuminated."

Standard: Candidate checks Battery Charger 1BD1CB is not in service or checks 'Float' lamp not illuminated.

Comment:

JPM 6. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

e. Verify 125 VDC Switchgear 1BD1 bus voltage is less than or equal to 135 VDC.

CUE: When candidate checks 1BD1 BUS VOLTS meter in the POS TO NEG switch position, indicate 130 VDC. If in the POS TO GND or NEG TO GND switch position, indicate 65 VDC.

Standard: Candidate checks 1BD1 bus voltage is less than or equal to 135 VDC on BUS VOLTS meter.

Comment:

***JPM 7.** **4.1.4.1 To place charger 1BD1CA in service, perform the following:**

f. Open Battery Charger 1BD1CA 125 VDC Switchgear Breaker, 1BD1-07 using handswitch HS-1BD107.

CUE: If performed correctly, for HS-1BD107 indicate flag is green, red light is OFF, and green light is ON. Green tripped indicator is visible on the breaker.

Standard: **Candidate opens breaker 1BD1-07 by turning handswitch HS-1BD107 to TRIP (counterclockwise).**

Comment:

***JPM 8.** **4.1.4.1 To place charger 1BD1CA in service, perform the following:**

g. Close Battery Charger 1BD1CA AC Input Breaker.

NOTE TO EXAMINER: When closed, breaker is in the ON (up) position.

CUE: After closing breaker, if candidate checks 'AC Available' lamp, "Lamp is illuminated."

Standard: **Candidate closes 1BD1CA AC Input Breaker by placing it in the ON (up) position.**

Comment:

JPM 9. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

h. Check “AC Available” lamp illuminated.

CUE: “Lamp is illuminated.”

Standard: Candidate checks “AC Available” lamp is illuminated.

Comment:

JPM 10. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

i. Check “Float” Lamp illuminated.

CUE: “Lamp is illuminated.”

Standard: Candidate checks “Float” lamp is illuminated.

Comment:

JPM 11. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

NOTE
The charger output voltage will overshoot slightly, but will eventually stabilize near float value.

j. Verify proper Battery Charger operation by observing the charger voltmeter has stabilized between 130 and 135 VDC.

NOTE TO EXAMINER: The charger voltmeter is the meter on the right. It has a digital number readout and illuminated "bars" around the outside similar to a speedometer indicating voltage (the same value on the bar as the digital number).

CUE: When candidate checks charger voltmeter, indicate 134 VDC.

Standard: Candidate checks charger voltmeter stabilizes between 130 and 135 VDC.

Comment:

***JPM 12. 4.1.4.1 To place charger 1BD1CA in service, perform the following:**

k. Close Battery Charger 1BD1CA DC Output Breaker.

NOTE TO EXAMINER: When closed, breaker is in the ON (up) position.

Standard: Candidate closes 1BD1CA DC Output Breaker by placing it in the ON (up) position.

Comment:

JPM 13. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

> NOTE
>
> If the Closing Springs were not charged, they would have begun charging when Battery Charger 1BD1CA DC Output Breaker was closed.

l. If applicable, verify Charging Spring Motor stopped and charging spring indication on breaker 1BD1-07 indicates Charged.

CUE: When candidate looks at breaker 1BD1-07 closing spring indication, "Charging spring motor has stopped and the 'Charged' indicator is visible."

Standard: Candidate verifies 1BD1-07 closing springs are charged by checking 'Charged' indicator.

Comment:

JPM 14. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

m. Verify the battery charger voltmeter has stabilized between 130 and 135 VDC.

CUE: When candidate checks charger voltmeter, indicate 134 VDC.

Standard: Candidate checks charger voltmeter stabilizes between 130 and 135 VDC.

Comment:

***JPM 15. 4.1.4.1 To place charger 1BD1CA in service, perform the following:**

CAUTION
Closing 1BD1-07 in the next step prior to the Charging Spring Motor stopping and charging spring indication on breaker 1BD1-07 indicating Charged, may result in an incorrect charging spring indication on the breaker. If this occurs the charger must be removed from service and the process to place it in service repeated.

n. Close 1BD1-07 Battery Charger 125 VDC Switchgear Breaker using handswitch HS-1BD107.

CUE: If performed correctly, for HS-1BD107 indicate flag is red, red light is ON, and green light is OFF. Red closed indicator is visible on the breaker.

Standard: Candidate closes breaker 1BD1-07 by turning handswitch HS-1BD107 to CLOSE (clockwise).

Comment:

JPM 16. 4.1.4.1 To place charger 1BD1CA in service, perform the following:

NOTE
If initial battery voltage is low due to discharging for some period, it may require several minutes before voltage increases to greater than 130 VDC.

o. Verify the 125 VDC switchgear voltage increases to greater than 130 VDC as observed on the 125 VDC Switchgear 1BD1 Voltmeter. (IV REQUIRED). Document on Checklist 1.

NOTE TO EXAMINER: Checklist 1 is used for recording Independent Verifications and is included in the candidate's procedure.

CUE: "IV request noted."

CUE: When candidate checks 1BD1 BUS VOLTS meter in the POS TO NEG switch position, indicate 135 VDC. If in the POS TO GND or NEG TO GND switch position, indicate 65 VDC.

Standard: Candidate checks that 1BD1 voltmeter indicates greater than 130 VDC.

Comment:

STOP TIME: _____

Terminating cue: Student returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-13405-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **Unit 1 experienced a loss of 1BD1 due to a fault on the bus, and the crew is performing the actions of 18034-1, "Loss of Class 1E 125 VDC Power."**

The faulted load was removed from 1BD1.

Battery 1BD1B has been restored to service.

No 'B' Train Battery Charger is in service.

Initiating Cue: **The Shift Supervisor has directed you to place Battery Charger 1BD1CA in service using 13405-1, "125 VDC 1E Electrical Distribution System."**

Final JPM J

NRC Job Performance Measure "j"

Facility: Vogtle

Task No: V-LO-TA-60047

Task Title: Locally Energize Train 'A' Switchgear and Loads Following Local Diesel Start

JPM No: V-NRC-JP-18038-HL19

K/A Reference: 068AA1.21 RO 3.9 SRO 4.1

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

The recommended starting point for this JPM is adjacent to the main HP Control Point. The candidates will be sequestered in the TSC or OSC.

Initial Conditions: **The Unit 2 control room has been evacuated due to a fire, and the crew has entered 18038-2, "Operation from Remote Shutdown Panels."**

A Safety Injection has occurred.

Local control has been established at the Shutdown Panels.

Local control has NOT been established at 2AA02, and it is de-energized.

Operators have locally started DG2A using 18038-2, Attachment B, Steps 1 thru 11.

Initiating Cue: **The Shift Supervisor has directed you to continue restoration of Unit 2, Train A, 4160 VAC and 480 VAC buses and loads by performing Steps 12, 13, and 14 of 18038-2, "Operation from Remote Shutdown Panels," Attachment B.**

Task Standard:	Candidate locally energizes Unit 2, Train A, 4160 VAC and 480 VAC buses and starts two NSCW pumps and one AFW pump using Attachment B of 18038-2.
Required Materials:	18038-2, “Operation from Remote Shutdown Panels,” Attachment B (rev. 26.5)
General References:	None
Time Critical Task:	No
Validation Time:	12 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Sheet 2 of 10 from 18038-2, “Operation from Remote Shutdown Panels,” Attachment B, is selected.

NOTE TO EXAMINER: Sheet 6 of 10 in Attachment B is for loading 2BA03 and also contains steps with the same numbering.

Standard: Candidate selects Sheet 2 of 10 from 18038-2, “Operation from Remote Shutdown Panels,” Attachment B.

Comment:

JPM 2.

NOTES

- Undervoltage protection on 1E 4160V switchgear is bypassed when in local operation.
- The generator output current should be monitored not to exceed a steady state current of 1214 amps to prevent DG overloading while operating from the local control panel.

At 2AA02 local control panel (CB-A16):

12.a. Transfer HS-2AA0205B to LOCAL.

NOTE TO EXAMINER: Breaker would already be open due to the U/V on the bus.

CUE: If requested after handswitch is taken to LOCAL, “HS-2AA0205A handswitch flag is green, red light is OFF, and green light is ON.”

Standard: Candidate places HS-2AA0205B in LOCAL (clockwise).

Comment:

JPM 3. At 2AA02 local control panel (CB-A16):

12.b. Place HS-2AA0205A, PREF NORM INCM BRKR to TRIP.

NOTE TO EXAMINER: Breaker would already be open due to the U/V on the bus, but operating the handswitch is expected.

CUE: "HS-2AA0205A handswitch flag is green, red light is OFF, and green light is ON."

Standard: Candidate places HS-2AA0205A to TRIP (counterclockwise).

Comment:

***JPM 4. At 2AA02 local control panel (CB-A16):**

12.c. Transfer HS-2AA0219B control to LOCAL.

CUE: If requested after handswitch is taken to LOCAL, "HS-2AA0219A handswitch flag is green, red light is OFF, and green light is ON."

Standard: Candidate places HS-2AA0219B in LOCAL (clockwise).

Comment:

***JPM 5.** **At 2AA02 local control panel (CB-A16):**

12.d. Place HS-2AA0219A, DIESEL GEN BRKR to CLOSE.

CUE: When handswitch is taken to CLOSE, "HS-2AA0219A handswitch flag is red, red light is ON, and green light is OFF."

Standard: **Candidate places HS-2AA0219A to CLOSE (clockwise).**

Comment:

***JPM 6.** **At 2AA02 local control panel (CB-A16):**

13.a. Transfer HS-2AA0210B to LOCAL.

CUE: If requested after handswitch is taken to LOCAL, "HS-2AA0210A handswitch flag is green, red light is OFF, and green light is ON."

Standard: **Candidate places HS-2AA0210B in LOCAL (clockwise).**

Comment:

***JPM 7.** **At 2AA02 local control panel (CB-A16):**

13.b. Place HS-2AA0210A to CLOSE.

CUE: ***When handswitch is taken to CLOSE, "HS-2AA0210A handswitch flag is red, red light is ON, and green light is OFF."***

Standard: **Candidate places HS-2AA0210A to CLOSE (clockwise).**

Comment:

***JPM 8.** **At 2AA02 local control panel (CB-A16):**

13.c. Transfer HS-2AA0220B to LOCAL.

CUE: ***If requested after handswitch is taken to LOCAL, "HS-2AA0220A handswitch flag is green, red light is OFF, and green light is ON."***

Standard: **Candidate places HS-2AA0210B in LOCAL (clockwise).**

Comment:

***JPM 9.** **At 2AA02 local control panel (CB-A16):**

13.d. Place HS-2AA0220A to CLOSE.

CUE: ***When handswitch is taken to CLOSE, "HS-2AA0220A handswitch flag is red, red light is ON, and green light is OFF."***

Standard: **Candidate places HS-2AA0220A to CLOSE (clockwise).**

Comment:

***JPM 10.** **At 2AA02 local control panel (CB-A16):**

13.e. Transfer HS-2AA0221B to LOCAL.

CUE: ***If requested after handswitch is taken to LOCAL, "HS-2AA0221A handswitch flag is green, red light is OFF, and green light is ON."***

Standard: **Candidate places HS-2AA0221B in LOCAL (clockwise).**

Comment:

***JPM 11.** **At 2AA02 local control panel (CB-A16):**

13.f. Place HS-2AA0221A to CLOSE.

CUE: ***When handswitch is taken to CLOSE, "HS-2AA0221A handswitch flag is red, red light is ON, and green light is OFF."***

Standard: **Candidate places HS-2AA0221A to CLOSE (clockwise).**

Comment:

***JPM 12.** **At 2AA02 local control panel (CB-A16):**

13.g. Transfer HS-2AA0222B to LOCAL.

CUE: ***If requested after handswitch is taken to LOCAL, "HS-2AA0222A handswitch flag is green, red light is OFF, and green light is ON."***

Standard: **Candidate places HS-2AA0222B in LOCAL (clockwise).**

Comment:

***JPM 13. At 2AA02 local control panel (CB-A16):**

NOTE
Pressing the Safety Injection Trip Override pushbutton may be required to perform the next step.

13.h. Place HS-2AA0222A to CLOSE.

NOTE TO EXAMINER: Pushbutton is above HS-2AA0219B and is labeled "SAFETY INJ TRIP OVERRIDE". The pushbutton must be depressed in order to close breaker 2AA02-22 (stub bus).

CUE: If SI status requested, "Refer to Initial Conditions."

CUE: After override pushbutton is depressed and handswitch is taken to CLOSE, "HS-2AA0222A handswitch flag is red, red light is ON, and green light is OFF."

Standard: **Candidate depresses the Safety Injection Trip Override pushbutton and then places HS-2AA0222A to CLOSE (clockwise).** NOTE: Pushbutton does not have to be held in while closing HS-2AA0222A.

Comment:

***JPM 14. At the Remote Shutdown Panels:**

14.a. Start two Nuclear Service Water pumps on the affected bus.

NOTE TO EXAMINER: Shutdown Panel 'A' control switches have already been taken to LOCAL (initial conditions), so operation of the LOCAL / REMOTE handswitches is not required. Candidate may start any two Train 'A' NSCW pumps (pumps #1, 3, and 5).

CUE: BEFORE pump is started, "Handswitch flag is green, red light is OFF, and green light is ON."

CUE: AFTER handswitch is taken to START, "Handswitch flag is red, red light is ON, and green light is OFF."

Standard: Candidate starts two Train 'A' NSCW pumps using handswitches 2HS-1602B, 2HS-1634B, and/or 2HS-1608B.

Comment:

***JPM 15. At the Remote Shutdown Panels:**

14.b. Start AFW pump on the affected bus.

NOTE TO EXAMINER: Shutdown Panel 'A' control switches have already been taken to LOCAL (initial conditions), so operation of the LOCAL / REMOTE handswitches is not required.

CUE: BEFORE pump is started, "Handswitch flag is green, red light is OFF, and green light is ON."

CUE: AFTER handswitch is taken to START, "Handswitch flag is red, red light is ON, and green light is OFF."

Standard: Candidate starts Train 'A' AFW pump using handswitch 2HS-5131B.

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-18038-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

Initial Conditions: **The Unit 2 control room has been evacuated due to a fire, and the crew has entered 18038-2, "Operation from Remote Shutdown Panels."**

A Safety Injection has occurred.

Local control has been established at the Shutdown Panels.

Local control has NOT been established at 2AA02, and it is de-energized.

Operators have locally started DG2A using 18038-2, Attachment B, Steps 1 thru 11.

Initiating Cue: **The Shift Supervisor has directed you to continue restoration of Unit 2, Train A, 4160 VAC and 480 VAC buses and loads by performing Steps 12, 13, and 14 of 18038-2, "Operation from Remote Shutdown Panels," Attachment B.**

Final JPM K

NRC Job Performance Measure "k"

Facility: Vogtle

Task No: V-LO-TA-46004

Task Title: Respond to 1-RE-0018 Alarm During a Liquid Radwaste Release

JPM No: V-NRC-JP-17213-HL19

K/A Reference: 059AA2.05 RO 3.6 SRO 3.9

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

Read to the examinee:

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

The recommended starting point for this JPM is adjacent to the main HP Control Point. The candidates will be sequestered in the TSC or OSC.

Initial Conditions: **Unit 1 is performing a liquid radwaste release from Waste Monitor Tank #10.**

Annunciator ALB05-A01, LIQUID PROCESS PANEL TROUBLE, is in alarm in the Unit 1 Control Room.

Initiating Cue: **The Shift Supervisor has directed you to, "Respond to the Unit 1 Waste Process Liquid Panel (PLPP) and take all appropriate actions per 17213-1, 'Annunciator Response Procedures for ALB on Waste Process Liquid Panel (PLPP).'"**

Task Standard:	Candidate determines that 1-RE-0018 is in high alarm and 1-RV-0018 did not automatically isolate as expected, so the candidate manually isolates the liquid radioactive release.
Required Materials:	Cue Sheets for PLPP Rad Monitor reading and Annunciator Window 17213-1, “Annunciator Response Procedures for ALB on Waste Process Liquid Panel (PLPP)” (pages 1-4, 10) (rev. 10.1) RWP reviewed and proper dosimetry for an RCA entry
General References:	None
Time Critical Task:	No
Validation Time:	10 minutes

Performance Information

Critical steps denoted with an asterisk and bolded.

START TIME: _____

JPM 1. Candidate reports to the Waste Process Liquid Panel (PLPP) to determine cause of alarm.

CUE: When candidate looks at the PLPP annunciator windows, provide Cue Sheet showing window A04, WATER DISCHARGE LINE HI RAD, is illuminated.

NOTE TO EXAMINER: When candidate locates procedure 17213-1 at the PLPP, provide the exam copy for use.

Standard: Candidate identifies cause of alarm on the PLPP.

Comment:

JPM 2. 17213-1, “Annunciator Response Procedures for ALB on Waste Process Liquid Panel (PLPP),” is entered for annunciator window A04.

Standard: Candidate enters 17213-1, “Annunciator Response Procedures for ALB on Waste Process Liquid Panel (PLPP),” for annunciator window A04.

Comment:

JPM 3. 1.0 PROBABLE CAUSE

Radiation level above setpoint.

CUE: If candidate looks at the PLPP rad monitor reading, 1RI-0018, provide Cue Sheet showing digital readout.

CUE: Though not expected, if candidate looks at the DPM (at end of hallway, not at PLPP), provide Cue Sheet showing DPM readout and red HIGH alarm light lit.

Standard: Candidate reviews probable cause for alarm.

Comment:

JPM 4. 2.0 AUTOMATIC ACTIONS

Valve 1-RV-0018 closes.

NOTE TO EXAMINER: Candidate may attempt to close 1-RV-0018 at this time as a verification of an automatic action that should have occurred.

CUE: If candidate checks 1-RV-0018 handswitch status, "Red light ON, green light OFF."

CUE: If candidate attempts to close 1-RV-0018 with the handswitch, "Red light ON, green light OFF."

CUE: If candidate attempts to manually close 1-RV-0018 (locally), "Valve will not close."

Standard: Candidate checks 1-HS-0018 indication and determines 1-RV-0018 is open.

Comment:

JPM 5. 3.0 INITIAL OPERATOR ACTIONS

NONE

Standard: N/A

Comment:

JPM 6. 4.0 SUBSEQUENT OPERATOR ACTIONS

1. Verify 1-RV-0018 is closed and the release stopped using 1-HS-0018 on PLPP.

CUE: When candidate checks 1-RV-0018 handswitch status, "Red light ON, green light OFF."

CUE: When candidate attempts to close 1-RV-0018 with the handswitch, "Red light ON, green light OFF."

Standard: Candidate places 1-HS-0018 in CLOSE to isolate the release and determines the valve will not close.

Comment:

***JPM 7.** **4.0 SUBSEQUENT OPERATOR ACTIONS**

2. IF 1-RV-0018 will NOT close, verify closed the following:

a. 1-1901-U4-175.

NOTE TO EXAMINER: Valves would NOT be closed and locked during a liquid release, so discussion of key retrieval is not necessary.

NOTE TO EXAMINER: Location of valve (room 1-AB-D-59) is not given in 17213-1. Radiological conditions allow entry into the room for the JPM.

Standard: **Candidate locates and closes 1-1901-U4-175 (handwheel turned fully clockwise).**

Comment:

***JPM 8.** **4.0 SUBSEQUENT OPERATOR ACTIONS**

2. IF 1-RV-0018 will NOT close, verify closed the following:

b. A-1901-U4-239.

NOTE TO EXAMINER: Location of valve (room 1-AB-D-59) is not given in 17213-1. Radiological conditions allow entry into the room for the JPM.

Standard: **Candidate locates and closes A-1901-U4-239 (handwheel turned fully clockwise).**

Comment:

JPM 9. 4.0 SUBSEQUENT OPERATOR ACTIONS

3. Request the Control Room to verify high alarm at the Radiation Monitoring System Communications Console per 17100-1, "Annunciator Response Procedures For The Process And Effluent Radiation Monitoring System (RMS)."

CUE: When requested, "The Shift Supervisor will verify the high alarm."

Standard: Candidate requests that the Control Room verify the high alarm.

Comment:

JPM 10. 4.0 SUBSEQUENT OPERATOR ACTIONS

4. Notify Chemistry of the alarm and stopping of the release.

CUE: When requested, "Chemistry has been notified of the alarm and stopping of the release."

Standard: Candidate notifies Chemistry of the alarm and release stoppage.

Comment:

JPM 11. 4.0 SUBSEQUENT OPERATOR ACTIONS

5. Refer to the requirements of the ODCM Manual.

CUE: "An extra operator will review the ODCM."

Standard: Candidate initiates the ODCM review.

Comment:

JPM 12. 5.0 COMPENSATORY OPERATOR ACTIONS

NONE

Standard: N/A

Comment:

STOP TIME: _____

Terminating cue: Candidate returns initiating cue sheet.

Verification of Completion

Job Performance Measure No.: V-NRC-JP-17213-HL19

Examinee's Name:

Examiner's Name:

Date Performed:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: _____
_____
_____

Response: _____
_____
_____
_____

Result: Satisfactory / Unsatisfactory

Examiner's signature and date: _____ _____

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	REACTOR COOLANT DRAIN TANK HI-LO LEVEL	REACTOR COOLANT DRAIN TANK HI TEMP	REACTOR COOLANT DRAIN TANK HI PRESS	WATER DISCHARGE LINE HI RAD	LAUNDRY, HOT SHOWER TANK HI-LO LEVEL	WASTE MONITOR TANK NO. 13 HI-LO LEVEL	SPENT RESIN STORAGE TANK HI-LO LEVEL	WASTE MONITOR TANK NO. 1 HI-LO LEVEL
B	REACTOR COOLANT DRAIN TANK RECIRC LO FLOW	WASTE MONITOR TANK NO. 12 HI-LO LEVEL		WASTE HOLDUP TANK HI-HI LEVEL	WASTE HOLDUP TANK HI-LO LEVEL	WASTE EVAPORATOR CONDENSATE TANK HI-LO LEVEL	CHEMICAL DRAIN TANK HI-LO LEVEL	WASTE MONITOR TANK NO. 2 HI-LO LEVEL
C			FLOOR DRAIN TANK HI-LO LEVEL		SPENT RESIN SLUICE DISCHARGE LO FLOW	SPENT RESIN STORAGE TANK HI PRESS	ANNUNCIATOR GROUND DETECTOR	DC POWER FAILURE

+ 9.3 E + 04
CAUTION
DOWN POWERING DPM CAN EFFECT OTHER CHANNELS
S.S.NOTIFICATION REQUIRED BEFORE DOWN POWERING DPM.
POWERING DOWN DPM-RX018 RADWASTE EFFLUENT
EFFECTS-FT018,REC018

+ 9.3 E + 04
µCi/cm 3
CLEAN WASTE DISCH
RAD MONITOR
IRI-0018
LIQUID
EFFLUENT
MONITOR

Initial Conditions: **Unit 1 is performing a liquid radwaste release from Waste Monitor Tank #10.**

Annunciator ALB05-A01, LIQUID PROCESS PANEL TROUBLE, is in alarm in the Unit 1 Control Room.

Initiating Cue: **The Shift Supervisor has directed you to, "Respond to the Unit 1 Waste Process Liquid Panel (PLPP) and take all appropriate actions per 17213-1, 'Annunciator Response Procedures for ALB on Waste Process Liquid Panel (PLPP).'"**