

ILT 1102 Written Exam

1. Unit 1 is at 100% Reactor Power **AND** Core Flow is 92%. A trip of 1A Recirc Pump results in Operation in Region II of the Core Power to Flow Map.

Which ONE of the following completes the statement below?

The required action(s) in accordance with 1-AOI-68-1A, "Recirc Pump Trip / Core Flow Decrease," is (are) to **IMMEDIATELY** _____.

- A. insert a Manual Reactor Scram
- B. raise Core Flow until Region II of the Power to Flow Map is exited
- C. insert Control Rods until Region II of the Power to Flow Map is exited
- D. insert Control Rods until Load Line is $< 95.2\%$; then, raise Core Flow to $> 45\%$

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2. A leak in the Unit 1 Drywell results in the following conditions:

- Drywell Temperature is 170° F and rising
- A Lockout occurs on 4kV Shutdown Board C
- Reactor Level is (+) 10 inches and stable
- Suppression Pool Level is 15 feet

Which ONE of the following completes the statements below?

In accordance with 1-EOI-2, "Primary Containment Control," Drywell Spray must be initiated before MAXIMUM Drywell Temperature of (1). Assuming no manual electric board transfers are performed, RHR (2) is (are) available for Drywell Spray from the control room.

- A. (1) 200° F
(2) Loop I **ONLY**
- B. (1) 200° F
(2) Loop I **AND** Loop II
- C. (1) 280° F
(2) Loop I **ONLY**
- D. (1) 280° F
(2) Loop I **AND** Loop II

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3. Unit 2 was operating at 100% Reactor Power.

A ground **AND** subsequent fire in Shutdown Board 250V DC Distribution Panel SB-B resulted in de-energization of the SB-B panel **AND** trip of 4kV Shutdown Board B Normal Feeder Breaker.

Which ONE of the following completes the statements below?

480V Shutdown Board 2B is **(1)**__.

4kV Shutdown Board B **(2)**__ automatically transfer to its alternate source.

- A. **(1)** energized
(2) will
- B. **(1)** de-energized
(2) will
- C. **(1)** energized
(2) will **NOT**
- D. **(1)** de-energized
(2) will **NOT**

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4. Given the following conditions:

- Unit 3 is operating at 20% Reactor Power
- A pipe rupture results in loss of **ALL** EHC with the Main Turbine online

Which ONE of the following completes the statements below?

Reactor Pressure will (1) .

An automatic scram (2) occur.

- A. (1) rise
 (2) will
- B. (1) lower
 (2) will
- C. (1) rise
 (2) will **NOT**
- D. (1) lower
 (2) will **NOT**

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5. Given the following:

- Unit 2 in Mode 2
- Intermediate Range Monitors (IRMs) indicate 29.1 on Range 3
- Reactor Period is 90 seconds.

Which ONE of the following identifies approximately how long it will take to reach the IRM Scram setpoint?

- A. 35 seconds
- B. 65 seconds
- C. 125 seconds
- D. 180 seconds

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6. Which ONE of the following functions can be performed at Backup Control Panel 2-25-32?
- A. Close **ALL** MSIVs
 - B. Operate **ALL** ADS Valves
 - C. Suppression Chamber Spray
 - D. Control Reactor Level with HPCI

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7. Unit 3 is operating at 100% Reactor Power when the following alarms **AND** indications are received:
- A Partial Loss of Reactor Building Closed Loop Cooling Water occurs.
 - RWCU NON-REGENERATIVE HX DISCH TEMP HIGH, (3-9-4B, Window 17) is in alarm.
 - RWCU Non- Regenerative Heat Exchanger Discharge Temperature is 140° F.

Which ONE of the following completes the statement below?

The Reactor Water Cleanup (RWCU) Pumps will receive a **DIRECT TRIP** input from _____.

- A. either the isolation valve position or the non-Regenerative Heat Exchanger high temperature signal
- B. either the isolation valve position or a low flow condition after 30 seconds
- C. the non-Regenerative Heat Exchanger high temperature signal **ONLY**
- D. a low flow condition after 30 seconds **ONLY**

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8. Control Air Header Pressure is lowering due to a rupture in the system.

Which ONE of the following identifies the **HIGHEST** Control Air Pressure that will result in Service Air Isolation Valve, 0-FCV-33-1, closing **AND** the reason?

- A. 30 psig;
To isolate non-essential Service Air loads.
- B. 30 psig;
Due to insufficient air pressure to keep the valve open.
- C. 50 psig;
To isolate non-essential Service Air loads.
- D. 50 psig;
Due to insufficient air pressure to keep the valve open.

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9. Unit 3 is in Mode 4 with the following conditions:

- Reactor Level band is (+) 78 inches to support testing.
- **ALL** Reactor Recirc **AND** RWCU Pumps are isolated and tagged out.
- RHR Loop I in Shutdown Cooling experiences an inadvertent Group 2 Isolation **AND** can **NOT** be restored.

Which ONE of the following completes the statements below?

Accurate Reactor Water Temperature (1) available.

If Reactor Coolant Stratification occurs, it is indicated by (2) .

- A. (1) is
(2) a MINIMUM differential temperature of 50°F or greater between Reactor Vessel Bottom Head **AND** any Reactor Vessel Feedwater Nozzle
- B. (1) is **NOT**
(2) a MINIMUM differential temperature of 50°F or greater between Reactor Vessel Bottom Head **AND** any Reactor Vessel Feedwater Nozzle
- C. (1) is
(2) a MINIMUM differential temperature of 75°F or greater between Reactor Vessel Bottom Head **AND** any Reactor Vessel Feedwater Nozzle
- D. (1) is **NOT**
(2) a MINIMUM differential temperature of 75°F or greater between Reactor Vessel Bottom Head **AND** any Reactor Vessel Feedwater Nozzle

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10. Unit 1 is in a Refueling Outage. The Refueling SRO reports that an **IRRADIATED** fuel assembly has been seated in the **WRONG** location in the core. The grapple remains engaged on the bundle.

The following conditions are then noted:

- Rising count rates on SRMs
- SRM Period lights illuminated
- Rising dose rates on the Refuel Floor

Which ONE of the following describes an **IMMEDIATE** Operator action in accordance with Refueling AOs?

- A. Verify Secondary Containment is intact.
- B. Raise the fuel bundle from the core location.
- C. If any CRD Pump is in service stop the CRD Pump.
- D. If SLC is operable place SLC PUMP 1A/1B, 1-HS-63-6A control switch in START A **OR** START B.

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11. Unit 2 was at 100% Reactor Power when a spurious Group I Isolation occurred. The pressure transient caused a small-break LOCA to occur inside the Drywell.

Which ONE of the following describes the basis for actions with respect to 12 psig Suppression Chamber Pressure?

- A. Drywell sprays must be initiated prior to this pressure to prevent opening the Suppression Chamber to Reactor Building vacuum breakers **AND** de-inerting the containment.
- B. Drywell sprays must be initiated above this pressure because almost **ALL** of the nitrogen **AND** other non-condensable gases in the drywell have been transferred to the torus **AND** chugging is possible.
- C. Above this pressure indicates that almost **ALL** of the nitrogen **AND** other non-condensable gases in the torus have been transferred to the drywell air space **AND** Suppression Chamber Sprays will be ineffective.
- D. Above this pressure indicates that almost **ALL** of the nitrogen **AND** other non-condensable gases in the drywell have been transferred to the torus so initiating Drywell Sprays may result in containment failure.

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12. Unit 1 HPCI is in operation in Pressure Control Mode per 1-EOI Appendix 11C, "ALTERNATE RPV PRESSURE CONTROL SYSTEMS HPCI TEST MODE."

- Reactor Pressure is 1050 psig
- 1-FIC-73-33, HPCI SYSTEM FLOW/CONTROL, is in Automatic

Which ONE of the following completes the statement below?

To lower Reactor Pressure, the operator is required to use (1) **AND** (2) in accordance with 1-EOI Appendix 11C.

- A. (1) 1-FCV-73-36, HPCI/RCIC CST TEST VLV,
(2) throttle it in the CLOSE direction
- B. (1) 1-FCV-73-36, HPCI/RCIC CST TEST VLV,
(2) throttle it in the OPEN direction
- C. (1) 1-FIC-73-33, HPCI SYSTEM FLOW/CONTROL,
(2) LOWER the setpoint
- D. (1) 1-FIC-73-33, HPCI SYSTEM FLOW/CONTROL,
(2) RAISE the setpoint

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13. Unit 2 has experienced a LOCA **AND** the following conditions exist:

- Suppression Chamber Pressure is 5 psig
- Suppression Pool level is 14.5 feet
- Drywell Pressure is 7.5 psig
- Suppression Pool Temperature is 205° F
- **BOTH** RHR Loop I Pumps are in Suppression Chamber / Drywell Spray with Loop flow of 11,500 gpm
- Core Spray Pump 2A flow is 4000 gpm
- RHR Pump 2B flow is 10500 gpm
- **NO** other ECCS Pumps are running

Based on the above conditions, which **ONE** of the following identifies the ECCS Pump(s) that has (have) sufficient NPSH for continued operation?

[REFERENCE PROVIDED]

- A. Core Spray Pump 2A **ONLY**
- B. RHR Pumps 2A **AND** 2C **ONLY**
- C. RHR Pumps 2A, 2B **AND** 2C **ONLY**
- D. Core Spray Pump 2A **AND** RHR Loop I Pumps

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14. Given the following Unit 2 plant conditions:

- Reactor pressure is being maintained at 50 psig
- Temperature near the water level instrument run in the Drywell is 220° F
- The Shutdown Vessel Flooding Range Instrument (2-LI-3-55) is reading (+) 35 inches

Which ONE of the following is the **HIGHEST** Drywell Run Temperature at which the 2-LI-3-55 reading (+) 35 inches is considered valid?

[REFERENCE PROVIDED]

- A. 200° F
- B. 250° F
- C. 270° F
- D. 300° F

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15. Unit 3 was at 100% Reactor Power when a leak from the Torus resulted in Suppression Pool Level of 11.4 feet. Required actions of the EOIs have been performed.

Which ONE of the following completes the statement below?

Two minutes after initiating required EOI actions, Wide Range Reactor Pressure Indication(s) available on Control Room Panel(s) (1) will be (2).

- A. (1) 3-9-5 **ONLY**
(2) stable
- B. (1) 3-9-5 **ONLY**
(2) lowering
- C. (1) 3-9-3 **AND** 3-9-5
(2) stable
- D. (1) 3-9-3 **AND** 3-9-5
(2) lowering

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16. Given the following Unit 1 plant conditions:

- HPCI 120VAC POWER FAILURE, (1-9-3F, Window 7) is in alarm
- Reactor Water Level is (-) 122 inches and lowering
- Drywell Pressure is 1.8 psig and steady
- Assume **NO** operator action

Which ONE of the following completes the statements below?

ADS will automatically initiate in (1). This actuation is in response to a LOCA (2).

- A. (1) 265 seconds
(2) inside the Drywell
- B. (1) 360 seconds
(2) inside the Drywell
- C. (1) 265 seconds
(2) outside the Drywell
- D. (1) 360 seconds
(2) outside the Drywell

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17. An ATWS has occurred on Unit 1 with the following time line **AND** conditions:

- At 1200 Reactor Power is 15%
- At 1210 SLC is initiated
- At 1235 SLC Storage Tank Level is 67%
- At 1300 SLC Storage Tank Level is 43%

Which ONE of the following completes the statements below?

In accordance with 1-EOI-1, "RPV Control," (1) is the earliest time the crew must commence depressurizing the Reactor below the Shutdown Cooling Reactor Pressure interlock.

Cooldown rate of 100° F/hour (2) be exceeded.

- A. (1) 1235
(2) can
- B. (1) 1235
(2) **CANNOT**
- C. (1) 1300
(2) can
- D. (1) 1300
(2) **CANNOT**

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18. Unit 2 is in Start Up. Off Gas Treatment Select Switch, 2-XS-66-113, is in BYPASS. The following alarms/indications are received:
- OG POST-TREATMENT RADIATION HIGH, (2-9-4C, Window 33)
 - Offgas Post-Treatment Radiation is 6.5×10^4 cps

Which ONE of the following identifies the impact of this condition on the Offgas System?

- A. **NO** valves will reposition
- B. Adsorber Bypass Valve, 2-FCV-66-113B will close. **NO** other valves will reposition.
- C. Adsorber Bypass Valve, 2-FCV-66-113B will close **AND** Adsorber Inlet Valve, 2-FCV-66-113A will open. **NO** other valves will reposition.
- D. Adsorber Bypass Valve, 2-FCV-66-113B will close. Adsorber Inlet Valve, 2-FCV-66-113A **AND** Charcoal Adsorber Train 2 Inlet Valve, 2-FCV-66-118 will open.

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19. With **ALL** 3 Units operating at 100% Reactor Power, a fire at 4 kV Shutdown Board A has resulted in the following:

- Failure of Unit 1 RHR Pump 1A **AND** Core Spray Pump 1A
- Shift Manager has declared an Appendix R Fire

In accordance with Safe Shutdown Instructions, which **ONE** of the following identifies which, if any, Reactor(s) is (are) required to be scrammed?

- A. **NO** Reactor Scram is required
- B. Unit 1 **ONLY**
- C. Unit 1 **AND** Unit 2 **ONLY**
- D. **ALL** 3 Units

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20. Unit 3 is operating at 80% Reactor Power **AND** the crew has entered 0-AOI-57-1E, "Grid Instability," due to the 500 kV system voltage being at 513 kV. The crew reaches the following step in the procedure:

- **RAISE** reactive power until voltage returns to 520 kV.

Which ONE of the following identifies how to raise reactive power **AND** the 161 kV Capacitor Bank Status that will restore the system voltage in accordance with 0-AOI-57-1E?

- A. Depress the EHC load set RAISE pushbutton, 3-HS-47-75C; Check the 161 kV Capacitor Banks are **IN** service.
- B. Depress the EHC load set RAISE pushbutton, 3-HS-47-75C; Check the 161 kV Capacitor Banks are **OUT** of service
- C. Place the Generator Field Voltage Auto Adjust (90P), 3-HS-57-26, to the RAISE position; check the 161 kV Capacitor Banks are **IN** service.
- D. Place the Generator Field Voltage Auto Adjust (90P), 3-HS-57-26, to the RAISE position; check the 161 kV Capacitor Banks are **OUT** of service.

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21. Unit 3 is operating at 28% Reactor Power, when a lightning strike results in a loss of **ALL** Condenser Circulating Water Pumps. Immediate Actions of 3-AOI-100-1, "Reactor Scram," are complete.

Which **ONE** of the following identifies the **AUTOMATIC** protective actions that will occur?

- A. Reactor Feed Pump Turbine trip **AND** Main Turbine Bypass Valve closure **ONLY**
- B. MSIV Closure, Reactor Feed Pump Turbine trip **AND** Main Turbine Bypass Valve closure **ONLY**
- C. Main Turbine trip, Reactor Feed Pump Turbine trip **AND** Main Turbine Bypass Valve closure **ONLY**
- D. MSIV Closure, Main Turbine trip, Reactor Feed Pump Turbine trip **AND** Main Turbine Bypass Valve closure

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22. Unit 1 is performing a startup per 1-GOI-100-1A, "Unit Startup." When the Operator At The Controls (OATC) placed the rod movement control switch to the single notch out position for the next control rod, the rod quickly moved 3 notches beyond its intended position. The following indications are received:

- SRM PERIOD, (1-9-5A, Window 20), in alarm
- SRM period indicates 10 seconds on 1-XI-92-7/44A - D

Which ONE of the following completes the statement below?

The OATC is required to _____.

- A. **STOP** Control Rod withdrawal **ONLY**.
- B. **INSERT** Control Rods until the Reactor is brought subcritical.
- C. **SHUT DOWN** the Reactor until a thorough assessment has been performed.
- D. **REINSERT** the last Control Rod withdrawn to obtain a stable period greater than 60 seconds.

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23. Unit 1 is at 100% Reactor Power when Control Rod Drive (CRD) Pump 1A trips. During the start of CRD Pump 1B, the following occurs:

- Control Rod 30-23 moves from position 16 to position 14
- Control Rod 38-31 is selected and moves from position 16 to position 12 without Operator action

Which ONE of the following identifies the required action(s) in accordance with CRD AOIs?

- A. Scram the Reactor.
- B. Reduce Reactor Power to 90%
- C. Insert Control Rod 30-23 **ONLY** to position 00 using CONTINUOUS IN.
- D. Insert Control Rods 30-23 **AND** 38-31 to position 00 using CONTINUOUS IN.

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24. Unit 1 Suppression Pool Level is (+) 5 inches and CST level is 550'.

Which ONE of the following completes the statements below?

HPCI Suction (1) automatically transfer to the Suppression Pool.

RCIC Suction (2) automatically transfer to the Suppression Pool.

- A. (1) will
(2) will
- B. (1) will
(2) will **NOT**
- C. (1) will **NOT**
(2) will
- D. (1) will **NOT**
(2) will **NOT**

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25. Unit 1 is at 100% Reactor Power with the following system line ups:

- Reactor Building Closed Cooling Water (RBCCW) Pumps 1A **AND** 1B are in service
- Reactor Water Cleanup (RWCU) Pumps 1A **AND** 1B are in service
- Fuel Pool Cooling and Cleanup (FPCC) Pump 1A is in service

Unit 1 Reactor **Scrams AND** the following alarms / indications are received:

- 480 V Shutdown Board 1A is locked out
- RBCCW SURGE TANK LEVEL HIGH, (1-9-4C, Window 6)
- RBCCW EFFLUENT RADIATION HIGH, (1-9-3A, Window 17)
- RX BLDG, TURB BLDG, RF ZONE EXH RADIATION HIGH, (1-9-3A, Window 4)

Which ONE of the following is a potential cause of the alarms?

Leakage into RBCCW from _____.

- A. Reactor Recirc Pump seal coolers
- B. Fuel Pool Cooling Heat Exchangers
- C. Reactor Water Cleanup Pump Seal Coolers
- D. Reactor Water Cleanup Non-Regenerative Heat Exchangers

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26. A HPCI Steam Supply leak has resulted in elevated Secondary Containment temperatures **AND** area water levels. HPCI Steam Supply Isolation valves have failed to isolate **AND CANNOT** be manually closed. Two Secondary Containment Water Levels are above their Maximum Safe Value requiring Emergency Depressurization.

Which ONE of the following completes the statement below?

In accordance with EOI-3, "Secondary Containment Control Bases," **ALL** of the following are reasons for requiring Emergency Depressurization with the **EXCEPTION** of _____.

- A. placing the primary system in the lowest possible energy state
- B. rejecting decay heat to the suppression pool, rather than secondary containment
- C. reducing driving head and flow of primary systems that are unisolated and discharging into secondary containment
- D. allowing access into the Reactor Building by the Emergency Response Organization to locate and manually isolate the leak

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27. Unit 2 was operating at 100% Reactor Power when a LOCA occurred. Plant conditions are as follows:

- Drywell H₂ is 3% increasing
- Drywell O₂ is 4% increasing
- Suppression Chamber H₂ is 2% steady
- Suppression Chamber O₂ is 3% steady

Which ONE of the following completes the statement below?

Based on the above conditions, Nitrogen must be lined up to _____.

- A. the Drywell
- B. the Suppression Chamber
- C. the Drywell **AND** Suppression Chamber
- D. **NO** primary containment area; the Primary Containment EOI entry condition for hydrogen concentration has **NOT** been exceeded

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28. An accident occurred on Unit 2 **AND** resulted in the following conditions:
- Reactor water level indicates (-) 200 inches on Post Accident Range
 - Reactor pressure is 400 psig
 - **ALL** RHR / LPCI are lost
 - **ONLY ONE** CRD Pump **AND** ONE Core Spray pump are running

Which ONE of the following completes the statement below?

Adequate core cooling _____.

[REFERENCE PROVIDED]

- A. does **NOT** exist
- B. is provided by Spray Cooling
- C. is provided by Steam Cooling
- D. is provided by Core Submergence

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29. Unit 1 is in Mode 4 with RHR Pump 1B in Shutdown Cooling.

Which ONE of the following completes the statements below?

In accordance with Tech Spec 3.5.2, "ECCS - Shutdown," RHR Pump 1B (1) Operable for the ECCS function.

The **MAXIMUM** allowed RCS cooldown rate per Tech Spec 3.4.9, "RCS Pressure and Temperature (P/T) Limits," is (2) .

- A. (1) is
(2) 100°F per hour
- B. (1) is
(2) 100°F in any one hour period
- C. (1) is **NOT**
(2) 100°F per hour
- D. (1) is **NOT**
(2) 100°F in any one hour period

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30. Unit 1 was operating at 100% Reactor Power; when the reactor scrammed on low RPV water level and HPCI auto started, which resulted in the following conditions:

- RPV water level lowered to (-) 50 inches and is currently (+) 55 inches and slowly lowering.

Which ONE of the following, is the **FIRST** condition that would cause an **AUTOMATIC** restart of HPCI?

- A. Level lowers to (+) 27 inches.
- B. Level lowers to (+) 2 inches.
- C. Level lowers to (-) 45 inches.
- D. Drywell Pressure greater than 2.45 psig.

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31. Unit 2 was operating at 100% Reactor Power, when a plant event resulted in a reactor scram **AND** loss of 250 VDC RMOV BD 2A. Degrading plant conditions have resulted in the following:

- Reactor Pressure is 325 psig and stable
- A few minutes later, Drywell Pressure is 2.8 psig

Based on the above conditions, which ONE of the following predicts how Core Spray will be affected by the bus loss?

- A. **ALL** Core Spray pumps will start **AND ALL** injection valves will open.
- B. **ONLY** the Loop 1 Core Spray pumps will start **AND** Loop 1 injection valves will open.
- C. **ONLY** the Loop 2 Core Spray pumps will start **AND** Loop 2 injection valves will open.
- D. **NO** Core Spray pumps will start **AND NO** injection valves will open.

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32. Unit 1 is executing 1-EOI-1, "RPV Control," due to a Scram **AND** an ATWS. The Unit Operator (UO) is directed to inject Standby Liquid Control (SLC) per 1-EOI Appendix 3A, "SLC Injection."

The UO places the SLC Pump control switch in the 'START-A' position.

Given the following plant conditions:

- SLC SQUIB VALVE CONTINUITY LOST, (1-9-5B, Window 20) Extinguished
- SQUIB VALVE A and B CONTINUITY, blue lights on Panel 1-9-5 Illuminated
- SLC Pump 1A red light Illuminated

Which ONE of the following describes the status of SLC **AND** the correct action(s) to take as stated in 1-EOI Appendix 3A?

- A. **ONE** squib valve has fired.
Start SLC Pump 1B, **AND** verify proper operation.
- B. **NEITHER** squib valve has fired.
Start SLC Pump 1B, **AND** verify proper operation.
- C. **ONE** squib valve has fired.
Verify proper system operation by observing the SLC tank level lowering by ~1% per minute.
- D. **BOTH** squib valves have fired.
Verify proper system operation by observing the SLC tank level lowering by ~1% per minute.

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33. Unit 2 was operating at 100% Reactor Power, when the plant experienced a complete loss of the Control Air system. The following plant conditions exist:

- **ALL** eight Scram Solenoid Group A/B Logic Reset Lights are **NOT** lit
- Recirc Pumps are Tripped
- Reactor Power is 20%

You are the OATC and have been directed to perform 2-EOI Appendix 1D, "Insert Control Rods Using Reactor Manual Control System" (RMCS).

Which ONE of the following completes the statement below?

Verify CRD Pump operating, ____**(1)**____, direct manually opening CRD Flow Control Valve (2-FCV-85-11A or B), verify Mode Switch in SHUTDOWN, bypass the Rod Worth Minimizer, CRD Power Switch ON, select control rod, **AND** place CRD ____**(2)**____.

- A. **(1)** reset ARI
(2) Control Switch in ROD IN, until green 00 is lit, on the four rod display
- B. **(1)** reset ARI
(2) Notch Override Switch in EMERG IN, until the control rod stops moving inward
- C. **(1)** direct closure of CHARGING WATER SHUTOFF, 2-SHV-85-586
(2) Control Switch in ROD IN, until the green 00 is lit, on the four rod display
- D. **(1)** direct closure of CHARGING WATER SHUTOFF, 2-SHV-85-586
(2) Notch Override Switch in EMERG IN, until the control rod stops moving inward

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34. Unit 2 is performing a startup with the following conditions:

- Mode Switch is in STARTUP
- Reactor is critical
- IRMs are steady on Range 2

Which ONE of the following identifies the IRM power source **AND** the effect of a loss of power to a single IRM?

	<u>IRM Power Source</u>	<u>Effect of Power Loss to IRM</u>
A.	24 VDC Battery	Rod Block ONLY
B.	24 VDC Battery	Rod Block AND Half Scram
C.	250 VDC Battery	Rod Block ONLY
D.	250 VDC Battery	Rod Block AND Half Scram

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35. Which ONE of the following completes the statement below?

The applied voltage to the SRM detector is (1) than the applied voltage used for the IRM detector **AND** the SRM electrode generates an electrical signal (2) proportional to neutron flux in the core.

- A. (1) lower
(2) directly
- B. (1) higher
(2) directly
- C. (1) lower
(2) inversely
- D. (1) higher
(2) inversely

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36. A plant start up on Unit 3 is in progress. A control rod block has occurred. The following nuclear instrument indications are noted:

	SRM A	SRM B	SRM C	SRM D
Position	Full in	Mid-position	Mid-position	Full in
Counts (CPS)	9.5×10^3	125	150	8.0×10^3

IRM A	IRM B	IRM C	IRM D	IRM E	IRM F	IRM G	IRM H
25/125	15/125	35/125	55/125	75/125	75/125	30/125	25/125
Range 3	Range 2	Range 3	Range 3	Range 2	Range 2	Range 3	Range 3

Which ONE of the following identifies the **MINIMUM** action needed to clear the ROD WITHDRAWAL BLOCK?

- A. Insert SRM B **ONLY**
- B. Insert SRM B **AND** SRM C
- C. Range up on IRM B **AND** IRM F to range 3
- D. Range up on IRM E **AND** IRM F to range 3

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37. Unit 2 APRM Channel 3 has a total of 18 LPRM inputs.

Which ONE of the following statements identifies the expected response to this condition?

- A. The APRM will produce a Rod Block signal **ONLY**.
- B. **NO** Rod Block **OR** Reactor Scram signals are generated.
- C. The APRM will produce a Rod Block signal **AND** a Scram signal input to **EACH** 2/4 logic voter module.
- D. The APRM will produce a Rod Block signal **AND** a Scram signal input to **ITS RESPECTIVE** 2/4 logic voter module **ONLY**.

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38. Unit 2 experienced a loss of 250 VDC RMOV BD 2B

Which ONE of the following statements describes the operation of the RCIC system?

- A. RCIC will NOT automatically isolate.
- B. RCIC will NOT automatically initiate.
- C. The RCIC Flow Controller fails downscale.
- D. ONLY the manual isolation is functional.

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39. Which ONE of the following completes the statement below?

The power supply to the Unit 2 RCIC Vacuum Pump is _____.

A. 250 VDC RMOV BD 2A

B. 250 VDC RMOV BD 2C

C. 480 VAC RMOV BD 2A

D. 480 VAC RMOV BD 2B

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40. Unit 2 was operating at 100% Reactor Power with RHR Pump 2D tagged out of service. A Loss of Coolant Accident with a subsequent Loss of Off Site Power has resulted in the following plant conditions:

- Reactor Water Level is (-)125 inches
- Drywell Pressure is 4.1 psig
- A **AND** C 4KV Shutdown Boards are de-energized

Which ONE of the following identifies the **MINIMUM** action(s), if any, that will prevent the Automatic Depressurization System (ADS) from an Auto-Initiation?

- A. **NO** action is required
- B. Place **ONLY** ADS Logic Inhibit Switch 'A' to INHIBIT
- C. Place **ONLY** ADS Logic Inhibit Switch 'B' to INHIBIT
- D. Place **BOTH** ADS Logic Inhibit Switches to INHIBIT

ILT 1102 Written Exam

41. Which ONE of the following completes the statement below?

A trip of **BOTH** division 1 (A, C) Reactor Water Cleanup Suction Isolation Valves low level sensor relay(s) within a logic trip channel will cause a (1) isolation **AND** (2) closure.

- A. (1) half
(2) **NO** valve
- B. (1) half
(2) inboard valve
- C. (1) full
(2) inboard valve
- D. (1) full
(2) inboard **AND** outboard valve

ILT 1102 Written Exam

42. Unit 2 is starting up following a refueling outage with Reactor Pressure at 80 psig.

RPS MG Set A has tripped. RPS Distribution Panel A has **NOT** yet been transferred to its alternate source.

The Low-Low-Low Reactor Water Level instrument providing input to PCIS Channel B2 fails downscale.

Which ONE of the following describes the response of MSIVs **AND** Main Steam Line Drains?

- A. **ONLY** the Inboard Steam Line Drain valve **AND ALL** MSIVs close.
- B. **ONLY** the Outboard Steam Line Drain valve **AND ALL** MSIVs close.
- C. Inboard **AND** Outboard Steam Line Drain valves **AND ALL** MSIVs close.
- D. Inboard **AND** Outboard Steam Line Drain valves close, **AND ALL** MSIVs remain open.

ILT 1102 Written Exam

43. During a transient on Unit 1, Reactor Pressure reached 1150 psig.

Which ONE of the following identifies how many SRVs opened?

- A. Four
- B. Eight
- C. Nine
- D. Thirteen

ILT 1102 Written Exam

44. Unit 2 Feedwater Level Control System (FWLCS) is operating in 3-Element Control with Narrow Range Level Instruments indicating as follows:

- 2-LT-3-53, LEVEL A, (+) 46 inches
- 2-LT-3-60, LEVEL B, (+) 32 inches
- 2-LT-3-206, LEVEL C, (+) 34 inches
- 2-LT-3-253, LEVEL D, (+) 33 inches

Which ONE of the following completes the statement below?

If 2-LT-3-60, LEVEL B, is manually bypassed, the FWLCS will control Reactor Water Level based on _____.

- A. **ONLY** the 2-LT-3-206 instrument
- B. **LOWEST** of 2-LT-3-206 **OR** 2-LT-3-253 instruments
- C. **AVERAGE** of 2-LT-3-206 **AND** 2-LT-3-253 instruments
- D. **AVERAGE** of 2-LT-3-53, 2-LT-3-206, **AND** 2-LT-3-253 instruments

ILT 1102 Written Exam

45. Which ONE of the following completes the statement below?

Standby Gas Treatment System (1) are designed to remove elemental iodine AND the (2) are designed to reduce relative humidity to less than 70%.

- A. (1) HEPA Filters
(2) Moisture Separators
- B. (1) Carbon Beds
(2) Moisture Separators
- C. (1) HEPA Filters
(2) Electric Heaters
- D. (1) Carbon Beds
(2) Electric Heaters

ILT 1102 Written Exam

46. The Unit 1 Unit Preferred Inverter is operating in a normal lineup, when a loss of off-site power **AND** a failure of DG "A" to start occurs.

Which ONE of the following completes the statement below?

The Unit Preferred Inverter is powered from _____.

- A. 480V RMOV BD 1A
- B. 250 VDC Battery Board 4
- C. 250 VDC Battery Board 5
- D. the Unit Preferred Transformer

ILT 1102 Written Exam

47. Which ONE of the following completes the statements below?

The 1001 **AND** 1003 breaker from Unit 2 Unit Preferred System (UPS) Motor-Motor-Generator (MMG) set will trip on (1) at the output of the MMG.

In accordance with 2-AOI-57-4, "Loss of Unit Preferred," if UPS is lost, the crew must (2).

- A. (1) under frequency **ONLY**
(2) take manual control of Master Feedwater Level Controller
- B. (1) under frequency **ONLY**
(2) verify Reactor Feedwater Control System is maintaining Reactor Water Level
- C. (1) under frequency **OR** overvoltage
(2) take manual control of Master Feedwater Level Controller
- D. (1) under frequency **OR** overvoltage
(2) verify Reactor Feedwater Control System is maintaining Reactor Water Level

ILT 1102 Written Exam

48. Battery Rooms 1, 2, and 3 HVAC Systems are not operating properly.

Which ONE of the following completes the statements below?

The concern is that (1).

Plant procedures direct the utilization of an (2).

- A. (1) lead-calcium batteries tend to release toxic gas into the atmosphere at temperatures above 90 °F
(2) Emergency Exhaust Fan **ONLY**
- B. (1) the design limit for hydrogen concentration in the rooms may be reached during battery charging operations
(2) Emergency Exhaust Fan **ONLY**
- C. (1) lead-calcium batteries tend to release toxic gas into the atmosphere at temperatures above 90 °F
(2) Emergency Exhaust Fan **AND/OR** Portable Temporary Ventilation Equipment
- D. (1) the design limit for hydrogen concentration in the rooms may be reached during battery charging operations
(2) Emergency Exhaust Fan **AND/OR** Portable Temporary Ventilation Equipment

ILT 1102 Written Exam

49. Diesel Generator (D/G) 'A' is synchronized to 4KV Shutdown Board 'A'. The instrumentation readings for the D/G are as follows:

- Voltage = 4160 VAC
- Frequency = 60 Hz
- Current = 280 amps
- Vars = 2200 Kvars
- Watts = 2600 Kw

Which ONE of the following is the correct action to obtain a 0.8 lagging power factor?

Take the _____.

[REFERENCE PROVIDED]

- A. Governor control switch to **RAISE**.
- B. Governor control switch to **LOWER**.
- C. Voltage Regulator control switch to **RAISE**.
- D. Voltage Regulator control switch to **LOWER**.

ILT 1102 Written Exam

50. "G" Control Air Compressor's microcontroller fails, causing the Compressor Inlet Flow Valve to **throttle** open and the Compressor Bypass Control Valve to fail **fully** open.

Which ONE of following completes the statement below?

Control Air Header pressure will _____.

- A. stabilize between 110 to 120 psig
- B. stabilize between 90 to 110 psig
- C. stabilize between 75 to 90 psig
- D. increase to 132 psig

ILT 1102 Written Exam

51. Control Air Compressors 'A' **AND** 'C' are in service. A momentary loss of power to 480V Shutdown Board 1B occurs. Three seconds later, normal voltage is restored.

Which ONE of the following completes the statement below?

Control Air Compressor (1) will trip **AND** (2) automatically re-start when normal voltage is restored.

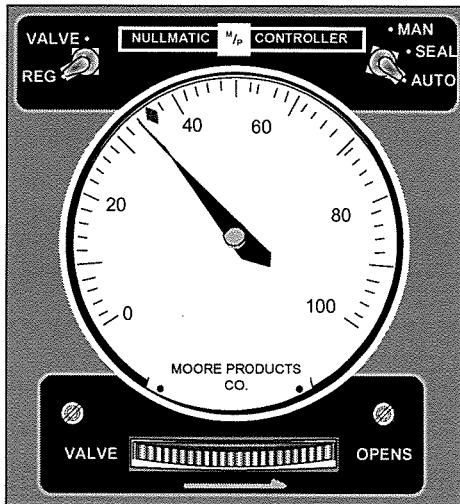
- A. (1) A
(2) will
- B. (1) C
(2) will
- C. (1) A
(2) will **NOT**
- D. (1) C
(2) will **NOT**

ILT 1102 Written Exam

52. Which ONE of the following completes the statement below?

The Unit 2 Reactor Building Closed Cooling Water (RBCCW) Temperature Controller, 2-TIC-24-80, is located in Unit 2 Reactor Building at (1) .

If the controller is placed in AUTO with the indications shown below, the Temperature Control Valve will modulate to a more (2) .



- A. (1) Panel 2-25-196, Elevation 565'
(2) closed position
- B. (1) RBCCW Heat Exchanger area, Elevation 593'
(2) close position
- C. (1) Panel 2-25-196, Elevation 565'
(2) open position
- D. (1) RBCCW Heat Exchanger area, Elevation 593'
(2) open position

ILT 1102 Written Exam

53. Unit 2 RBCCW Heat Exchanger 2A is being filled and vented per 2-OI-70, "Reactor Building Closed Cooling Water System."

Which ONE of the following completes the statement below?

While filling the Heat Exchanger, RBCCW Surge Tank Level will lower until RBCCW SYS SURGE TANK FILL VALVE, 2-FCV-70-1, _____.

- A. is manually opened from the Control Room
- B. is manually opened locally at the Surge Tank
- C. automatically opens at 4 inches below the Surge Tank centerline
- D. automatically opens at 4 inches above the Surge Tank centerline

ILT 1102 Written Exam

54. Unit 1 Control Rod Drive System has ruptured on the Charging Water Header upstream of the header restricting orifice.

Which ONE of the following completes the statement below?

This condition is indicated by the CRD Pump 1A motor amps being (1) than normal **AND** the CRD Flow Control Valve traveling FULL (2).

- A. (1) LOWER
(2) OPEN
- B. (1) HIGHER
(2) OPEN
- C. (1) LOWER
(2) CLOSED
- D. (1) HIGHER
(2) CLOSED

ILT 1102 Written Exam

55. During a UNIT 1 startup, a control rod drive mechanism is difficult to withdraw and remains at position 00.

The HCU hydraulic lines were vented.

Which ONE of the following completes the statement below in accordance with 1-OI-85, "Control Rod Drive System"?

GO TO _____.

- A. ROD IN, **then** ROD OUT NOTCH with the CRD CONTROL SWITCH, release if rod moves
- B. ROD OUT NOTCH with the CRD CONTROL SWITCH, **then** NOTCH OVERRIDE with the CRD NOTCH OVERRIDE SWITCH, release switches if rod moves
- C. EMERGENCY IN with the CRD NOTCH OVERRIDE SWITCH, then simultaneously place the CRD CONTROL SWITCH in ROD OUT NOTCH, release switches if rod moves
- D. EMERGENCY IN, **then** NOTCH OVERRIDE with the CRD NOTCH OVERRIDE SWITCH, **and then** simultaneously place CRD CONTROL SWITCH in ROD OUT NOTCH, release switches if rod moves

ILT 1102 Written Exam

56. Unit 1 is operating at 100% Reactor Power with the "A" Traversing In-Core Probe (TIP) inserted in the core. A transient occurs resulting in the following plant conditions:

- Reactor Level is (-) 20 inches
- Drywell pressure is 1.5 psig

Which ONE of the following completes the statement below?

The "A" TIP will withdraw to the (1) position **AND** the Ball Valve position will be (2).

- A. (1) 'PARKED'
(2) open
- B. (1) 'PARKED'
(2) closed
- C. (1) 'IN-SHIELD'
(2) open
- D. (1) 'IN-SHIELD'
(2) closed

ILT 1102 Written Exam

57. **Unit 2** is at 100% Reactor Power with Residual Heat Removal (RHR) Loop II in Suppression Pool Cooling mode. The following alarms are received on **Unit 1**:

- DRYWELL PRESSURE HIGH HALF SCRAM, (1-9-4A, Window 8)
- RX PRESS LOW CORE SPRAY/RHR PERMISSIVE, (1-9-3C, Window 35)

Which ONE of the following describes the current status of **Unit 2** RHR system **AND** what actions, if any, must be taken to restore Suppression Pool Cooling on Unit 2?

- A. **ALL** four RHR pumps receive a trip signal. Place RHR Loop II in Suppression Pool Cooling IMMEDIATELY.
- B. 2A **AND** 2C RHR Pumps are tripped. 2B **AND** 2D pumps are unaffected. **NO** additional action is required.
- C. **ALL** four RHR pumps receive a trip signal. Place RHR Loop II in Suppression Pool Cooling after a 60-second time delay.
- D. 2B **AND** 2D RHR Pumps are tripped. 2A **AND** 2C pumps are unaffected. Place RHR Loop I in Suppression Pool Cooling IMMEDIATELY.

ILT 1102 Written Exam

58. Unit 3 is operating at 100% Reactor Power with the Alternate Supply Breaker 1528 to 4 kV Unit Board 3B tagged out of service. An accident results in the following conditions:

- Unit Station Service Transformer 3B locks out
- Suppression Chamber Pressure reaches 3 psig
- 3A **AND** 3B RHR pumps are running in Suppression Chamber Spray Mode.

Which ONE of the following completes the statement below?

The power supply for the 4 kV Shutdown Board to RHR Pump 3A is (1) **AND** RHR Pump 3B is (2) .

- A. (1) Common Station Service Transformer A
(2) Common Station Service Transformer A
- B. (1) Common Station Service Transformer A
(2) its associated Emergency Diesel Generator
- C. (1) its associated Emergency Diesel Generator
(2) Common Station Service Transformer A
- D. (1) its associated Emergency Diesel Generator
(2) its associated Emergency Diesel Generator

ILT 1102 Written Exam

59. Given the following:

- Unit 1 is in Mode 5
- The Refuel Platform is over the Spent Fuel Pool
- The Reactor Mode Switch is in START & HOT STBY for testing

Which ONE of the following identifies when a rod block will occur?

- A. When the Refuel Platform Fuel Grapple is lowered.
- B. When a load is placed on the Refuel Platform Fuel Grapple.
- C. When the Refuel Platform is driven near or over the core.
- D. Immediately when the Refuel Platform moves toward the core.

ILT 1102 Written Exam

60. RFPT 1A OVERSPEED TEST TRIP LOCKOUT, 1-HS-3-109A, has been placed in the 'ELEC' position per 1-OI-3, "Reactor Feedwater System," Section 8.9, "RFPT Overspeed Trip Test," when RFPT 1A experiences an **ACTUAL** over-speed condition.

Which ONE of the following describes the **AUTOMATIC** response of RFPT 1A?

- A. Trips as a result of the electrical trip solenoid.
- B. Trips as a result of the mechanical trip mechanism.
- C. Will **ONLY** trip when 1-HS-3-109A is restored to the 'NORM' position.
- D. Will **ONLY** trip when ELECT OVERSPEED TEST BYP, 1-HS-3-0109B is released from 'TEST' to 'NORM'

ILT 1102 Written Exam

61. Unit 2 Offgas Post Treat Radiation Monitor, 2-RM-90-265A, has failed downscale.

Which ONE of the following completes the statements below?

If Offgas Post Treat Radiation Monitor, 2-RM-90-266A, reaches the High-High-High setpoint, Off-Gas System Isolation Valve, 2-FCV-66-28, (1) close.

If Offgas Post Treat Radiation Monitor, 2-RM-90-266A, fails downscale, Off-Gas System Isolation Valve, 2-FCV-66-28, (2) close.

- A. (1) will
(2) will
- B. (1) will NOT
(2) will
- C. (1) will
(2) will NOT
- D. (1) will NOT
(2) will NOT

ILT 1102 Written Exam

62. Given the following Control Room Emergency Ventilation (CREV) system conditions:

- CREV Train A was started to prove operability following maintenance on the charcoal trays using the STOP-AUTO-START switch on Panel 9-22.
- The SYSTEM PRIORITY SELECTOR SWITCH is selected for "TRAIN-B".

Which ONE of the following completes the statement below that describes the CREV system response should a valid CREV initiation signal be received?

CREV Train B would (1) **AND** CREV Train A would (2).

- A. (1) initiate
(2) shutdown
- B. (1) **NOT** initiate
(2) shutdown
- C. (1) initiate
(2) **NOT** shutdown
- D. (1) **NOT** initiate
(2) **NOT** shutdown

ILT 1102 Written Exam

63. On Unit 1, Standby Gas Treatment System (SGTS) A, Control Switch 1-HS-65-18A on Panel 1-9-25 has been placed in the pull-to-lock position.

Which one of the following conditions would still cause SGTS A to start?

- A. Unit 2 drywell pressure rises to 2.5 psig.
- B. Unit 3 SGTS A start pushbutton is depressed.
- C. The local (SGTS Building) SGTS A start pushbutton is depressed.
- D. SGT TRAIN "A" INBD ISOL TEST SIG Keylock switch (HS-65-48A) is placed in the TEST position.

ILT 1102 Written Exam

64. Which ONE of the following completes the statements below?

Jet Pumps are designed such that following a DBA LOCA, a re-floodable core volume **NO** lower than **(1)** is assured.

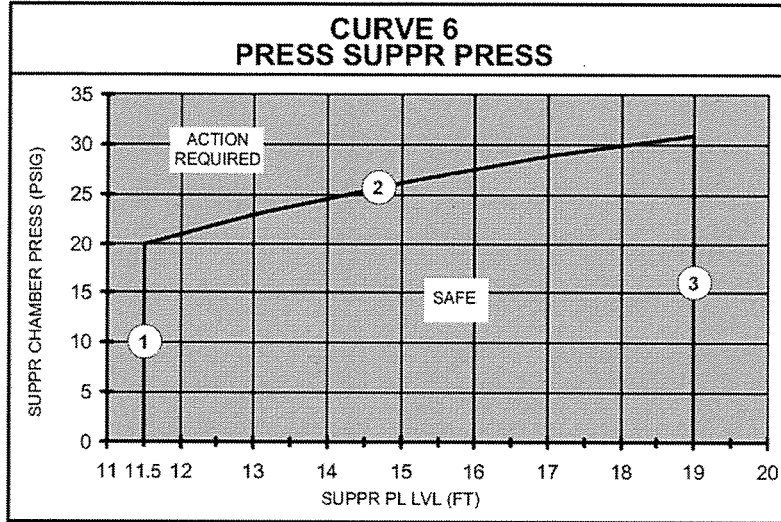
Following a DBA LOCA with **ALL** ECCS available, Severe Accident Management Guidelines **(2)** be required to be entered.

- A. **(1)** (-)180 inches
(2) will
- B. **(1)** (-)180 inches
(2) will **NOT**
- C. **(1)** (-)215 inches
(2) will
- D. **(1)** (-)215 inches
(2) will **NOT**

ILT 1102 Written Exam

65. Which ONE of the following combinations of electrical board losses would result in **BOTH** Control Room Emergency Ventilation Fans being de-energized? (Assume normal alignment)
- A. 480V Shutdown Board 3B; 4kV Shutdown Board 3EA
 - B. 480V Shutdown Board 1B; 4kV Shutdown Board 3EA
 - C. 480V Shutdown Board 3B; 4kV Shutdown Board A
 - D. 480V Shutdown Board 1B; 4kV Shutdown Board A

66.



Which ONE of the following completes the statement below?

In accordance with the EOI Program Manual derivation, Line ① on Curve 6, "Pressure Suppression Pressure," above, corresponds to the Suppression Pool Water Level at which the _____.

- A. Downcomer Vents become uncovered
- B. HPCI Turbine Exhaust opening becomes uncovered
- C. Safety Relief Valve (SRV) Tailpipe openings become uncovered
- D. Control Room Suppression Pool Water Narrow Range Level Indication goes off scale low

ILT 1102 Written Exam

67. Which ONE of the following is a Design Basis of HPCI?
- A. Maintain sufficient reactor water inventory so the fuel won't overheat when a reactor isolation **AND** loss of feedwater occurs.
 - B. Make up water to the vessel in the event of a loss of coolant situation that does **NOT** result in rapid vessel depressurization.
 - C. Assures that the reactor core is adequately cooled to limit fuel clad temperature to < 1800 °F in the event of a large break in the reactor coolant system.
 - D. Assures that the reactor core is adequately cooled to limit primary containment pressure in the event of a small break in the reactor coolant system.

ILT 1102 Written Exam

68. Which ONE of the following defines the purpose of the Rod Worth Minimizer (RWM) in accordance with Technical Specifications?
- A. Ensures that fuel enthalpy does not exceed 280 cal/gm during a control rod drop accident when Reactor Power is $< 10\%$.
 - B. Ensures that fuel enthalpy does not exceed 280 cal/gm during a control rod drop accident when Reactor Power is $> 27\%$.
 - C. Ensures that the Minimum Critical Power Ratio remains greater than 1.08, while withdrawing control rods, when Reactor Power is $< 10\%$.
 - D. Ensures that the Minimum Critical Power Ratio remains greater than 1.08, while withdrawing control rods, when Reactor Power is $> 27\%$.

ILT 1102 Written Exam

69. Unit 1 Plant Startup is in progress.

Which ONE of the following completes the statement below?

In accordance with 1-GOI-100-1A,"Unit Startup," Control Rod withdrawal is limited to single notch when the (1) SRM count rate doubling is reached **AND** must continue until (2).

- A. (1) fourth
(2) the Reactor is Critical
- B. (1) fifth
(2) the Reactor is Critical
- C. (1) fourth
(2) Reactor is in the heating range Power
- D. (1) fifth
(2) Reactor Power is in the heating range

ILT 1102 Written Exam

70. Which ONE of the following completes the statement below?

When Reactor Steam Dome Pressure of (1) is exceeded (as stated in Unit 2 Tech Spec 3.4.10, "Reactor Steam Dome Pressure"), it must be restored to within limits in a **MAXIMUM** completion time of (2).

- A. (1) 1050 psig
(2) 15 minutes
- B. (1) 1050 psig
(2) 1 hour
- C. (1) 1073 psig
(2) 15 minutes
- D. (1) 1073 psig
(2) 1 hour

ILT 1102 Written Exam

71. Which ONE of the following describes the meaning of a BLUE magnetic border being installed on a Main Control Room panel annunciator?

This type of border indicates that the annunciator _____.

- A. has ONE **OR** more alarm inputs disabled
- B. is "NOT ABNORMAL" for current plant conditions
- C. is associated with ongoing testing **OR** maintenance
- D. window is being relocated to a different window location

ILT 1102 Written Exam

72. A valve lineup is to be performed on valves with the following conditions:

- Area temperature is 115° F
- Area radiation is 40 mr/hr
- The valves are located 20' off the floor

Independent Verification of this valve lineup is expected to take 0.5 hour.

Which one of the following choices completes the statement below in accordance with NPG-SPP-10.3, "Verification Program?"

Based on the above conditions, Independent Verification of this lineup _____.

- A. **CANNOT** be exempted
- B. may be exempted due to elevation
- C. may be exempted due to excessive dose
- D. may be exempted due extreme temperature

ILT 1102 Written Exam

73. Which ONE of the following completes the statement below?

The Wide Range Gaseous Effluent Radiation Monitor System (WRGERMS) consists of ___(1)___ ranges, **AND** has ___(2)___ .

- A. (1) TWO
(2) monitors in **ALL** three Units Control Rooms
- B. (1) THREE
(2) monitors in **ALL** three Units Control Rooms
- C. (1) TWO
(2) a monitor in Unit 2 Control Room **ONLY**
- D. (1) THREE
(2) a monitor in Unit 2 Control Room **ONLY**

ILT 1102 Written Exam

74. A plant emergency is in progress that requires a declaration in accordance with EPIP-1, "Emergency Plan Implementing Procedure."

The plant emergency in progress is **NOT** a security threat to facility protection.

Which one of the following is the "Lowest Classification" that the Operations Support Center (OSC) **AND** the Technical Support Center (TSC) must be activated?

	OSC	TSC
A.	Alert	Alert
B.	Alert	Site Area Emergency
C.	Site Area Emergency	Alert
D.	Site Area Emergency	Site Area Emergency

ILT 1102 Written Exam

75. **ALL** High Pressure Injection has been lost on Unit 2.
- At 16:00:00, Reactor Water Level is (-) 110 inches
 - At 16:02:00, Reactor Water Level is (-) 118 inches
 - Reactor Water Level continues to lower at the same rate

Which ONE of the following completes the statement below?

A Common Accident Signal will be initiated by (1) Range level instruments **AND** the **EARLIEST** time that **ALL** Core Spray Pumps will have auto started is (2).

- A. (1) Emergency
(2) 16:03:07
- B. (1) Post Accident
(2) 16:03:07
- C. (1) Emergency
(2) 16:03:21
- D. (1) Post Accident
(2) 16:03:21

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ITEM COUNT			
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1	1	1	3
2	2	2	4
3	3		
4	4		
5	5		
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PERFORMANCE ASSESSMENT						
	% OF TOTAL SCORE			POINTS EARNED		
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E O U A L P T V A L U E	0	0	0	0	0	0
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SCORING & PRINTING OPTIONS:
 RESCORE MULTIPLE ANSWER SCORING
 CORRECT ANSWER MARK X TOTAL ONLY
 MARK ONLY ONE

KEY ID
A B C D

- 1 T F (A) (B) (C) (D) (E)
- 2 (A) (B) (C) (D) (E)
- 3 (A) (B) (C) (D) (E)
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- 45 (A) (B) (C) (D) (E)
- 46 (A) (B) (C) (D) (E)
- 47 (A) (B) (C) (D) (E)
- 48 (A) (B) (C) (D) (E)
- 49 (A) (B) (C) (D) (E)
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- 51 T F (A) (B) (C) (D) (E)
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- 62 (A) (B) (C) (D) (E)
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- 97 (A) (B) (C) (D) (E)
- 98 (A) (B) (C) (D) (E)
- 99 (A) (B) (C) (D) (E)
- 100 (A) (B) (C) (D) (E)

NUMBER CORRECT	
PERCENT CORRECT	
ROSTER NUMBER	
SCORE	
RESCORE	



COMBINED POINTS EARNED	
COMBINED PERCENT CORRECT	
LETTER GRADE	
SCORE	
RESCORE	



NAME ANSWER KEY

SUBJECT _____

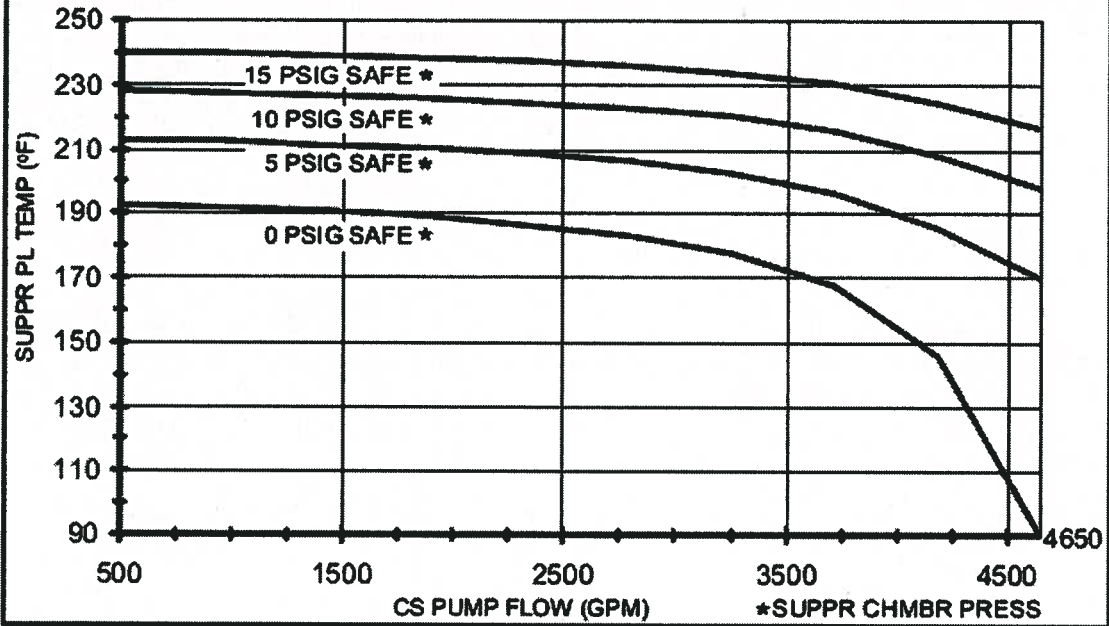
PERIOD _____ DATE _____

MARKING INSTRUCTIONS
 Use a No. 2 Pencil
 (A) (B) (C) (D) (E)
 Fill oval completely
 (A) (B) (C) (D) (E)
 Erase cleanly

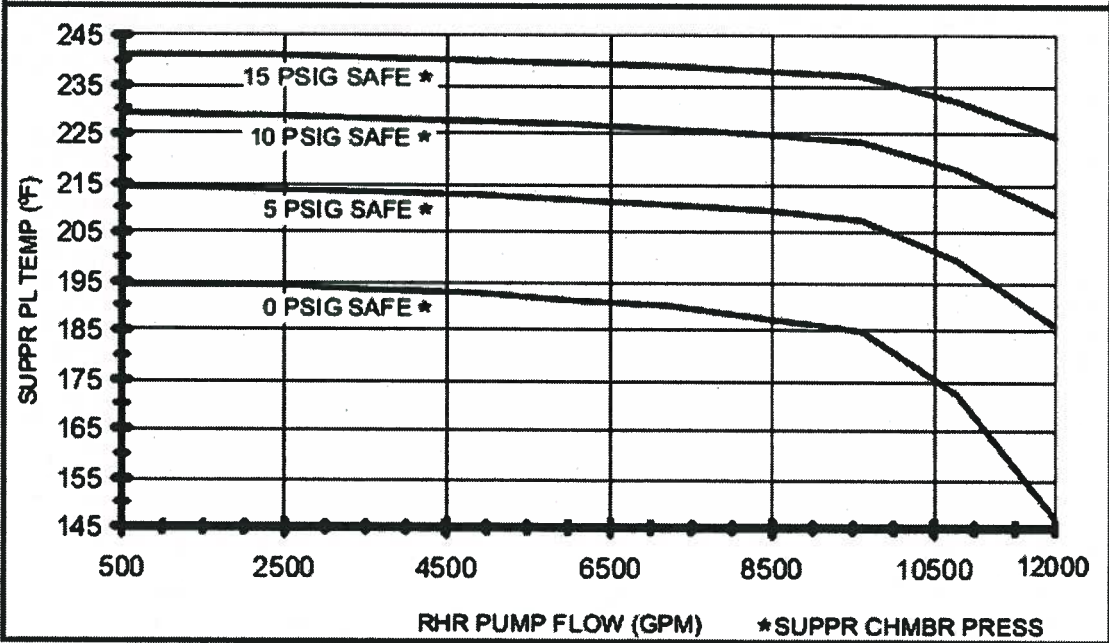
RO REFERENCES PROVIDED

- 13 EOI Curve 1 & 2 Rev. 8
- 14 EOI Caution 1 / Curve 8
- 28 2-LI-3-52/62 Correction Curve
- 49 DG KW vs. KVAR LOADING 0-OI-82 Illustration 1

CURVE 1 CS NPSH LIMITS



CURVE 2 RHR NPSH LIMITS



CAUTIONS

CAUTION #1

- AN RPV WATER LVL INSTRUMENT MAY BE USED TO DETERMINE OR TREND LVL ONLY WHEN IT READS ABOVE THE MINIMUM INDICATED LVL ASSOCIATED WITH THE HIGHEST MAX DW OR SC RUN TEMP.
- IF DW TEMPS, OR SC AREA TEMPS (TABLE 6), AS APPLICABLE, ARE OUTSIDE THE SAFE REGION OF CURVE 8, THE ASSOCIATED INSTRUMENT MAY BE UNRELIABLE DUE TO BOILING IN THE RUN.

INSTRUMENT	RANGE	MINIMUM INDICATED LVL	MAX DW RUN TEMP (FROM XR-64-50 OR TI-64-52AB)	MAX SC RUN TEMP (FROM TABLE 6)
LI-3-58A, B	EMERGENCY -155 TO +60	ON SCALE	N/A	BELOW 150
		-145	N/A	151 TO 200
		-140	N/A	201 TO 250
		-130	N/A	251 TO 300
		-120	N/A	301 TO 350
LI-3-53 LI-3-60 LI-3-206 LI-3-253 LI-3-208A, B, C, D	NORMAL 0 TO +60	ON SCALE	N/A	BELOW 150
		+5	N/A	151 TO 200
		+15	N/A	201 TO 250
		+20	N/A	251 TO 300
		+30	N/A	301 TO 350
LI-3-52 LI-3-62A	POST ACCIDENT -268 TO +32	ON SCALE	N/A	N/A
LI-3-55	SHUTDOWN FLOODUP 0 TO +400	+10	BELOW 100	N/A
		+15	100 TO 150	N/A
		+20	151 TO 200	N/A
		+30	201 TO 250	N/A
		+40	251 TO 300	N/A
		+50	301 TO 350	N/A
		+65	351 TO 400	N/A

CURVE 8 RPV SATURATION TEMP

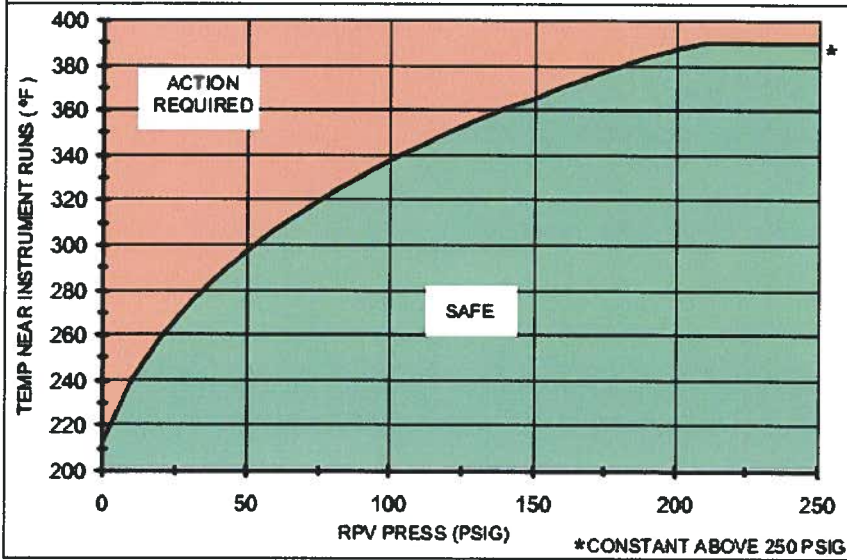
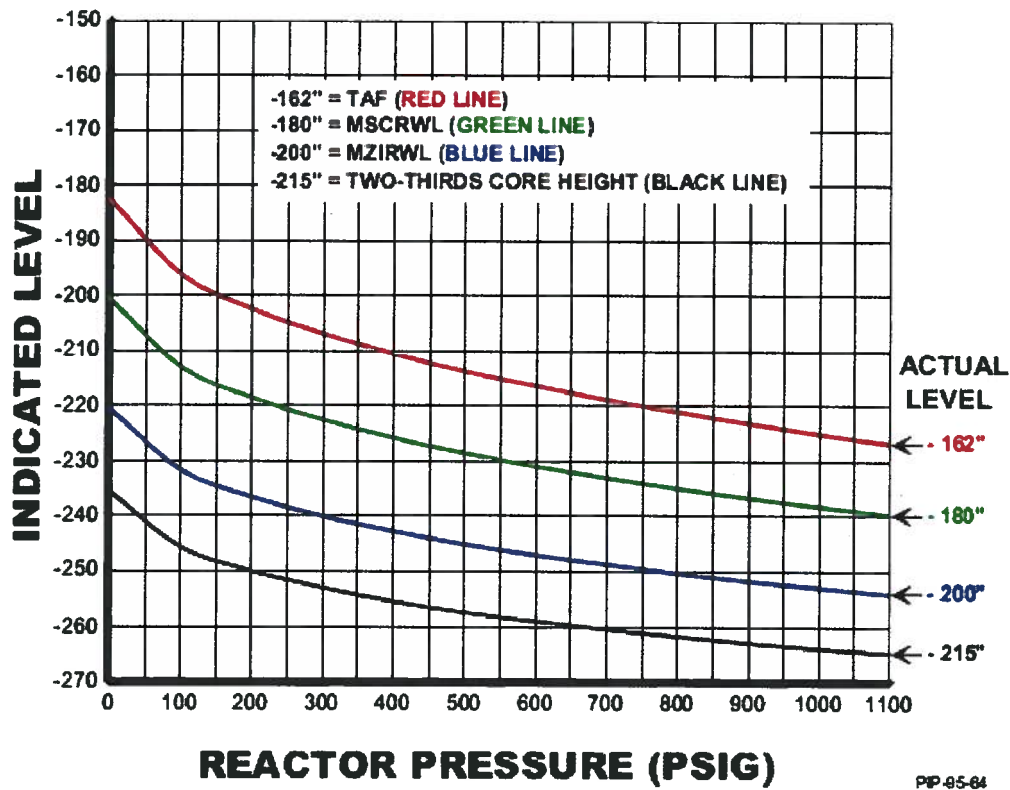


TABLE 6 SECONDARY CONTMT INSTRUMENT RUNS

INSTRUMENT	SC TEMP ELEMENTS AND LOCATIONS			
	EL 621 (74-95F)	EL 593 (74-95C AND D)	EL 585 (69-835A THRU D)	RWCU HXRM (69-29F, G, H)
LI-3-58A	°F	°F	N/A	°F
LI-3-58B	°F	°F	N/A	N/A
LI-3-53	°F	°F	N/A	°F
LI-3-60	°F	°F	N/A	N/A
LI-3-206	°F	°F	N/A	°F
LI-3-253	°F	°F	N/A	N/A
LI-3-52	°F	°F	°F	N/A
LI-3-62A	°F	°F	°F	N/A
LI-3-55	°F	°F	N/A	N/A
LI-3-208A, B	°F	°F	N/A	°F
LI-3-208C, D	°F	°F	N/A	N/A

2-LI-3-52 & 62 CORRECTION CURVES



PP-95-64
REV 15

**Illustration 1
(Page 1 of 1)
DG kW vs. kVAR Loading**

