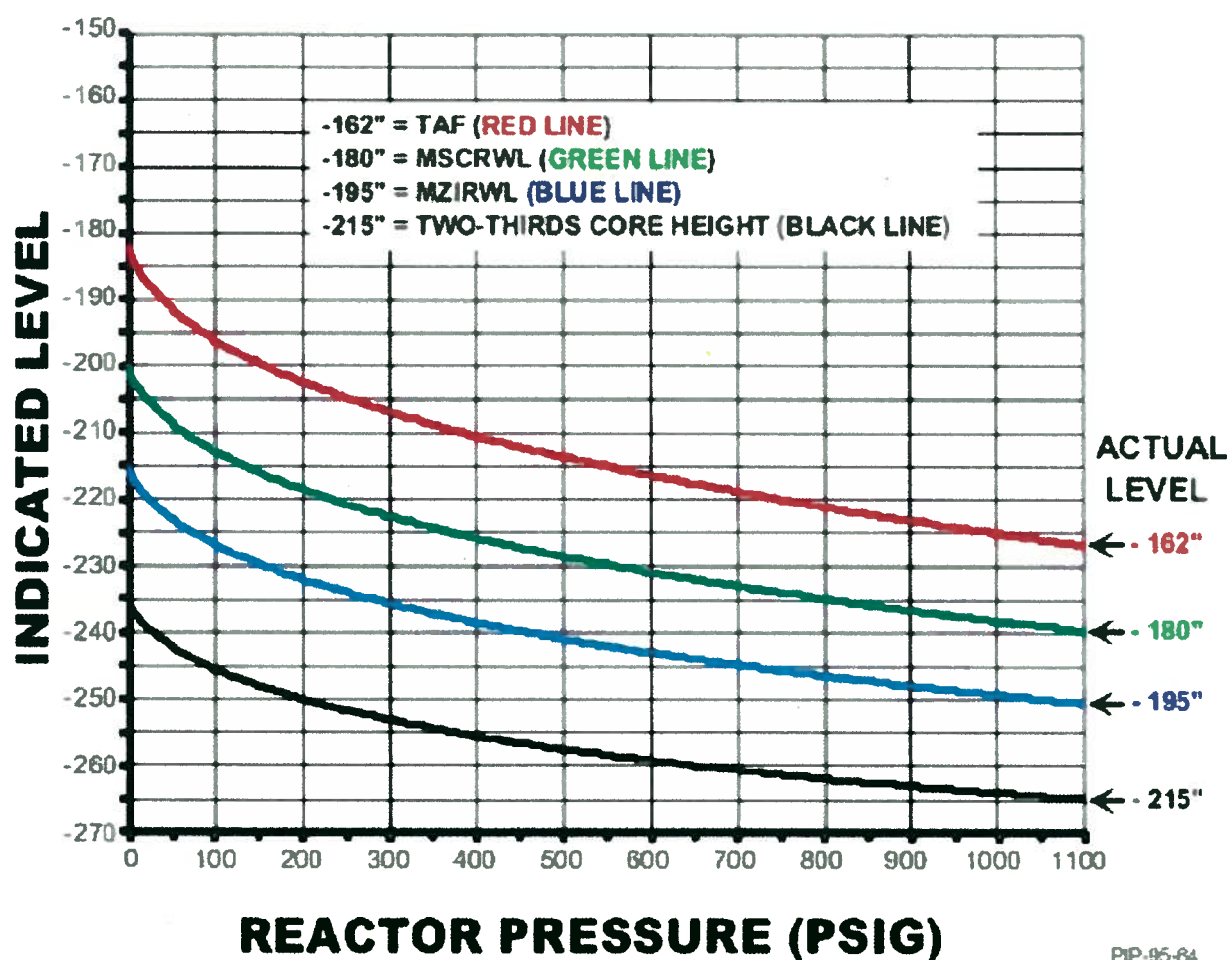


## RO References

- #16 PIP 95-64
- #25 EOI Caution 1 (including Curve 8 and Table 6)
- #59 2-EOI Appendix-17C, Curve 2

|               |  |  |
|---------------|--|--|
| BFN<br>Unit 0 | Component Labeling, Signs,<br>Operator Aids, and Permanent<br>Information Postings | 0-TI-414<br>Rev. 0006<br>Page 28 of 67 |
|---------------|--|--|

## 2-LI-3-52 & 62 CORRECTION CURVES



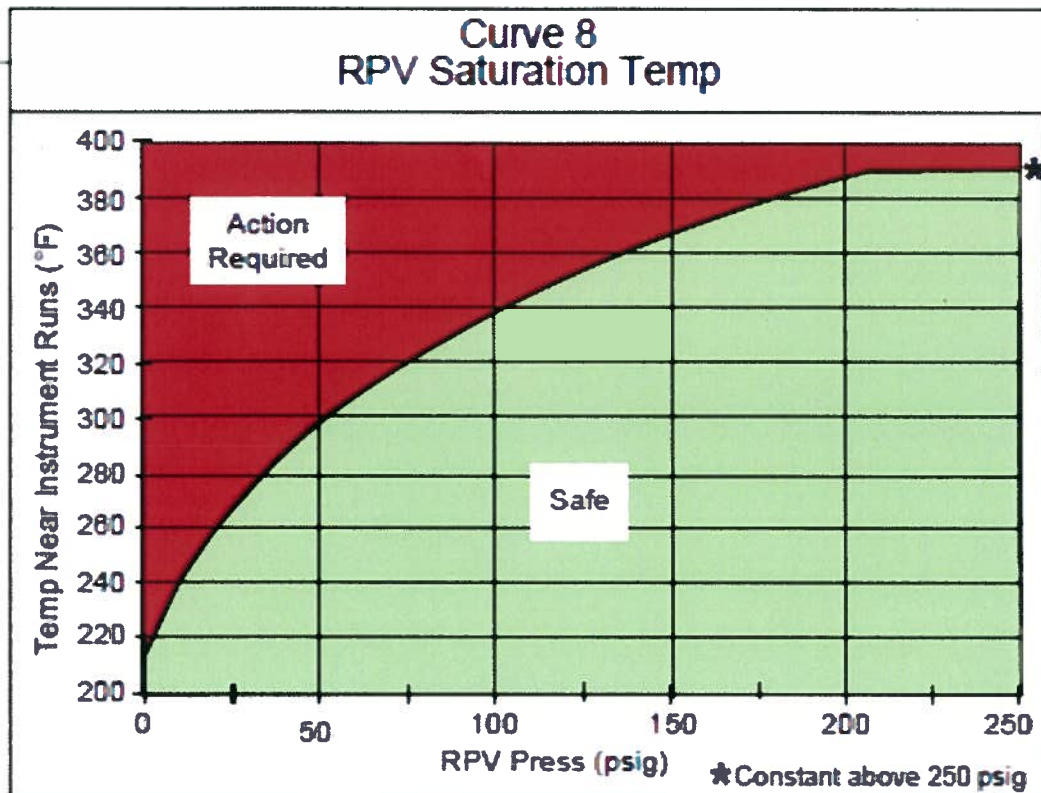
PIP-95-64  
REV 16

## 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<br>-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<br>LI-3-60<br>LI-3-208<br>LI-3-253<br>LI-3-208A, B, C, D | Normal<br>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<br>LI-3-62A  | Post Accident<br>-268 to +32  | on scale              | N/A   | N/A                            |
| LI-3-55  | Shutdown Floodup<br>0 to +500 | +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                            |

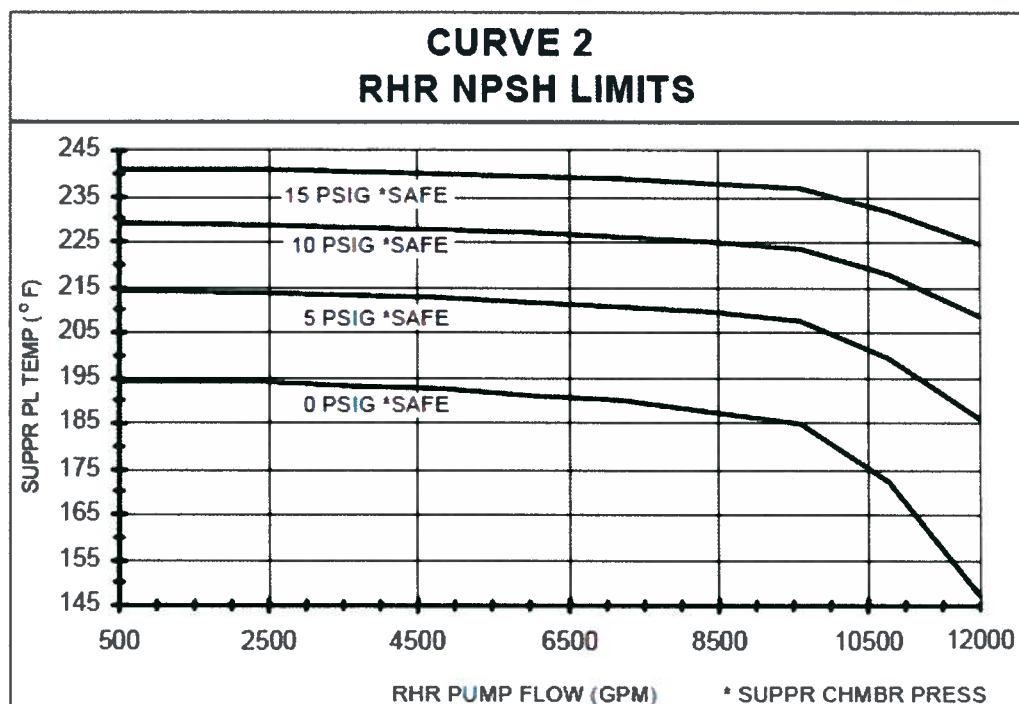


**Table 6**  
**Secondary Containment Instrument Runs**

| INSTRUMENT   | SC TEMP ELEMENTS AND LOCATIONS |                          |                            |                             |
|--------------|--------------------------------|--------------------------|----------------------------|-----------------------------|
|              | EI 621<br>(74-95F)             | EI 593<br>(74-95C and D) | EI 565<br>(69-835A thru D) | RWCU HXRM<br>(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                         |

## NPSH MONITORING

Adequate NPSH is assured by maintaining pump flow rates below the curve for the applicable Suppression Chamber pressure. For Suppression Chamber pressures between the values on the curves extrapolation must be used.



Other indications of inadequate NPSH are:

- Suppression pool level below 10.0 ft
- System flowrate decreasing with constant valve position
- System flowrate or discharge pressure less than expected for present system conditions
- Pump discharge pressure lower than expected or fluctuating excessively
- Pump motor amps lower than expected or fluctuating excessively
- Pump suction pressure low (local indication)

## NRC Exam

### Site-Specific RO Written Examination

#### Applicant Information

Name:

Date:

Facility/Unit: **Browns Ferry**

Region: I    II    III    IV

Reactor Type:   W   CE   BW   **GE**

Start Time:

Finish Time:

#### Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination, you must achieve a final grade of at least 80.00 percent. Examination papers will be collected 6 hours after the examination begins.

#### Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

\_\_\_\_\_  
Applicant's Signature

#### Results

Examination Value \_\_\_\_\_ 75 \_\_\_\_\_ Points

Applicant's Score \_\_\_\_\_ Points

Applicant's Grade \_\_\_\_\_ Percent



United States  
Nuclear Regulatory Commission  
Examination Answer Sheet

20

|                           |     |     |     |     |     |
|---------------------------|-----|-----|-----|-----|-----|
| FACILITY DOCKET<br>NUMBER |     |     |     |     |     |
| <b>50-</b>                | (0) | (1) | (2) | (3) | (4) |
|                           | (5) | (6) | (7) | (8) | (9) |

TEST FORM

[illegible]

|    |   |   |   |   |    |   |   |   |   |    |   |   |   |   |    |   |   |   |   |    |   |   |   |   |
|----|---|---|---|---|----|---|---|---|---|----|---|---|---|---|----|---|---|---|---|----|---|---|---|---|
| 1  | ● | B | C | D | 11 | ● | B | C | D | 21 | ● | B | C | D | 31 | ● | B | C | D | 41 | ● | B | C | D |
| 2  | ● | A | B | ● | 12 | ● | A | B | ● | 22 | ● | A | B | ● | 32 | ● | A | B | ● | 42 | ● | A | B | ● |
| 3  | ● | A | B | C | 13 | ● | A | B | ● | 23 | ● | A | B | C | 33 | ● | A | B | C | 43 | ● | A | B | C |
| 4  | ● | A | B | C | 14 | ● | A | B | C | 24 | ● | A | B | C | 34 | ● | A | B | C | 44 | ● | A | B | C |
| 5  | ● | A | B | ● | 15 | ● | A | B | ● | 25 | ● | A | B | ● | 35 | ● | A | B | ● | 45 | ● | A | B | ● |
| 6  | ● | A | B | C | 16 | ● | A | B | C | 26 | ● | A | B | C | 36 | ● | A | B | C | 46 | ● | A | B | C |
| 7  | ● | A | B | C | 17 | ● | A | B | C | 27 | ● | A | B | C | 37 | ● | A | B | C | 47 | ● | A | B | C |
| 8  | ● | A | B | ● | 18 | ● | A | B | ● | 28 | ● | A | B | ● | 38 | ● | A | B | ● | 48 | ● | A | B | ● |
| 9  | ● | A | B | C | 19 | ● | A | B | C | 29 | ● | A | B | C | 39 | ● | A | B | C | 49 | ● | A | B | C |
| 10 | ● | A | B | C | 20 | ● | A | B | C | 30 | ● | A | B | C | 40 | ● | A | B | C | 50 | ● | A | B | C |

[illegible]

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 101 | (A) | (B) | (C) | (D) | 111 | (A) | (B) | (C) | (D) | 121 | (A) | (B) | (C) | (D) | 131 | (A) | (B) | (C) | (D) | 141 | (A) | (B) | (C) | (D) |
| 102 | (A) | (B) | (C) | (D) | 112 | (A) | (B) | (C) | (D) | 122 | (A) | (B) | (C) | (D) | 132 | (A) | (B) | (C) | (D) | 142 | (A) | (B) | (C) | (D) |
| 103 | (A) | (B) | (C) | (D) | 113 | (A) | (B) | (C) | (D) | 123 | (A) | (B) | (C) | (D) | 133 | (A) | (B) | (C) | (D) | 143 | (A) | (B) | (C) | (D) |
| 104 | (A) | (B) | (C) | (D) | 114 | (A) | (B) | (C) | (D) | 124 | (A) | (B) | (C) | (D) | 134 | (A) | (B) | (C) | (D) | 144 | (A) | (B) | (C) | (D) |
| 105 | (A) | (B) | (C) | (D) | 115 | (A) | (B) | (C) | (D) | 125 | (A) | (B) | (C) | (D) | 135 | (A) | (B) | (C) | (D) | 145 | (A) | (B) | (C) | (D) |
| 106 | (A) | (B) | (C) | (D) | 116 | (A) | (B) | (C) | (D) | 126 | (A) | (B) | (C) | (D) | 136 | (A) | (B) | (C) | (D) | 146 | (A) | (B) | (C) | (D) |
| 107 | (A) | (B) | (C) | (D) | 117 | (A) | (B) | (C) | (D) | 127 | (A) | (B) | (C) | (D) | 137 | (A) | (B) | (C) | (D) | 147 | (A) | (B) | (C) | (D) |
| 108 | (A) | (B) | (C) | (D) | 118 | (A) | (B) | (C) | (D) | 128 | (A) | (B) | (C) | (D) | 138 | (A) | (B) | (C) | (D) | 148 | (A) | (B) | (C) | (D) |
| 109 | (A) | (B) | (C) | (D) | 119 | (A) | (B) | (C) | (D) | 129 | (A) | (B) | (C) | (D) | 139 | (A) | (B) | (C) | (D) | 149 | (A) | (B) | (C) | (D) |
| 110 | (A) | (B) | (C) | (D) | 120 | (A) | (B) | (C) | (D) | 130 | (A) | (B) | (C) | (D) | 140 | (A) | (B) | (C) | (D) | 150 | (A) | (B) | (C) | (D) |

DATE \_\_\_\_\_  
LICENSE \_\_\_\_\_  
FACILITY \_\_\_\_\_

### ***QUESTION 1***

Unit 1 was operating at 100% Reactor Power, when a single recirc pump tripped.

Which ONE of the following completes both statements below?

The value of the Critical Power Ratio (CPR) will \_\_(1)\_\_\_.

\_\_(2)\_\_\_ is the setpoint for the SLO flow biased APRM Hi Hi SCRAM setpoint.

- A. (1) rise  
(2)  $> (0.66(W-10\%)+65\%)$
- B. (1) rise  
(2)  $> (0.66(W-50\%)+65\%)$
- C. (1) lower  
(2)  $> (0.66(W-10\%)+65\%)$
- D. (1) lower  
(2)  $> (0.66(W-50\%)+65\%)$



## ***QUESTION 2***

Unit 3 was operating at 100% Reactor Power with all equipment in a normal lineup when the following occurred:

- A total loss of all off-site power occurred for all three Units at 0900.

Subsequently,

- Unit 3 RPV level drops below (-) 122 inches at 0920.

Which ONE of the following completes the statement below?

At 0920 when the Unit 3 Diesel Generator output breakers re-close:

RHR pumps will start \_\_ (1) \_\_.

Standby Gas Treatment Fan C starts \_\_ (2) \_\_.

- A. (1) in 7 seconds  
(2) immediately
- B. (1) in 7 seconds  
(2) in 40 seconds
- C. (1) immediately  
(2) immediately
- D. (1) immediately  
(2) in 40 seconds

### ***QUESTION 3***

Unit 2 was operating at 100% Reactor Power when the following occurred:

- A ground AND subsequent fire in Shutdown Board 250V DC Distribution Panel SB-B resulted in de-energization of the SB-B panel AND a trip of the 4kV Shutdown Board B Normal Feeder Breaker 1616.

Which ONE of the following completes the statements below?

480V Shutdown Board 2A is \_\_ (1) \_\_.

4kV Shutdown Board B \_\_ (2) \_\_ automatically transfer to its alternate source.

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

#### ***QUESTION 4***

Given the following conditions on Unit 1:

- The Reactor is at 40% power
- 1-OI-68, Reactor Recirculation System, section 8.18.2 Enabling the End of Cycle Recirc Pump Trip has been completed

Which ONE of the following conditions will result in an automatic trip of the Reactor Recirculation Pumps?

- A. Turbine trip
- B. Reactor Water Level (+) 2 inches
- C. Reactor Pressure 1073 psig
- D. Reactor Feedpump trip coincident with Reactor water level (+) 27 inches

### ***QUESTION 5***

An automatic Reactor scram has occurred on Unit 2 and the following conditions exist:

- ONE rod remains at position 48
- All other rods are at position 00
- No rods are currently selected

Which ONE of the following completes BOTH of the statements below?

When the REACTOR MODE SWITCH, 2-HS-99-5A-S1, is placed in REFUEL, the REFUEL MODE ONE ROD PERMISSIVE light, 2-XI-85-46, \_\_ (1) \_\_ illuminate.

In accordance with NOTE 1 of 2-EOI-1, RPV Control, the reactor \_\_ (2) \_\_ remain subcritical without boron under all conditions.

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

**QUESTION 6**

Which ONE of the following completes the statement below?

When the immediate actions of 3-AOI-100-2, Control Room Abandonment, are performed, reactor pressure will initially be controlled by \_\_\_\_\_ PRIOR to proceeding to the Backup Control Panel 3-25-32.

- A. using the Bypass Jack
- B. tripping the Main Turbine
- C. closing ALL of the MSIVs
- D. opening ONE of the SRVs

### ***QUESTION 7***

Unit 1 is operating at 100% power, when RBCCW Pump 1A trips resulting in the following:

- RBCCW Pump 1A discharge header pressure indicator 1-PI-70-6 is 0 psig
- RBCCW Pump 1B discharge header pressure indicator 1-PI-70-9 is 48 psig
- RBCCW PUMP DISCH HDR PRESS LOW (1-9-4C, window 12), in alarm

Which ONE of the following system loads is still being cooled by RBCCW?

- A. Drywell Coolers
- B. Fuel Pool Cooling heat exchangers
- C. Reactor Water Cleanup Non-regenerative heat exchangers
- D. Reactor Recirculation Pump discharge sample cooler

**QUESTION 8**

In accordance with 0-AOI-32-1, Loss of Control and Service Air Compressors, which ONE of the following is the HIGHEST Control Air Pressure, as indicated by 3-PI-32-88, which requires the reactor to be manually scrambled?

- A. 84 psig
- B. 72 psig
- C. 54 psig
- D. 44 psig



### ***QUESTION 9***

The following conditions exist on Unit 2:

- The Reactor is shutdown in MODE 4
- 2-AOI-74-1, Loss of Shutdown Cooling, has been entered due to a trip of the ONLY running RHR pump

Subsequently,

- The tripped RHR pump is restarted.

Which ONE of the following completes the statement below?

In accordance with 2-AOI-74-1, Loss of Shutdown Cooling, which one of the following identifies an acceptable RHR Shutdown Cooling flow value?

- A. 1500 gpm
- B. 3500 gpm
- C. 6250 gpm
- D. 8000 gpm

### ***QUESTION 10***

Given the following conditions:

- Refueling is in progress on Unit 3
- An irradiated fuel bundle is dropped onto the top of the Unit 3 reactor core
- REFUELING ZONE EXHAUST RADIATION HIGH (3-9-3A, Window 34) is in alarm

Which ONE of the following completes both statements below?

This condition will cause an automatic isolation of the \_\_ (1) \_\_.

The reason why Standby Gas Trains automatically start during this event is to ensure that \_\_ (2) \_\_.

- A. (1) Refuel Zone ventilation ONLY  
(2) air is discharged at an elevated release point
- B. (1) Refuel Zone ventilation ONLY  
(2) the Secondary Containment radiation levels remain below 3-EOI-3, Secondary Containment Control, entry conditions
- C. (1) Refuel Zone and Unit 3 Reactor zone ventilation  
(2) air is discharged at an elevated release point
- D. (1) Refuel Zone and Unit 3 Reactor zone ventilation  
(2) the Secondary Containment radiation levels remain below 3-EOI-3, Secondary Containment Control, entry conditions

***QUESTION 11***

Which ONE of the following completes the statements below?

3-XR-64-50, DRYWELL TEMPERATURE / PRESSURE RECORDER, at Panel 3-9-3 is identified as a "post accident monitoring instrument" by a/an \_\_(1)\_\_ label.

In accordance with 3-EOI-2, Primary Containment Control, if 3-XR-64-50 indicates a Drywell Pressure of greater than \_\_(2)\_\_.

- A. (1) orange  
(2) 12 psig, then Drywell Sprays are required
- B. (1) orange  
(2) 2.4 psig, then Suppression Chamber Sprays are required
- C. (1) black  
(2) 12 psig, then Drywell Sprays are required
- D. (1) black  
(2) 2.4 psig, then Suppression Chamber Sprays are required

## **QUESTION 12**

Given the following conditions:

- Unit 1 has operated at 100% power for 80 days
- HPCI is tagged out for maintenance and is unavailable

Subsequently,

- An instantaneous loss of **ALL** AC power occurs and is **NOT** corrected

Which ONE of the following completes both statements below?

Over the first hour following the scram, RCIC steam flow capacity \_\_ (1) \_\_ sufficient to maintain Reactor Pressure 800 to 1000 psig without SRV operation.

In accordance with 1-EOI-1, RPV Control, RC/P, the preferred suction source for RCIC is from the \_\_ (2) \_\_.

- A. (1) is  
(2) CST because it is unaffected by steam discharges from the RPV
- B. (1) is  
(2) Suppression Pool because of its larger capacity of makeup water
- C. (1) is NOT  
(2) CST because it is unaffected by steam discharges from the RPV
- D. (1) is NOT  
(2) Suppression Pool because of its larger capacity of makeup water

### **QUESTION 13**

Given the following conditions on Unit 1:

- Reactor power is 75%
- SRV 1-18 and SRV 1-23 are stuck open
- The immediate actions of 1-AOI-1-1, Relief Valve Stuck Open, have been completed
- Suppression pool temperature is 90° F and rising

The Unit Supervisor directs you to place RHR loop I and II in suppression pool cooling in service.

Which ONE of the following completes the statements below?

In accordance with 1-OI-74, Residual Heat Removal System, total RHR SYSTEM II flow rate should NOT exceed \_\_ (1) \_\_ gpm.

In accordance with 1-AOI-1-1, Relief Valve Stuck Open, before Suppression Pool temperature exceeds \_\_ (2) \_\_ ° F the reactor is required to be manually scrammed.

- A. (1) 10,000  
(2) 95
- B. (1) 10,000  
(2) 110
- C. (1) 13,000  
(2) 95
- D. (1) 13,000  
(2) 110

## QUESTION 14

Unit 3 was operating in Mode 1 when a LOCA occurred.

The following conditions currently exist:

- Drywell Temperature 270 °F and rising
- Drywell Pressure 18 psig and rising
- Suppression Chamber Pressure is 14 psig and rising
- RHR Pumps 3B and 3D are tripped and cannot be started
- 480V RMOV Board 3A is deenergized

The crew is currently implementing EOI-2, Primary Containment Control.

Which ONE of the following completes the statements below?

The EOI-2 Drywell Temperature entry condition setpoint is \_\_ (1) \_\_.

For these conditions, Emergency Depressurization is \_\_ (2) \_\_.

- A. (1) 160 °F  
(2) required because Drywell Sprays are NOT available
- B. (1) 160 °F  
(2) NOT required because Drywell Sprays via Standby Coolant are still available
- C. (1) 200 °F  
(2) required because Drywell Sprays are NOT available
- D. (1) 200 °F  
(2) NOT required because Drywell Sprays via Standby Coolant are still available

**QUESTION 15**

Which ONE of the following completes the statements below?

HPCI and RCIC exhaust to the suppression pool at \_\_ (1) \_\_ elevation(s).

In accordance with 1-EOI-2, Primary Containment Control, Step SP/L-17, if suppression pool level cannot be maintained above a minimum level of \_\_ (2) \_\_ ft, HPCI is required to be secured.

- A. (1) the same  
(2) 11.5
- B. (1) the same  
(2) 12.75
- C. (1) different  
(2) 11.5
- D. (1) different  
(2) 12.75



### **QUESTION 16**

The following conditions exist on Unit 2:

- A LOCA has occurred
- 2-PI-3-207A, Reactor Pressure: 400 psig
- 2-LI-3-52 and 2-LI-3-62, Reactor Water Level Accident Range: (-) 190 inches

Which ONE of the following completes the statements below?

The reason correction curves are required to be used for 2-LI-3-52 and 2-LI-3-62 is because the level indicators are \_\_ (1) \_\_.

The top of active fuel \_\_ (2) \_\_ submerged at this time.

#### **REFERENCE PROVIDED**

- A. (1) temperature compensated  
(2) is
- B. (1) temperature compensated  
(2) is NOT
- C. (1) calibrated at 0 psig  
(2) is
- D. (1) calibrated at 0 psig  
(2) is NOT

### ***QUESTION 17***

An ATWS has occurred on Unit 2.

The following conditions exist:

- Reactor Water level (RWL): (-) 55"
- SLC is injecting
- SLC Storage Tank level: 85% and lowering

Which ONE of the following completes the statement below?

When the SLC tank level FIRST reaches \_\_ (1) \_\_, then the Hot Shutdown Boron Weight has been injected.

It will take \_\_ (2) \_\_ than one hour to achieve this tank level.

- A. (1) 43%  
(2) less
- B. (1) 43%  
(2) more
- C. (1) 67%  
(2) less
- D. (1) 67%  
(2) more

**QUESTION 18**

Given the following conditions:

- A Liquid Effluent Discharge is in progress in accordance with 0-SI-4.8.A.1-1, Liquid Effluent Permit.

Which ONE of the following completes both statements below?

Consider each statement separately.

The 0-FCV-77-58A/B, RADWASTE LOW/HIGH FLOW RATE DISCHARGE ISOLATION VALVES will automatically close due to Radwaste Effluent Radiation \_\_ (1) \_\_.

A HIGH liquid effluent release rate \_\_ (2) \_\_ require entry into 0-EOI-4, Radioactivity Release Control.

- A. (1) High-High ONLY  
(2) does
- B. (1) High-High ONLY  
(2) does NOT
- C. (1) High-High or Downscale  
(2) does
- D. (1) High-High or Downscale  
(2) does NOT

**QUESTION 19**

Which ONE of the following completes the statements below concerning operator actions in Attachment 2 of Safe Shutdown Instruction (SSI) 0-SSI-16, Control Building Fire EL 593 Through EL 617?

When 2-HS-074-0053D, RHR VLV 2-FCV-74-53 APP R EMER OPEN HS, is operated at RMOV BD 2D, it will \_\_\_(1)\_\_\_ operation of 2-FCV-74-53, RHR SYS I INBD INJECTION VLV, from Panel 2-9-3.

When battery chargers 1, 2A and 3 are reset and placed back in service, the 480V load shed logic \_\_\_(2)\_\_\_ be bypassed.

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

## ***QUESTION 20***

Given the following conditions:

- Unit 1 is operating at 80% with 100 VARS incoming
- The crew has entered 0-AOI-57-1E, Grid Instability
- System voltage is 508 kV
- System frequency is 60.03 hz

Which ONE of the following completes the statements below?

Under these conditions, the Main Generator Under-excited Reactive Ampere Limit (URAL) circuit is intended to prevent \_\_ (1) \_\_.

The operators will coordinate between the units and, as directed by 0-AOI-57-1E, Grid Instability, will \_\_ (2) \_\_ power.

- A. (1) the generator slipping a pole  
(2) lower reactor
- B. (1) the generator slipping a pole  
(2) raise reactive
- C. (1) rotor overheating  
(2) lower reactor
- D. (1) rotor overheating  
(2) raise reactive

**QUESTION 21**

Unit 3 is at 26% power with the following conditions:

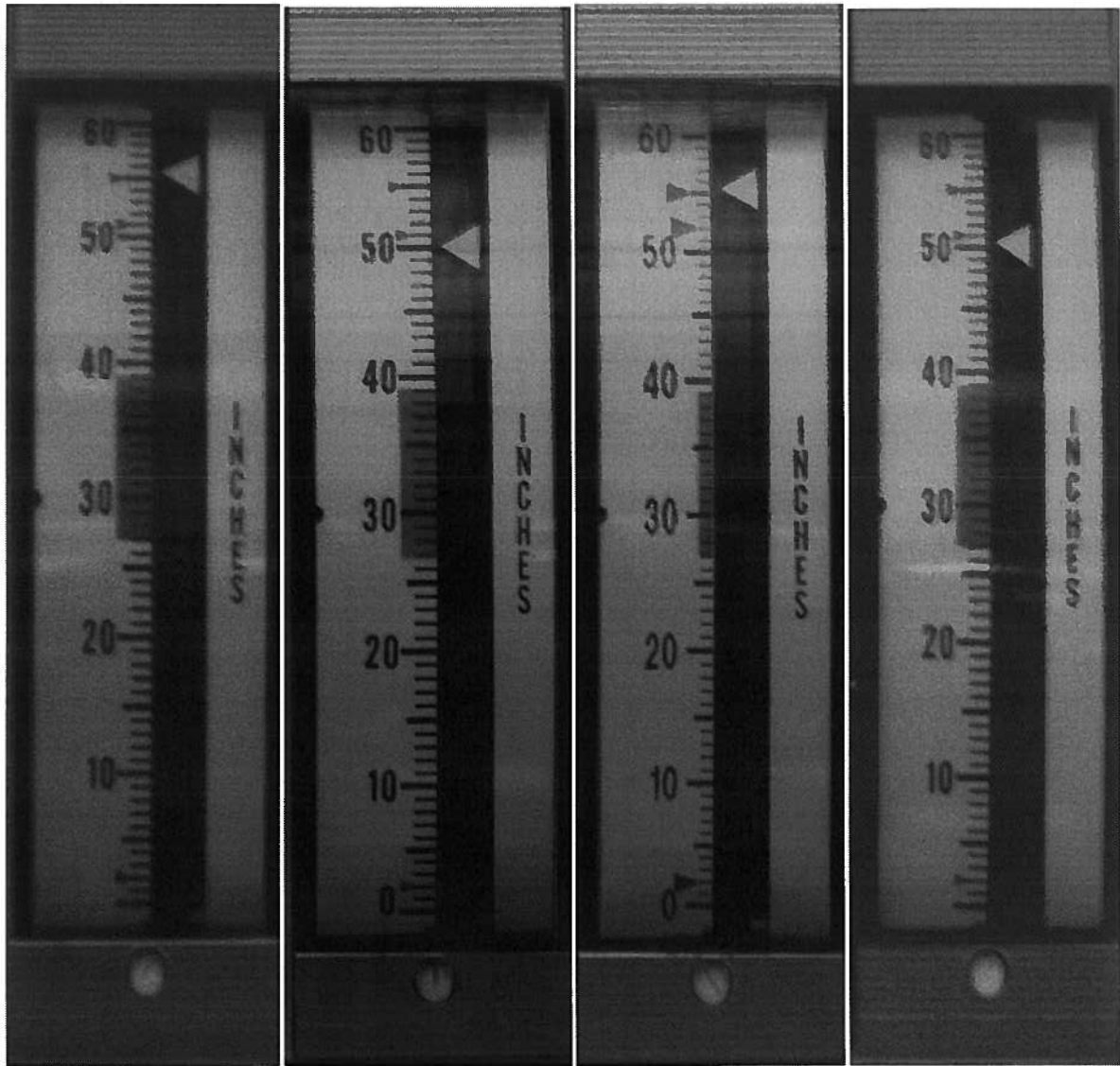
- The attached indications are observed on Reactor Water Level Narrow Range instruments

Which ONE of the following completes the statement below?

Reactor Feed Pump Turbines are \_\_ (1) \_\_ and the Main Turbine is \_\_ (2) \_\_.

**See Attached 208 Instrument Indications on next page:**

- A. (1) operating  
(2) operating
- B. (1) operating  
(2) tripped
- C. (1) tripped  
(2) operating
- D. (1) tripped  
(2) tripped



3-LI-3-208A

3-LI-3-208B

3-LI-3-208C

3-LI-3-208D



## ***QUESTION 22***

Given the following conditions for Unit 2:

- An ATWS has occurred
- Reactor power is currently 10%
- SLC tank level is 80%
- Emergency Depressurization is required due to Secondary Containment temperatures

In accordance with 2-EOI-C-5, Level/Power Control, and 2-C-2, Emergency Depressurization, which ONE of the following completes the statements below?

Prior to performing the emergency depressurization, HPCI \_\_ (1) \_\_ required to be secured.

Following Emergency Depressurization, RPV water level is INITIALLY restored using \_\_ (2) \_\_.

- A. (1) is  
(2) any available injection sources
- B. (1) is  
(2) ONLY injection sources which inject outside the shroud
- C. (1) is NOT  
(2) any available injection sources
- D. (1) is NOT  
(2) ONLY injection sources which inject outside the shroud

### **QUESTION 23**

An ATWS has occurred on Unit 2 with the following conditions:

- ATWS Actions are complete
- The MSIVs are open
- Five bypass valves are full open
- One bypass valve is partially open
- Reactor Pressure is 955 psig and stable
- Recirculation pumps are at 480 RPM
- Reactor water level is (+) 59 inches and lowering
- APRM's are unavailable

Which ONE of the following completes the statements below?

Reactor power is \_\_ (1) \_\_ than 10%.

In accordance with 2-EOI-1, RPV Control, the recirc pumps are directed to \_\_ (2) \_\_.

- A. (1) less  
(2) remain at 480 RPM
- B. (1) less  
(2) be tripped
- C. (1) greater  
(2) remain at 480 RPM
- D. (1) greater  
(2) be tripped

### ***QUESTION 24***

The following conditions exist on Unit 3:

- Reactor is at 100% power
- Steam Vault Exhaust Booster Fan is tagged out
- All other ventilation is in its normal lineup

Subsequently,

- RPS MG Set 3B trips

Which ONE of the following completes both statements below?  
(Consider each statement separately.)

Steam tunnel temperature will \_\_(1)\_\_.

The Group I isolation setpoint on high steam tunnel temperature is \_\_(2)\_\_ °F.

- A. (1) rise  
(2) 170
- B. (1) rise  
(2) 189
- C. (1) remain the same  
(2) 170
- D. (1) remain the same  
(2) 189

### **QUESTION 25**

Given the following conditions for Unit 2:

- The Reactor is operating at 100% power
- An UNISOLABLE steam leak has occurred in the RWCU Heat Exchanger Room
- RWCU LEAK DETECTION TEMP HIGH, (2-9-3D, window 17) has alarmed

Which ONE of the following completes both statements below?

Based on the location of this leak, a level indicator, which is also located **on Panel 2-9-5**, that could potentially be affected is \_\_ (1) \_\_.

If the leak continues, and the RWCU Heat Exchanger Room temperature rises to its lowest isolation temperature set point, then the MINIMUM allowed valid level indication for this level indicator will be \_\_ (2) \_\_.

### **REFERENCE PROVIDED**

- A. (1) LI-3-206, Reactor Water level Narrow Range  
(2) (+) 15 inches
- B. (1) LI-3-206, Reactor Water level Narrow Range  
(2) on scale
- C. (1) LI-3-208B, Reactor Water level Narrow Range  
(2) (+) 15 inches
- D. (1) LI-3-208B, Reactor Water level Narrow Range  
(2) on scale

**QUESTION 26**

The following is indicated on the Reactor Zone Radiation Monitors:

- 75 mrem/hr on 2-RE-90-142A, Reactor Zone channel A detector A
- 73 mrem/hr on 2-RE-90-142B, Reactor Zone channel A detector B
- 69 mrem/hr on 2-RE-90-143A, Reactor Zone channel B detector A
- 70 mrem/hr on 2-RE-90-143B, Reactor Zone channel B detector B

Which one of the following completes the statements below?

Reactor Zone Ventilation System \_\_ (1) \_\_ isolated.

A 2-EOI-3, Secondary Containment Control, entry condition \_\_ (2) \_\_ met.

- A. (1) has  
(2) is
- B. (1) has NOT  
(2) is
- C. (1) has  
(2) is NOT
- D. (1) has NOT  
(2) is NOT

### ***QUESTION 27***

Given the following conditions on Unit 2:

- Reactor Power is 100%
- REACTOR ZONE DIFFERENTIAL PRESSURE LOW (2-9-3D, window 32) is intermittently in alarm due to high winds outside

Which ONE of the following completes the statements below?  
(Consider each statement separately)

In accordance with 2-ARP-9-3D, entry into 2-EOI-3, Secondary Containment Control, \_\_ (1) \_\_ required.

A Reactor Building pressure of \_\_ (2) \_\_ inches H<sub>2</sub>O will cause the Reactor Zone ventilation to isolate.

- A. (1) is  
(2) (+) 0.5
- B. (1) is  
(2) (-) 0.17
- C. (1) is NOT  
(2) (+) 0.5
- D. (1) is NOT  
(2) (-) 0.17

### **QUESTION 28**

Given the following conditions on Unit 3:

- Reactor Power is 100%
- Residual Heat Removal (RHR) is in the normal standby lineup
- The PSC head tank pumps are in their normal lineup
- PSC HEAD TANK LEVEL LOW (3-9-3A, Window 26) is in alarm

Which ONE of the following completes the statements below?

The PSC Head Tank inventory is normally maintained with water from the \_\_ (1) \_\_.

In accordance with ARP 3-9-3A, Window 26, \_\_ (2) \_\_ PSC head tank pump(s) should be running.

- A. (1) Torus  
(2) BOTH
- B. (1) Torus  
(2) ONLY one
- C. (1) CST  
(2) BOTH
- D. (1) CST  
(2) ONLY one



### **QUESTION 29**

Given the following conditions on Unit 3:

- The Reactor is shutdown in Mode 5
- RHR Loop II is in Shutdown Cooling at the procedurally required flowrate
- 3-HS-74-149, RHR SYSTEM II MIN FLOW INHIBIT SWITCH is in INHIBIT

Subsequently:

- 3-HS-74-30A, RHR SYSTEM II MIN FLOW VALVE HANDSWITCH on panel 3-9-3 is inadvertently taken to the OPEN position and released

Which ONE of the following completes the statement below?

RHR SYSTEM II MIN FLOW BYPASS VALVE (3-FCV-74-30) will begin opening \_\_ (1) \_\_ and, once fully open, will \_\_ (2) \_\_.

- A. (1) immediately  
(2) travel full close
- B. (1) immediately  
(2) remain open
- C. (1) after a 10 second time delay  
(2) travel full close
- D. (1) after a 10 second time delay  
(2) remain open

### ***QUESTION 30***

Given the following Unit 2 plant conditions:

- EOI-1, RPV Control, has been entered
- Reactor water level initially lowered to (-) 69 inches
- After Reactor water level was recovered to (+) 33 inches, HPCI was placed in pressure control in accordance with 2-EOI Appendix-11C, Alternate RPV Pressure Control Systems HPCI Test Mode

Subsequently:

- Condensate Storage Tank (CST) level dropped below 6800 gallons.

Which ONE of the following describes the status of the HPCI system (assume no other operator actions have occurred)?

- A. HPCI would be operating in pressure control with suction from the CST.
- B. HPCI would be pumping to the CST with suction from the Suppression Pool.
- C. HPCI would be operating at shutoff head with suction from the Suppression Pool.
- D. HPCI would trip on low suction pressure.

**QUESTION 31**

Given the following conditions on Unit 1:

- Reactor Power is 100%
- 1-SR-3.5.1.1 (HPCI), Maintenance of Filled HPCI Discharge Piping, is in progress

Which ONE of the following completes both statements below?

In accordance with 1-SR-3.5.1.1(HPCI), communication is established between the MCR and the HPCI Vent Station which is located at \_\_ (1) \_\_.

In accordance with Unit 1 Tech Specs, if the acceptance criteria is NOT met, \_\_ (2) \_\_ must be verified OPERABLE by administrative means immediately.

- A. (1) Unit 1 Rx Bldg, El 565'  
(2) RCIC
- B. (1) Unit 1 Rx Bldg, El 593'  
(2) RCIC
- C. (1) Unit 1 Rx Bldg, El 565'  
(2) ADS
- D. (1) Unit 1 Rx Bldg, El 593'  
(2) ADS

**QUESTION 32**

Which ONE of the following completes the statements below?

Core Spray Sparger break detection shares an RPV penetration with \_\_ (1) \_\_.

Core Spray Sparger break detection is used to detect a possible Core Spray break inside the vessel, \_\_ (2) \_\_ to the core shroud.

- A. (1) SLC  
(2) external
- B. (1) SLC  
(2) internal
- C. (1) a RPV level instrument DP cell  
(2) external
- D. (1) a RPV level instrument DP cell  
(2) internal

### ***QUESTION 33***

Given the following conditions for Unit 2:

- An ATWS has occurred
- ALL IRM's and SRM's are FULL IN
- ATWS actions are complete
- Reactor power is MID scale on range 9 on all IRMs
- MSIVs remained open

Which ONE of the following completes the statements below?

Reactor power is \_\_ (1) \_\_ than 5 percent rated power.

In accordance with BFN-ODM-4.20, Strategies For Successful Transient Mitigation, SLC injection \_\_ (2) \_\_ required at this time.

- A. (1) LESS  
(2) is
- B. (1) LESS  
(2) is NOT
- C. (1) GREATER  
(2) is
- D. (1) GREATER  
(2) is NOT

**QUESTION 34**

Given the following conditions for Unit 1:

- The plant is in MODE 1
- 1-SR-3.3.1.1.8(5), MSIV Closure - RPS Trip Channel Functional Test, quarterly test is in progress
- ALL eight RPS Main Steam Isolation Valve Closure Relays are ENERGIZED

When directed by 1-SR-3.3.1.1.8(5), the operator depresses 1-HS-1-27B, MSIV LINE B OUTBOARD TEST pushbutton.

Which ONE of the following completes the statements below?

The MSIV LINE B OUTBOARD RPS Closure Relay will de-energize at \_\_ (1) \_\_ percent CLOSED.

An RPS half-scrum reset \_\_ (1) \_\_ be required after the pushbutton is released.

- A. (1) 10  
(2) will
- B. (1) 10  
(2) will NOT
- C. (1) 90  
(2) will
- D. (1) 90  
(2) will NOT

***QUESTION 35***

During a plant startup, IRM B is indicating 34 on Range 7.

Which ONE of the following describes the plant response if IRM B range select switch is placed to Range 6?

- A. A Half Scram ONLY will occur
- B. A Control Rod Withdraw Block ONLY will occur
- C. BOTH a Half Scram and a Control Rod Withdraw Block will occur
- D. NEITHER a Control Rod Block, NOR a Half Scram will occur

**QUESTION 36**

A reactor startup is in progress on Unit 1 with the following conditions:

- All IRMs are on Range 2 and reading 30 - 40
- All SRMs are partially withdrawn and reading as follows:
  - SRM A: 90 cps
  - SRM B: 105 cps
  - SRM C: 105 cps
  - SRM D: 95 cps

Which ONE of the following completes the statements below?

The SRM RETRACT NOT PERMITTED (9-5A, Window 27) alarm \_\_ (1) \_\_ illuminated.

The CONTROL ROD WITHDRAWAL BLOCK (9-5A, Window 7) annunciator \_\_ (2) \_\_ alarm if the Unit Operator attempts to withdraw SRM D at this time.

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



**QUESTION 37**

Unit 1 is operating at 100% power with the following conditions:

- Control Rod 26-27 is selected
- APRM 1 is reading 75%
- All other APRMs are reading 100%

Which ONE of the following completes the statement below?

For these conditions, Rod Block Monitor (RBM) channel A will \_\_\_\_\_.

- A. automatically bypass
- B. immediately cause RBM DOWNSCALE (1-9-5, W31) to alarm
- C. automatically transfer to APRM 3 as its reference APRM
- D. enforce the 117% RBM Upscale rod block set point instead of the 112% set point

### **QUESTION 38**

Given the following conditions on Unit 2:

- Reactor Power is 50%
- RCIC System testing in progress.
- RCIC is aligned for CST-to-CST Recirc with 2-FIC-71-36A, RCIC SYSTEM FLOW CONTROLLER in MANUAL and indicating 500 gpm.

Subsequently:

- A small leak inside primary containment causes drywell pressure to rise to 2.5 psig

Which ONE of the following completes the statement below?

In response to these conditions, indicated RCIC System flow will \_\_\_\_\_.

- A. remain constant at 500 gpm in CST-to-CST Recirc
- B. remain constant at 500 gpm, injecting into the RPV
- C. lower to 60 gpm through the RCIC Minimum Flow line
- D. lower to 0 gpm with the RCIC Pump running at shut-off head

**QUESTION 39**

A fault causes a loss of 250V DC RMOV Board 3A.

Which ONE of the following completes both statements below?

If a Unit 3 RCIC automatic start signal is received, RCIC \_\_ (1) \_\_ start.

The RCIC \_\_ (2) \_\_ channel isolation logic is NOT functional.

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

**QUESTION 40**

Which ONE of the following completes the statement below?

The Reactor water level instruments \_\_ (1) \_\_ provide a confirmatory low reactor vessel water level signal to ADS initiation logic at less than or equal to \_\_ (2) \_\_ inches.

NOTE: LIS-3-184 is Reactor Water Level A

LIS-3-185 is Reactor Water Level B

LIS-3-58A-D is Reactor Water Level A, B, C, and D

- A. (1) LIS-3-58A-D  
(2) (-) 45
- B. (1) LIS-3-58A-D  
(2) (+) 2
- C. (1) LIS-3-184 and LIS-3-185  
(2) (-) 45
- D. (1) LIS-3-184 and LIS-3-185  
(2) (+) 2

**QUESTION 41**

Given the following conditions for Unit 1:

- Accident conditions have resulted in an EOI-directed Emergency Depressurization.
- Reactor pressure is currently 106 psig.

Which ONE of the following completes the statements below?

The amber HPCI AUTO-ISOL LOGIC A/B lights, on Panel 9-3, are \_\_ (1) \_\_.

The amber (HPCI) PCIS LOGIC A/B INITIATION lights, on the Containment Isolation Status System (CISS) Panel, are \_\_ (2) \_\_.

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

### **QUESTION 42**

A plant startup is in progress on Unit 3 and the following conditions exist:

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

Subsequently:

- MAIN STEAM LINE CH B FLOW HIGH (Panel 3-9-5B, Window 19) is received due to differential pressure transmitter 3-PDIS-001-0050B failing high.

Which ONE of the following completes the statements below?

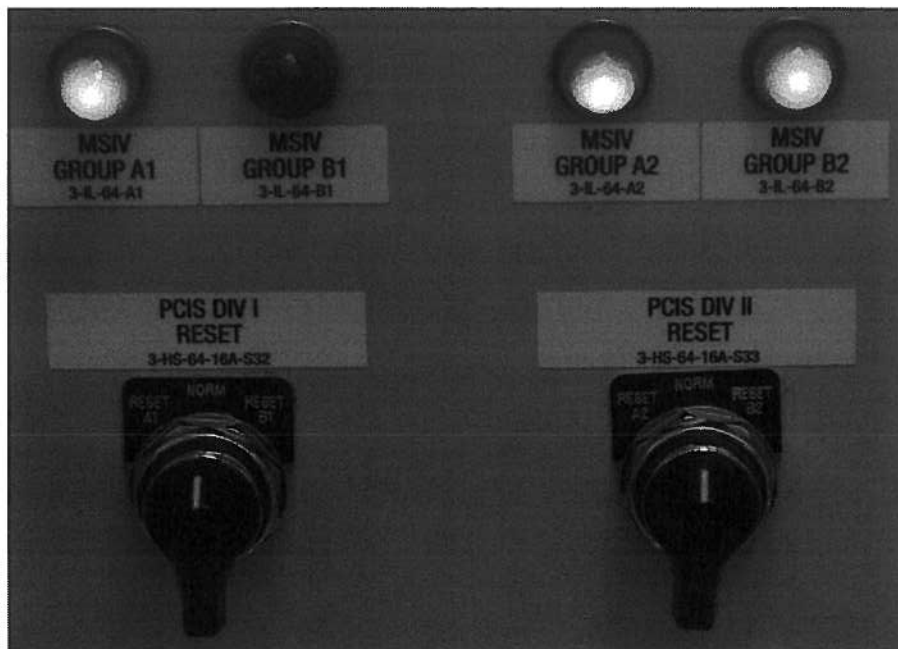
The PCIS group one isolation setpoint for a Main Steam Line (MSL) high flow actuation is \_\_ (1) \_\_ steam flow.

Based on the 3-PDIS-001-0050B failing high, the current PCIS group one isolation status at Panel 3-9-4 is \_\_ (2) \_\_.

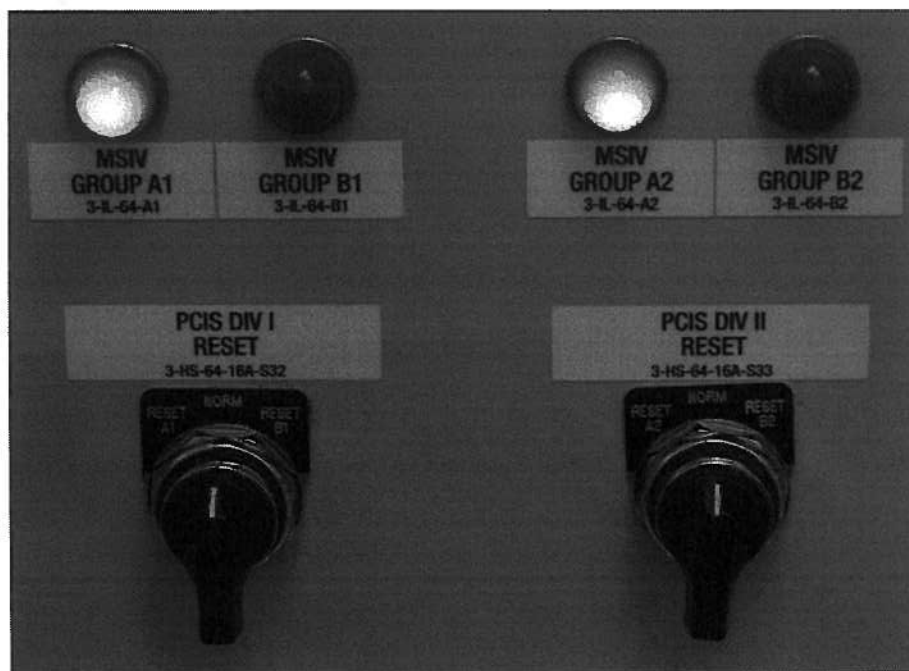
**See Pictures Attached**

- A. (1) 110%  
(2) Picture 1
- B. (1) 135%  
(2) Picture 1
- C. (1) 110%  
(2) Picture 2
- D. (1) 135%  
(2) Picture 2

Picture 1



Picture 2



**QUESTION 43**

Given the following conditions for Unit 2:

- The reactor is at 100% power
- MAIN STEAM RELIEF VALVE OPEN (2-9-3C, window 25), has been received due to ~~SRV 1-4 opening, with NO operator actions.~~ *a mechanical failure internal to the SRV 1-4 valve, which results in the valve opening.*

Which ONE of the following completes both statements below?

MAIN STEAM RELIEF VALVE OPEN (2-9-3C, window 25) is sensed off of \_\_ (1) \_\_.

SRV lights on panel 2-9-3 above handswitch 2-HS-1-4 indicate \_\_ (2) \_\_.

- A. (1) downstream tail pipe temperature  
(2) green light off, red light on
- B. (1) downstream tail pipe temperature  
(2) green light on, red light off
- C. (1) the acoustic monitor  
(2) green light off, red light on
- D. (1) the acoustic monitor  
(2) green light on, red light off



**QUESTION 44**

Unit 2 is operating at 100% power.

Which ONE of the following completes the statement below?

IF \_\_ (1) \_\_, THEN recirculation pump speed will automatically runback to \_\_ (2) \_\_ rpm.

- A. (1) a reactor scram occurs  
(2) 345
- B. (1) total FW flow is < 19% for 15 seconds  
(2) 480
- C. (1) total FW flow is < 19% for 15 seconds  
(2) 1130
- D. (1) any ONE feed pump's flow lowers to < 19% and RPV level lowers to Level +27 inches  
(2) 480

**QUESTION 45**

Given the following conditions:

- 480V D/G Aux Bd "A" is de-energized.

Subsequently, the following occurs on Unit 3:

- A reactor scram
- Reactor water level is (-) 1 inches and recovering

Which ONE of the following completes the statement below?

The SGT Filter Bank differential pressure for the SGT Train(s) that is/are operating at this time can be read on \_\_\_\_\_.

- A. ONLY Panel 1-9-25
- B. BOTH Panel 1-9-25 and Panel 2-9-25
- C. ONLY Panel 1-9-20
- D. BOTH Panel 1-9-20 and Panel 2-9-20

**QUESTION 46**

Given the following conditions:

- Unit 1 and 2 are at 100% power
- The 4160V AC Electrical system is in its normal lineup

Subsequently:

- The 4KV Unit Board 2A Normal Feed Breaker 1212 trips

Which ONE of the following completes the statements below?

Transfer of the 4KV Shutdown Bus 2 to its Alternate source is a \_\_ (1) \_\_ transfer.

The 4KV Shutdown Bus 2 \_\_ (2) \_\_ back to its Normal source when power is restored to 4KV Unit Board 2A.

- A. (1) delayed  
(2) will automatically transfer
- B. (1) delayed  
(2) must be manually transferred
- C. (1) high speed  
(2) will automatically transfer
- D. (1) high speed  
(2) must be manually transferred

**QUESTION 47**

Unit 2 and Unit 3 are at 100% power and in their normal electrical lineups when:

- 250V DC Battery Board 4 is lost

Which ONE of the following completes both statements below?

If AC power to the affected Unit Preferred MMG set is **subsequently** lost, then in accordance with 2(3)-AOI-57-4, Loss of Unit Preferred, transfer Panel \_\_\_\_ manually.

- A. Panel 2-9-9 Cabinet 4
- B. Panel 2-9-9 Cabinet 5
- C. Panel 3-9-9 Cabinet 4
- D. Panel 3-9-9 Cabinet 5

**QUESTION 48**

The Control Bay AUO reports that the Unit 1 Unit Preferred System Inverter, 1-INV-252-001, output has failed to zero.

Which ONE of the following completes both statements below?  
(Consider each statement separately)

The Unit Preferred Inverter's normal DC Source is Battery Board \_\_ (1) \_\_.

In accordance with 1-ARP 9-8B Window 35, UNIT PFD SUPPLY ABNORMAL, Battery Board 1, Cabinet 11 will automatically be powered from the \_\_ (2) \_\_.

- A. (1) Four  
(2) Unit 2 Unit Preferred MMG set
- B. (1) Four  
(2) Unit Preferred Regulating XFMR1
- C. (1) Five  
(2) Unit 2 Unit Preferred MMG set
- D. (1) Five  
(2) Unit Preferred Regulating XFMR1

**QUESTION 49**

The following are indicated on Battery Board 2 Panel 1:

- BATTERY BOARD 2 250V DC BUS VOLTMETER(0-EI-280-0002/102) indicates as shown on attached picture
- BATTERY 2 AMMETER (0-II-280-0002/101) indicates as shown on attached picture:

250V Battery Charger 2A is on float and is operating normally.

Which ONE of the following completes BOTH statements below?

Battery 2 \_\_ (1) \_\_ discharging at this time.

In accordance with 2-SR-3.8.7.1, Weekly Check of Power Availability to Required AC and DC Power Distribution Subsystems, Battery Board 2 voltage as currently indicated \_\_ (2) \_\_ within the allowed range.

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

U-12-280-0002/101  
BATTERY 2 AMMETER



U-12-280-0002/102  
BATTERY BOARD 2 VOLTMETER



***QUESTION 50***

Which ONE of the following battery boards is the NORMAL power supply to the Unit 2 Main Turbine Emergency Bearing Oil Pump?

- A. Battery Board #2
- B. Battery Board #4
- C. Battery Board #5
- D. Battery Board #6



**QUESTION 51**

Which ONE of the following completes both statements below?

The 3A Diesel Generator A/C Driven Lube Oil Soakback Pump \_\_ (1) \_\_ supply oil to the turbocharger bearing.

If an auto start of the 3A D/G occurs and the LOW-LOW LUBE OIL PRESSURE amber light **subsequently** illuminates then the DG \_\_ (2) \_\_ automatically trip.

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

**QUESTION 52**

Which ONE of the following completes BOTH the statement below?

EECW \_\_ (1) \_\_ provide backup cooling water supply to Control Air Compressor G.

Control Air Compressor G \_\_ (2) \_\_ have an auto trip feature associated with high compressor air temperature.

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

***QUESTION 53***

Which ONE of the following identifies the power supply to the Unit 2 CCW Pump Discharge Isolation Valves?

- A. SW Yard 480V Cooling Water MOG Board
- B. 480V Cooling Tower Switchgear B
- C. 480V TMOV Board 2B
- D. 480V Water Supply Board 2

**QUESTION 54**

Which ONE of the following completes the statement below?

A sustained loss of Raw Cooling Water will affect \_\_\_\_\_.

- A. CRD pump temperature
- B. Drywell temperature
- C. Fuel pool temperature
- D. Reactor Building temperature

**QUESTION 55**

Unit 3 is at 99% Reactor Power with 3-SR-3.1.3.3, Control Rod Exercise Test for Withdrawn Control Rods, in progress. Control Rod 14-31 is selected at position 16 when a core flow runback is initiated.

Which ONE of the following completes the statements below?

The RBM DOWNSCALE (3-ARP-9-5A, Window 31) annunciator \_\_ (1) \_\_ alarm.

The ROD OUT PERMIT light on Panel 3-9-5 will be \_\_ (2) \_\_.

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

**QUESTION 56**

Which ONE of the following completes the statement below?

The Rod worth Minimizer (RWM) utilizes a(an) \_\_\_\_\_ signal to determine the Low Power ALARM Point (LPAP).

- A. total steam flow
- B. turbine first stage pressure
- C. APRM
- D. Powerplex heat balance

**QUESTION 57**

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

- 3-AOI-85-4, Loss of RPIS, has been entered for a loss of position indication on control rod 30-31.

Which ONE of the following completes both statements below in accordance with 3-AOI-85-4?

As a means of position indication verification, operators \_\_ (1) \_\_ attempt to move control rod 30-31.

If unable to determine position indication on control rod 30-31, operators will scram the rod at \_\_ (2) \_\_.

- A. (1) may  
(2) Battery Board Room 3
- B. (1) may NOT  
(2) Battery Board Room 3
- C. (1) may  
(2) the Aux Instrument Room
- D. (1) may NOT  
(2) the Aux Instrument Room

### **QUESTION 58**

Unit 2 is operating at 100% power, with Feedwater Level Control in 3 element. The following indications are observed Reactor Water level Narrow Range:

- Indicated level on 2-LI-3-53      25" (inches), lowering
- Indicated level on 2-LI-3-60      34" (inches)
- Indicated level on 2-LI-3-206      24" (inches), lowering
- Indicated level on 2-LI-3-253      33" (inches)

Which ONE of the following completes the statements below?

If the current trends continue, Feedwater Level Control (FWLCS) will \_\_ (1) \_\_ element control and the reactor \_\_ (2) \_\_ scram.

- A. (1) shift to single  
    (2) will
- B. (1) remain in three  
    (2) will
- C. (1) shift to single  
    (2) will NOT
- D. (1) remain in three  
    (2) will NOT



**QUESTION 59**

Given the following conditions on Unit 2:

- RHR Pump 2A and 2C are operating in Suppression Chamber Spray and Suppression Pool Cooling
- Suppression Chamber Pressure is 5 psig
- Suppression Pool Temperature is 205 °F
- RHR Loop 1 flow is 9000 gpm

Which ONE of the following completes the statements below?

RHR Pump 2A is operating in the \_\_ (1) \_\_ area of Curve 2.

In accordance with 2-EOI Appendix-17C, RHR System Operation Suppression Chamber Sprays, Suppression Chamber sprays are secured before Suppression Chamber pressure drops below \_\_ (2) \_\_.

**REFERENCE PROVIDED**

- A. (1) safe  
(2) 1.96 psig
- B. (1) safe  
(2) 0 psig
- C. (1) unsafe  
(2) 1.96 psig
- D. (1) unsafe  
(2) 0 psig

**QUESTION 60**

When removing a spent fuel bundle from the reactor with the Main Hoist (fuel grapple), the Fuel Handling Bridge Operator raises the bundle and observes the GRAPPLE NORMAL UP indicating light illuminated.

Subsequently,

The operator uses the HOIST OVERRIDE pushbutton and raises the fuel bundle further and receives the FUEL POOL FLOOR AREA RADIATION HIGH, Panel 2-9-3A Window 1.

Which ONE of the following completes both statements below?

The FUEL POOL FLOOR AREA RADIATION HIGH, Panel 2-9-3A Window 1 annunciator alarms at \_\_ (1) \_\_ mr/hr.

During movement of recently irradiated fuel, the MINIMUM Spent Fuel Pool Water Level required above the top of irradiated fuel assemblies seated in the spent fuel storage racks is  $\geq$  \_\_ (2) \_\_ ft.

- A. (1) 10  
(2) 21.5
- B. (1) 10  
(2) 22
- C. (1) 72  
(2) 21.5
- D. (1) 72  
(2) 22

### ***QUESTION 61***

Unit 1 is operating at 80% power when the following indications are received:

- HEATER C3 LEVEL HIGH, (1-9-6A, Window 17) is in alarm
- The 1C3 heater level indication is HIGH HIGH (red) on the FEEDWATER HEATER LEVEL(FWHL) ICS screen

Which ONE of the following completes the statements below?

For these heater indications, the steam from the \_\_ (1) \_\_ to Feedwater Heater 1C3 will isolate, and the 1C3 heater \_\_ (2) \_\_ will be open.

- A. (1) 8th stage of the low pressure turbine  
(2) normal level control valve ONLY
- B. (1) 8th stage of the low pressure turbine  
(2) normal level control valve AND the high level dump valve
- C. (1) MSR cross-around piping  
(2) normal level control valve ONLY
- D. (1) MSR cross-around piping  
(2) normal level control valve AND the high level dump valve

**QUESTION 62**

Which ONE of the following completes the statement below?

A loss of \_\_ (1) \_\_ would result in a loss of power to \_\_ (2) \_\_.

- A. (1) the  $\pm 24$ VDC Neutron Monitoring Battery System  
(2) Wide Range Gaseous Effluent Radiation Monitor (WRGERM), 0-RM-90-306
- B. (1) the 48VDC Annunciator Battery System  
(2) Stack-Gas Radiation Monitor detectors (RM-90-147 & 148)
- C. (1) 250VDC Battery Board 1  
(2) Stack-Gas Radiation Monitor detectors (RM-90-147 & 148)
- D. (1) 250VDC Battery Board 2  
(2) Wide Range Gaseous Effluent Radiation Monitor (WRGERM), 0-RM-90-306

**QUESTION 63**

Control Room Emergency Ventilation (CREV) Train A is running for testing when a loss of Control Air occurs.

Which ONE of the following completes the statement below?

At 73 psig control air pressure, the \_\_\_\_\_.

- A. Unit Crosstie Valves, 1-PCV-32-3901 and 2-PCV-32-3901, Auto CLOSE and CREV Train A continues to run
- B. Control Bay Emergency Compressor STARTS and CREV Train A continues to run
- C. Isolation dampers 0-FCO-31-150 (B,D,E,F,G) fail CLOSED and CREV Train A trips
- D. CREV TRAIN A INLET DAMPER, 0-FCO-31-7211, fails CLOSED and CREV Train A trips

**QUESTION 64**

Given the following conditions for Units 1 and 2:

- 1B Control Bay Supply Fan is in service

Subsequently,

- The 1B Control Bay Supply Fan trips

Which ONE of the following completes the statements below?

The 1A Control Bay Supply Fan \_\_ (1) \_\_ Auto-Start.

If **subsequently**, BOTH Unit 1 and 2 Control Room Air Conditioning (AC) Systems become inoperable, in accordance with 0-OI-31, Section 8.19, Units 1 and 2 Control Room Alternate Cooling Methods, an alternate method of cooling to the Unit 1 and 2 Control Rooms is \_\_ (2) \_\_.

- A. (1) will  
(2) Startup of Computer Room Air Conditioning Unit
- B. (1) will  
(2) Local Start of Emergency CB Chiller Unit (Emergency Condensing Unit)
- C. (1) will NOT  
(2) Startup of Computer Room Air Conditioning Unit
- D. (1) will NOT  
(2) Local Start of Emergency CB Chiller Unit (Emergency Condensing Unit)

**QUESTION 65**

Which one of the following completes both statements below?

Technical Specification 3.4.9, RCS Pressure and Temperature (P/T) Limits, \_\_ (1) \_\_ applicable in ALL modes.

When starting a Reactor Recirculation Pump, the difference between bottom head temperature and RPV coolant temperature must be verified \_\_ (2) \_\_ prior to starting each recirculation pump.

- A. (1) is  
(2) within 15 minutes
- B. (1) is NOT  
(2) within 15 minutes
- C. (1) is  
(2) within 30 minutes
- D. (1) is NOT  
(2) within 30 minutes

**QUESTION 66**

Given the following conditions:

- Unit 3 has scrammed and multiple rods remain out
- Reactor Pressure is 1000 psig
- **The pictures on the next page reflect the current status of the SLC system**

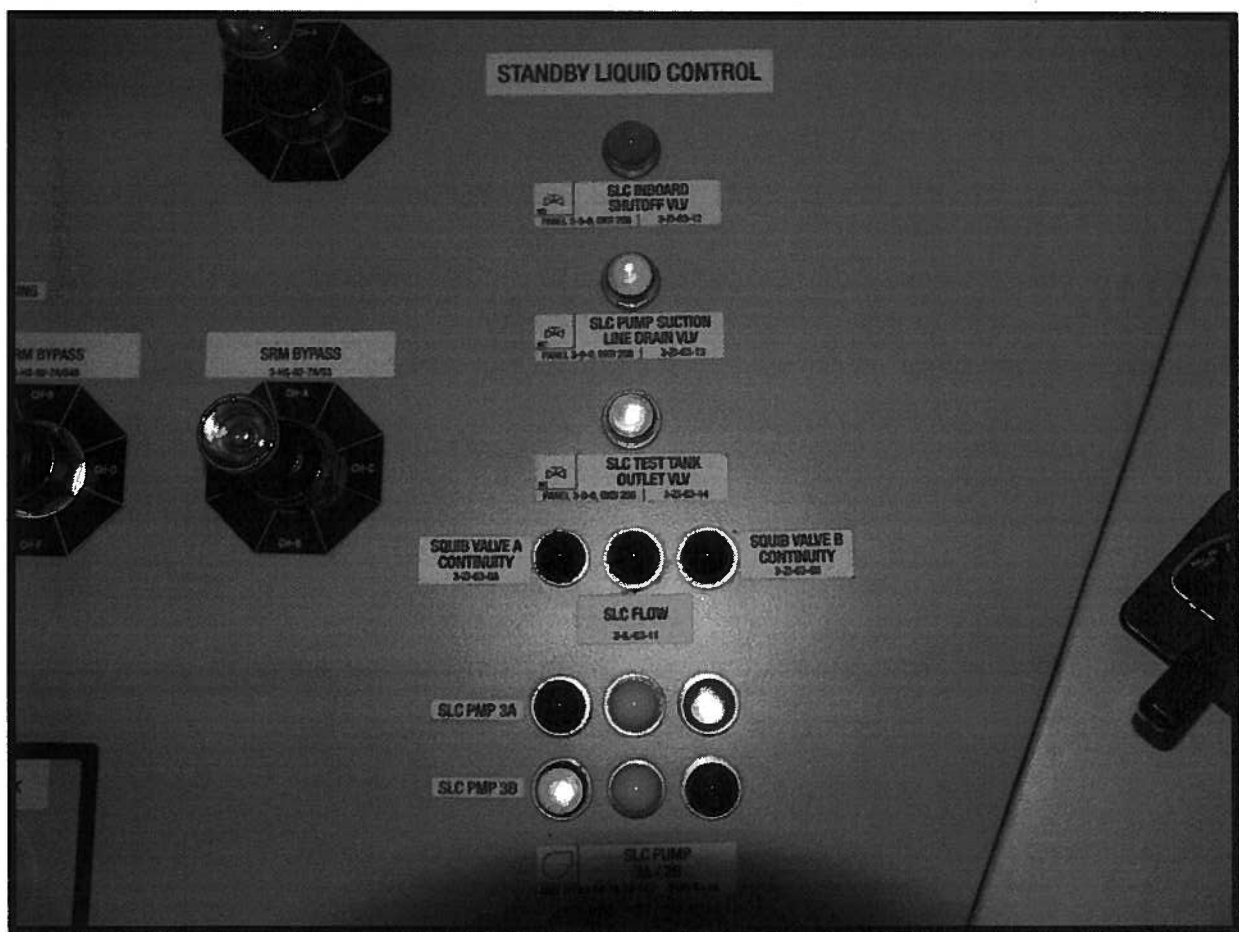
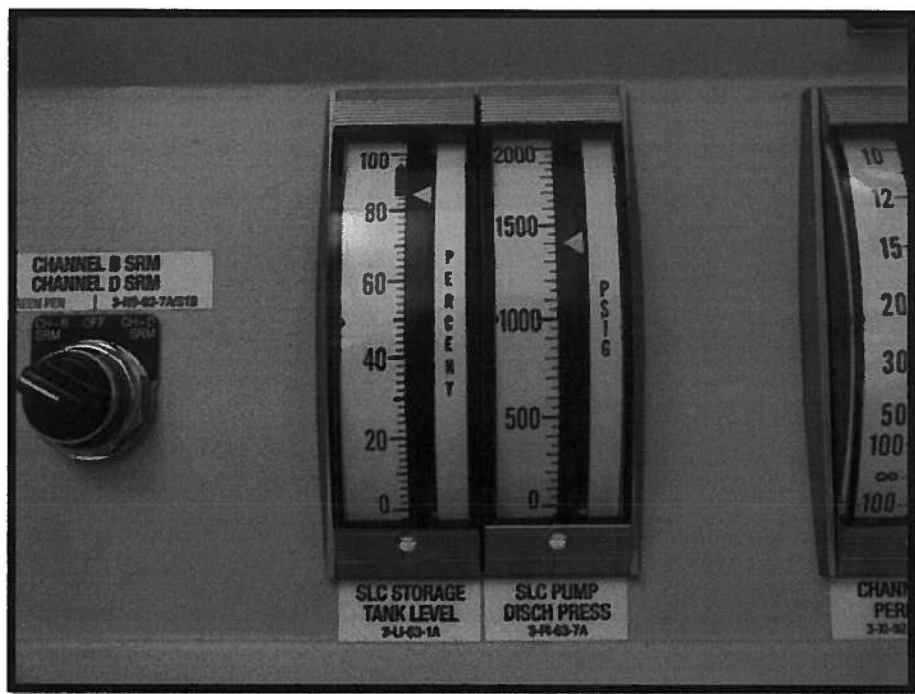
Which ONE of the following completes BOTH of the statements below?

SLC \_\_ (1) \_\_ currently injecting to the RPV.

If the operator subsequently places the 3-HS-63-6A, SLC Pump 3A/B, control switch to the START-B position, then \_\_ (2) \_\_ SLC pump(s) will be running.

- A. (1) is  
(2) one
- B. (1) is  
(2) two
- C. (1) is NOT  
(2) one
- D. (1) is NOT  
(2) two





**QUESTION 67**

The following conditions exist on Unit 3:

- 3-GOI-100-1A, Unit Startup, is in progress

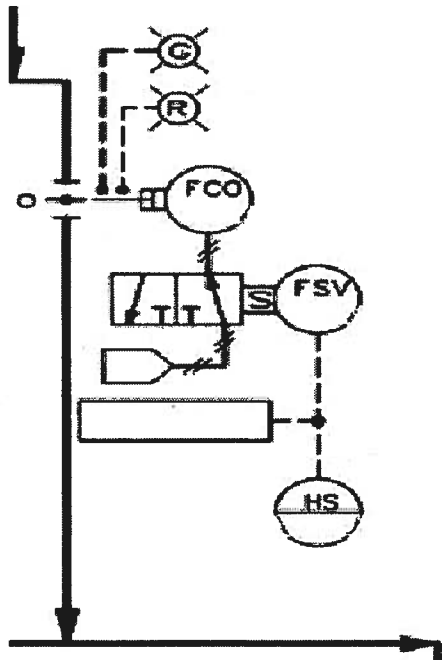
Following a notch withdrawal of Control Rod 30-31, the Operator observes a stable Reactor Period of 50 seconds.

Which ONE of the following describes the required action(s) to take based on the above conditions in accordance with 3-GOI-100-1A?

- A. Insert ALL control rods.
- B. Re-insert control rod 30-31 to obtain a stable period of greater than 60 seconds.
- C. Insert control rods until the reactor is Subcritical. ALL rods are NOT required to be inserted.
- D. Stop control rod withdrawal and verify period remains stable at 50 seconds or greater. Control rod insertion is NOT required.

**QUESTION 68**

Given the drawing, which ONE of the following completes both statements below?



When the solenoid is energized, control air is \_\_ (1) \_\_.

On a loss of air, the \_\_ (2) \_\_ position indication on the Control Board Panel will be illuminated.

- A. (1) applied to the air operator  
(2) red
- B. (1) applied to the air operator  
(2) green
- C. (1) vented off the air operator  
(2) red
- D. (1) vented off the air operator  
(2) green

**QUESTION 69**

On Unit 1, which ONE of the following combinations of Reactor Power AND Reactor Pressure constitute a Safety Limit violation?

|    | Reactor Power | Reactor Pressure |
|----|---------------|------------------|
| A. | 15%           | 750 psig         |
| B. | 24%           | 770 psig         |
| C. | 28%           | 775 psig         |
| D. | 32%           | 810 psig         |

**QUESTION 70**

Which ONE of the following completes the statements below in accordance with the Browns Ferry Operating License and 2-SR-2?

The licensee is authorized to operate the facility at steady state reactor power levels not in excess of \_\_ (1) \_\_ MW Thermal.

In accordance with 2-SR-2, Attachment 2, Surveillance Procedure Data Package - Modes 1, 2, & 3, core thermal power is normally recorded every \_\_ (2) \_\_.

- A. (1) 3458  
(2) hour
- B. (1) 3458  
(2) two hours
- C. (1) 3463  
(2) hour
- D. (1) 3463  
(2) two hours

### ***QUESTION 71***

Given the following conditions:

- Unit 3 has entered the EOIs
- Immediate entry into a High Radiation Area by an Assistant Unit Operator (AUO) is required.
- NO RWP currently exists for this entry.

In accordance with RCI-9.1, Radiation Work Permits, which ONE of the following completes the statements below?

This High Radiation Area entry, without an RWP, must be authorized by the \_\_ (1) \_\_.

A Radiation Protection individual escort \_\_ (2) \_\_ required for this situation.

- A. (1) Shift Manager  
(2) is
- B. (1) Shift Manager  
(2) is NOT
- C. (1) Radiation Protection Shift Supervisor  
(2) is
- D. (1) Radiation Protection Shift Supervisor  
(2) is NOT

***QUESTION 72***

In accordance with 2-GOI-200-2, Primary Containment Initial Entry and Closeout, entering the drywell, with the primary system at or near rated operating temperature and pressure during a startup to perform leak inspections, requires permission from which ONE of the following?

- A. Site Vice President
- B. Plant Manager
- C. Operations Manager
- D. Radiation Protection Manager

***QUESTION 73***

Which ONE of the following will result in **sustained** HIGHER Main Steam Line radiation levels?

- A. Injecting Zinc
- B. Injecting Oxygen
- C. Application of Noble Metals
- D. Hydrogen Water Chemistry operation



### ***QUESTION 74***

Unit 2 is at 100% power with CRD pump 2A tagged out for maintenance.

Unit 1 is in Mode 2 with a startup in progress with the following conditions:

- Reactor Pressure 850 psig
- CRD Pump 1A is in service
- Reactor Power is on Range 8 of the IRMs

Subsequently:

- CRD Pump 1A trips on an electrical fault and can NOT be restarted.

Which ONE of the following describes the required operator actions in accordance with 1-AOI-85-3, CRD System Failure?

- A. Immediately insert a manual scram.
- B. Place 1B CRD Pump in service.
- C. If any withdrawn rod(s) have accumulator alarms, immediately insert the rod(s).
- D. After 20 minutes, if charging water is not greater than 940 psig, and two or accumulator alarms exist for withdrawn rods, then manually scram.

### **QUESTION 75**

Unit 3 is operating at 100% when the following alarms are received:

- RFPT B ABNORMAL, (3-9-6C, Window 8)
- RFPT TRIPPED, (3-9-6C, Window 29)
- RFP DISCH FLOW LOW, (3-9-6C, Window 32)
- REACTOR WATER LEVEL ABNORMAL, (3-9-5A, Window 8)

Which ONE of the following completes both statements below?

Based on these conditions, the RECIRC LOOP A(B) FLOW LIMITER ENFORCING annunciator, (3-9-4A(B), Window 35) \_\_ (1) \_\_ alarming.

Unit 3 Reactor Feed Pump speeds are limited to  $\leq$  \_\_ (2) \_\_ in accordance with 3-OI-3, Reactor Feedwater System.

- A. (1) is  
(2) 5050 rpm
- B. (1) is  
(2) 5850 rpm
- C. (1) is NOT  
(2) 5050 rpm
- D. (1) is NOT  
(2) 5850 rpm