1 ID: N-ILT-1540-3-011 Points: 1.00

- Unit 2 is operating at 95% power.
- A recirculation flow reduction event results in entry into Region 2 of the Power to Flow Map.

After the flow reduction event and core flow first reaches its lowest flowrate, which of the following instrumentation responses is used to determine if the reactor core is experiencing thermal hydraulic instability?

A. Peak-to-peak oscillations on RBM are 10% and growing larger.

B. Peak-to-peak oscillations on APRMs are 10% to 12% and their magnitude is growing larger.

C. Oscillations on WRNMs and short period alarms are received on a 10 to 20 second frequency.

D. Steady confirmation counts on the OPRM display with no repetitive "OPRM PRE-TRIP" alarms.

Answer: B

## Question 1 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-3-011 Unit 2 is operating at 95% power when a recirculation flow reduction event results |
| System ID: | 1268 |
| User ID: | N-ILT-1540-3-011 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295001.AA2.02 |
| User Text: | |
| User Number 1: | 0.00 |
| *User Number 2:* | *0.00* |
| Comment: | Importance: RO 3.1 / SRO 3.2<br>Cognitive_Level: Memory<br><br>References: OT-112 |

Justification:

A. Incorrect - RBM not referenced as a nuclear monitoring instrument for THI.

B. Correct - Core Thermal Hydraulic Instability (THI) may be occurring if any of the following conditions exist: *Steadily increasing confirmation counts on OPRM display with few to no resets. * Any APRM flux noise signal grows by 2 or more times its initial level, * APRM flux oscillations rise greater than or equal to 10% (peak to peak).

C. Incorrect - No reference to period indication as a nuclear monitoring instrument for THI.

*D. Incorrect - Steadily increasing confirmation* counts on OPRM display causing repetitive "OPRM Pre-trip Condition" alarms is indication of THI.

**2** **ID: N-ILT-5057-6A-003** **Points: 1.00**

- A Station Blackout has occurred.

Personnel will operate equipment to shed DC loads in accordance with SE-11, "Loss of Off-Site Power", Attachment T, "DC Load Shed" in order to:

A. provide sufficient long-term power for all Main Control Room annunciators.

B. ensure sufficient DC load capacity to allow for up to 8 hours operability of the HPCI system.

C. ensure power to equipment required for adequate core cooling and restoration of AC power.

D. provide continued Main Control Room Emergency Ventilation control power up to 8 hours after the total loss of AC.

Answer: C

**Question 2 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5057-6A-003 A Station Blackout has occurred. In accordance with SE-11, "Loss of Off-Site Powe |
| System ID: | 1269 |
| User ID: | N-ILT-5057-6A-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295003AA1.04 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.6 / SRO 3.7<br>Cognitive_Level: Memory |

References: SE-11, DBD P-S-01A, P-T-13"Station Blackout"

Justification:

A. Incorrect - Only selected MCR annunciators are left with DC power. The remainder will be shed per SE-11, Attachment T.

B. Incorrect - Even if a DC load shed is initiated immediately after the loss of power, then battery life may be extended beyond 4 hours, but not as long as 8 hours. The inaccurate 8 hour time frame is used as a plausible distracter for any examinee who does not recall 2 or 4 hour battery limits under station blackout conditions.

C. Correct - Per SE-11 Bases the DC Load Shed on non-essential loads is to assume enough power for equipment such as ECCS Logic, RCIC Logic and Control, Diesel Logic & Control, SRVs .... which are required for adequate core cooling and circuit breaker control to help restore AC power.

D. Incorrect - The Main Control Room Emergency ventilation control power is AC, not DC.

**3** **ID: N-ILT-5057-3C-002** **Points: 1.00**

Given the following:

* Unit 2 is operating at 85% power when a design basis LOCA occurs.
* The output breaker on battery charger 2BD003-1 trips open.
* Prior to tripping, charger 2BD003-1 was supplying the Division II 250 VDC bus.

Assuming no operator action, how will the plant respond to this event?

The Division II 250 VDC bus will:

A. remain powered at rated voltage supplied by battery charger 2BD003-2.

B. remain powered at rated voltage supplied by the 2B station battery ONLY.

C. immediately de-energize until battery charger 2BD003-2 is placed in service.

D. remain powered at rated voltage supplied by the 2B station battery AND the in-service 2D charger.

Answer: D

## Question 3 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5057-3C-002 Effect of a charger malfunction on DC battery |
| System ID: | 1176 |
| User ID: | N-ILT-5057-3C-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295004 AK2.02 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.0 / SRO 3.1<br>Cognitive_Level: High<br><br>Reference: PLOT 5057, Objective 3c; E-26 |

Justification:

A. Incorrect - charger 2BD003-2 must be manually placed in service...only one charger can be in service at a time. The question stem states "assuming no operator actions."

B. Incorrect - when the output breaker for charger 2BD003-1 trips, the charger no longer supplies power to the Division II 250 VDC bus. The bus loads would then be supplied by BOTH the 2B and 2D batteries.

C. Incorrect - the battery will fully support all loads for approximately 2 hours with no battery charger; the bus will remain energized.

D. Correct - when the output breaker for charger 2BD003-1 trips, the charger no longer supplies power to the Division II 250 VDC bus. The bus loads would then be supplied by the 2B and 2D batteries. The batteries are designed to supply loads during a DBA for 2 hours.

**4** **ID: N-ILT-5060F-1I-001** **Points: 1.00**

- Unit 2 is operating at 20% power.
- A ground fault on the Grid results in the Main Generator output circuit breakers CB 215 and CB 225 automatically opening.

Which one of the following describes the reaction of the plant to this trip?

ASSUME NO OPERATOR ACTIONS.

A. The reactor will remain at power with the Main Turbine remaining in operation. Main Turbine Bypass Valves will automatically open maintaining reactor pressure.

B. The reactor will scram following the closure of the Main Turbine Stop and Control Valves. Main Turbine Bypass Valves will automatically open maintaining reactor pressure.

C. The reactor will remain at power with the Main Turbine Stop and Control Valves closing. Main Turbine Bypass Valves will automatically open maintaining reactor pressure.

D. The reactor will scram due to a Main Generator Lockout. Main Turbine Bypass Valves will automatically open maintaining reactor pressure.

Answer: C

## Question 4 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5060F-1I-001 Unit 2 is operating at 20% power. A ground fault on the Grid resulted in the |
| System ID: | 1270 |
| User ID: | N-ILT-5060F-1I-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295005.AA2.05 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 3.9<br>Cognitive_Level: Memory<br><br>References: ARC 210 A-2 |

Justification:

A. Incorrect - The main turbine will trip on a generator lockout.

B. Incorrect - The reactor will not scram less than 30% reactor power on Turbine Stop Valve or Turbine Control Valve closure

C. Correct - The Turbine Stop Valve and Turbine Control Valve closure scrams are bypassed at less than 30% power since high pressure scram is adequate to protect the reactor.

D. Incorrect - The reactor will not scram less than 30% reactor power on Turbine Stop Valve or Turbine Control Valve closure.

**5** **ID: N-ILT-5006-1A-004** **Points: 1.00**

Which of the following describes the INITIAL reactor water level response to a manual scram from rated conditions, and the reason?

Indicated reactor water level will:

A. rise due to the lowering steam flow from the reactor vessel.

B. lower due to the collapsing voids in the core region.

C. rise due to the water displaced by the inserting control rods.

D. lower due to the water discharging into the scram discharge volume.

Answer: B

## Question 5 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5006-1A-004 RPV Which of the following describes the initial reactor water level response to a |
| System ID: | 1363 |
| User ID: | N-ILT-5006-1A-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295006 AK3.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 3.9<br>Cognitive_Level: Memory |

Reference : PLOT 5006 Obj. 1; Fundamentals

Justification:

A. Incorrect - RPV level will initially lower as a result of voids collapsing.

B. Correct - RPV level will initially lower as a result of voids collapsing in the core region.

C. Incorrect - RPV level will initially lower as a result of voids collapsing.

D. Incorrect - Water discharged to the SDV comes mainly from the HCUs and is insignificant in volume compared to the level reduction in the RPV post scram.

6 ID: N-ILT-1555-1-014 Points: 1.00

In accordance with SE-1, "Plant Shutdown from the Remote Shutdown Panel", why is the reactor SCRAMMED prior to evacuating the Main Control Room?

A. This action ensures that inventory makeup requirements will be within HPCI capability.

B. This action ensures that inventory makeup requirements will be within RCIC capability.

C. This action precludes rapid reactor vessel depressurization in the event that the main turbine bypass valves fail open.

D. Scramming from outside the Control Room would require RPS bus power to be tripped causing concurrent isolations of all PCIS valve groups.

Answer: B

## Question 6 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1555-1-014 Which one of the following is the reason why the reactor is SCRAMMED prior to evac |
| System ID: | 1271 |
| User ID: | N-ILT-1555-1-014 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295016.AK3.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 4.1 / SRO 4.2<br>Cognitive_Level: Memory |

References: SE-1

Justification:

A. Incorrect - HPCI is used only in SE-10 at the Alternate Shutdown Panel and not applicable for this condition.

B. Correct - In accordance with SE-1 bases, scramming the unit assures that makeup to the reactor will be based on decay heat which can be adequately handled by the RCIC System.

C. Incorrect - Per SE-1 bases this is the reason for closing the MSIVs, not scramming the reactor.

D. Incorrect - MSIVs are manually closed prior to evacuation and all Group Isolations are expected during SE-1.

**7** **ID: N-ILT-1550-18A-001** **Points: 1.00**

Unit 3 was operating at 100% power when the following occurred:

- 'A' RBCCW pump tripped due to an overcurrent condition.
- 'B' RBCCW pump started automatically but at a reduced discharge pressure.
- RBCCW System temperatures are rising steadily.

Per ON-113 bases, the reason ON-113 "Loss of RBCCW" directs the RWCU pumps tripped and the system isolated is to:

A. isolate a likely primary-to-secondary leak in the RBCCW heat exchangers.

B. allow more time to diagnose and correct the cause of the RBCCW problem.

C. prevent RWCU pump cavitation due to high reactor water inlet temperature.

D. reduce the required RBCCW System flow rate thereby preventing pump runout.

Answer: B

## Question 7 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1550-18A-001 Unit 3 was operating at 100% power when the following occurred: |
| System ID: | 1366 |
| User ID: | N-ILT-1550-18A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295018AK3.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.1 / SRO 3.3<br>Cognitive_Level: Memory |

References: ON-113. ARC 313 B-3

Justification:
A. Incorrect - A primary-to-secondary leak in the RBCCW heat exchanger is plausible, but is not what isolating the system is based on per ON-113 bases.

B. Correct - Since the RWCU System is a significant heat load for RBCCW, isolating the system will remove this heat load from RBCCW and allow more time to diagnose and correct the problem.

C. Incorrect - Since the RWCU pump are upstream of the NRHX, a loss of RBCCW has no effect on RWCU pump inlet temperature. Tripping the pumps and isolating the RWCU system is not based on preventing this condition.

D. Incorrect - Although isolating the RWCU System will reduce the required heat input to the system, it does not reduce the flow rate in the system because the isolation occurs on the reactor water side of the system.

**8** **ID: N-ILT-1529-1G-001** **Points: 1.00**

Unit 3 is operating at 100% power when the following occurs:

* The 3A TBCCW pump trips on thermal overload due to excessive current.
* The 3B TBCCW pump is successfully started and all TBCCW system parameters return to normal.

Per NOM-C-5.2, "Resetting Protective Devices / Restoring Power", what is the LOWEST LEVEL of authority that must authorize a restart of the 3A TBCCW pump?

A. Shift Management ONLY.

B. Shift Management and the Shift Operations Superintendent.

C. Shift Management and Engineering Management.

D. Shift Operations Superintendent and Electrical Maintenance Management.

Answer: A

## Question 8 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1529-1G-001 Unit 3 is operating at 100% power when the following occurs: *The 3A TBCCW pump |
| System ID: | 1273 |
| User ID: | N-ILT-1529-1G-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295018 G2.1.14 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.5 / SRO 3.3<br>Cognitive_Level: Memory |

References: NOM-C-5.2

Justification:

A. Correct - NOM-C-5.2, Section 2, requires Shift Management be notified and approve reclosure of a tripped circuit breaker.

B. Incorrect - The SOS may be consulted but is not required per NOM-C-5.2.

C. Incorrect - Engineering Management may be consulted but they are not required per NOM-C-5.2.

D. Incorrect - The SOS and Electrical Maintenance may be consulted but they are not required per NOM-C-5.2.

**9** **ID: N-ILT-5016-4-002** **Points: 1.00**

Unit 2 is operating at 100% power with all Instrument Air and Instrument Nitrogen systems aligned normally when it experiences the following:

* Annunciator NITROGEN COMPRESSOR A OR B TROUBLE (228 E-2) alarms.
* After investigation, the Equipment Operator reports:

    * The 'A' and 'B' Instrument Nitrogen Compressors are tripped.
    * The 'A' and 'B' Instrument Nitrogen Receiver pressures are at 75 psig and slowly lowering.

With no operator action, under these conditions pressure to the Inboard Main Steam Isolation Valves will be maintained by the:

A. Nitrogen Bottles aligned by the auto opening of SV-8130 A/B, "A/B Supply."

B. Containment Atmosphere Dilution System aligned by the auto opening of PCV-7651 A/B, "SGIG Pressure Control Valve."

C. Nitrogen bottles aligned by the auto opening of PCV-7700 "Instrument Nitrogen Backup Pressure Control Valve."

D. Instrument Air System aligned by the auto opening of AO-4230 A/B, "A/B Instrument Air Backup to Instrument Nitrogen."

Answer: D

## Question 9 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5016-4-002 Relationship between Inst N2 and Inst Air |
| System ID: | 1261 |
| User ID: | N-ILT-5016-4-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295019 G2.1.28 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.2 / SRO 3.3<br>Cognitive_Level: High |

Reference: PLOT 5016, OBJ. 4; ARC 228 E-2

Justification:

A. Incorrect - SV-8130 A/B valves are normally in the closed position. They do not auto-open on low instrument N2 receiver pressure. When open, pressure would only be aligned to the ADS valves.

B. Incorrect - Alignment of the CAD system through SGIG system to supply the Instrument Nitrogen system requires manual valve alignments.

C. Incorrect - PCV-7700 is used in the manual alignment of the CAD Tank to supply nitrogen to the Drywell Instrument Nitrogen headers.

D. Correct - Instrument air will automatically backup the Instrument Nitrogen System when Instrument Nitrogen Receiver pressure drops below 85 psig.

**10** **ID: N-ILT-5010-3F-001** **Points: 1.00**

* Unit 2 is in MODE 4, twenty-four hours after shutdown, following extended full power operation.
* 2B Residual Heat Removal (RHR) pump is operating in the Shutdown Cooling Mode.
* Reactor Coolant Temperature is 135°F on a very slow downward trend.
* No Reactor Recirculation pumps are in service.
* Reactor water level is being maintained at +30 inches.
* MSIVs are shut.

Which of the following describes the Reactor Coolant Temperature response if the 2B RHR pump trips? Assume no operator action is taken.

Coolant temperature will:

A. Decrease until equilibrium is reached in the RHR heat exchanger.

B. Increase until bulk boiling occurs, and reactor pressure increases above atmospheric pressure.

C. Increase until bulk boiling occurs, with reactor pressure steady at atmospheric pressure.

D. Decrease until Reactor Coolant Temperature is equal to High Pressure Service Water Temperature in the RHR heat exchanger.

Answer: B

## Question 10 Details

| | |
|---|---|
| Question Type: | *Multiple Choice* |
| Topic: | N-ILT-5010-3F-001 *Unit 2 is in MODE 4 twenty-four hours after shutdown, following an extended full |
| System ID: | 1322 |
| User ID: | N-ILT-5010-3F-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295021AK1.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.6 / SRO 3.8<br>Cognitive_Level: High<br><br>References: ON-125, GP-12 |

Justification:

A. Incorrect - With the RHR pump tripped there is no longer shutdown cooling flow from the reactor vessel to the RHR heat exchanger.

B. Correct - Decay heat will cause RPV coolant temperature to rise and eventually reach boiling. Reactor pressure will increase above atmospheric pressure (NOTE: Even if examinee assumes RPV head vents are open *pressure will still increase since the head vents* are on a 1" line and are designed for removal of non-condensibles at power or air removal for refueling or hydro test conditions. There is industry OE that confirms that bulk boiling of coolant due to lack of shutdown cooling will result in going greater than 212 F and pressurizing the RPV with the vents open).

C. Incorrect - Reactor pressure will increase above atmospheric.

D. Incorrect - With the RHR pump tripped there is no longer shutdown cooling flow from the reactor vessel to the RHR heat exchanger.

**11** **ID: N-ILT-1550-27A-001** **Points: 1.00**

* Unit 2 is shutdown for a refueling outage with the fuel pool gates installed.
* Annunciator 20C075 (B-1) FUEL STORAGE POOL HIGH/LOW LEVEL alarms.
* Annunciator 20C076 (D-2) SKIMMER SURGE TANK LOW LEVEL alarms.
* The Equipment Operator reports that the spent fuel pool level is slowly lowering and the running fuel pool cooling pump has tripped.
* The Control Room Crew enters procedure ON-124, "Fuel Floor and Fuel Handing Problems"

Per ON-124 ,which one of following methods is available to provide makeup to the spent fuel pool?

A. Start the second fuel pool cooling pump to refill the pool.

B. Align condensate transfer to makeup to the skimmer surge tanks.

C. Start a second control rod drive pump to inject into the reactor cavity.

D. Align and inject condensate transfer via core spray stayfull system into the reactor cavity.

Answer: B

## Question 11 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1550-27A-001 Unit 2 is shutdown for a refueling outage with the fuel pool gates installed. |
| System ID: | 1274 |
| User ID: | N-ILT-1550-27A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295023.AA.1.02 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.9 / SRO 3.1<br>Cognitive_Level: High<br><br>References: ARC 20C076 (D-2), ARC 20C075 (B-1), ON-124, FH-74 |

Justification:

A. Incorrect - Fuel pool level has decreased and has resulted in the alarm. The level in the skimmer surge tanks are the same. The second pump will not start because the level in the skimmer surge tank has fallen below the low low level pump trip setpoint.

B. Correct - ARC 20C076 (D-2) will refer the Equipment Operator to SO 19.3.A-2, Fuel Pool Filling Skimmer Surge Tank via Normal Make-up Line which utilizes the Condensate Transfer System

C. Incorrect - The control rod drive pump will inject into the reactor vessel and will not effect the level in the fuel pool due to fuel pool gates being installed.

D. Incorrect - The fuel pool gates are installed and because of this, addition of water to the cavity will have no effect on the fuel pool level.

**12** **ID: N-ILT-1540-3-001** **Points: 1.00**

- Unit 2 is operating at 100% power
- Drywell Pressure unexpectedly rises to 1.2 psig and is trending up.
- OT-101, "High Drywell Pressure" has been entered.

The operating crew must IMMEDIATELY:

A. perform GP-3, "Normal Plant Shutdown".

B. perform GP-4, "Manual Reactor Scram".

C. scram and enter T-101, "RPV Control" ONLY.

D. scram and enter T-101 "RPV Control" AND T-102 "Primary Containment Control".

Answer: B

**Question 12 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-3-001 Unit 2 is operating at 100% power when Drywell pressure unexpectedly rises to 1.2 |
| System ID: | 221 |
| User ID: | N-ILT-1540-3-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295024 G2.4.49 |
| User Text: | A |
| User Number 1: | 6286.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 4.0 / SRO 4.0<br>Cognitive_Level: Memory<br><br>References: PLOT1540.03, OT-101<br><br>Justification:<br>A. Incorrect - Not required unless both seals on a Recirc Pump fail. However, requirement to scram at 1.2 psig still applies.<br>B. Correct - A GP-4 Manual Scram is required at 1.2 psig in Drywell.<br>C. Incorrect - T-101 is not required to be entered until drywell pressure reaches 2.0 psig.<br>D. Incorrect - T-101 and T-102 are not required to be entered until drywell pressure reaches 2.0 psig. |

**13** **ID: N-ILT-5001A-5G-001** **Points: 1.00**

- Unit 3 had been operating for 340 days when a reactor scram occurred.
- 15 minutes after the scram, plant conditions are as follows:

  * A Group 1 isolation has occurred and has not been reset.
  * 9 Control Rods are at position 02.
  * RCIC tripped on overspeed and cannot be restarted.
  * HPCI is out of service.
  * Reactor water level is +15 inches and has remained steady.
  * Reactor pressure is 1140 psig.

Why is RPV pressure 1140 psig AND, assuming no operator action, what is the status of the Safety Relief Valves (SRVs)?

A. Multiple rods still out, AND SRVs are closed.

B. Decay heat generation, AND SRVs are closed.

C. Decay heat generation, AND SRVs are controlling pressure in self-actuation mode.

D. Multiple rods still out, AND SRVs are controlling pressure in self-actuation mode.

Answer: C

## Question 13 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5001A-5G-001 Unit 3 had been operating on a 340 day run when a reactor scram occurred. 15 min |
| System ID: | 1275 |
| User ID: | N-ILT-5001A-5G-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295025 EK1.04 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.6 / SRO 3.9<br>Cognitive_Level: High<br><br>References: Tech. Spec. 3.4.3 |

Justification:

A. Incorrect - Control rods at position 02 will not significantly contribute to thermal power. SRVs are open at setpoint of 1135 psig ± 1% with no operator action and no normal heat sinks.

B. Incorrect - SRVs are open at setpoint of 1135 psig ± 1% with no operator action and not normal heat sink.

C. Correct - Decay heat contributes approximately 2% of thermal power 10 minutes following a scram. With no operator action and no normal heat sink available (Group 1 Isolation) RPV pressure will rise until SRVs self-actuate at 1135 psig ± 1%.

D. Incorrect - Control rods at position 02 will not contribute to core thermal power.

**14** **ID: N-ILT-1540-4-011** **Points: 1.00**

Unit 3 is operating at full power when a Safety Relief Valve fails full open and cannot be closed.

Torus temperature is 95° F and rising.

Over the next 30 minutes, continued Torus temperature rise will:

A. be prevented by placing one loop of Torus Cooling in service.

B. be prevented by placing both loops of Torus Cooling in service.

C. NOT be prevented unless reactor power is reduced to approximately 25% regardless of Torus Cooling alignment.

D. NOT be prevented while the plant is at power regardless of Torus Cooling alignment.

Answer: D

## Question 14 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-4-011 Unit 3 is operating at full power when a Safety Relief Valve fails full open and ca |
| System ID: | 1367 |
| User ID: | N-ILT-1540-4-011 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295026EK2.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.9 / SRO 4.0<br>Cognitive_Level: Memory |

References: OT-114 and bases; T.S 3.6.2.1

Justification:

A. Incorrect - SRV heat input exceeds Torus Cooling capacity whether one or both loops are placed in service.

B. Incorrect - SRV heat input exceeds Torus Cooling capacity whether one or both loops are placed in service.

C. Incorrect - reducing power will only slightly lower pressure and is accomplished to try and shut the SRV. It does not reduce the heat input of an open SRV. Heat input is more a function of RPV pressure than power.

D. Correct - the plant must be shutdown and depressurized to prevent the Torus from continuing to heat up.

**15** **ID: N-ILT-2116-4A-001** **Points: 1.00**

Per T-116 bases, the reason for entering T-116, "RPV Flooding" procedure during a high drywell temperature condition is to establish:

A. Flooding conditions before SRVs fail due to exceeding the SRV cabling design temperature.

B. Flooding conditions before exceeding primary containment design temperature.

C. Adequate core cooling when RPV level cannot be determined due to indicated level errors from reference leg flashing.

D. Adequate core cooling when RPV level cannot be determined due to indicated level errors from variable leg flashing.

Answer: C

## Question 15 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-2116-4A-001 The bases for entering T-116, "RPV Flooding" procedure during a high drywell tempe |
| System ID: | 1276 |
| User ID: | N-ILT-2116-4A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295028 EK3.02 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.5 / SRO 3.8<br>Cognitive_Level: Memory |

References: T-116 Bases

Justification:

A. Incorrect - SRV cabling design temperature used to be described in T-112 Bases. It is no longer mentioned in any basis document and is no longer an immediate concern.

B. Incorrect - Containment design temperature is not mentioned as a reason for entry into T-116 per the bases.

C. Correct - Per T-116 Bases one of the probable causes of erroneous RPV level indications is boiling of water in the reference leg due to elevated Drywell temperatures.

D. Incorrect - The concern is for reference leg flashing, not variable leg flashing.

**16** **ID: N-ILT-5059K-1A-002** **Points: 1.00**

* Unit 2 is at 30% power with GP-2, "Normal Plant Start-up", in progress.
* RPV water level is +24 inches.
* Annunciator 224 (E-5) TORUS ROOM FLOOD is lit in the main control room.
* A significant water leak is identified in the Torus.
* The crew enters T-102, "Primary Containment Control", at a Torus level of 14.5' and lowering.

Per T-102 "Primary Containment Control", if Torus level cannot be maintained above 12.5 ' you are required to __(1)__ based on __(2)__ :

A. (1) Manually scram the reactor per GP-4
(2) Torus level indicators in the Main Control Room OR from SPDS.

B. (1) Perform an Emergency Blowdown per T-112
(2) Torus level indicators in the Main Control Room ONLY.

C. (1) Manually scram the reactor per GP-4
(2) Torus level indicators in the Main Control Room ONLY.

D. (1) Perform an Emergency Blowdown per T-112
(2) Torus level indicators in the Main Control Room OR from SPDS.

Answer: C

**Question 16 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5059K-1A-002 Unit 2 is at 30% power. Power ascension to 100% power is in progress per GP-2 |
| System ID: | 1354 |
| User ID: | N-ILT-5059K-1A-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295030 EK2.09 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.5 / SRO 2.8<br>Cognitive_Level: Memory |

References: PLOT-5059K, Management Expectation

Justification:

A. Incorrect - Station management expectation is that operations will not take actions based solely on information from PMS or SPDS systems.

B. Incorrect - An Emergency Blowdown per T-112 is not required per T-102 until Torus level reaches 10.5 feet.

C. Correct - While SPDS provides a continuous indication of plant safety system status during normal, abnormal and emergency conditions, station management expectation is that operations will not take actions based solely on information from PMS or SPDS systems.

D. Incorrect - An Emergency Blowdown per T-112 is not required per T-102 until Torus level reaches 10.5 feet. Also, station management expectation is that operations will not take actions based solely on information from PMS or SPDS systems.

**17** **ID: N-ILT-2101-1-010** **Points: 1.00**

The following conditions exist on Unit 2 following a small LOCA:

- All control rods are fully inserted.
- RPV Level is -120 inches and lowering at 2 inches per minute.
- RPV Pressure is 960 psig and steady.
- Drywell Pressure is 4 psig.
- Torus Pressure is 3 psig.
- MSIVs are closed.
- HPCI and RCIC are both unavailable for injection.

Which of the following actions are required?

A. Lineup and start HPSW pumps to inject per T-245.

B. Rapidly depressurize the RPV with BPVs per step T-101 RC/P-12.

C. Lower RPV pressure to inject with Core Spray without exceeding the Technical Specification Cooldown limits.

D. Lower RPV pressure to inject with Condensate without exceeding the Technical Specification Cooldown limits.

Answer: D

## Question 17 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-2101-1-010 The following conditions exist on Unit 2 following a small LOCA: * RPV level is |
| System ID: | 1279 |
| User ID: | N-ILT-2101-1-010 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 4.00 |
| Time to Complete: | 4 |
| Point Value: | 1.00 |
| Cross Reference: | 295031 EA2.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 4.2 / SRO 4.2<br>Cognitive_Level: High |

Reference: T-101 and Bases, T-112 and Bases, T-102 and Bases.

Justification:

A. Incorrect - Per T-245, "HPSW Injection into the RPV" placing the HPSW pumps inservice and the majority of valve manipulations are not completed until RPV pressure is below 400 psig.

B. Incorrect - For the conditions given, the plant is not approaching a limit that requires an Emergency Blowdown (T-112) in T-102, T-103, T-104. RC/P-12, rapidly depressurize with BPVs, is not used. In addition, the MSIVs are closed which eliminates use of BPVs.

C. Incorrect - The Core Spray system will not inject into the RPV until RPV pressure is lower than 330 psig. Lowering pressure to below 330 psig will be a violation of the Tech Spec 100°F/hr cooldown rate.

D. Correct - T-101 steps RC/P-16 directs beginning an RPV depressurization maintaining cool down rate below 100° F/hr. RC/P-16 along with RC/L-3 allows for using Condensate system to restore RPV level.

18 ID: N-ILT-2101-6-002 Points: 1.00

Unit 2 conditions are as follows:

* The Unit has scrammed.
* Seven (7) control rods located randomly throughout the core are stuck between positions 06 and 34.
* None of the seven control rods moved after ARI initiation.
* Reactor pressure is 920 psig.
* Reactor water level is +20 inches (stable on the narrow range).
* Drywell pressure is 1.0 psig.
* Drywell temperature is 130°F.
* Torus temperature is 85°F.
* T-101, "RPV Control", Leg RC/Q Rods was entered from T-100, "Scram", due to ATWS condition.

In accordance with T-101, "RPV Control", which one of the following describes the condition allowing exit from T-101, Leg RC/Q?

A. Cold shutdown boron weight has been injected into the reactor core.

B. ALL control rods, except one, are fully inserted into the reactor core.

C. Reactor power will remain below 4% under ALL conditions without boron.

D. Hot shutdown boron weight has been injected into the reactor core.

Answer: B

## Question 18 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-2101-6-002 Unit 2 has scrammed, it is determined that seven (7) control rods located randomly |
| System ID: | 1323 |
| User ID: | N-ILT-2101-6-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295037 EK1.07 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.4 / SRO 3.8<br>Cognitive_Level: High<br><br>References: T-101 Bases |

Justification:

A. Incorrect - Boron would not have been injected for these reactor/containment conditions.

B. Correct - The only condition allowing exit from Leg RC/Q Rods is when an ATWS is no longer in progress. Note #24 states that termination of an ATWS requires determination that: (1) All rods are inserted to or beyond the maximum subcritical banked withdrawal position (MSBWP) of "02". OR (2) With any single rod fully withdrawn past 00, all other rods are fully inserted. OR (3) The reactor will remain shutdown under all conditions on rod insertion alone regardless of boron concentration (RE calculation).

C. Incorrect - 4% reactor power is the reference for entry into T-101, "RPV Control". Leg RC/Q rods makes no reference to $\leq$ 4% power as an exit requirement.

D. Incorrect - Termination of ATWS Note #24 makes no reference to RHR Shutdown Cooling mode of operation.

**19** **ID: N-ILT-G5-4-004** **Points: 1.00**

Field teams have been dispatched due to a Radioactivity Release. The field teams are located as follows:

Field Team 1 is at the Training Center.
Field Team 2 is 50 yards NORTH of the intersection of Routes 851 (Broad Street) and Lay Road (Site Access Road).
Field Team 3 is at the ISFSI pad.
Field Team 4 is at the Muddy Run Pumped Storage Facility.

Which of the following describes which Field Team(s) is(are) OFF-SITE for the purposes of Emergency Classification?

A. 2 and 3 ONLY

B. 2 and 4 ONLY.

C. 3 and 4 ONLY

D. 2 and 3 and 4 ONLY

Answer: B

## Question 19 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-G5-4-004 Field teams have been dispatched due to a Radioactivity Release. The field teams are |
| System ID: | 1280 |
| User ID: | N-ILT-G5-4-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| *Difficulty*: | *3.00* |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295038EA2.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 4.3<br>Cognitive_Level: Memory |

References: FSAR Figure 2.2.5, EP-AA-1000

Justification:

A. Incorrect - The ISFSI Pad is within the Figure 2.2.5 owner controlled site boundary.

B. Correct - Per EP-AA-1000, "Off-Site" is the area outside the Station's "Site Boundary". PB FSAR Figure 2.2.5 shows the site boundary. Muddy Run Station and Route 851 are clearly not within the owner controlled area.

C. Incorrect - The ISFSI Pad is within the Figure 2.2.5 owner controlled site boundary.

D. Incorrect - The Training Center and the ISFSI Pad are both within the owner controlled area and are not considered off-site.

**20** **ID: N-ILT-5037-4F-002** **Points: 1.00**

Which of the following fire fighting systems is designed to mitigate a fire in the Standby Gas Treatment filter trains AND how is it initiated?

A. Cardox, Manually

B. Water Curtain, Automatically

C. Water Deluge, Manually

D. Water Deluge, Automatically

Answer: C

**Question 20 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5037-4F-002 Unit 2 and Unit 3 are operating at 100% power. The Main Control Room receives |
| System ID: | 1281 |
| User ID: | N-ILT-5037-4F-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 600000 AA1.08 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.0 / SRO 2.9<br>Cognitive_Level: Memory<br><br>References: ARC 007 J-6b, PLOT-5009A<br><br>Justification:<br>A. Incorrect - There is no cardox system associated with the SBGT system.<br>B. Incorrect - There is no water curtain associated with the SBGT system. The water curtain is for Reactor Building 135' area.<br>C. Correct - The SBGT filters have a sprinkler deluge system that is manually initiated. Other than MCR alarm and detection, there are not automatic actions for fire suppression.<br>D. Incorrect - The SBGT filters have a sprinkler/deluge water system that is manually initiated. There is no system automatic fire suppression equipment for SBGT. |

**21** **ID: N-ILT-1540-4-009** **Points: 1.00**

Unit 2 is at 85% power when annunciator 210 H-2, REACTOR HI-LO WATER LEVEL alarms. The following conditions exist:

* RPV level is +31 inches and rising.
* Total feed flow is greater than total steam flow.
* "A" RFP speed is 4700 rpm and rising.
* "B" RFP speed is 4300 rpm and lowering.
* "C" RFP speed is 4500 rpm and steady.

Based on the above indications, the ___(1)___ RFP is operating correctly and the ___(2)___ RFP should be taken to manual control.

A. (1) "A"
(2) "C"

B. (1) "B"
(2) "A"

C. (1) "C"
(2) "A"

D. (1) "A"
(2) "B"

Answer: B

## Question 21 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-4-009 Unit 2 is at 85% power when annunciator 210 H-2, REACTOR HI-LO WATER LEVEL alarms. |
| System ID: | 1283 |
| User ID: | N-ILT-1540-4-009 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295008G2.4.50 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.3<br>Cognitive_Level: Memory<br><br>References: OT-110 |

Justification:

A. Incorrect - "A" RFP speed is rising. The Operator should take manual control of the "A" RFP due to speed rising contrary to feedwater system control.

B. Correct - If feed flow is > steam flow, RPV level will rise. The RFP master level controller will attempt to lower ALL RFP speeds. Only the "B" RFP speed is operating correctly. The "C" RFP control is not responding (speed is constant). The "A" RFP controller has failed because speed is rising.

C. Incorrect - The "C" RFP speed should be lowering in response to the high RPV water level. However, the "A" RFP is actually rising in speed and has an immediate detrimental effect on rising water level and should be the higher priority for manual control.

D. Incorrect - "A" RFP speed is rising and is not operating properly in response to a high reactor level.

**22** **ID: N-ILT-1540-5-004** **Points: 1.00**

Unit 2 was at 100% power when an unidentified leak into the primary containment caused an automatic reactor scram. The following conditions are present on Unit 2:

* All rods are inserted.
* RPV level is -5 inches and rising slowly.
* RPV pressure is 940 psig and dropping.
* House Loads have been transferred.

Based on the above conditions, reactor recirculation pump speed is presently ___(1)___ due to ___(2)___.

A. (1) 30%
(2) a scram signal being present with RPV level less than +17 inches.

B. (1) 30%
(2) individual reactor feedpump flows less than 20% with RPV level less than +17 inches.

C. (1) 45%
(2) a scram signal being present with RPV level less than +17 inches.

D. (1) 45%
(2) individual reactor feedpump flows less than 20% with RPV level less than +17 inches.

Answer: A

## Question 22 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-5-004 Unit 2 was at 100% power when an unidentified leak into the primary containment |
| System ID: | 1284 |
| User ID: | N-ILT-1540-5-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295009AK2.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.1 / SRO 3.2<br>Cognitive_Level: High<br><br>References: OT-100 |

Justification:

A. Correct
B. Incorrect - Condition is a 45% runback.
C. Incorrect - Condition is a 30% runback.
D. Incorrect - Condition is a 45% runback.

**23** **ID: N-ILT-5007-8-006** **Points: 1.00**

The following Unit 3 conditions exist:

* The reactor is at full power.
* Torus Cooling is in operation using the 3A and 3C RHR pumps.
* HPCI testing is in progress per ST-O-023-301-3, "HPCI Pump, Valve, Flow and Unit Cooler Functional and In-Service Test".

The minimum Torus temperature that requires entry into T-102 "Primary Containment Control" is (1) , and the minimum Torus temperature that requires immediately placing the mode switch in shutdown is (2) .

A. (1) 95°F
(2) 100°F

B. (1) 95°F
(2) 110°F

C. (1) 105°F
(2) 110°F

D. (1) 110°F
(2) 120°F

Answer: B

## Question 23 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5007-8-006 The following Unit 3 conditions exist: *The reactor is at full power. * Torus Coo |
| System ID: | 1285 |
| User ID: | N-ILT-5007-8-006 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295013AA2.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 4.0<br>Cognitive_Level: Memory |

References: ST-O-023-301-3

Justification:

A. Incorrect - While 95°F is an entry for T-102, Tech Spec requires reactor mode switch to shutdown position if suppression pool temperature > 110°F and ≤ 120°F.

B. Correct - 95°F is the entry for T-102. T.S. 3.6.2.1 requires immediate suspension of all testing that adds heat to the suppression pool at pool temperature of > 105°F AND to immediately place the reactor mode switch in the shutdown position if suppression pool temperature > 110°F and ≤ 120°F.

C. Incorrect - 95°F is the entry for T-102. Tech Spec requires reactor mode switch to shutdown position if suppression pool temperature > 110°F and ≤ 120°F.

D. Incorrect - 95°F is the entry for T-102. Tech Spec requires immediate suspension of all testing that adds heat to the suppression pool at pool temperature of > 105°FAND to immediately place the reactor mode switch in the shutdown position if suppression pool temperature > 110°F and ≤ 120°F.

**24** **ID: N-ILT-1550-12A-001** **Points: 1.00**

* Unit 3 is at 100% power at time 11:25 AM when the '3A' Control Rod Drive (CRD) pump trips on overcurrent.
* The "3B" CRD pump was previously blocked for maintenance.
* At time 11:33 AM, multiple accumulator trouble lights illuminate on the Full Core Display for withdrawn control rods.
* At time 11:37 AM, CRD Charging Header pressure drops below 940 psig.

In accordance with ON-107, "Loss of CRD Regulating Function", based on the above conditions, you are required to perform a ___(1)___ at time ___(2)___ .

A. (1) Manual Scram, enter T-100
(2) 11:53 AM

B. (1) Manual Scram, enter T-100
(2) 11:57 AM

C. (1) GP-9 Fast Power Reduction
(2) 11:53 AM

D. (1) GP-9 Fast Power Reduction
(2) 11:57 AM

Answer: B

## Question 24 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1550-12A-001 Unit 3 is at 100% power at time 1125 am the '3A' Control Rod Drive (CRD) pump |
| System ID: | 1286 |
| User ID: | N-ILT-1550-12A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295022 G2.1.23 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.9 / SRO 4.0<br>Cognitive_Level: High<br><br>References: ON-107, Tech. Spec. 3.1.5 |

Justification:

A. Incorrect - This is 20 minutes from accumulator alarm only, scram not yet required per ON-107 or Tech Specs 3.1.5.

B. Correct - 20 minutes to restore charging header pressure once the condition of both multiple accumulator trouble alarms and low (< 940 psig) CRD charging header pressure. This agrees with Tech Spec 3.1.5.

C. Incorrect - This is 20 minutes from accumulator alarm only fast power reduction not required per ON-107 or Tech Spec 3.1.5.

D. Incorrect - ON-107 requires a scram due to both conditions (accumulator trouble alarm and low charging header pressure).

**25** **ID: N-ILT-1560-11-007** **Points: 1.00**

Which of the following sets of conditions allow safe operation of the "A" loop of RHR in the LPCI mode at all flow rates?

| | Torus Level | Torus Pressure | Torus Temperature |
|---|---|---|---|
| A. | 15 feet | 6 psig | 195 °F |
| B. | 17 feet | 5 psig | 180 °F |
| C. | 19 feet | 11 psig | 210 °F |
| D. | 21 feet | 7 psig | 190 °F |

Answer: D

## Question 25 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1560-11-007 Which of the following sets of conditions allows operation of the "A" loop of RHR |
| System ID: | 1287 |
| User ID: | N-ILT-1560-11-007 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295029EA1.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.9 / SRO 3.0<br>Cognitive_Level: High |

References: T-102, Sheet 3

Justification:

A. Incorrect - This does not meet the criteria of the RHR NPSH curves for two-pump operation at all flow rates, as shown on T-102, Sheet 3. Operation is in the unsafe region of the curve when flow is above ~23,000 gpm.

B. Incorrect - This does not meet the criteria of the RHR NPSH curves for two-pump operation at all flow rates, as shown on T-102, Sheet 3. Operation is in the unsafe region of the curve when flow is above ~23,000 gpm.

C. Incorrect - This does not meet the criteria of the RHR NPSH curves for two-pump operation at all flow rates, as shown on T-102, Sheet 3. Operation is in the unsafe region of the curve when flow is above ~23,000 gpm.

D. Correct - This meet the criteria of the RHR NPSH curves for two-pump operation at all flow rates, as shown on T-102, Sheet 3.

**26** **ID: N-ILT-1560-3-003** **Points: 1.00**

Unit 3 plant conditions are as follows:

* Reactor is shutdown
* RPV level is -30 inches
* RPV pressure is 950 psig
* HIGH AREA TEMP alarm is up (window J-3 on panel 310 / 30C205L)
* RCIC room temperature is 130°F due to a steam leak
* Reactor Building and Refuel Floor radiation levels are 2 mR/hr

For the above conditions which of the following statements are CORRECT?

1. The RCIC Room should be evacuated per GP-15, "Local Evacuation".

2. T-112, "Emergency Blowdown" procedure must be performed if Torus Room temperature reaches 125°F.

3. T-112, "Emergency Blowdown" procedure must be performed if RCIC Room radiation level reaches 8 R/hr.

4. Reactor Building Ventilation is restored using T-222-2, "Secondary Containment Ventilation Bypass".

A. 1 & 4

B. 1 & 3

C. 3 & 4

D. 2 & 4

Answer: A

## Question 26 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1560-3-003 Unit 3 plant conditions are as follows: Reactor is shutdown, RPV level is -30 inche |
| System ID: | 1288 |
| User ID: | N-ILT-1560-3-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295032EK1.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.6 / SRO 3.8<br>Cognitive_Level: High |

References: ARC 20C210 D-4, T-222, T-103

Justification:

A. Correct - T-103 Leg SC/T will require a GP-15 local evacuation (SC/T-5) for personnel protection and safety and to operate RB and Refuel Floor ventilation using T-222 if building radiation levels can be maintained < 10mR/hr (SC/T-6).

B. Incorrect - T-112, "Emergency Blowdown" will not be required until the same parameter exceeds an action level in more than one area. There are no areas at an action level at present.

C. Incorrect - T-112, "Emergency Blowdown" will not be required until the same parameter exceeds an action level in more than one area. There are no areas at an action level at present.

D. Incorrect - RCIC and Torus Room temperature would have to reach 135°F for both area's action level to be reached. There are no areas at an action level at present. Two areas at or above an action level are needed in order to perform a T-112, "Emergency Blowdown", per T-103.

**27** **ID: N-ILT-1560-3-004** **Points: 1.00**

While Unit 2 is operating at 100% power, the following conditions exist:

* The watertight door between HPCI and RCIC was left open with a hose running through the door.
* HPCI PUMP ROOM FLOOD alarm is in (221 A-5)
* RCIC PUMP ROOM FLOOD alarm is in (222 A-4)
* HPCI Room water level is 3.0 feet
* RCIC Room water level is 3.0 feet

The Equipment Operator reports that the water input is due to a gross packing leak on MO-2-23-17 HPCI "COND TANK SUCTION".

Which of the following statements are TRUE?

1. T-112, "Emergency Blowdown" is entered.

2. SE-9, "Radioactive Liquid Spill" is utilized.

3. The suction line with the leak is to be isolated and a local evacuation should be performed per GP-15.

4. The suction line with the leak is to be isolated and a GP-4, "Scram", and normal RPV depressurization is required.

A. 1 & 2

B. 1 & 3

C. 2 & 4

D. 2 & 3

Answer: D

## Question 27 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1560-3-004 While Unit 2 is operating at 100% power, the following conditions exist: * HPCI |
| System ID: | 1289 |
| User ID: | N-ILT-1560-3-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295036EK3.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 3.9<br>Cognitive_Level: High |

References: T-103

Justification:

A. Incorrect - T-103 requires a T-112 Blowdown (SCC-10) only if a primary system is discharging into the reactor building (SCC-7) and the water level reaches an action level in more than one area. HPCI and RCIC are considered the same area per T-103. A leak from the Condensate Storage tank (CST) is NOT a primary system leak.

B. Incorrect - T-103 requires a T-112 Blowdown (SCC-10) only if a primary system is discharging into the reactor building (SCC-7) and the water level reaches an action level in more than one area. HPCI and RCIC are considered the same area per T-103.

C. Incorrect - T-103 requires a GP-4 scram and a depressurization (SCC-8) only if the leak is a primary system discharging into the Reactor Building (SCC-7). A leak from the Condensate Storage tank (CST) is NOT a primary system leak.

D. Correct - Per T-103, "Secondary Containment Control", water level above an alarm level (6" for HPCI/RCIC/Sump Rooms), GP-15, "Local Evacuation" (SC/L-5) and reference to SE-9, "Radioactive Spill" (SC/L-6) are required to be performed.

**28** **ID: N-ILT-5010-6B-003** **Points: 1.00**

- Following 400 days at rated power, Unit 2 is Shutdown with a cooldown in progress.
- Reactor Pressure is currently 420 psig.

An electrical transient occurs resulting in the following:

* Loss of 125 VDC power to the A logic of RHR.
* Loss of Drywell Cooling and a small steam leak cause a rise in Drywell Pressure to 2.2 psig.

Which of the following describes the response of the RHR pumps?

A. All RHR pumps are running, and they are injecting into the vessel.

B. All RHR pumps are running, and they are NOT injecting into the vessel.

C. Only the B & D pumps are running, and they are injecting into the vessel.

D. Only the B & D pumps are running, and they are NOT injecting into the vessel.

Answer: B

## Question 28 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5010-6B-003 Following a 400 day run at power, Unit 2 is Shutdown with a Cooldown in progress. |
| System ID: | 1151 |
| User ID: | N-ILT-5010-6B-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 203000 K2.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.7 / SRO 2.9<br>Cognitive_Level: High<br><br>References: SO 10.7.B-2 |

Justification:

A. Incorrect - Reactor pressure is too high for LPCI injection.

B. Correct - RHR logics are cross-divisionalized such that a loss of one 125 VDC supply does not impact LPCI pump starts (unlike Core Spray). Per TRIPs, RHR pump shutoff head is 305 psig so they are not injecting.

C. Incorrect - Even with loss of A logic 125 VDC, all LPCI pumps are running.

D. Incorrect - Even with loss of A logic 125 VDC all LPCI pumps are running.

**29** **ID: N-ILT-5010-4O-003** **Points: 1.00**

- Unit 2 is in a forced outage
- The 'A' Loop of SDC is in service using the 'C' RHR pump.
- RPV level inadvertently lowers to -3 inches.
- Reactor pressure is 25 psig and stable.

How will the RHR system respond to this transient?

A. The MO-25A ONLY (A Loop RHR injection valve) will close.

B. The MO-17 and MO-18 ONLY (RHR suction to recirculation loop isolation valves) will close.

C. The MO-17 and MO-18 (RHR suction to recirculation loop isolation valves) will remain open and the 'C' RHR pump will continue to run.

D. The MO-17 and MO-18 (RHR suction to recirculation loop isolation valves) and the MO-25A (A loop RHR injection valve) will close. The 'C' RHR pump will trip.

Answer: D

## Question 29 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5010-4O-003 Unit 2 is in a forced outage with the 'A' Loop of SDC in service using the 'C' RHR |
| System ID: | 1158 |
| User ID: | N-ILT-5010-4O-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 205000 K4.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 /SRO 3.8<br>Cognitive_Level: High<br><br>Reference: PLOT5010.04O; GP-8.B; GP-8.B COL |

Justification:

A. Incorrect - MO-25A (RHR Injection valve) will also close on PCIS Group II signal of $\leq$ +1" RPV level with MO-17 open and MO-18 open and RPV pressure $\leq$ 70 psig.

B. Incorrect - MO-17 and MO-18 will close on PCIS Group II isolation signal of $\leq$ +1" RPV level.

C. Incorrect - MO-17 and MO-18 will close on PCIS Group II isolation signal of $\leq$ +1" RPV level. The C RHR pump will trip when either MO-17 or MO-18 indicate not full open.

D. Correct - MO-17 & 18 will close on the PCIS Group II isolation signal of $\leq$ +1" RPV level with MO-17 open and MO-18 open and RPV pressure $\leq$ 70 psig.

**30** **ID: N-ILT-1530-3-004** **Points: 1.00**

Unit 3 is in MODE 3 with RPV coolant temperature at 280°F. Per procedure GP-12, Core Cooling, the operator must either:

* Operate one RHR pump in shutdown cooling OR
* Operate one recirc pump OR
* Maintain reactor level above +50 inches

What is the reason for maintaining water level above +50 inches?

This level:

A. Provides for adequate level to prevent uncovering the core if a reactor coolant leak develops.

B. Provides for natural circulation between the core and the annulus region since no forced cooling flow exists.

C. Provides for a sufficient volume of water to ensure core cooling via conductive heat transfer.

D. Provides for sufficient RPV water level to satisfy Technical Specification 3.9.6 "RPV Water Level" requirements.

Answer: B

## Question 30 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1530-3-004 Unit 3 is in MODE 3 with RPV coolant temperature at 280F. Per procedure GP-12, |
| System ID: | 1152 |
| User ID: | N-ILT-1530-3-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 205000A4.06 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 3.7<br>Cognitive_Level: Memory<br><br>References: GP-12 |

Justification:

A. Incorrect - +50 inches does not provide for adequate RPV level to prevent uncovering the core during a LOCA. This answer is describing the function of the PCIS RPV Water Level Low (Levels 1,2 and 3) signals to ensure that offsite dose limits of 10CFR100 are not exceeded.

B. Correct - Raising RPV level to $\geq$ +50" promotes natural circulation between the core and the annulus region.

C. Incorrect - The volume of water in the RPV at +50 inches is not sufficient to provide for long-term (shutdown) core cooling. RPV water temperature will rise.

D. Incorrect - Tech. Spec. 3.9.6 requires RPV level to be at least +458 inches above instrument zero during refueling operations.

**31** **ID: N-ILT-5023-4G-003** **Points: 1.00**

* The Unit 3 HPCI Turbine isolated from a false steam supply low pressure signal.
* I&C Technicians corrected the problem, the isolation signal is clear, but the Main Control Room has not yet reset the HPCI isolation.
* RPV pressure is 920 psig.

Subsequently a small steam leak develops in the Primary Containment which brings Drywell pressure up to 3 psig.

Which of the following automatic and/or manual actions will result in HPCI system start?

A. The HPCI isolation will automatically reset, then the steam supply valves (MO-15 and MO-16) must be manually re-opened.

B. The HPCI isolation will automatically reset, then the steam supply valves will automatically open.

C. Pushbuttons 23A-S20 (AUTO/MANUAL RESET) and 23A-S26 (AUTO RESET) must be depressed.

D. Pushbutton 23A-S20 (AUTO/MANUAL RESET) and 23A-S25 (AUTO RESET) must be depressed AND the steam supply valves MO-15 and MO-16 must be manually re-opened.

Answer: B

**Question 31 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5023-4G-003 The Unit 3 HPCI Turbine isolated from a faulty low steam supply pressure signal. |
| System ID: | 1153 |
| User ID: | N-ILT-5023-4G-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 206000A2.16 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 4. 0 / SRO 4.1<br>Cognitive_Level: High<br><br>References: SO 23.7.C-3<br><br>Justification:<br>A. Incorrect - The steam supply valves will open automatically on 2 psig High Drywell pressure initiation signal.<br>B. Correct - The steam supply valves will open automatically on 2 psig High Drywell pressure initiation signal.<br>C. Incorrect - No isolation reset pushbuttons need to be depressed. The HPCI low steam supply pressure isolation signal will auto reset above 100 psig reactor pressure.<br>D. Incorrect - No isolation reset pushbuttons need to be depressed. The HPCI low steam supply pressure isolation signal will auto reset above 100 psig reactor pressure. |

**32** **ID: N-ILT-5014-6C-001** **Points: 1.00**

Unit 3 was operating at 100% power when a plant transient resulted in the following conditions:

* The Reactor is scrammed; all rods are inserted.
* Reactor water level -180 inches.
* Reactor pressure is 300 psig.
* Torus temperature is 185°F.
* Torus pressure is 2 psig
* Torus level is 11.5 feet
* The "A" Core Spray pump is the only pump available for injection.

Based on these conditions, the "A" Core Spray pump _____.

A. CANNOT be used per procedure, the NPSH Limit has been exceeded.

B. CANNOT be used per procedure, the Vortex Limit has been exceeded.

C. CAN be used per procedure, the NPSH and Vortex Limits can be exceeded.

D. CAN be used per procedure, the NPSH and Vortex Limits have NOT been exceeded.

Answer: C

## Question 32 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5014-6C-001 Unit 3 was operating at 100% power when a plant transient resulted in the followin |
| System ID: | 1290 |
| User ID: | N-ILT-5014-6C-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 209001A1.05 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.5 / SRO 3.6<br>Cognitive_Level: High |

References: T-101, T-102, T-111

Justification:

A. Incorrect - Although the NPSH limit has been exceeded, the "A" Core Spray pump can be placed in service as directed by Step LR-7 of T-111.

B. Incorrect - The Vortex limit (10.5 feet in the torus) has not been exceeded.

C. Correct - The given conditions result in entry into T-111, "Level Restoration". Step LR-7 of T-111 allows operation of Core Spray pump "A" even if the NPSH and/or Vortex limit(s) have been exceeded. The Core Spray pump would start to inject at an RPV pressure of $\leq$ 330 psig.

D. Incorrect -The NPSH limit has been exceeded.

**33** **ID: N-ILT-5011-1E-003** **Points: 1.00**

Unit 2 scrammed from 100% power due to a loss of vacuum and is experiencing an ATWS. Current plant conditions are as follows:

- Reactor power is 37%
- RPV level is +23 inches and steady
- RPV pressure is 950 psig and is being controlled via SRVs.
- Torus temperature is 95° F and rising.

The CRS has directed the URO to inject Standby Liquid Control (SBLC). The URO positions the *SBLC switch to "Pump A Run".*

Which of the following is the correct plant response to the above action?

A. 'A' SBLC pump discharge pressure will rise to 1450 psig.

B. The amber Squib Valve Continuity lights will extinguish.

C. Only one Squib Valve fires to align a flowpath from SBLC to the Reactor.

D. GROUP II/III INBOARD AND OUTBOARD ISOLATION RELAYS NOT RESET alarms will illuminate.

Answer: *D*

## Question 33 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5011-1E-003 Unit 2 scrammed from 100% power due to a loss of vacuum and is experiencing an ATW |
| System ID: | 1364 |
| User ID: | N-ILT-5011-1E-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 211000 K4.07 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 3.9<br>Cognitive_Level: Memory |

References: SO 11.1.B-2, PLOT 5011

Justification:
A. Incorrect - This is the system RV setpoint. System discharge pressure should be approx. 100 psig above reactor pressure.

B. Incorrect - Lights are lit until SBLC pump control switch is taken to 'Off' position.

C. Incorrect - Both squib explosive valves fire when either SBLC pump is started from the MCR.

D. Correct - due to RWCU isolation on SBLC initiation.

**34** **ID: N-ILT-5060F-2B-002** **Points: 1.00**

Unit 2 conditions:

* Reactor Power is 100%.
* Both RPS Busses were aligned to their normal RPS MG Set power supplies.
* A loss of one off-site startup feed occurred causing a 4kV Emergency Bus Fast Transfer.
* The transfer occurred as designed and restored power to the impacted Emergency Busses from the other startup feed.

Which one of the following identifies the designed amount of time that power will be lost to the RPS MG Set and the effect, if any, on RPS logic.

| | Duration of Power Loss to MG Set | Effect on RPS |
|---|---|---|
| A. | 0.25 seconds | half scram |
| B. | 3.25 seconds | No RPS logic trip |
| C. | 8.0 seconds | half scram |
| D. | 13.0 seconds | No RPS logic trip |

Answer: B

## Question 34 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5060F-2B-002 Unit 2 conditions: * Reactor power is 100%. * Both RPS Busses were aligned to |
| System ID: | 1162 |
| User ID: | N-ILT-5060F-2B-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 212000 K2.01 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.2 / SRO 3.3<br>Cognitive_Level: Memory |

Reference: PLOT 5060F; SO 54.7.A

A. Incorrect - 4 kV bus will transfer in 0.25 seconds, but there is another 3 seconds until the Emergency Bus MCC is reenergized.

B. Correct - The 4KV bus will fast transfer in 0.25 seconds, then 3 seconds later the Emergency Bus MCC will reclose providing 480 VAC power back to the RPS MG Set. No RPS half scram will occur.

C. Incorrect - 8 seconds corresponds to the time delay before the RPS MG Set Supply Breakers trip on a loss of power. This would result in a half scram.

D. Incorrect - 13 seconds corresponds to 10 seconds for the EDG to start and 3 additional seconds for emergency Bus MCC to reenergize. The 8 second time delay trip is designed to cause a loss of RPS (and scram) rather than allowing the system to continue operation after a complete loss of off-site power. This would result in a half scram.

**35** **ID: N-ILT-5060C-4A-006** **Points: 1.00**

* Unit 2 is in Mode 2 with a reactor startup in progress
* The required critical data documentation has just been completed
* Two identical failures cause the "B" and "E" Wide Range Neutron Monitoring (WRNM) channels to fail inop simultaneously.

Which of the following is the plant response?

A. Alarm, rod block, AND full scram.

B. Alarm, rod block, AND HALF SCRAM.

C. Alarm ONLY. No rod blocks or scram signals.

D. Alarm and rod block ONLY. NO scram signals.

Answer: A

## Question 35 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5060C-4A-006 A Unit 2 Reactor startup is in progress * The required critical data documentatio |
| System ID: | 1164 |
| User ID: | N-ILT-5060C-4A-006 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 215003 K1.01 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.9 / SRO 3.9<br>Cognitive_Level: High |

Reference: PLOT 5060C; ARCs 211 B-1 and 211 C-1

Justification:

A. Correct - INOP failure is a "trip" signal. One in each trip system will generate a full scram, the "High/INOP' annunciator, and a control rod block. The WRNM System trips are bypassed only in Mode 1.

B. Incorrect - A full scram will result from a trip signal in each channel.

C. Incorrect - INOP failure is a "trip" signal. One in each trip system will generate a full scram, the "High/INOP' annunciator, and a control rod block.

D. Incorrect - INOP failure is a "trip" signal. One in each trip system will generate a full scram, the "High/INOP' annunciator, and a control rod block.

**36** **ID: N-ILT-5060C-4A-005** **Points: 1.00**

* A Unit 3 reactor startup and approach to critical is in progress.
* During a rod withdrawal from position '20' to '22', a high notch worth causes alarm 310 F-3, WRNM SHORT PERIOD/TROUBLE, as detected by WRNM Channel G.
* The URO confirms a period of 25 seconds.

In accordance with procedure GP-2 "Normal Plant Startup", which of the following, if any, is the required operator action?

A. NO additional operator action required for this condition.

B. INSERT the control rod to the full-in position.

C. INSERT the control rod to lengthen period to > 50 seconds.

D. INSERT the control rod to lengthen period to infinity.

Answer: C

## Question 36 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5060C-4A-005 A Unit 3 reactor startup and approach to critical is in progress. During a rod |
| System ID: | 1154 |
| User ID: | N-ILT-5060C-4A-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 215003 G2.4.50 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.3<br>Cognitive_Level: Memory |

References: ARC 2(3)10-F-3, GP-2

Justification:

A. Incorrect - A reactor period of $\leq$ 28 seconds will initiate a control rod withdraw block. Procedure GP-2, startup, provides guidance to manipulate control rods to ensure that the reactor period does not go less than 50 seconds.

B. Incorrect - A reactor period of $\leq$ 28 seconds will initiate a control rod withdraw block. Procedure GP-2, startup, provides guidance to manipulate control rods to ensure that the reactor period does not go less than 50 seconds.

C. Correct - A reactor period of $\leq$ 28 seconds will initiate a control rod withdraw block. Procedure GP-2, startup, provides guidance to manipulate control rods to ensure that the reactor period does not go less than 50 seconds.

D. Incorrect - A reactor period of $\leq$ 28 seconds will initiate a control rod withdraw block. Procedure GP-2, startup, provides guidance to manipulate control rods to ensure that the reactor period does not go less than 50 seconds.

**37** **ID: N-ILT-5060-3A-005** **Points: 1.00**

- Unit 2 is operating at 25% power.
- #2 APRM fails downscale (not INOP).

The downscale condition will generate an:

A. Alarm ONLY.

B. Alarm, Rod Block, AND Half scram.

C. Alarm, Rod Block, AND Full scram.

D. Alarm AND Rod Block; NO scram signals.

Answer: D

## Question 37 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5060-3A-005 With Unit 2 operating at 25% power, the #2 APRM fails donwscale (not INOP). Which |
| System ID: | 1166 |
| User ID: | N-ILT-5060-3A-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 215005 K3.03 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 4.0<br>Cognitive_Level: High<br><br>Reference: PLOT 5060, ARC 211 C-2 |

Justification:

A. Incorrect - APRM downscale ($\leq$ 3.2 %) in MODE 1 will generate a control rod withdraw block and downscale alarm 211 C-2 only.

B. Incorrect - A scram vote signal is only generated for :
   - APRM Inop Trip
   - High Neutron Flux
   - Simulated Thermal Power High

C. Incorrect - A scram vote signal is only generated for :
   - APRM Inop Trip
   - High Neutron Flux
   - Simulated Thermal Power High

D. Correct - APRM downscale ($\leq$ 3.2 %) in MODE 1 will generate a control rod withdraw block and downscale alarm 211 C-2 only.

**38** **ID: N-ILT-5002-1W-001** **Points: 1.00**

Which one of the following defines when the reactor recirculation flow comparator 10% mismatch alarm APRM FLOW BIAS OFF NORMAL occurs?

A. One recirculation loop flow differs from the other recirculation loop flow by more than 10%.

B. One recirculation loop flow differs from the average recirculation loop flow by more than 10%.

C. Any of the four APRM total drive flow values differ from each other by more than 10%.

D. Total recirculation drive flow is 10% above the flow adjusted recirculation MG Set speed demands signals (measured at the MG Set Tach Generators).

Answer: C

## Question 38 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5002-1W-001 The reactor recirculation flow comparators have a 10% mismatch alarm, APRM FLOW |
| System ID: | 1291 |
| User ID: | N-ILT-5002-1W-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 215005A3.06 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.0 / SRO 3.1<br>Cognitive_Level: Memory<br><br>References: ARC 211 A-4 |

Justification:

A. Incorrect - A Recirc loop and B Recirc loop flows are NOT compared to each other. The flow comparator 10% alarm is based on the difference between any of the four APRM total drive flow values.

B. Incorrect - There is no average recirc loop flow signal.

C. Correct - Recirc loop flow comparator alarm setpoint is based on > 10% difference between any of the four APRM total drive flow values.

D. Incorrect - There is no comparator circuit between total recirc flow and the recirc MG Set speed demand.

**39** **ID: N-ILT-5013-1C-005** **Points: 1.00**

Both RCIC and HPCI initiated in response to a valid Unit 3 low-low Reactor water level signal. Current plant conditions are as follows:

- Reactor Water Level: +18 inches and stable
- Reactor Pressure: 1040 psig and rising slowly
- Drywell Pressure: 0.8 psig and stable
- Reactor Power: all control rods are fully inserted
- RCIC has been aligned in the CST to CST mode of operation at 600 gpm with flow controller in AUTO.
- HPCI is injecting to the Reactor at 1000 gpm with flow controller in AUTO.
- During operation of HPCI the PRO reports Torus level is ~~15' 8"~~ 16' 1" and rising slowly.

Based on the above conditions which statement below describes RCIC response, if any.

A. RCIC will trip on low suction pressure.

B. RCIC speed will rise until the overspeed trip occurs.

C. RCIC will remain in the CST to CST mode of operation.

D. RCIC Torus suction valves (MO-3-13-039 and MO-3-13-041) will auto open.

Answer: B

## Question 39 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5013-1C-005 Both RCIC and HPCI initiated in resposne to a valid Unit 3 low-low Reactor water |
| System ID: | 1293 |
| User ID: | N-ILT-5013-1C-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 217000K1.03 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.6 / SRO 2.6<br>Cognitive_Level: High<br><br>References: ARC 221 C-4 |

Justification:

A. Incorrect - RCIC suction pressure will not be affected by MO-24 closure. No suction valves will reposition.

B. Correct - On high Torus level $\geq$ 15' 6" HPCI suction from CST closes and Torus suction valves open. This swap also causes MO-24 return to CST to auto close thereby removing the RCIC system flow path back to CST. RCIC flow controller will attempt to maintain flow at 600 gpm and increase turbine speed until it trips at 125% of rated speed.

C. Incorrect - RCIC will not remain in CST-to-CST mode. System will trip on mechanical overspeed as flow controller will increase speed to maintain system flow as MO-24 closes.

D. Incorrect - RCIC Torus suction valves do not have an auto open function. Realigning RCIC suction to Torus must be done manually.

**40** **ID: N-ILT-5013-5B-001** **Points: 1.00**

The following conditions exist on Unit 2:

* A spurious PCIS Group I isolation has occurred.
* RPV level lowered to -40 inches and was restored with RCIC.
* RPV level is presently steady at +30 inches.
* The PRO placed RCIC in the CST-to-CST mode per RRC 13.1-2, "RCIC System Operation During a Plant Event".

Which of the following actions are required in order to re-inject with RCIC per RRC 13.1-2, "RCIC System Operation During a Plant Event"?

A. Throttle close MO-2-23-24, Condensate Tank Return, until RCIC system discharge pressure is at least 100 psig greater than reactor pressure AND AO-2-13-22, Discharge Check, indicates open.

B. Increase RCIC turbine speed by adjusting the RCIC flow controller to maintain RCIC system discharge pressure at least 100 psig greater than reactor pressure AND AO-2-13-22, Discharge Check, indicates open.

C. Throttle close MO-2-13-30, Full Flow Test, until RCIC system discharge pressure is at least 100 psig greater than reactor pressure AND AO-2-13-22, Discharge Check, indicates open.

D. Throttle open MO-2-13-30, Full Flow Test, until RCIC system discharge pressure is at least 50 psig greater than reactor pressure AND AO-2-13-22, Discharge Check, indicates split indication.

Answer: C

## Question 40 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5013-5B-001 The following conditions exist on Unit 2: *A spurious PCIS Group I isolation has |
| System ID: | 1294 |
| User ID: | N-ILT-5013-5B-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 217000A4.07 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.9 / SRO 3.9<br>Cognitive_Level: High<br><br>References: RRC 13.1-2 |

Justification:

A. Incorrect - MO-2-23-24 is placed full open in the CST-to-CST mode and is left full open even when subsequent RPV injection is required.

B. Incorrect - RRC 13.1-2 does not refer to using speed adjustments for controller RPV re-injection.

C. Correct - Per RRC 13.1-2, if subsequent vessel injection is required once in the CST-to-CST mode, then throttle close MO-30, Full Flow Test, until RCIC discharge pressure is at least 100 psig greater than reactor pressure AND AO-22, Discharge Check, is open.

D. Incorrect - The MO-2-13-30, Full Flow Test, must be throttled close in order to raise RCIC system pressure greater than RPV pressure. Throttling open MO-30 will only lower RCIC system pressure.

**41** **ID: N-ILT-5001G-5-005** **Points: 1.00**

The Automatic Depressurization System (ADS) will actuate on which of the following conditions?

A. Drywell pressure at 4.1 psig
Reactor water level at –120" for 10 minutes
'A' and 'D' Core Spray Pumps operating

B. Drywell pressure at 5.0 psig
Reactor water level at –165" for 5 minutes
'A' and 'B' Core Spray Pumps operating

C. Drywell pressure at 1.2 psig
Reactor water level at –165" for 5 minutes
'B' RHR Pump operating

D. Drywell pressure at 2.7 psig
Reactor water level at –165" for 3 minutes
'D' RHR Pump operating

Answer: D

## Question 41 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5001G-5-005 Which one of the following plant conditions will directly result in the initiation |
| System ID: | 1170 |
| User ID: | N-ILT-5001G-5-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 218000K5.01 |
| User Text: | B |
| User Number 1: | 0.00 |
| User Number 2: | 3.00 |
| Comment: | Importance: RO 3. 8 / SRO 3.8<br>Cognitive_Level: High<br><br>References: M-1-S-52; ARC 227 D-4<br><br>Justification:<br>A. Incorrect - Rx level does not reach triple Lo level -160".<br>B. Incorrect - The right combination of ECCS pumps is not available. (Need A or B and C or D Core Spray pumps)<br>C. Incorrect - D/W pressure is too low and the time is not long enough. (Need 9.5 minutes)<br>D. Correct - logic is satisfied. |

**42** **ID: N-ILT-5007G-3Q-001** **Points: 1.00**

Given the following:

* Unit 2 is operating normally at 100% power.
* Reactor Building d/p is -0.15 inches of vacuum WG.
* Subsequently, a PCIS malfunction generates a Group III PCIS half isolation.

What will be the effect, if any, on (1) Reactor Building ventilation flow rate and (2) Reactor Building pressure?

A. (1) No change
(2) No change

B. (1) Lower
(2) No change

C. (1) Lower
(2) More negative

D. (1) Lower
(2) Less negative

Answer: C

## Question 42 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5007G-3Q-001 Given the following: *Unit 2 is operating normally at 100% power. *Reactor Buil |
| System ID: | 1295 |
| User ID: | N-ILT-5007G-3Q-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 223002K3.18 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.0 / SRO 3.1<br>Cognitive_Level: High |

References: GP-8.D, M-1-S-23, E-277, E-278

Justification:

A. Incorrect - This choice indicates RBV remains in service.

B. Incorrect - This choice indicates RBV trips, SGTS starts and maintains the same Reactor Building d/p.

C. Correct - A PCIS Group III half isolation causes Reactor Building Ventilation (RBV) to trip and isolate, and SGTS to auto-start. Since SGTS is required by design (and Tech Spec 3.6.4.1) to maintain Reactor Building d/p $\geq$ 0.25 inches of vacuum WG, Reactor Building d/p will become more negative when SGTS starts.

D. Incorrect - This choice indicates RBV trips and SGTS either does not start or maintains a less negative Reactor Building d/p.

**43** **ID: N-ILT-5007G-5D-003** **Points: 1.00**

A plant startup is in progress on Unit 2. The following conditions exist:

- The Reactor Mode Switch is in STARTUP.
- Two Turbine Bypass Valves are open.
- Reactor pressure is 940 psig and steady.

Which one of the following describes the plant response, if any, if "PCIS System I Main Steam Line High Flow" differential pressure transmitter DPT-2-118A fails high?

A. No effect since the Mode Switch is NOT in RUN.

B. ONLY a Half Group I Isolation will occur.

C. ONLY a Full Group I Isolation will occur.

D. a Full Group I Isolation AND a reactor scram will occur.

Answer: B

## Question 43 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5007G-5D-003 A plant startup is in progress on Unit 2. The following conditions exist: |
| System ID: | 1365 |
| User ID: | N-ILT-5007G-5D-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 223002 2.1.27 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.5<br>Cognitive_Level: High |

References: PLOT 5007G, ARC 211 H-1

Justification:

A. Incorrect - a half Group I isolation will occur. This Group I signal is not Mode Switch dependent.

B. Correct - a half Group I isolation will occur only.

C. Incorrect - a half Group I isolation will occur only.

D. Incorrect - a half Group I isolation will occur only. No reactor scram will occur.

**44** **ID: N-ILT-5001A-4D-003** **Points: 1.00**

During a high reactor pressure transient on Unit 2, the Plant Reactor Operator notes the following Safety Relief Valve (SRV) indications:

* 11 SRV white lights are illuminated.
* The "C and "D" SRV red lights are illuminated.
* All other SRV green lights are illuminated.
* No safety valve white lights are illuminated.

What was the minimum peak reactor pressure during this transient and what is the approximate current reactor pressure?

| | Min. Peak Pressure | Current Pressure (Approximately) |
|---|---|---|
| A. | 1135 psig | 1100 psig. |
| B. | 1155 psig | 1135 psig. |
| C. | 1260 psig | 1135 psig. |
| D. | 1325 psig | 1155 psig. |

Answer: B

## Question 44 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5001A-4D-003 During a high reactor pressure transient on Unit 2, the Plant Reactor Operator |
| System ID: | 1155 |
| User ID: | N-ILT-5001A-4D-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 239002K5.01 |
| *User Text:* | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.4 / SRO 3.5<br>Cognitive_Level: High<br><br>References: Tech. Spec. 3.4.3 |

Justification:

A. Incorrect - if 1135 psig was the peak pressure only 4 SRV's would have the white memory lights lit.

B. Correct - SRV setpoints range form 1135 psig to 1155 psig. If all 11 white memory light are lit, then pressure reached 1155 psig. With only the "C" & "D" SRVs still open, pressure is at lowest range value of 1135 psig.

C. Incorrect - 1260 psig is the setpoint for safety valve (not SRV) actuation.

D. Incorrect - 1325 psig is the reactor coolant system pressure safety limit.

45 ID: N-ILT-5006-3J-001 Points: 1.00

Given the following:

* Unit 3 is operating at 100% power.
* A "Feedwater Controller Failure - Maximum Demand" transient occurs as described in the Updated Final Safety Analysis Report (UFSAR).
* RPV water level rises at a rate of 2 inches per second.

Assuming no operator actions, one minute later the reactor recirculation pumps are:

A. Tripped.

B. Operating at 30% speed.

C. Operating at 45% speed.

D. Operating at the initial speed.

Answer: A

## Question 45 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5006-3J-001 Given the following: *Unit 3 is operating at 100% power. *A "Feedwater Controll |
| System ID: | 1297 |
| User ID: | N-ILT-5006-3J-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 259002K3.04 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.9 / SRO 3.0<br>Cognitive_Level: High<br><br>References: UFSAR 14.5.2.2, UFSAR Figure 14.5.5, PLOT-1610 Objective 1 |

Justification:

A. Correct - With no operator actions and RPV level rising at least 2"/second, RPV level will reach the high level turbine trip setpoint (+46") in approximately 10 seconds. A turbine trip from full power will result in high reactor pressure and SRV actuations. This transient, as analyzed in Section 14.5.2.2 of the UFSAR results in a peak reactor pressure of ~1250 psig (at the bottom of the vessel). An ATWS-RPT will occur at 1106 psig...approximately 13 seconds into the event.

B. Incorrect - Recirc pumps trip on high reactor pressure.

C. Incorrect - Recirc pumps trip on high reactor pressure.

D. Incorrect - Recirc pumps trip on high reactor pressure.

**46** **ID: N-ILT-5009A-3A-005** **Points: 1.00**

Unit 3 is operating at 100% power when a valid Group III PCIS signal is generated. The following conditions exist:

* Both SBGT filter trains are aligned.
* SBGT system flow is 1000 scfm.
* Secondary Containment to atmosphere differential pressure is -0.15" $H_2O$.

Which of the following is the cause of this condition?

A. A Refuel Floor blowout panel is open.

B. A large steam leak has occurred in Secondary Containment.

C. SBGT Fan Bypass Damper (PO-00522) fails to reposition as designed.

D. SBGT "B" Fan Vortex Damper (PO-00528) fails to reposition as designed.

Answer: C

## Question 46 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5009A-3A-005 Unit 3 is operating at 100% power when a valid Group III PCIS signal is |
| System ID: | 1172 |
| User ID: | N-ILT-5009A-3A-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 261000A3.03 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.2 / SRO 3.3<br>Cognitive_Level: High<br><br>Reference: PLOT 5009A<br><br>Justification:<br>A. Incorrect - results in high SBGT flow with a less negative DP.<br>B. Incorrect - results in normal SBGT flow with a less negative or possible positive DP.<br>C. *Correct - Bypass damper PO-00522 provides for minimum flow recirculation path of approx - 20% for capacity back to suction plenum. It needs to reposition to ensure RB + Refuel Floor can be maintained at a negative pressure.*<br>D. Incorrect - results in high SBGT flow with more negative DP. |

**47** **ID: N-ILT-5051-6-001** **Points: 1.00**

- Unit 2 and Unit 3 are at 100% power.

Using the attached single line diagram of the North and South Substations (print E-1), determine the automatic system response to a 5010 Line fault.

A. The 65 Breaker ONLY trips, THEN attempts to reclose.

B. The 55 and 65 Breakers will both trip, THEN the 55 Breaker attempts to reclose.

C. The 65 Breaker ONLY trips, then the Unit 3 Main Generator will lockout.

D. The 55 breaker ONLY trips and its associated motor operated disconnects will open.

Answer: B

## Question 47 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5051-6-001 Unit 2 and Unit 3 are at 100% power. Using a single line diagram of the North and S |
| System ID: | 1344 |
| User ID: | N-ILT-5051-6-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 262001 K4.04 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.8 / SRO 3.1<br>Cognitive_Level: High |

References: Print E-1, Station Single Line

EXAMINEE MUST HAVE A COPY OF PRINT E-1 IN ORDER TO ANSWER THIS QUESTION.

Justification:

A. Incorrect - 65 Breaker is a Unit output breaker and does not have a reclosure feature. Also, for a fault on the 5010 Line the 55 Breaker would trip open as well.
B. Correct - Breakers 55 and 65 will open on the fault and only the 55 Breaker will attempt reclosure. 65 Breaker is a Unit output breaker and does not have a reclosure feature.
C. Incorrect - The Unit 3 Main Generator will not lockout. Output Breaker 15 will remain closed.
D. Incorrect - Breakers 55 and 65 will open on the fault. The 55 and 65 Breaker motor operated disconnects are manually operated ONLY.

48 ID: N-ILT-5058-5C-003 Points: 1.00

* The 20Y050 supply from the Static Inverter is in a normal lineup.
* A fault occurs on the 20Y050 Panel resulting in an excessive current condition (> 300 amp setpoint).

The Static Inverter _____(1)_____ and the 20Y050 Panel _____(2)_____:

A. (1) de-energizes when the Input Breaker (CB1) trips on overcurrent
(2) de-energizes.

B. (1) receives a shutdown signal that opens both breakers (CB1 and CB2)
(2) de-energizes.

C. (1) Static Switch swaps to the Alternate Source
(2) remains energized while the fault clears.

D. (1) Static Switch is prevented from transferring to the Alternate Source
(2) remains energized while the fault clears.

Answer: C

## Question 48 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5058-5C-003 * The 20Y050 supply from the Static Inverter is in a normal lineup. * A fault occ |
| System ID: | 1156 |
| User ID: | N-ILT-5058-5C-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 262002K4.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.1/ SRO 3.4<br>Cognitive_Level: High<br><br>References: ARC-220 F-5 |

Justification:

A. Incorrect - The Static Switch will transfer to alternate source in order to maintain 20Y050 panel energized.

B. Incorrect - The Static Switch will transfer to alternate source in order to maintain 20Y050 panel energized.

C. Correct - The Static Inverter is current limited. If a fault develops it will automatically transfer to the Alternate Source which can supply the larger current necessary to clear the fault and then transfer back to normal DC supply when fault clears.

D. Incorrect - The Static Switch will transfer to the alternate source in order to maintain 20Y050 panel energized.

49 ID: N-ILT-5057-6A-002 Points: 1.00

Given the following conditions on Unit 2:

* 2A 125/250 Volt Battery Charger is performing an "equalize" charge on its battery.
* During the charge, AC power to the charger is lost for 15 seconds but subsequently is restored when the bus is reenergized by the diesel generator.

Which of the following describes the response of this battery charger?

The 2A Battery Charger will:

A. return in the "float" charge mode.

B. return in the "equalize" charge mode.

C. remain de-energized and cannot be restored with the diesel generator powering the bus.

D. remain de-energized until manually restored as permitted by diesel generator loading.

Answer: B

**Question 49 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5057-6A-002 Given the following conditions on Unit 2: *2A 125/250 Volt Battery Charger has |
| System ID: | 918 |
| User ID: | N-ILT-5057-6A-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 263000 K6.01 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.2 / SRO 3.5<br>Cognitive_Level: High<br><br>Reference: SO 57B.1-2<br><br>Justification: |

A. Incorrect - the charger will return to the equalize charge mode.

B. Correct - from Note 2 in SO 57B.1-2 "Upon a loss of AC input power, the battery charger will return to the same mode it was in once power is restored. IF the battery charger was in the Equalize mode, THEN the timer will pick up where it was interrupted AND time out."

C. Incorrect - the 2A battery charger is a safety-related component and is automatically restored approximately 16 seconds after the diesel generator restores power to the emergency bus.

D. Incorrect - the 2A battery charger is a safety-related component and is automatically restored approximately 16 seconds after the diesel generator restores power to the emergency bus.

**50** **ID: N-ILT-5057-1D-001** **Points: 1.00**

Unit 2 was operating at full power when the following occurs on the Balance of Plant (BOP) Station Batteries:

* 2AD004/2BD004 BATTERY GROUND (220 H-5) alarms.
* The EO sent to investigate reports that the Ground Lamp indications on the 20D005 Panel are as follows:
  * "Ground Lamp A is BRIGHTLY lit".
  * "Ground Lamp B is OUT".
  * "The Ground Detection Ammeter is reading mid-scale".
* The crew begins to search for the ground by isolating loads in accordance with AO 57A.1-2, 125/250 VDC Balance of Plant Station Battery Ground Investigation.

When the grounded load is ISOLATED, all of the Ground Lamp Indications will be ___(1)___ lit and the ground detection ammeter will approach ___(2)___.

A. (1) brightly
(2) zero

B. (1) brightly
(2) full scale

C. (1) dimly
(2) zero

D. (1) dimly
(2) full scale

Answer: C

## Question 50 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5057-1D-001 Unit 2 was operating at full power when the following occurs: 2AD004/2BD004 BATTE |
| System ID: | 1177 |
| User ID: | N-ILT-5057-1D-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 4.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 263000A3.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.2 / SRO 3.3<br>Cognitive_Level: High<br><br>References: AO 57A.1-2 |

Justification:

A. Incorrect - Although the ammeter should approach zero, Ground Lamp indications that are brightly lit indicate a positive ground.

B. Incorrect - Ground Lamp indications that are brightly lit indicate a positive ground and full scale ammeter indicates a significant ground is present.

C. Correct - With no ground present (isolated), both lights will be dim. Ammeter will read near zero due to low ground current.

D. Incorrect - Although the Ground Light indications should be dimly lit, a full scale ammeter reading indicates a significant ground is present.

**51** **ID: N-ILT-5052-6G-004** **Points: 1.00**

- An electrical fault and blown fuse have resulted in loss of the Unit 3 Div II Station 125V DC distribution panel 30D24 (3PPD), which is now de-energized.
- A few minutes later, Unit 3 receives a LOCA signal.

What is the effect on the E-2 or E-4 emergency diesel generators?

A. E-2 diesel will not automatically start.

B. E-2 diesel will start but not field flash.

C. E-4 diesel will not automatically start.

D. E-4 diesel will start but not field flash.

Answer: C

**Question 51 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5052-6G-004 An electrical fault and blown fuse has resulted in the loss of the Unit 3 Div II |
| System ID: | 1179 |
| User ID: | N-ILT-5052-6G-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 4.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 264000 K6.09 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.5<br>Cognitive_Level: High<br><br>Reference: PLOT5052.06G, print E-27 sht 1<br><br>Justification:<br>A. Incorrect - E-2 will start and be available for loading.<br>B. Incorrect - E-2 will start and be available for loading.<br>C. Correct - Div II 125 V DC Panel 3 PD supplies the E-4 EDG VDC logic and solenoid power. E-4 will not start.<br>D. Incorrect - Div II 125 V DC Panel 3 PD supplies the E-4 EDG VDC logic and solenoid power. E-4 will not start. |

**52** **ID: N-ILT-5036-6B-001** **Points: 1.00**

The Instrument Air System is in a normal lineup when the following occur:

* INSTRUMENT AIR DRYER TROUBLE (216 C-4) goes into alarm.
* B INSTRUMENT AIR HEADER LO PRESS (216 D-4) goes into alarm.
* "B" Instrument Air Header Pressure (PI-2425B) on Panel 20C012 is lowering.
* "B" Instrument Air Receiver Pressure (PI-2429B) on Panel 20C012 is steady at 110 psig.
* The TBEO reports there is a valve malfunction on the "B" Instrument Air Dryer and that neither the "C" or "D" drying tower is in service.

Which one of the following describes (1) the on-going effect on "B" instrument air header pressure, assuming no operator action is taken, and (2) what action(s) will mitigate this event?

A. (1) Pressure will continue to lower.
(2) Cross-tie "A" and "B" instrument air headers.

B. (1) Pressure will continue to lower.
(2) Cross-tie Unit 2 and Unit 3 "B" instrument air headers.

C. (1) Pressure will recover when Service Air Isolation PCV-2428 is fully closed.
(2) Isolate the "B" Instrument Air Dryer.

D. (1) Pressure will recover when Service Air Isolation PCV-2428 is fully closed.
(2) Bypass the "B" Instrument Air Dryer.

Answer: B

## Question 52 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5036-6B-001 The Instrument Air System is in a normal lineup when the following occur: *INSTRU |
| System ID: | 1298 |
| User ID: | N-ILT-5036-6B-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 300000A2.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.9 / SRO 2.8<br>Cognitive_Level: High |

References: ON-119, M-320

Justification:

A. Incorrect - Cross-tying the "A" and "B" instrument air headers will not be effective in restoring "B" instrument air header pressure since the "A" supply must pass through the "B" Air Dryer in order to supply the "B" header.

B. Correct - The given conditions indicate both towers for the "B" Air Dryer are isolated, which means there is no flow to the "B" instrument air header from the "B" air compressor/receiver... "B" instrument air header pressure will continue to lower. The correct action to take for this, as directed in ON-119, is to cross-tie the Unit 2 and Unit 3 "B" instrument air headers.

C. Incorrect - "B" instrument air header pressure will not recover when PCV-2428 closes since the supply from the "C" compressor/receiver must pass through the "B" Air Dryer in order to supply the "B" header.

D. Incorrect - "B" instrument air header pressure will not recover when PCV-2428 closes since the supply from the "C" compressor/receiver must pass through the "B" Air Dryer in order to supply the "B" header.

**53** **ID: N-ILT-5034-6D-001** **Points: 1.00**

Given the following:

- Peach Bottom Unit 2 is operating at 100% power.
- The "A" TBCCW pump trips on an electrical fault.
- The "B" TBCCW pump is blocked.

Which of the following describes the impact of this event and the associated required action?

A. Due to the imminent loss of Condensate pumps, scram the reactor IAW GP-4, "Manual Scram".

B. Due to the imminent loss of Stator Water Cooling, if Generator load is greater than 7,760 amps, perform GP-4, "Manual Scram".

C. Due to a loss of Isophase Bus Cooling, reduce Main Generator load to less than 18,000 amps IAW GP-9-2, "Fast Reactor Power Reduction".

D. Due to loss of cooling to the Instrument Air compressors, immediately cross-tie the Instrument Air header with Unit 3 IAW ON-119, "Loss Of Instrument Air".

Answer: C

**Question 53 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5034-6d-001 Loss of Cooling to TBCCW loads Impact on Ops |
| System ID: | 1263 |
| User ID: | N-ILT-5034-6D-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 400000 A2.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.4<br>Cognitive_Level: High |

Reference: PLOT 5034, OBJ. 6d; ON-113 & Bases; ON-118 & Bases

Justification:

A. Incorrect - ON-118 directs monitoring Condensate pump bearing and motor oil temperatures and if any temperature is at or above 190 degrees, or if any pump vibration alarm is received, then ON-118 directs reducing reactor power IAW GP-9-2 and removing the affected pump(s) from service. ON-118 does not direct a manual scram due to imminent loss of Condensate pumps.

B. Incorrect - Stator Cooling is cooled by Service Water, not TBCCW.

C. Correct - if TBCCW cannot be restored, ON-118 directs reducing Generator load to less than 18,000 amps IAW GP-9-2. As stated in ON-118, "isolated bus coolers are not considered vital TBCCW loads; hence a loss of TBCCW and the subsequent isolation of non-vital TBCCW loads, during swap to RBCCW, results in a loss of cooling water to these coolers."

D. Incorrect - with both TBCCW pumps tripped (both breaker contactors open), vital TBCCW loads (CRD pumps and Instrument Air Compressors) will automatically swap to RBCCW after a 40-second time delay. RBCCW will provide sufficient cooling to Instrument Air Compressors, preventing the need to cross-tie the Unit 2 Instrument Air header to Unit 3.

**54** **ID: N-ILT-5003-1A-003** **Points: 1.00**

Unit 2 is at 70% power to support a control rod pattern adjustment.

During a one notch withdrawal attempt the RO is unable to withdraw a control rod and notices the following:

- The control rod is selected
- Drive flow: 4 gpm
- Drive pressure: 200 psid above reactor pressure
- Drive-In and Drive-Out and Settle lights and timing are normal
- "Rod Withdrawal Permissive" light is lit
- No rod withdrawal block exist

Using the attached Table 2 of SO 62.1.A-2, "Withdrawing/Inserting a Control Rod", select the one condition that is the cause of the stuck control rod.

A. Air in the control rod drive mechanism.

B. Improper hydraulic control unit valve line-up.

C. Inlet to drive water filters HV-2-3-170 is closed.

D. Worn or bad Control Rod Drive Mechanism seals.

Answer: A

## Question 54 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5003-1A-003 Unit 2 is at 70% power to support a control rod pattern adjustment. During a one |
| System ID: | 1358 |
| User ID: | N-ILT-5003-1A-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 201001 G2.4.31 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.4<br>Cognitive_Level: High |

References: SO 62.1.A-2 Withdrawing/Inserting a Control Rod
THE EXAMINEE WILL NEED TABLE 2 "CAUSE AND CORRECTIVE ACTION TROUBLE SHOOTING" OF SO 62.1.A-2 IN ORDER TO ANSWER THIS QUESTION.

Justification:

A. Correct - Drive flow is high. Drive pressure is low.

B Incorrect - Drive flow would be low, drive pressure would be normal.

C. Incorrect - Drive flow would be low.

D. Incorrect - Drive pressure would be normal.

**55** **ID: N-ILT-5012-6F-001** **Points: 1.00**

- A startup is in progress on Unit 3 with reactor power at 5%.
- Panel 30Y34 is inadvertently de-energized, resulting in a loss of power to portions of PCIS logic.

Which of the following RWCU System containment isolation valves close as a result of this event?

1. MO-3-12-15, Cleanup Inlet Isolation-Inboard
2. MO-3-12-18, Cleanup Inlet Isolation-Outboard
3. MO-3-12-68, Cleanup Outlet Isolation

A. 1 ONLY

B. 2 ONLY

C. 2 and 3 ONLY

D. 1, 2, and 3

Answer: C

## Question 55 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5012-6F-001 A startup is in progress on Unit 3 with reactor power at 5%. Panel 30Y34 is inadv |
| System ID: | 1299 |
| User ID: | N-ILT-5012-6F-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 204000KL6.08 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.5 / SRO 3.5<br>Cognitive_Level: Memory |

References: GP-8.D, GP-8.C, M-1-S-23; AO 58A.3-2

Justification:

A. Incorrect - MO-3-12-15 does not close on loss of 30Y34.

B. Incorrect - MO-3-12-68 will also close on loss of 30Y34.

C. Correct - Panel 30Y34 provides power to PCIS outboard isolation valve logic. Loss of 30Y34 will result in isolation of the associated outboard containment isolation valves, including RWCU valves MO-3-12-18 and MO-3-12-68. Note that a loss of Panel 30Y33 causes a loss of power to PCIS inboard isolation valve logic. This in turn would result in closure of associated inboard containment isolation valves and, in the case of RWCU, a closure of the outboard containment isolation valves as well. This is due to loss of power to the NRHX high outlet temperature relay, which feeds both the inboard and outboard RWCU isolation valve logic. Note #2 in GP-8.C and GP-8.D describe the RWCU response to a loss of 20(30)Y33 and 20(30)Y34, respectively.

D. Incorrect - MO-3-12-15 does not close on loss of 30Y34.

**56** **ID: N-ILT-5062-3A-007** **Points: 1.00**

* Unit 2 is at 100% power.
* A transient requiring control rod insertion per GP-9-2, "Fast Reactor Power Reduction", occurs.
* Annunciator 211 D-5 RPIS INOPERATIVE is received.
* Annunciator 211 F-5 RWM ROD BLOCK is received.

Continued control rod insertions are:

A. not possible with the exception of a scram condition.

B. possible by using the Rod Control Switch held in the "Rod In" position.

C. possible by using the Emergency In/Notch Override Switch in "Emergency In".

D. possible for all control rods with the exception of the rod with the RPIS failure.

Answer: A

## Question 56 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5062-3A-007 Unit 2 is at 100% power. A Transient requiring control rod insertion per GP-9-2 |
| System ID: | 1181 |
| User ID: | N-ILT-5062-3A-007 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 214000K1.04 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.2 / SRO 3.2<br>Cognitive_Level: Memory |

References: ARC-211 D-5

Justification:

A. Correct - A select block stops all rod movement except scram.

B. Incorrect - Select block from RPIS failure stops all rod movement. The operator cannot even select any control rod for insertion.

C. Incorrect - Select block from RPIS failure stops all rod movement. The operator cannot even select any control rod for insertion.

D. Incorrect - Select block from RPIS failure stops all rod movement. The operator cannot even select any control rod for insertion.

**57** **ID: N-ILT-5007F-1E-001** **Points: 1.00**

A Traversing In-Core Probe trace is being performed using automatic operation.

Which of the following states the response of the TIP system when a Group II isolation is actuated with one detector in the core ?

A. The inserted detector withdraws to the indexer mechanism and the associated ball valve will close.

B. The inserted detector withdraws to the "inshield" position and the associated ball valve will close.

C. The trace continues unaffected by the isolation however, the isolation must be reset before any additional detectors can be inserted into the core.

D. The shear valve associated with the inserted detector fires isolating that detector. Other TIP guide tubes are isolated by the normally closed ball valve.

Answer: B

## Question 57 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5007F-1E-001 A Traversing In-Core Probe trace is being performed using automatic operation. |
| System ID: | 1183 |
| User ID: | N-ILT-5007F-1E-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 215001A3.03 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.5 / SRO 2.6<br>Cognitive_Level: Memory<br><br>Reference: PLOT 5007F; SO 7F.7.A-2 |

Justification:

A. Incorrect - On a Group II D isolation signal the TIP detector is first retracted to the inshield position and the ball valve closes.

B. Correct - On a Group II D isolation signal the TIP detector is first retracted to the inshield position and the ball valve closes.

C. Incorrect - On a Group II D isolation signal the TIP detector is first retracted to the inshield position and the ball valve closes.

D. Incorrect - Each shear valve must be actuated by a keylock switch located on the TIP console valve control monitor panel.

**58** **ID: N-ILT-5023-6I-001** **Points: 1.00**

* Unit 2 has experienced a reactor scram from 100% power.
* HPCI and RCIC initiated on low RPV level.
* Reactor level is now + 20" and rising quickly.

* Subsequently LT-2-02-3-072C, Wide Range Reactor Vessel Water Level, fails downscale.
* All other RPV level instruments remain operable.

Assuming no operator action is taken, what is the response, if any, of the HPCI system as RPV level rises?

A. HPCI will trip, but NOT isolate, at RPV level of +29".

B. HPCI will trip, but NOT isolate, at RPV level of +46".

C. HPCI will trip AND isolate at RPV level of +46".

D. HPCI will NOT trip and will NOT isolate on high RPV level of +46".

Answer: D

## Question 58 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5023-6I-001 *Unit 2 had been operating at 100% power. *A low level transient occurred causing |
| System ID: | 1300 |
| User ID: | N-ILT-5023-6I-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 4.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 216000K3.14 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 4.2<br>Cognitive_Level: High |

References: ARC 221 B-1 HPCI TURB TRIP

Justification:

A. Incorrect - HPCI high RPV level trip setpoint is +46", not 29". Trip needs input from both LT-72C and LT-72D (2 out of 2 logic).

B. Incorrect - HPCI high RPV level trip needs input from both LT-72C and LT-72D (2 out of 2 logic).

C. Incorrect - HPCI does not isolate at RPV level of +29". RPV level of +29" is the level at which HPCI will restart if tripped at +46" with no operator action.

D. Correct - HPCI RPV high level trip requires input from both LT-72C and LT-72D (2 out of 2 logic). With one transmitter downscale, the HPCI system will not trip on high level.

**59** **ID: N-ILT-2102-5A-017** **Points: 1.00**

Unit 2 was operating at 100% power when a feedwater line break occurred inside containment. Current plant conditions are as follows:

* RPV pressure is 900 psig and lowering.
* RPV level is +20 inches and steady.
* Torus pressure is 7 psig and rising.

Torus sprays can be initiated IF Torus level is below __(1)__ feet. This is because above this level __(2)__.

A. (1) 18
(2) it is assumed the torus spray spargers are submerged and no spray action will occur.

B. (1) 21
(2) it is assumed the torus spray spargers are submerged and no spray action will occur.

C. (1) 18
(2) the torus-to-drywell vacuum breakers are submerged, which could cause the Primary Containment negative design pressure to be exceeded.

D. (1) 21
(2) the torus-to-drywell vacuum breakers are submerged, which could cause the Primary Containment negative design pressure to be exceeded.

Answer: B

## Question 59 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-2102-5A-017 Unit 2 was operating at 100% power when a feedwater line break occurred inside con |
| System ID: | 1301 |
| User ID: | N-ILT-2102-5A-017 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 230000A4.12 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.8 / SRO 3.8 |

Cognitive_Level: High

References: T-102, T-102 Bases

Justification:

A. Incorrect - The torus spray headers are assumed to be covered if torus level is above 21 feet.

B. Correct - T-102 directs spraying the torus IF torus level is below 21 feet and BEFORE torus pressure reaches 9 psig. As stated in the Bases for T-102, "21 feet is the upper limit of torus level indication. Therefore, above 21 feet it is assumed that the torus spray spargers are submerged and that no spray action will occur".

C. Incorrect - 18 feet is the torus level above which the torus-to-drywell vacuum breakers begin to submerge, however this is why drywell sprays are not initiated unless torus level is below 18 feet ... this does not prevent initiating torus sprays.

D. Incorrect - The torus-to-drywell vacuum breakers begin to submerge at a torus level of 18 feet and rising.

**60** **ID: N-ILT-5010-2A-001** **Points: 1.00**

* Unit 2 is in MODE 4.
* The "B" Loop of RHR is lined up to cool the fuel pool per AO 10.3-2, "RHR System to Fuel Pool Cross-Connect Operation" using the 2D RHR pump.
* The "A" Loop of RHR is lined up in shutdown cooling with the 2A RHR pump.
* A fault on the E-42 bus results in annunciator 005-B1, E-42 BUS DIFFERENTIAL OR OVERCURRENT RELAYS.

The E4 Diesel Generator auto starts and:

A. loads the E42 Bus. Shutdown Cooling remains in service.

B. loads the E42 Bus. Fuel Pool Cooling using 'B' RHR Loop remains in service.

C. does NOT load the E42 Bus. Shutdown Cooling is lost.

D. does NOT load the E42 Bus. Fuel Pool Cooling using the 'B' RHR Loop is lost.

Answer: D

## Question 60 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5010-2A-001 Unit 2 is in MODE 4. The "B" Loop of RHR is lined up to cool the fuel pool per AO |
| System ID: | 1185 |
| User ID: | N-ILT-5010-2A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 233000K2.02 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.8 / SRO 2.9<br>Cognitive_Level: High<br><br>References: AO 10.3-2; ARC 005 B-1 |

Justification:

A. Incorrect - E4 Diesel output breaker is locked out from closing due to the E-42 bus fault.

B. Incorrect - E4 Diesel is locked out, and the 2D RHR Pump will trip of loss of E-42 bus power.

C. Incorrect - 2A RHR Pump is powered from the E12 Bus. Shutdown cooling will <u>not</u> be lost.

D. Correct - E4 Diesel will auto start on low E-42 bus voltage, but does not load onto the E-42 bus due to the bus fault condition. With E-42 bus de-energized the 2D RHR pump has no power and therefore RHR system assist with fuel pool cooling is lost.

**61** **ID: N-ILT-5001DL-5A-001** **Points: 1.00**

- Unit 3 is operating at rated power.
- Fully withdrawn control rod 30-31scrams unexpectedly.

Which of the following describes the INITIAL response (within the first 5 seconds) of reactor pressure and Turbine Control Valve position to this transient?

| | Reactor Pressure | TCV Position |
|---|---|---|
| A. | Decreases | Open slightly |
| B. | Decreases | Close slightly |
| C. | Increases | Open slightly |
| D. | Increases | Close slightly |

Answer: B

## Question 61 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5001DL-5A-001 Unit 3 is operating at rated power. A fully withdrawn control rod spuriously sc |
| System ID: | 1186 |
| User ID: | N-ILT-5001DL-5A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 241000K5.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.5 / SRO 3.6<br>Cognitive_Level: Memory |

References:

Justification:

A. Incorrect - As reactor pressure decreases, TCVs will close slightly to maintain the required throttle pressure.

B. Correct - Reactor pressure will decrease with the control rod insertion. As reactor pressure decreases, TCVs will close slightly to maintain *the required throttle pressure.*

C. Incorrect - Reactor pressure will INITIALLY decrease on control rod insertion (lower power).

D. Incorrect - Reactor pressure will INITIALLY decrease on control rod insertion (lower power).

**62** **ID: N-ILT-5001B-4A-009** **Points: 1.00**

Which of the following identifies the positions of the Turbine Control Valves (TCVs) and Combined Intermediate Valves (CIVs) immediately following a turbine trip?

| | TCVs | CIVs |
|---|---|---|
| A. | Closed | Open |
| B. | Closed | Closed |
| C. | Open | Open |
| D. | Open | Closed |

Answer: B

**Question 62 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5001B-4A-009 Which of the following identifies the expected positin of the Turbine Control |
| System ID: | 1187 |
| User ID: | N-ILT-5001B-4A-009 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 245000A1.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.7 / SRO 2.9<br>Cognitive_Level: Memory<br><br>References: SO 1B.2.A-2, SO 1B.2.A-3<br><br>Justification:<br>A. Incorrect - CIVs will get a close signal on a turbine trip for turbine protection.<br>B. Correct - TSVs and CIVs will get a close signal on a turbine trip for turbine protection.<br>C. Incorrect - CIVs will get a close signal on a turbine trip for turbine protection.<br>D. Incorrect - TCVs will get a close signal on a turbine trip for turbine protection. |

**63** **ID: N-ILT-5006-6I-002** **Points: 1.00**

Unit 2 is operating normally at 100% power when:

* FEEDWATER FIELD INSTRUMENT TROUBLE (201 H-1) goes into alarm.
* "B" main steam line flow indicator FI-2-06-088B on Panel 20C08A instantaneously fails downscale.

Which of the following describes the response, if any, of the Digital Feedwater Control System (DFCS)?

DFCS will:

A. remain in three element control and maintain normal RPV water level (+23").

B. remain in three element control and maintain a higher than normal RPV water level.

C. shift to single element control and maintain normal RPV water level (+23").

D. shift to single element control and maintain a lower than normal RPV water level.

Answer: C

## Question 63 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5006-6I-002 Unit 2 is operating normally at 100% power when: *FEEDWATER FIELD INSTRUMENT TROU |
| System ID: | 1302 |
| User ID: | N-ILT-5006-6I-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 259001A2.07 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.7 / SRO 3.8<br>Cognitive_Level: High |

References: ARC 201 H-1, OT-100

Justification:

A. Incorrect - On a loss of 1,2 or 3 steam flow indications DFCS will automatically transfer to single element control.

B. Incorrect - On a loss of 1,2 or 3 steam flow indications DFCS will automatically transfer to single element control. Since there was no plant transient (no change in actual feed flow, steam flow or RPV level), DFCS will maintain RPV level as is.

C. Correct - as stated in Step 3.2 of OT-100, "If any feedwater flow indication is upscale or any steam line flow indication is downscale, then verify the Feedwater Level Control System is operating in single element control". Since there was no plant transient (no change in actual feed flow, steam flow or RPV level), DFCS will maintain RPV level as is in single element control.

D. Incorrect - Since there was no plant transient (no change in actual feed flow, steam flow or RPV level), DFCS will maintain RPV level as is in single element control.

**64** **ID: N-ILT-5037-4F-001** **Points: 1.00**

Both Units are at rated power when Fire Water header pressure lowers to 120 psig.

Assuming no operator actions, what effect, if any, will this have on the Fire Water System?

A. ONLY the Motor Driven Fire Pump will start.

B. ONLY the Diesel Driven Fire Pump will start.

C. The Motor Driven and Diesel Driven Fire Pumps will start.

D. Neither the Motor Driven nor Diesel Driven Fire Pumps will start.

Answer: C

## Question 64 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5037-4F-001 Unit 3 is operating at rated power. The following conditions exist: * Fire Water |
| System ID: | 1189 |
| User ID: | N-ILT-5037-4F-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 286000 K4.06 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.5<br>Cognitive_Level: Memory |

References: ARC 201 A-3, ARC 201 C-1

Justification:

A. Incorrect - The DDFP will auto start at 130 psig fire system pressure.

B. Incorrect - When fire system pressure lowers to 140 psig the Motor Driven Fire Pump (MDFP) will auto start and at 130 psig the Diesel Driven Fire Pump (DDFP) will auto start.

C. Correct - When fire system pressure lowers to 140 psig the Motor Driven Fire Pump (MDFP) will auto start and at 130 psig the Diesel Driven Fire Pump (DDFP) will auto start.

D. Incorrect - When fire system pressure lowers to 140 psig the Motor Driven Fire Pump (MDFP) will auto start and at 130 psig the Diesel Driven Fire Pump (DDFP) will auto start.

**65** **ID: N-ILT-5002-1Q-001** **Points: 1.00**

* A Unit 3 scram condition occurred due to a loss of feedwater transient.
* RPV level reached -55 inches and was recovered by both HPCI and RCIC.
* All control rods inserted.
* RPV pressure is 825 psig.
* A cooldown was commenced using ST-O-080-500-3, "Recording and Monitoring Reactor Vessel Temperatures and Pressure".

For these conditions, what is the impact, if any, on the accuracy of RPV bottom head drain temperature?

A. Bottom head drain temperature is not accurate due to lack of forced circulation ONLY.

B. Bottom head drain temperature is not accurate due to lack of forced circulation and RWCU out of service.

C. No impact. Bottom head drain temperature is accurate due to recirculation pumps being at minimum speed.

D. No impact. The bottom head drain temperature is accurate due to RWCU system remaining in service.

Answer: B

## Question 65 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5002-1Q-001 *A Unit 3 scram condition occurred due to a loss of feedwater transint. *RPV leve |
| System ID: | 1303 |
| User ID: | N-ILT-5002-1Q-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 202001K3.07 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.9 / SRO 2.9<br>Cognitive_Level: High |

References: T-100 Bases, ST-O-080-500-2

Justification:

A. Incorrect - Bottom head drain temp is not accurate mostly due RWCU being out of service (isolated at -48" RPV level).

B. Correct - Since RPV level went below -48", both Recirc pumps tripped and RWCU system isolated. With no core forced circulation or RWCU system flow through the bottom head drain line, bottom head drain line temperature is not accurate.

C. Incorrect - Recirc pumps tripped at -48" RPV level. They are not in service.

D. Incorrect - RWCU is not in service. The system isolated at -48" RPV level.

**66** **ID: N-ILT-1570-12-003** **Points: 1.00**

An Equipment Operator (EO) accrued the following working hours while working a forced outage. He does NOT have an authorized "Overtime Guideline Deviation Authorization" form.

| | |
|---|---|
| Saturday | NO HOURS |
| Sunday | NO HOURS |
| Monday | 06:00 - 16:00 |
| Tuesday | 06:00 - 23:00 |
| Wednesday | 06:30 - 22:00 |
| Thursday | 07:00 - 20:00 |
| Friday | 06:00 - 22:00 |

Identify by number which guidelines the EO violated.

1. 16 hours in a 24 hour period
2. 24 hours in a 48 hour period
3. 72 hours in any 7 day period

A. 1 and 3 ONLY

B. 1 and 2 ONLY

C. 1, 2, and 3

D. 2 and 3 ONLY

Answer: B

## Question 66 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1570-12-003 An Equipment Operator (EO) accrued the following working hours while working a |
| System ID: | 1191 |
| User ID: | N-ILT-1570-12-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 2.1.1 |
| User Text: | B |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.7 / SRO 3.8<br>Cognitive_Level: High<br><br>Reference: LS-AA-119 |

Justification:

A. Incorrect - There is no 72 hours in a 7 day period violation. He worked a total of 71 1/2 hours.

B. Correct - 16 hours in a 24 hour period was violated on Tuesday (17 hours), 24 hours in a 48 hour period was violated due to total of Monday's and Tuesday's hours (27 total hours).

C. Incorrect - There is no 72 hours in a 7 day period violation. He worked a total of 71 1/2 hours.

D. Incorrect - There is no 72 hours in a 7 day period violation. He worked a total of 71 1/2 hours.

**67** **ID: N-ILT-1504-1-001** **Points: 1.00**

According to HU-AA-104-101, "Procedure Use and Adherence", when a conflict arises between a standard procedure and a site-specific procedure, which procedure prevails?

A. The standard procedure prevails.

B. The site-specific procedure prevails.

C. The standard procedure prevails except when the site-specific procedure directs actions that ensure compliance with regulatory requirements.

D. The site-specific procedure prevails except when the standard procedure directs actions that ensure compliance with regulatory requirements.

Answer: C

**Question 67 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1504-1-001 According to HU-AA-104-101, "Procedure Use and Adherence", when a conflict arises |
| System ID: | 1324 |
| User ID: | N-ILT-1504-1-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | G2.1.20 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 4.3 / SRO<br>Cognitive_Level: Memory<br><br>References: HU-AA-104-101<br><br>Justification:<br>C. Correct - as stated in HU-AA-104-101, "Whenever a conflict arises between a standard procedure and a site-specific procedure, then the standard procedure shall prevail except when the site-specific procedure directs actions that ensure compliance with regulatory requirements". |

**68** **ID: N-ILT-1528-2-001** **Points: 1.00**

Given the following:

- MO-2-23-057, "HPCI Torus Suction Outboard" was declared INOPERABLE for preventative maintenance.
- Following maintenance, operators performed a valve stroke test on MO-2-23-057 using a partial ST-O-023-301-2, "HPCI Pump, Valve, Flow and Unit Coolers Functional and Inservice Test".
- The OPEN stroke time for the valve exceeded the limiting stroke criteria.
- The CLOSE stroke time for the valve was acceptable.

Based on the guidance in both ST-O-023-301-2,"HPCI Pump, Valve, Flow and Unit Coolers Functional and Inservice Test", and NOM-P-11.1 "Operability", valve MO-2-23-057:

A. operability status is indeterminate.

B. is OPERABLE since the CLOSE stroke time was ACCEPTABLE.

C. remains INOPERABLE and must be examined to determine the root cause.

D. is OPERABLE if a second OPEN stroke time is in the ACCEPTABLE Range.

Answer: C

## Question 68 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1528-2-001 Given the following: A maintenance activity was performed on MO-2-23-057, "HPCI Tor |
| System ID: | 1345 |
| User ID: | N-ILT-1528-2-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 4 |
| Point Value: | 1.00 |
| Cross Reference: | 2.2.24 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.6 / SRO 3.8<br>Cognitive_Level: Memory |

References: ST-O-023-301-2; NOM-P-11.1

Justification:
A. Incorrect - Per NOM-P-11.1 there is no "indeterminate"status. The component is either operable or inoperable.

B. Incorrect - the valve's safety function is in the open direction. The open stroke time must meet acceptable times or be declared inoperable.

C. Correct - Per ST-O-023-301-2 Limitation 4.3.2: Any valve that exceeds its limiting stroke time criteria shall be immediately declared INOPERABLE.
Per NOM-P-11.1, Operability, test failures should be examined to determine the root cause and correct the problem before resumption of testing. Repetitive testing to achieve acceptable test results without identifying the root cause or correction of any problem in a previous test is not acceptable as a means to establish or verify operability. Examples include cycling a valve until acceptable stroke times are achieved.

D. Incorrect - ST-O-023-301-2 gives clear guidance that any valve that exceeds its limiting stroke time criteria shall be immediately declared INOPERABLE.

**69** **ID: N-ILT-5071-2-002** **Points: 1.00**

Prior to inserting the TN-68 Spent Fuel Storage cask into the Fuel Pool Cask Pit per procedure SF-220 "Spent Fuel Cask Loading and Transport Operations", Fuel Pool Cooling is:

A. maximized and Fuel Pool level is lowered to between 232' 4" and 232' 5".

B. secured and Fuel Pool level is lowered to between 232' 4" and 232' 5".

C. secured and Fuel Pool level is raised to approximately 232' 6.5" (for Unit 2) or 232' 4.5" (for Unit 3).

D. maximized and Fuel Pool level is raised to approximately 232' 6.5" (for Unit 2) or 232' 4.5" (for Unit 3).

Answer: B

**Question 69 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5071-2-002 Prior to inserting the TN-68 Spent Fuel Storage cask into the Fuel Pool Cask Pit |
| System ID: | 1193 |
| User ID: | N-ILT-5071-2-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 4.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 2.2.28 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.6 / SRO 3.5<br>Cognitive_Level: Memory<br><br>Reference: PLOT 5071; SF-220<br><br>Justification:<br>A. Incorrect - SF-220 requires that Fuel Pool Cooling System is secured.<br>B. Correct - Procedure SF-220 requires that Fuel Pool Cooling system is secured and to establish Fuel Pool level between 232' 4" and 232' 5".<br>C. Incorrect - SF-220 requires Fuel Pool level to be between 232' 4" and 232' 5". This is applicable to both units.<br>D. Incorrect - SF-220 requires that Fuel Pool Cooling system is secured. |

**70** **ID: N-ILT-1535-4-001** **Points: 1.00**

Per OP-AB-300-1003, "BWR Reactivity Maneuver Guidance", a Reactivity Maneuver (ReMA) Form is required for which of the following activities?

A. Inserting control rods to clear APRM Hi alarms.

B. Adjusting reactor recirculation flow to maintain full reactor power.

C. Unplanned insertion of a control rod for operability concerns.

D. Withdrawing control rods during continuation of a reactor startup above 25% power.

Answer: D

## Question 70 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1535-4-001 A Reactivity Maneuver (ReMA) Form is required for which of the following activities |
| System ID: | 1194 |
| User ID: | N-ILT-1535-4-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 2.2.34 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.8 / SRO 3.2<br>Cognitive_Level: Memory<br><br>References: OP-AB-300-1003, BWR Reactivity Maneuver Guidance, GP-5 |

Justification:

A. Incorrect - Inserting control rods to clear APRM Hi alarm is considered a simple reactivity maneuver per OP-AB-300-1003 and a ReMA is not required.

B. Incorrect - Routine load changes with reactor recirculation flow is considered a simple reactivity maneuver per OP-AB-300-1003 and a ReMA is not required.

C. Incorrect - Unplanned insertion of a control rod for operability concerns is a simple reactivity maneuver per OP-AB-300-1003 and a ReMA is not required.

D. Correct - Per OP-AB-300-1003, "BWR Reactivity Maneuver Guidance" continuation of a reactor startup above 25% power is a complex maneuver and requires a ReMA.

**71** **ID: N-ILT-1770-3-002** **Points: 1.00**

- The Equipment Operators (EOs) need to perform a surveillance test in an area with 80mR/hr general area radiation levels.
- The job will take 60 minutes for one EO, but could be completed in only 35 minutes with two EOs.
- The Radiation Protection Engineer has determined that the area radiation levels could be reduced to 8 mR/hr with shielding.
- The shielding would take 30 minutes for one individual to install, but could be completed in half the time with two individuals.

Considering total personnel dose only, which of the following will be directed to ensure that the job dose is maintained "As Low As Reasonably Achievable" (ALARA) in accordance with RP-AA-400, ALARA Program?

A. One EO performs the surveillance without shielding.

B. Two EOs perform the surveillance without shielding.

C. Two individuals install the shielding and then two EOs perform the surveillance.

D. One individual installs the shielding and then one EO performs the surveillance.

Answer: D

**Question 71 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1770-3-002 The Equipment Operators (EOs) need to perform a surveillance test in an area with |
| System ID: | 1196 |
| User ID: | N-ILT-1770-3-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 2.3.2 |
| User Text: | A |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.6 / SRO 3.0<br>Cognitive_Level: High<br><br>Reference: PLOT 1770; RP-AA-400 |

Justification:

A. Incorrect - 1 individual for 60 minutes in an 80mR/hr field = 80 mR total exposure.

B. Incorrect - 2 individuals for 35 minutes in an 80mR/hr field = 93.3 mR total exposure.

C. Incorrect - 2 individuals for 15 minutes in an 80mR/hr field = 40 mR exposure plus 2 individuals for 35 minutes in an 8mR/hr field = 9.3.mR = 49.3 mR total job exposure.

D. Correct - 1 individual for 30 minutes in an 80mR/hr field = 40 mR exposure plus 1 individual for 60 minutes in an 8mR/hr field = 8mR = 48 total job exposure.

72 ID: N-ILT-1730-4-001 Points: 1.00

An Equipment Operator has been assigned to enter the Moisture Separator Area to investigate a steam leak. The following information has been provided.

* The Equipment Operator has 3280 TEDE annual Exposure.
* Expected dose for investigation of the steam leak is 300 mR.

In accordance with RP-AA-203,"Exposure Control and Authorization", which one of the following describes the action required, if any, to complete the steam leak investigation based on the above conditions?

A. Planned Special Exposure must be obtained.

B. Dose Control Level Extension must be obtained.

C. Emergency Exposure Extension must be obtained.

D. No action required because the Equipment Operator's total exposure will be less than 4000 mR.

Answer: B

## Question 72 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1730-4-001 An Equipment Operator has been assigned to enter the Moisture Seperator Area to |
| System ID: | 1197 |
| User ID: | N-ILT-1730-4-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 2.3.4 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.5 / SRO 3.1<br>Cognitive_Level: Memory<br><br>References: RP-AA-203, Exposure Control and Authorization |

Justification:

A. Incorrect - RP-AA-203 required dose extension above 2000 mR TEDE. Dose extensions are granted in 500 mR increments. The current extension is good to 3500 mR. Another extension is required to get to 3580 mR expected exposure. This evolution does not qualify as a Planned Special Exposure or Emergency Exposure Extension.

B. Correct - Per RP-AA-203

C. Incorrect - RP-AA-203 required dose extension above 2000 mR TEDE. Dose extensions are granted in 500 mR increments. The current extension is good to 3500 mR. Another extension is required to get to 3580 mR expected exposure. This evolution does not qualify as a Planned Special Exposure or Emergency Exposure Extension.

D. Incorrect - RP-AA-203 required dose extension above 2000 mR TEDE. Dose extensions are granted in 500 mR increments. The current extension is good to 3500 mR. Another extension is required to get to 3580 mR expected exposure. This evolution does not qualify as a Planned Special Exposure or Emergency Exposure Extension.

**73** **ID: N-ILT-1560-3-001** **Points: 1.00**

Fuel failure has resulted in an off-site release to the Main Stack. Unit 2 conditions are as follows:

* The reactor was scrammed with all rods inserting
* The Main Stack rad release is approaching the ALERT level.
* Main Steam Line rad is 7,500 mr/hr and slowly rising.
* RPV pressure is 940 psig and controlled by EHC.

Per T-100 series procedures, which one of the following actions is REQUIRED to control the radioactive release?

A. Start the Mechanical Vacuum Pump and depressurize to the condenser at < 100 F/hr.

B. Close the Main Steam Isolation Valves and depressurize to the Suppression Pool at < 100 F/hr.

C. Start the Mechanical Vacuum Pump and perform a rapid depressurization to the condenser regardless of cooldown rates.

D. Close the Main Steam Isolation Valves and perform an Emergency Depressurization.

Answer: B

## Question 73 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1560-3-001 Fuel failure has resulted in an off-site release to the Main Stack. Unit 2 condit |
| System ID: | 1198 |
| User ID: | N-ILT-1560-3-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 2.3.11 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.7 / SRO 3.2<br>Cognitive_Level: High |

References: T-104, Radioactivity Release, T-101, RPV Control

Justification:

A. Incorrect - MVP will not be started with gross fuel failure and condenser will not be used to depressurize.

B. Correct - T-104 requires MSIVs to be isolated to stop the rad release. Depressurization will be performed in accordance with T-101 < 100 F/hr.

C. Incorrect - T-101 RCP/12 to rapidly depressurize is not required since rad release is not approaching the GE level (a T-104 blowdown limits) and a primary system breach is not in progress.

D. Incorrect - Emergency Blowdown is not required (or permitted) by T-104 since rad release is not approaching the GE level and a primary system breach is not in progress.

**74** **ID: N-ILT-1560-2-004** **Points: 1.00**

Unit 3 is operating at 100% power when the following sequence of events occurs:

* Spurious Group 1 Isolation
* All control rods insert EXCEPT 22-31, which is stuck full-out
* HPCI and RCIC initiate and inject into the RPV
* RHR and Core Spray remain in standby
* RCIC PUMP ROOM FLOOD (222-A4) alarms

Assuming no operator actions have occurred up to this point, which TRIPs are required to be entered?

1. T-100, "Scram"
2. T-101, "RPV Control"
3. T-102, "Primary Containment Control"
4. T-103, "Secondary Containment Control"

A. 1 and 3

B. 2 and 3

C. 2 and 4

D. 3 and 4

Answer: C

## Question 74 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1560-2-004 Unit 3 is operating at 100% power when the following sequence of events occurs: |
| System ID: | 1235 |
| User ID: | N-ILT-1560-2-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 2.4.2 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.9 / SRO 4.1<br>Cognitive_Level: High |

References: T-100, T-100 Bases, T-101, T-102, T-103

Justification:

A. Incorrect - a Group 1 isolation from 100% power would result in a reactor scram and an RPV Lo Level condition, requiring entry into T-101. As stated in T-100 Bases, "T-100 is entered each time the reactor scrams, provided that an entry condition for T-101 does not exist."

B. Incorrect - none of the given conditions indicate an entry condition for T-102...since HPCI and RCIC have initiated and RHR and Core Spray have not, a High Drywell Pressure condition does not exist.

C. Correct - T-101 would be entered due to an RPV Lo Level condition and T-103 would be entered due to the RCIC PUMP ROOM FLOOD alarm.

D. Incorrect - there is no entry condition for T-102.

**75** **ID: N-ILT-1540-3-009** **Points: 1.00**

Unit 2 is operating at 80% power when the following VALID Main Control Room annunciators alarm:

* A CONDENSATE PUMP BRK TRIP (203-E2)
* REACTOR HI-LO WATER LEVEL (210-H2)
* GENERATOR PROTECTION CIRCUIT ENERGIZED (206-L1)

Which of the following describes the appropriate operator action?

A. Perform GP-4, "Manual Scram"

B. Perform GP-9-2, "Fast Reactor Power Reduction"

C. Insert ALL GP-9-2 Appendix 1, control rods ONLY.

D. Verify A and B Recirc Pumps runback to 45%.

Answer: A

## Question 75 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-3-009 Unit 2 is operating at 90% power when an electrical transient causes several Contro |
| System ID: | 1233 |
| User ID: | N-ILT-1540-3-009 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 2.4.45 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.3 / SRO 3.6<br>Cognitive_Level: High |

References: GP-9-2, Fast Reactor Power Reduction; GP-4, Manual Scram; OT-100, Reactor Low Level; OT-112, Unexpected/Unexplained Change In Core Flow; OT-113, Loss of Stator Cooling

Justification:

A. Correct - a valid GENERATOR PROTECTION CIRCUIT ENERGIZED annunciator indicates a loss of Stator Cooling. OT-113 directs a manual scram IAW GP-4 if a valid loss of Stator Cooling exists and generator load is greater than 7760 amps (~23% reactor power).

B. Incorrect - this action is directed by OT-100 for a low reactor water level condition, based on availability of makeup capability. This action would be appropriate if it weren't for the loss of Stator Cooling condition.

C. Incorrect - the given conditions indicate a trip of the A Condensate Pump, which results in a Recirc runback to 45%, and requiring entry into OT-112. Inserting ALL GP-9-2 rods is required by OT-112 only if a recirc pump trip has occurred...none of the given conditions suggest a recirc pump trip has occurred.

C. Incorrect - although this action would be correct in the case of a loss of the A Condensate Pump (which results in a Recirc runback to 45%), it is not the correct initial action due to the loss of Stator Cooling, which requires a reactor scram.

**1** **ID: N-ILT-5002B-6A-001** **Points: 1.00**

Given the following:

- Unit 2 was initially operating at 100% power
- A station blackout occurred
- The following RPV level indications exist:
  - Narrow range LI-94A (20C005A) indicates 0 inches
  - Wide range LI-85B (20C005A) indicates -40 inches
  - Wide range LR-110A (20C004C) indicates +20 inches
  - Fuel Zone range LR-110B (20C003-02) indicates +25 inches

Using SE-11, Attachment C, determine which statement below is TRUE?

A. Actual RPV level is approximately +20 inches; maintain RPV level per T-101.

B. Actual RPV level CANNOT be determined; exit T-101 and enter T-116.

C. Actual RPV level is approximately 0 inches; restore and maintain level between +5 and +35 inches per T-101.

D. Actual RPV level is below 0 inches, but above TAF; restore and maintain level between +5 and +35 inches per T-101.

Answer: D

## Question 1 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5002B-6A-001 Given the following: Unit 2 was initially operating at 100% power |
| System ID: | 1360 |
| User ID: | N-ILT-5002B-6A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 295003AA2.02 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO N/A / SRO 4.3<br>Cognitive_Level: High |

References: SE-11 Attachment C; T-101

THE EXAMINEE WILL NEED SE-11 ATTACHMENT C IN ORDER TO ANSWER THIS QUESTION.

This question salifies the requirement of 10CFR55.43(b)(5)

Justification:

A is incorrect – actual level is approximately -40 inches.

B is incorrect – actual level is approximately -40 inches.

C is incorrect – level is approximately -40 inches.

D is correct – according to SE-11, Attachment C, level indicators LI-94A (narrow range) and LI-85B (wide range) are DC powered and are therefore available during a station blackout. LR-110A and B are not available. However, the only accurate level indication in this case is LI-85B since LI-94A's lowest indication available is 0 inches. Therefore actual level is between 0 inches and TAF (-172") at -40 inches. The correct action to take is to restore RPV level to between +5 and +35 inches per T-101.

**2** **ID: N-ILT-1555-1-015** **Points: 1.00**

Given the following:

* Unit 2 was initially operating at 100% power.
* A loss of all off-site power occurred.
* Diesel Generator E-1 failed to start.
* All control rods are fully inserted.
* RPV level is -10 inches and steady.
* Reactor pressure is 950 psig.
* 2A DC POWER PANEL LO VOLTAGE (209 C-3) is in alarm.
* 2A DC Bus voltage at Panel 20C021 (CSR) is 90 VDC.

What actions are required for these conditions?

A. Enter SE-13, "Loss of a 125 or 250 VDC Safety Related Bus".

B. Restart the 2A CRD Pump in accordance with SO 3.1.-2,"CRD Hydraulic System Startup with the System Filled and Vented".

C. Place the alternate 2A battery charger in service in accordance with SO 57B.1-2, "125/250 Volt Station Battery Charger Operations".

D. Transfer the 2A battery charger power source from E-124-T-B to E-134-T-B in accordance with AO 57B.6-2,"Transfer of 125V Battery Charger 2AD003 to Alternate Power and Return to Normal".

Answer: A

## Question 2 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1555-1-015 Given the following: *Unit 2 was initially operating at 100% power. *A loss of |
| System ID: | 1305 |
| User ID: | N-ILT-1555-1-015 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295004AA2.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.8 / SRO 2.9<br>Cognitive_Level: High |

References: ARC 209 C-3, SE-13, AO 57B.6-2

This question satisfies the requirements of 10CFR55.43(b)(5),

Justification:

A. Correct - This is an SE-13 entry condition...the referenced alarm and voltage on a safety-related 125 VDC distribution panel less than 107.45 VDC requires entry into SE-13.

B. Incorrect - Cannot start the 2A CRD Pump due to no power available to the E-12 bus.

C. Incorrect - Both the normal and alternate supply to the battery charger come from the same source.

D. Incorrect - this evolution can only be done when in MODE 4 or 5, as specified in AO 57B.6-2, Prerequisite 2.1.

**3** **ID: N-ILT-5034-4B-007** **Points: 1.00**

* Unit 2 is operating at 100% rated power.
* The 2A TBCCW pump is blocked for maintenance.

Subsequently the 2B TBCCW pump experiences a low flow condition.

* TBCCW system discharge pressure is now stable at 50 psig.
* Annunciator 217 (C-5) TURB BLDG COOLING WATER SUPPLY LO PRESS is in alarm.

Which of the following describes the alignment of cooling water flow and the procedure required to be entered for this condition?

A. TBCCW is providing cooling water flow to the CRD pumps.
Enter ON-118, "Loss of TBCCW System".

B. RBCCW is providing cooling water flow to the Isophase Bus Coolers.
Enter ON-113, "Loss of RBCCW System".

C. RBCCW is providing cooling water flow to the Instrument Air Compressors.
Enter ON-118, "Loss of TBCCW System".

D. TBCCW is providing cooling water flow to the Condensate Filter Demineralizer Hold pumps.
Enter ON-118, "Loss of TBCCW System".

Answer: A

## Question 3 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5034-4B-007 *Unit 2 is operating at 100% rated power. *The 2A TBCCW pump blocked for maintena |
| System ID: | 1306 |
| User ID: | N-ILT-5034-4B-007 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295018AA2.04 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.9 / SRO 2.9<br>Cognitive_Level: High<br><br>References: ON-113<br><br>This question satisfies the requirements of 10CFR55.43(b)(5). |

Justification:

A. Correct - The RBCCW backup does not occur on low pressure. This swap requires that both 480 VAC MCCs are tripped. The CRD pumps are normally supplied by TBCCW.

B. Incorrect - The RBCCW backup does not occur on low pressure. Even if the swap did occur, RBCCW would not supply Isophase Bus Coolers.

C. Incorrect - The RBCCW backup does not occur on low pressure.

D. Incorrect - TBCCW no longer supplies cooling water to the Condensate Filter Demineralizer Hold pumps.

**4** **ID: N-ILT-1550-22C-001** **Points: 1.00**

* Unit 3 is operating at 100% power.
* An explosion ruptures several Instrument Air lines in the turbine building.
* All available air compressors are running.
* Instrument Air pressure lowers toward 0 psig.
* Control rods begin to drift in.

For the above conditions, per ON-119 "Loss of Instrument Air", the crew must enter__(1)__ and use__(2)__ to control RPV pressure and __(3)__ to control RPV level.

A. (1) T-100, "Scram".
(2) SRVs/HPCI.
(3) HPCI/RCIC.

B. (1) T-101, "RPV Control".
(2) SRVs/HPCI.
(3) Feedwater.

C. (1) T-100, "Scram".
(2) Bypass Valves.
(3) HPCI/RCIC.

D. (1) T-101, "RPV Control".
(2) Bypass Valves.
(3) Condensate Pumps.

Answer: A

## Question 4 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1550-22C-001 *Unit 3 is operating at 100% power. *An explosion ruptures several Instrument |
| System ID: | 1308 |
| User ID: | N-ILT-1550-22C-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295019AA2.02 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 3.7<br>Cognitive_Level: High<br><br>This question satisfies the requirements of 10CFR55.43(b)(5).<br><br>References: ON-119 |

Justification:

A. Correct - Outboard MSIVs will go closed on a loss of air, therefore no steam for feed pumps or use of the main condenser for decay heat. Condensate is available for injection however it is not preferred due to AO-9091, C RFP bypass failed open on loss of air and increasing RPV level in an uncontrolled manner. HPCI/RCIC are totally unaffected by loss of air.

B. Incorrect - CRD flow control valves fail closed on a loss of air.

C. Incorrect - Condenser is not available for pressure control due to MSIVs going closed on loss of air.

D. Incorrect - Condenser is not available due to MSIVs going closed on loss of air.

**5** **ID: N-ILT-1800-2-004** **Points: 1.00**

During Refueling Operations RPV water level is required to be maintained greater than or equal to 458 inches above RPV instrument zero.

This requirement ensures there is sufficient water level to __(1)__, and is applicable __(2)__.

A. (1) retain iodine fission products in the event of a fuel handling accident.
(2) when moving fuel assemblies ONLY.

B. (1) retain iodine fission products in the event of a fuel handling accident.
(2) when moving fuel assemblies or handling control rods within the RPV.

C. (1) limit radiation exposure to individuals performing fuel handling operations.
(2) when moving fuel assemblies ONLY.

D. (1) limit radiation exposure to individuals performing fuel handling operations.
(2) when moving fuel assemblies or handling control rods within the RPV.

Answer: B

## Question 5 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1800-2-004 During Refueling Operations RPV water level is required to be |
| System ID: | 1307 |
| User ID: | N-ILT-1800-2-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295023G2.2.25 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO / SRO 3.7<br>Cognitive_Level: Memory |

This question satisfies the requirements of 10CFR55.43(b)(2).

References: Tech Spec 3.9.6

Justification:

A. Incorrect - Correct basis, incorrect applicability. Also applicable during handling of control rods.

B. Correct - (1) This is the basis as stated in Tech Spec 3.9.6 Bases. (2) This is consistent with the applicability statement of Tech Spec LCO 3.9.6.

C. Incorrect - Incorrect basis, incorrect applicability.

D. Incorrect - Incorrect basis, correct applicability.

**6** **ID: N-ILT-1550-3-005** **Points: 1.00**

Consider the following timeline:

- 10:10 - Unit 2 Turbine Building 116' Elev. fire alarm received.
- 10:12 - Incident Commander (IC) responds to the scene with Fire Brigade Member #1.
- 10:15 - The IC reports an actual fire exists on Turbine Building 116'.
- 10:20 - The IC reports the on-site Fire Brigade is fighting the fire.
- 10:30 - The IC reports the fire is not yet under control and fire fighting is still in progress.

In accordance with FF-01,"Fire Brigade", and ON-114,"Actual Fire Reported in the Power Block, Diesel Generator Bldg., Emergency Pump, Inner Screen or Emergency Cooling Tower Structures", for an actual reported fire, the Main Control Room is required to notify the Incident Commander that they will be requesting off-site assistance at _____(1)_____ and the CRS is required to direct_____(2)_____.

A. (1) 10:20
(2) an immediate rapid shutdown using GP-4 "Manual Reactor Scram".

B. (1) 10:25
(2) the Floor Supervisor to relieve the Incident Commander using FF-01 "Fire Brigade".

C. (1) 10:30
(2) a Controlled Shutdown using GP-3, "Normal Plant Shutdown".

D. (1) 10:35
(2) isolation of the RPV Condensing Chamber Backfill using ON-114, Attachment 1.

Answer: C

## Question 6 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1550-3-005 Consider the following timeline: 10:10 - Unit 2 Turbine Building 116' Elev. fire a |
| System ID: | 1368 |
| User ID: | N-ILT-1550-3-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 600000 G2.4.30 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.2 / SRO 3.6 |

This question satisfies the requirements of 10CFR55.43(b)(5).

References: ON-114; FF-01

Justification:

A. Incorrect - Time is incorrectly based on 10 minutes after the fire alarm. GP-4 is only directed per ON-114 if the fire jeopardizes normal plant shutdown OR ECCS.

B. Incorrect - Time is incorrectly based on 10 minutes after the actual fire report or 15 minutes after the fire alarm (this time actually corresponds to when an Emergency Classification is made per ON-114). The Floor Supv. role by FF-01 is not to relieve the Incident Commander, but to coordinate between the IC and the MCR.

C. Correct - Time is correctly based on 20 minutes after receipt of the fire alarm. ON-114 states that IF the fire brigade cannot extinguish the fire AND off-site assistance is required, THEN commence a controlled plant shutdown using GP-3.

D. Incorrect - Time is incorrectly based on 20 minutes after the report of an actual fire. RPV condensing chamber backfill is only isolated with a Reactor Building fire.

**7** **ID: N-ILT-2101-1-011** **Points: 1.00**

* Unit 2 is operating at 80% reactor power.
* An electrical problem has resulted in the loss of all Rod Position Indication (RPIS).
* A few minutes later, a reactor scram occurs due to a low RPV water level transient.
* Reactor power is 3.0 E-2%.
* RPV level lowered to -50 inches and is now +20 inches.
* RPV pressure is 930 psig being controlled by EHC.
* Scram header pressure is 0 psig.

Based on the above, which one of the following describes the condition of the plant and the procedure required to address the condition?

An ATWS:

A. IS in progress. Enter T-100, "Scram", and then Enter T-101, "RPV Control", at RC-1.

B. IS in progress. Enter T-101, "RPV Control", and concurrently execute all legs.

C. IS NOT in progress. Enter T-101, "RPV Control", at RC-1 and concurrently execute all legs.

D. IS NOT in progress. Enter T-100, "Scram" and concurrently enter GP-3, "Plant Shutdown".

Answer: B

## Question 7 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-2101-1-011 *Unit 2 is operating at 80% reactor power. *An electrical problem has resulted in |
| System ID: | 1310 |
| User ID: | N-ILT-2101-1-011 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295031G2.4.4 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 4.3<br>Cognitive_Level: High<br><br>This question satisfies the requirements of 10CFR55.43(b)(5).<br><br>References: T-100 Bases, T-101 |

Justification:

A. Incorrect - T-100, "Scram", is not entered. T-101 is entered for low RPV level @ -50 inches.

B. Correct - An ATWS is in progress since it cannot be determined where control rods are positioned. T-101 is entered due to RPV level @ -50 inches.

C. Incorrect - An ATWS is in progress, since it cannot be determined where control are positioned.

D. Incorrect - An ATWS is in progress. T-100, "Scram" should not be entered.

**8** **ID: N-ILT-1540-4-010** **Points: 1.00**

Unit 3 was operating at 100% power when a feedwater level control malfunction caused RPV level to rise to +90 inches as read on LI-2-2-3-86. Current plant conditions are as follows:

- All control rods are fully inserted
- RPV pressure is 1060 psig and rising slowly

WHICH ONE of the following describes the direction to give the URO/PRO for RPV pressure control?

A. Maintain reactor pressure below 1053 psig using the Bypass Jack per OT-102, "Reactor High Pressure".

B. Maintain reactor pressure below 1053 psig using EHC Pressure Set per OT-102, "Reactor High Pressure".

C. Reduce reactor pressure below 1050 psig using a single SRV and prolonged SRV opening per OT-110, "Reactor High Level".

D. Reduce reactor pressure below 1050 psig using multiple SRVs and short-duration SRV openings per OT-110, "Reactor High Level".

Answer: C

**Question 8 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-4-010 Unit 3 was operating at 100% power when a feedwater level control malfunction cause |
| System ID: | 1359 |
| User ID: | N-ILT-1540-4-010 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295008AA2.01 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |

Comment:

Importance: RO N/A / SRO 3.9
Cognitive_Level: High

This question satisfies the requirements of 10CFR55.43(b)(5)

References: OT-102; OT-110; T-101

THE EXAMINEE WILL NEED OT-110 FIGURE 1 IN ORDER TO ANSWER THIS QUESTION.

Justification:

A is incorrect – Per OT-110 Figure 1 an indicated level of +90 inches indicates that actual RPV level may be at or above the main steam lines. OT-110 directs closing the MSIVs if RPV level cannot be maintain below the bottom of the MSIVs (+108 inches), thereby taking away the use of BPVs. In addition, while OT-102 does direct maintaining reactor pressure below 1053 psig, since the reactor is scrammed, OT-102 is no longer applicable. OT-110 is executed concurrently with T-101 "RPV Control".

B is incorrect – Per OT-110 Figure 1 an indicated level of +90 inches indicates that actual RPV level may be at or above the main steam lines. OT-110 directs closing the MSIVs if RPV level cannot be maintain below the bottom of the MSIVs (+108 inches). In addition, while OT-102 does direct maintaining reactor pressure below 1053 psig, since the reactor is scrammed, OT-102 is no longer applicable. OT-110 is executed concurrently with T-101 "RPV Control".

C is correct – when RPV pressure reaches 1050 psig, OT-110, which is executed concurrently with T-101,"RPV Control", directs manual SRV operation using a single SRV (if possible) and prolonged SRV opening.

D is incorrect – OT-110 directs prolonged SRV opening using a single SRV (or as few as possible) in order to minimize SRV tailpipe loading and the number of SRVs that are effected by higher than normal loads.

**9** **ID: N-ILT-5007-8-007** **Points: 1.00**

Given the following conditions:

* Unit 2 is at 100% power.
* The HPCI System is in service per ST-O-023-301-2, "HPCI Pump, Valve, Flow and Unit Cooler Functional and In-Service Test".
* Torus Cooling is in service per SO 10.1.D-2.
* Torus bulk average temperature on SPOTMOS TIS-2-2-71A reaches 96°F during testing and the Control Room Supervisor entered T-102, "Primary Containment Control".
* The Reactor Operator who is recording Torus temperature per ST-O-023-301-2 observes that local Torus water temperature at the Torus Bay location where the HPCI turbine is exhausting is at 106°F.

What action(s), if any, is/are required?

A. Verify Torus water average temperature ≤ 110°F once per hour ONLY.

B. Immediately suspend all HPCI testing since it is adding heat to the Torus.

C. Verify Torus water average temperature ≤ 110°F once per hour
AND
Restore Torus average temperature to ≤ 95°F within 24 hours.

D. No additional action required. Torus water temperature will continue to be monitored every 5 minutes while HPCI remains in service.

Answer: D

## Question 9 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5007-8-007 Given the following conditons: *Unit 2 is at 100% power. *ST-O-023-301-2, HPCI |
| System ID: | 1312 |
| User ID: | N-ILT-5007-8-007 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295013AA2.02 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.2 / SRO 3.5<br>Cognitive_Level: High |

This question satisfies the requirements of 10CFR55.43 (b)(2).

References: ST-O-023-301, TS 3.6.2.1

Justification:

A. Incorrect - This addresses a required action of 3.6.2.1.A.1 (> 95°F average Torus temperature) which is NOT applicable due to testing in progress that is adding heat to the Torus.

B. Incorrect - This action is driven by TS 3.6.2.1.C for Torus temperature > 105°F (average temperature). Average Torus temperature is presently 96°F.

C. Incorrect - This addresses required actions of 3.6.2.1.A.1 and A.2 (> 95°F average Torus temperature) which is NOT applicable due to testing in progress that is adding heat to the Torus.

D. Correct - Tech Spec 3.6.2.1 for Torus temperature is concerned with only average water temperature, not local readings. No action is required by TS 3.6.2.1 since SPOTMOS RIS-2-2-71A is reading an average of 96°F with testing going on that adds heat to the Torus. The next action level would be at a Torus temperature of 105°F at which all testing would be suspended per T.S. 3.6.2.1.C and ST-O-023-301-2.

**10** **ID: N-ILT-1560-3-005** **Points: 1.00**

* Unit 3 is at 70% power.
* Annunciator 323 (E-5) A RHR PUMP ROOM FLOOD is received.
* Two minutes later annunciator 326 (A-4) TORUS WATER LEVEL OUT OF NORMAL RANGE is received.
* Torus level is 14.2 feet and lowering slowly.

The Equipment Operator sent to investigate the alarms reports back that he cannot get into the 'A' RHR room from the 116' elevation.

Which of the following best describes the cause of the above conditions and what are the required procedure actions?

A.
* RHR Pump A suction line break ONLY.
* Monitor Torus level.
* Declare an Alert.

B.
* RHR Pump A and/or RHR Pump C suction line break.
* Immediately perform a manual scram using procedure GP-4 AND enter T-101, "RPV Control".
* Declare an Alert.

C.
* RHR Pump A suction line break ONLY.
* Enter T-102,"Primary Containment Control".
* Restore Torus water level to normal, or if not possible, commence a GP-3 shutdown.

D.
* RHR Pump A and/or RHR Pump C suction line break.
* Restore Torus water level to normal using RCIC minimum flow line, or if not possible, commence a GP-3 shutdown.
* Enter Tech Spec 3.6.2.2 for Suppression Pool Water Level.

Answer: C

## Question 10 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1560-3-005 *Unit 3 is at 70% power. *Annunciator 323 (E-5) A RHR PUMP FOOM FLOOD is received. |
| System ID: | 1313 |
| User ID: | N-ILT-1560-3-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 295036EA2.03 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |

Comment:

Importance: RO 3.4 / SRO 3.8
Cognitive_Level: High

This question satisfies the requirements of 10CFR55.43(b)(5).

References: T-102, T-103, TS 3.6

Justification:

A. Incorrect - All actions are correct with the exception of declaring an Alert. There is no EAL resulting in an Alert until Torus level reaches the unsafe side of the Heat Capacity Temperature Limit (HCTL) curve.

B. Incorrect - The break is on the A RHR pump suction, not the C RHR pump suction. The A and C RHR Rooms are separated at lower elevations by a water tight door, preventing cross flooding from one room to the other. Performing a GP-4 scram and entering T-101 would not be required until it was determined that Torus level could not be maintained above 12.5 feet. There is no EAL resulting in an Alert until Torus level reaches the unsafe side of the Heat Capacity Temperature Limit (HCTL) curve.

C. Correct - The break is associated with the A RHR pump suction piping. T-102 entry is applicable once Torus water level is < 14.5 feet, and directs to restore Torus water level to normal, or if not possible, commence a GP-3 shutdown (step T/L-3).

D. Incorrect - The break is associated with the A RHR pump suction piping, not the C RHR pump suction. The A and C RHR Rooms are separated at lower elevations by a water tight door, preventing cross flooding from one room to the other. The RCIC System would not be a system used to restore Torus level. T-102 step T/L-5 directs using either HPCI, Condensate transfer, or HPSW systems.

**11** **ID: N-ILT-5023-6D-001** **Points: 1.00**

Unit 3 conditions are as follows:

- A scram occurred due to a primary system leak into the drywell.
- HPCI is being used to maintain RPV level at approximately +10 inches.
- A large leak occurs on the Unit 3 CST and present level is 4' 6" and lowering.

The PRO notifies the Control Room Supervisor that the HPCI System valve lineup is unchanged.

Based on the above conditions, what actions are required, if any?

A. CST level is adequate to support continued HPCI System operation. The PRO will continue to monitor CST level.

B. CST level is to be recovered using SO 27.1.A, "Condensate Transfer and Storage System Startup and Normal Operation".

C. HPCI System suction is to be transferred manually using SO 23.7.B-3, "Transfer of HPCI Suction From CST to Torus".

D. The HPCI System is to be isolated and RCIC is to be placed into service for RPV level control using RRC 13.1-3, "RCIC System Operation During a Plant Event."

Answer: C

## Question 11 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5023-6D-001 Unit 3 conditions are as follows: A scram occurred due to a primary system leak in |
| System ID: | 1346 |
| User ID: | N-ILT-5023-6D-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 4 |
| Point Value: | 1.00 |
| Cross Reference: | 206000A2.09 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.5 / SRO 3.7<br>Cognitive_Level: High<br><br>This question satisfies the requirements of 10CFR55.43(b)(5).<br><br>References: ARC 321 C-3; SO 23.7.B-3<br><br>Justification:<br>A. Incorrect - Action to swap HPCI suction to the Torus is given in ARC 321 C-3.<br>B. Incorrect - Condensate transfer system takes suction from the CST and does not have the capability to normally makeup to the CST.<br>C. Correct - ARC 321 C-3 provides the guidance that on Low-Low CST level the operator is to verify that HPCI suction valves automatically swap from the CST to the Torus. If no automatic function occurs, the operator is to perform SO 23.7.B-3 to manually swap suction to the Torus.<br>D. Incorrect - RCIC also takes normal suction from the CST and would be affected by the Low-Low CST level condition. With HPCI already in service and capable of maintaining RPV level, there is no need to place RCIC in service at this time. |

**12** **ID: N-ILT-1540-5-005** **Points: 1.00**

- Unit 2 is operating at 100% power when a fuel failure occurs.
- Main steam line radiation levels on Panel 20C010 are reading 6 R/hr and rising quickly.

Based on the above condition what is the effect on the plant and what actions need to be taken?

A. An automatic scram should have occurred at 5 R/hr.
Perform GP-4 "Manual Reactor Scram".
Declare an Unusual Event.

B. A Group I isolation will occur at approximately 15 R/hr
Scram and enter T-100, "Scram".
Declare an Unusual Event.

C. An automatic scram will occur at approximately 10 R/hr.
Enter OT-103, Main Steam Line High Radiation".
Perform GP-4, "Manual Reactor Scram".

D. An automatic scram should have occurred at 5 R/hr.
Perform GP-4, "Manual Reactor Scram".
Close the MSIVs in accordance with OT-103,"Main Steam Line High Radiation".

Answer: C

## Question 12 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1540-5-005 Unit 2 was operating at 100% power when a gross fuel failure occurred. Main steam |
| System ID: | 1314 |
| User ID: | N-ILT-1540-5-005 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 212000A2.17 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 4.2<br>Cognitive_Level: High |

This question satisfies the requirements of 10CFR55.43(b)(5).

References: OT-103, EP-AA-1007

Justification:

A. Incorrect - MSL radiation levels have not yet risen to the scram setpoint of 10xNFPB, which is ~10,000 mR/hr. At this time it would be prudent to perform GP-4 and manually scram. However, 10xNFPB, which is ~10,000 mR/hr is also the threshold value for declaring an Unusual Event IAW EAL RU3.

B. Incorrect - MSL radiation levels for the Group I isolation setpoint is 10xNFPB, which is ~10,000 mR/hr. This is also the threshold value for declaring an Unusual Event IAW EAL RU3.

C. Correct - When MSL radiation levels reach (or are expected to each) 8000mR/hr, OT-103 directs a manual scram IAW GP-4.

D. Incorrect - OT-103 does not require closing the MSIVs and in fact directs actions to prevent the Group I isolation and loss of the main condenser as a heat sink... per OT-103 bases: a GP-4 scram at 8000 mR/hr is directed to minimize the pressure transient caused by the MSIV closure that will occur if radiation levels continue to rise; in addition, performing the GP-4 scram may cause MSL radiation levels to remain below the Group I isolation setpoint, thereby maintaining the main condenser as a heat sink.

**13** **ID: N-ILT-5001G-8-003** **Points: 1.00**

* Unit 2 is operating at 100% power.
* On Day 1 annunciator 227 B-5 BLOWDOWN RELIEF VALVES BELLOWS LEAKING alarms for a failed bellows on the 'G' Safety Relief Valve.
* On Day 5 a failed bellows is detected on the 'D' Safety Relief Valve.

Which Technical Specification Required Actions listed below, if any, apply to the above operational conditions?

A. No Technical Specification Required Actions apply.

B. Restore the 'G' SRV to operable status within 14 days.

C. Place the Reactor in MODE 3 within 12 hours and be in MODE 4 within 36 hours.

D. Place the Reactor in MODE 3 within 12 hours and reduce Reactor Steam Dome pressure to $\leq$ 100 psig within 36 hours.

Answer: A

## Question 13 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5001G-8-003 *Unit 2 has been operating at 100% power. *For the past 5 days the 'G' SRV has |
| System ID: | 1315 |
| User ID: | N-ILT-5001G-8-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 218000G2.1.33 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 4.0<br>Cognitive_Level: High |

This question satisfies the requirements of 10CFR55.43(b)(2).

References: Tech Spec 3.5.1, Tech Spec 3.4.3

Justification:

A. Correct - Leaking bellows only affects the non-ADS safety function. T.S. 3.4.3 would be referenced for this condition. T.S. 3.4.3 requires 11 total (SRV & SVs) to be operable. Even with the G & D SRVs inoperable T.S. 3.4.3 is still satisfied. No action required.

B. Incorrect - This action would be driven by T.S. 3.5.1.G. This Spec. is not applicable since the ADS function of the 'G' SRV is still operable. Only the SRV function of the 'G' SRV is affected with the bellows alarm in.

C. Incorrect - This action would be driven by T.S. 3.4.3.A if a 3rd SRV were inoperable.

D. Incorrect - This action would be driven by T.S. 3.5.1.H if two or more ADS valves were inoperable.

**14** **ID: N-ILT-5006-8-006** **Points: 1.00**

- Unit 2 is in MODE 1 at 20% power.
- It has been identified that the Main Turbine and the Reactor Feed Pump Turbine (RFPT) high RPV water level trips from the Digital Feedwater Control System (DFCS) computer DCC-X are set at +51 inches.

What actions, if any, are required for the above condition and why?

A. Place the channel in trip within 72 hours ONLY, based on one RPV high water level trip channel being inoperable.

B. Restore DFCS RPV high water level trip capability within 2 hours AND place the channel in trip within 72 hours, based on RPV high water level trip capability NOT being maintained.

C. No actions required. The wide range signals which trip HPCI and RCIC provide adequate trip capability for the Main Turbine and the RFPTs.

D. No actions required. The DFCS high RPV water level trips for the Main Turbine and the RFPTs are not required to be operable at this time.

Answer: D

## Question 14 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5006-8-006 Unit 2 is in MODE 1 at 20% power. It has been identified that the Main Turbine and |
| System ID: | 1361 |
| User ID: | N-ILT-5006-8-006 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 259002 G2.2.22 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 3.4 / SRO 4.1<br>Cognitive_Level: High |

References: Tech Spec 3.3.2.2 and Bases

This question satisfies the requirements of 10CFR55.43(b)(2).

Justification:

A. Incorrect. No actions are required due to RTP being <25%. This would be the required action per Spec. 3.3.2.2.A if power were ≥25% and one or more DFCS high water level trip channels were inoperable.

B. Incorrect. For the conditions given, this would be the correct Tech. Spec. action to enter per 3.3.2.2.B if power were ≥ 25%. No actions are required due to RTP being <25%.

C. Incorrect. While the RPV level inputs from RCIC would be sufficient to still trip the Main Turbine, and the inputs from HPCI would be sufficient to still trip the RFPTs, Tech. Spec. 3.3.2.2 requires the 2 channels per trip system from the DFCS to be operable. No actions are required due to RTP being <25%.

D. Correct. While the trips out of the DCC-X computer are inoperable (> +49"), there are no actions required due to RTP being <25%. Spec. 3.3.2.2 applicability requires 2 channels per trip system to be operable ≥ 25% power to ensure that the fuel clad integrity Safety Limit and the cladding 1% plastic strain limit is not violated during the feedwater controller failure, max. demand event.

**15** **ID: N-ILT-5057-8-002** **Points: 1.00**

* Unit 2 is at 100% power.
* Battery charger 2AD003 was placed on EQUALIZE 4 hours ago.
* An Equipment Operator performing rounds identifies that Battery Room exhaust fan OAV36 tripped and OBV36 failed to auto start
* The Equipment Operator placed OBV36 in service satisfactorily.
* There were no Main Control Room or local panel annunciators received.

What actions, if any, need to be taken and why?

A. No actions are required as long as Turbine Building ventilation remains in service. Create an issue for the deficiency and monitor the Battery Rooms for high temperature conditions.

B. Due to the potential for a buildup of moisture on the batteries prepare a plan for return of the air flow detector to operable within 14 days
AND
assign a responsible person to ensure the plan is completed within 72 hours.

C. Due to the potential buildup of combustible gases verify the operability of the Battery Room Ventilation Exhaust System every 12 hours
AND
restore the air flow detector to operable within 14 days.

D. Due to the potential buildup of combustible gases verify the operability of the Battery Room Ventilation Exhaust System every 24 hours
AND
restore the air flow detector to operable within 14 days

Answer: D

## Question 15 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5057-8-002 *Unit 2 is at 100% power. *Battery charger 2AD003 has been placed in the equalize |
| System ID: | 1317 |
| User ID: | N-ILT-5057-8-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 263000A2.02 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 2.9<br>Cognitive_Level: High<br><br>This question satisfies the requirements of 10CFR55.43(b)(2).<br><br>References: TRM 3.14.10 |

Justification:

A. Incorrect - Actions for Battery Room Ventilation exhaust air flow detector not being functional are required by TRM 3.14.10.

B. Incorrect - This answer does not address all required actions of TRM 3.14.10.A and the 24 hour completion time frame is not correct. Should be 14 days vs. 24 hours. Moisture buildup is not an issue.

C. Incorrect - 12 hour completion time is not correct. Should be 24 hours.

D. Correct - These actions satisfy the requirements of TRM 3.14.10.A.

**16** **ID: N-ILT-5002-6G-003** **Points: 1.00**

Given the following:

* Unit 2 is operating 100% power.
* The Total Feed Flow signal produced by Feedwater Level Control fails to "zero".
* The OPRM TRIP ENABLED (211 B-3) annunciator does NOT alarm following the transient.

Based on the above, Recirculation Pumps will ___(1)___ and the crew must initially ___(2)___ :

A. (1) Runback to 30%.
(2) Perform SO 2.7.A-2, "Resetting Recirculation System Upper and Lower Flow Limits".

B. (1) Runback to 45%.
(2) Determine current operating point on Exhibit GP-5-1, "Power Flow Operation Map"; monitor for THI.

C. (1) Runback to 30%.
(2) Perform AO 60A.1-2, "Alternate Method to Detect and Suppress Thermal Hydraulic Instability (THI)".

D. (1) Runback to 45%.
(2) Perform AO 60A.1-2, "Alternate Method to Detect and Suppress Thermal Hydraulic Instability (THI)".

Answer: C

## Question 16 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5002-6G-003 Given the following: *Unit 2 is operating at 100% power. *The Total Feed Flow |
| System ID: | 1318 |
| User ID: | N-ILT-5002-6G-003 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 4 |
| Point Value: | 1.00 |
| Cross Reference: | 202002A2.07 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 3.3<br>Cognitive_Level: High<br><br>This question satisfies the requirements of 10CFR55.43(b)(5).<br><br>References: ARC 211 B-3, OT-112 |

Justification:

A. Incorrect - The given conditions indicate the OPRM System is inoperable, requiring performance of AO 60A.1-2. Performing a recirc. system runback signal reset is not an initial priority action.

B. Incorrect - < 20% total feedwater flow causes a Recirc runback to 30%.

C. Correct - < 20% total feedwater flow causes a Recirc runback to 30%. This would result in the OPRM trip output to RPS to be enabled when recirc flow goes below ~60 percent while APRM STP is above ~ 30 percent. The OPRM TRIP ENABLED annunciator would be expected to alarm during/following the runback. If this annunciator does not alarm, the OPRM System would be assumed to be inoperable, in which case OT-112 directs performing AO 60A.1.-2.

D. Incorrect - < 20% total feedwater flow causes a Recirc runback to 30%.

17 ID: N-ILT-5001B-6A-001 Points: 1.00

A Unit 2 startup is in progress with the following plant conditions:

* Reactor power is 25%.
* Generator output is 200 MWe.
* Annunciator TURBINE STOP V. CLOSURE & CONTROL VLV FAST CLOSURE SCRAM BYPASS (210 A-2) is lit.
* A relay failure causes the Power-to-Load Unbalance lockout to actuate.
* The POWER LOAD UNBALANCE TRIP (206 B-1) annunciator goes into alarm.

Which of the following describes (1) the plant response and (2) the correct procedural direction for this event?

A. (1) Reactor scram ONLY.
(2) Enter T-100, "Scram".

B. (1) Generator lockout and turbine trip ONLY.
(2) Halt GP-2 "Startup".

C. (1) Generator lockout, turbine trip and reactor scram.
(2) Enter T-100, "Scram".

D. (1) The turbine remains online; the reactor does NOT scram.
(2) Perform applicable sections of SO 1B.2.A-2, "Main Turbine Generator Shutdown".

Answer: B

## Question 17 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5001B-6A-001 A Unit 2 startup is in progress with the following plant conditions: *Reactor |
| System ID: | 1319 |
| User ID: | N-ILT-5001B-6A-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | 245000A2.05 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 3.8<br>Cognitive_Level: High<br><br>This question satisfies the requirements of 10CFR55.43(b)(5).<br><br>References: GP-2, ARC 206 B-1, TS Bases 3.3.1.1 |

Justification:

A. Incorrect - The reactor does not automatically scram.

B. Correct - If the PLU circuit energizes, a generator lockout and turbine trip will occur. Since reactor power is < 29.5% RTP (turbine 1st stage pressure is < 138.4 psig), a reactor scram will not occur as a result of the TSV/TCV closure. The turbine bypass valves will rapidly open, preventing a scram from high reactor pressure/neutron flux. The end result will be the reactor at 25% power with the turbine-generator off-line. Per HU-AA-104-101, "Procedure Use and Adherence", steps 4.1.5 and 4.1.7, halting progress on the startup per GP-2 would be required due to conditions changing which would necessitate re-evaluation of the procedure against the new plant conditions.

C. Incorrect - The reactor does not automatically scram.

D. Incorrect - The PLU circuit will produce a generator lockout/turbine trip.

**18** **ID: N-ILT-5009-8-001** **Points: 1.00**

The Technical Specification leakage limit for Secondary Containment is ___(1)___ cfm at -.25" of vacuum water gauge and is based on maintaining Secondary Containment operability during a ___(2)___.

A. (1) 9,000
(2) fuel handling accident

B. (1) 10,500
(2) loss of coolant accident

C. (1) 9,000
(2) control rod drop accident

D. (1) 10,500
(2) steam line break accident

Answer: B

## Question 18 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5009-8-001 The Technical Specification in-leakage limit for Secondary Containment is ___(1)___ |
| System ID: | 1320 |
| User ID: | N-ILT-5009-8-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 290001G2.1.32 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 3.8<br>Cognitive_Level: Memory |

This question satisfies the requirements of 10CFR55.43(b)(2).

ENSURE THAT S.R. 3.6.4.1.4 (flow rate ≤ 10,500 cfm) IS DELETED FROM EXAMINEE"S COPY OF TECH. SPEC.

References: GP-16, TS Bases 3.6.4.1

Justification:

A. Incorrect - 9,000 cfm is the administrative limit (GP-16); the Tech Spec limit is 10,500 cfm.

B. Correct - 10,500 cfm is the correct Tech Spec limit. There are two accidents that take credit for Secondary Containment operability: loss of coolant accident and fuel handling accident.

C. Incorrect - 9,000 cfm is the administrative limit (GP-16); the Tech Spec limit is 10,500 cfm. No credit is taken for Secondary Containment during a control rod drop accident.

D. Incorrect - No credit is taken for Secondary Containment during a steam line break accident.

**19** **ID: N-ILT-1855-4-002** **Points: 1.00**

Which one of the following identifies Work Execution Center/Work Control Center Supervisor (WECS) staffing requirements per OP-AA-101-111 and OP-PB-101-111?

A. The WECS may be credited as Shift Technical Advisor and Incident Assessor simultaneously.

B. The WECS may be credited as Incident Assessor and NRC Communicator simultaneously.

C. If the WECS is credited as Shift Technical Advisor then the Incident Assessor function is NOT required.

D. If the WECS is credited as Incident Assessor then the Shift Technical Advisor function is NOT required.

Answer: C

**Question 19 Details**

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1855-4-002 Which one of the following identifies Work Execution Center/Work Control Center Sup |
| System ID: | 1355 |
| User ID: | N-ILT-1855-4-002 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 4 |
| Point Value: | 1.00 |
| Cross Reference: | G2.1.4 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: R 2.3 / SRO 3.4<br>Cognitive_Level: Memory |

References: OP-AA-101-111, OP-PB-101-111

This question satisfies 10CFR55.43(b)(2).

Justification:

A. Incorrect - WCS cannot be both STA and IA per OP-PB-101-111.
B. Incorrect - WCS cannot be both the IA and the NRC Communicator per OP-PB-101-111.
C. Correct - If WCS is the STA then IA function is NOT required per OP-AA-101-111. This is also inferred from OP-PB-101-111 step 4.5.3 which states that if the Shift Manager or Control Room Supv. is the STA, than another SRO MUST be the Incident Assessor. Therefore, if the WECS is assigned as the STA, an Incident Assessor is NOT REQUIRED.
D. Incorrect - If WCS is the IA, they support the STA function, the STA is still required.

**20** **ID: N-ILT-1526-3-001** **Points: 1.00**

Given the following conditions:

* The Control Room Supervisor (CRS) has delegated reactivity oversight of Unit 3 to a fully qualified Senior Reactor Operator (SRO) during a GP-2 startup.
* This has been logged in the Unified Control Room Log.
* During the Unit 3 startup a problem requires entry into T-103, "Secondary Containment Control".
* Unit 2 is operating at 75% power during this time.

Which of the following delineates the responsibility for command and control authority on each of the two Units for these conditions?

A. In accordance with OP-AA-101-111,"Roles and Responsibilities of On-Shift Personnel", the CRS shall retain command and control over both Units at all times.

B. In accordance with OP-AA-103-102, "Watchstanding Practices", the Unit 3 reactivity SRO retains command control over Unit 3 until an emergency no longer exists. The CRS retains command and control over Unit 2.

C. In accordance with OP-AA-101-111,"Roles and Responsibilities of On-Shift Personnel", the Shift Manager shall assume command and control over both Units upon his arrival in the Main Control Room.

D. In accordance with OP-AA-103-102, "Watchstanding Practices", the Unit 3 reactivity SRO immediately transfers Unit 3 command and control to the Shift Manager and provides support and backup to the CRS on both Units.

Answer: A

## Question 20 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1526-3-001 Given the following conditions: *The Control Room Supervisor (CRS) has delegated |
| System ID: | 1325 |
| User ID: | N-ILT-1526-3-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | G2.1.6 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.1 / SRO 4.3<br>Cognitive_Level: Memory<br><br>This question satisfies the requirements of 10CFR.55.43(b)(5).<br><br>References: OP-AA-101-111 |

Justification:

A. Correct - OP-AA-101-111, "Roles and Responsibilities of On-Shift Personnel", section 4.2 states "During a transient, the Unit Supervisor (CRS) will immediately position himself as the control authority for the unit, acknowledging immediate operator actions being verbalized and taken by the Reactor Operators. After assessing the situation, the Unit Supervisor (CRS) will direct subsequent operator actions in accordance with applicable procedures until conditions are stable and a transient condition no longer exists (specifically step 4.2.10).

B. Incorrect - The qualified SRO never officially turned over to the Unit Supervisor (CRS).

C. Incorrect - It is the Unit Supervisor (CRS) who maintains command and control per OP-AA-101-111, not the Shift Manager.

D. Incorrect - Neither the qualified SRO or the Shift Manager obtained command and control. The Unit Supervisor (CRS) always had command and control.

**21** **ID: N-ILT-5010-4O-004** **Points: 1.00**

- Unit 2 is shutdown with all control rods fully inserted.
- RPV level is +25 inches.
- The 2A RHR Pump is running in Shutdown Cooling at 9,000 gpm flow per SO 10.1.B-2 "RHR System Shutdown Cooling Mode Manual Start".
- Maintenance requests to locally set the open and closed limit switches on MO 2-10-16A "RHR Pump Min. Flow Valve".
- This action will require the MO 2-10-16A to be taken off of its closed seat.

Authorization to perform the work ____(1)____ be granted based on ____(2)____.

A. (1) CAN
(2) no plant impact if the 2A RHR Pump ONLY is first secured per SO 10.1.B-2.

B. (1) CAN
(2) no plant impact if the 2A RHR Pump is secured and the MO-2-10-25A "Inboard Discharge Valve" is closed first per SO 10.1.B-2.

C. (1) CANNOT
(2) a PCIS Group II Shutdown Cooling isolation would occur requiring entry into ON-125 "Loss or Unavailability of Shutdown Cooling".

D. (1) CANNOT
(2) the 2A RHR Pump would trip on overcurrent due to excessive pump flow (pump runout) requiring entry into ON-125 "Loss or Unavailability of Shutdown Cooling".

Answer: C

## Question 21 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-5010-4O-004 Unit 2 is shutdown with the 2A RHR Pump running in Shutdown Cooling at 9,000 gpm f |
| System ID: | 1362 |
| User ID: | N-ILT-5010-4O-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 2.50 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | 205000G2.2.18 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.3 / SRO 3.6<br>Cognitive_Level: Memory<br><br>This question satisfies the requirements of 10CFR55.43(b)(5).<br><br>References: SO 10.1.B-2, ON-125 |

Justification:

A. Incorrect - The work cannot occur due to reactor water being diverted to the Torus if the minimum flow valve MO-16A is opened.

B. Incorrect - The work cannot occur due to reactor water being diverted to the Torus if the minimum flow valve MO-16A is opened. Also, to avoid diverting flow to the Torus either the SDC suction MO-17, MO-18, or MO-15A would need to be closed.

C. Correct - The work cannot occur because reactor water would lower due to being diverted to the Torus if minimum flow valve MO-16A is opened. To prevent this from occurring, the minimum flow valve for the RHR pump in shutdown cooling is procedurally controlled closed with its feed removed during shutdown cooling operation. ON-125 would have to be entered once the PCIS Group II isolation occurred since shutdown cooling would become unavailable.

D. Incorrect - Even with the minimum flow valve fully open during pump operation the RHR pump total flow would not exceed pump runout flow of >12, 500 gpm.

22 ID: N-NLSRO-0763-2-001 Points: 1.00

Unit 2 is in a Refueling Outage.

In accordance with FH-6C, "Core Component Movement-Core Transfers", which one of the following Refuel Floor activities MUST be DIRECTLY supervised by Senior Reactor Operator (SRO) or a Limited SRO?

A. Cleaning recirc jet pumps in the Vessel.

B. Loading a new fuel bundle into the Vessel.

C. Moving LPRM strings from the core to the Spent Fuel Pool.

D. Removing a control rod from an empty core cell.

Answer: B

## Question 22 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-NLSRO-0763-2-001 Unit 2 is in a Refueling Outage. Which one of the following Refuel Floor activit |
| System ID: | 1327 |
| User ID: | N-NLSRO-0763-2-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | G2.2.29 |
| User Text: | |
| User Number 1: | *0.00* |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 1.6 / SRO 3.8<br>Cognitive_Level: Memory<br><br>This question satisfies the requirements of 10CFR55.43(b)(6).<br><br>References: FH-6C Section 7.0 |

Justification:

A. Incorrect - Cleaning jet pump may be supervised by the Designated Alternate (DA). This activity is not considered a Core Alteration.

B. Correct - New fuel into the core is a Core Alt and requires direct supervision by an SRO or LSRO.

C. Does not require direct supervision of an SRO, LSRO, or DA. This activity is not considered a Core Alteration.

D. Does not require direct supervision of SRO, LSRO, or DA. This activity is not considered a Core Alteration.

**23** **ID: N-ILT-1770-3-004** **Points: 1.00**

- Equipment Operators need to enter a locked high radiation area to manually operate Primary Containment Isolation Valves in order to satisfy a Tech.Spec. required action.
- The highest dose rate in the area is 16,000 mR/hr.

Per RP-PB-460-1001, "Radiation Protection Controlled Keys", WHICH ONE of the following describes the type of Locked High Radiation Area and the highest level of authorization required for issuing the key?

| | Type of LHRA | Highest Authorization Required |
|---|---|---|
| A. | Level 1 | Radiation Protection Manager |
| B. | Level 1 | Plant Manager |
| C. | Level 2 | Radiation Protection Manager |
| D. | Level 2 | Plant Manager |

Answer: C

## Question 23 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1770-3-004 The Main Control Room has been abandoned due to a fire. Equipment Operators are goi |
| System ID: | 1356 |
| User ID: | N-ILT-1770-3-004 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 4.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | G2.3.1 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO 2.6 / SRO 3.0<br>Cognitive_Level: Memory<br><br>References: RP-AA-460; RP-PB-460-1001<br><br>This question satisfies the requirement of 10CFR55.42(b)(4). |

Justification:
A. Incorrect - The level is incorrect. The area is a Level 2 ($\geq$15R/hr) which requires authorization from the RP Manager for issuing the key.

B. Incorrect - The level is incorrect, and the Plant Manager's authorization is NOT required.

C. Correct - Per RP-AA-460-1001, Level 2 LHRA is an area with dose rates $\geq$ 15R/hr. The RP Manager must provide authorization for this entry.

D. Incorrect - While the level is correct, the RP Manager must provide authorization for this entry.

**24** **ID: N-ILT-2117-5A-006** **Points: 1.00**

The following conditions exist following a GP-4 manual scram:

* Reactor Power <1.00 E0%
* RPV Pressure 930 psig and dropping
* RPV Level +10 inches and rising slowly
* Drywell Pressure 2.2 psig and rising slowly
* Scram Air Header Pressure 0 psig
* 16 Control Rods are at position '10'.
* 12 Control Rods are at position '06'.
* All other control rods are fully inserted.

The CRS is required to inhibit the Automatic Depressurization System (ADS) per _____(1)_____ to prevent _____(2)_____.

A. (1) T-101, "RPV Control"
(2) exceeding 110°F Torus temperature before boron is injected.

B. (1) T-101, "RPV Control"
(2) potential loss of, or inaccuracies in, RPV level instrumentation.

C. (1) T-117, "Level/Power Control"
(2) core damage due to large irregular neutron flux oscillations.

D. (1) T-117, "Level/Power Control"
(2) substantial fuel damage due to a large reactor power excursion.

Answer: D

## Question 24 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-2117-5A-006 During an ATWS, automatic initiation of the Automatic Depressurization System |
| System ID: | 1329 |
| User ID: | N-ILT-2117-5A-006 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 2 |
| Point Value: | 1.00 |
| Cross Reference: | G2.4.22 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |
| Comment: | Importance: RO n/a / SRO 4.0<br>Cognitive_Level: Memory |

This question satisfies the requirements of 10CF55.43(b)(5).

References: T-117 Bases

Justification:

A. Incorrect - During an ATWS Torus temperature may exceed 110°F before boron injection anyway due to SRV operation...this is not the reason for inhibiting ADS.

B. Incorrect - Depressurization due to ADS initiation must also be accompanied by elevated Drywell temperature for this to occur...this is the reason for inhibiting ADS.

C. Incorrect - ADS initiation would not cause large irregular neutron flux oscillations...it would cause a rapid reduction in reactor power due to voids.

D. Correct - For the given conditions an ATWS exists due to control rods remaining out beyond position '02'. From T-117 Bases: ADS initiation would complicate efforts to maintain RPV level within required level ranges. FURTHER, rapid and uncontrolled injection of large volumes of relatively cold, un-borated water from low pressure injection systems may occur. WIth the reactor either critical or shutdown on boron alone, the positive reactivity addition due to boron dilution and temperature reduction may result in a reactor power excursion large enough to cause substantial fuel damage. ADS is inhibited to prevent this from happening.

**25** **ID: N-ILT-1529-1H-001** **Points: 1.00**

It has been verified that the 2D Core Spray Pump Room flood detection level switch LS-2920D does not function and will not bring in annunciator 226 (D-5) D CORE SPRAY PUMP ROOM FLOOD.

Which of the following describes the actions to be taken for the above condition?

A. Place an equipment deficiency tag/sticker on Annunciator 226 (D-5) and designate the annunciator for "Non-Preferred Use" per OP-AA-108-105, "Equipment Deficiency Identification and Documentation".

B. Place an equipment status tag/sticker on Annunciator 226 (D-5) and utilize an Abnormal Component Position Sheet (ACPS) to control the abnormal condition per OP-AA-108-101,"Control of Equipment and System Status".

C. Place an equipment deficiency tag/sticker on the associated Alarm Response Card, evaluate the impact on implementing Emergency Operating Procedures, and identify any compensatory actions or additional monitoring per OP-AA-108-105, "Equipment Deficiency Identification and Documentation".

D. Place an equipment status tag/sticker on the associated Alarm Response Card, document the deficiency in the Equipment Status Tag Log, and place the annunciator in MANUAL per OP-AA-108-101,"Control of Equipment and System Status".

Answer: C

## Question 25 Details

| | |
|---|---|
| Question Type: | Multiple Choice |
| Topic: | N-ILT-1529-1H-001 The 2D Core Spray Pump Room flood detection LS-2920D was damaged during maintainen |
| System ID: | 1348 |
| User ID: | N-ILT-1529-1H-001 |
| Status: | Active |
| Always select on test: | No |
| Authorized for practice: | No |
| Difficulty: | 3.00 |
| Time to Complete: | 3 |
| Point Value: | 1.00 |
| Cross Reference: | G2.4.33 |
| User Text: | |
| User Number 1: | 0.00 |
| User Number 2: | 0.00 |

Comment:

Importance: RO 2.4 / SRO 2.8
Cognitive_Level: Memory

References : OP-AA-108-105 Equipment Deficiency Identification and Documentation

This question satisfies the requirements of 10CFR55.43(b)(5).

Justification:

A. Incorrect - Peach Bottom present practice/management expectation is to place a deficiency sticker on the Alarm Response Card (ARC) associated with the annunciator. Also, use of an Equipment Status Tag (EST) is for identifying TEMPORARY abnormal equipment positioning. For this example, nothing was placed in an abnormal position in response to the inoperable annunciator. Also, "Non-Preferred Use" is for degraded equipment issues. The Core Spray Room flood alarm system is completely inoperable, not degraded.

B. Use of an Equipment Status Tag (EST) and the Abnormal Component Position Sheet (ACPS) is for identifying TEMPORARY abnormal equipment positioning. For this example, nothing was placed in an abnormal position in response to the inoperable annunciator condition.

C. Correct - OP-AA-108-105, "Equipment Deficiency Identification and Documentation" directs several actions for this condition including evaluating the impact on implementing Emergency Operating Procedures, identifying any compensatory actions or additional monitoring, and placement of an equipment deficiency tag/sticker for the deficient item. Peach Bottom present practice/management expectation is to place a deficiency sticker on the Alarm Response Card (ARC) associated with the annunciator.

D. Peach Bottom present practice/management expectation is to place a deficiency sticker on the Alarm Response Card (ARC) associated with the annunciator. Also, use of an Equipment Status Tag (EST) and the Abnormal Component Position Sheet (ACPS) is for identifying TEMPORARY abnormal equipment positioning. For this example, nothing was placed in an abnormal position in response to the inoperable annunciator condition. There is no need to place the annunciator in MANUAL and it is not directed by OP-AA-108-101.