

**Site-Specific RO Written Examination
Cover Sheet**

**U.S. Nuclear Regulatory Commission
Site-Specific SRO Written Examination**

Applicant Information

Name:

Date: **5/24/2011**Facility/Unit: **FARLEY Units 1 & 2**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 overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

Applicant Certification

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

Applicant's Signature

Results

RO/SRO-Only/Total Examination Values 75 / ²⁴~~25~~ / ⁹⁹~~100~~ Points

Applicant's Scores ____ / ____ / ____ Points

Applicant's Grade ____ / ____ / ____ Percent

1. Unit 2 is at 55% power with the following conditions:

- 2A BAT is on service, 2B BAT is on standby.

At 10:00:

- Control Rods are stepping out in AUTO and cannot be stopped.
- The Reactor cannot be tripped and FRP-S.1, Response to Nuclear Power Generation/ ATWT, has been entered.
- An emergency boration is in progress per FRP-S.1, with the 2A BAT pump running.

At 10:05:

- The 2A BAT pump trips.

Which one of the following completes the statements below?

Verify 2B BAT pump (1) .

Per FRP-S.1, **minimum** boration flow is required to be greater than (2) gpm.

	<u>(1)</u>	<u>(2)</u>
A.	autostarts	30
B.	is manually started	30
C.	autostarts	40
D.	is manually started	40

2. Given the following conditions on Unit 2:

- Reactor power is 90%.
- Rod Control is in AUTO.
- Control Bank D rods are at 200 steps.

Which one of the following describes how control rods will respond when N-44, PR NI, fails **LOW** quickly with no operator actions or automatic reactor trips?

- A. Rods step out until Tavg/Tref mismatch causes them to step back in.
- B. Rods step in until Tavg/Tref mismatch causes them to step back out.
- C. Rods step out and stay out.
- D. Rods step in and stay in.

3. Unit 2 is in Mode 4 with the following conditions:

At 10:00:

- 2C RCP was started, but tripped due to over-current during the start attempt.

At 10:45:

- The Shift Manager directs 4160V Bus Voltage raised and the 2C RCP restarted.

The following MCB parameters are observed:

- 2C RCP #1 SEAL PRESSURE is 240 psid.
- 2C RCP SHAFT SEAL FLOW is 6.5 gpm.
- VCT PRESS is 16.5 psig.

Which one of the following parameters, per SOP-1.1, Reactor Coolant System, will prevent the operator from starting the 2C Reactor Coolant Pump?

- A. #1 Seal DP
- B. VCT pressure
- C. Seal injection flow
- D. Insufficient idle time between start attempts

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

- Pressurizer level is stable and on program.
- Seal injection flow is in the green band.
- RCP #1 Seal leakoff flow is normal.
- Letdown is in service with HV-8149C, LTDN ORIF ISO 60 GPM, open.
- All control systems are in AUTO.

Which one of the following sets of indications for CVCS Charging and Letdown flow represent steady-state conditions with no RCS leakage?

	<u>CHG FLOW FI-122A (gpm)</u>	<u>LTDN HX OUTLET FLOW FI-150 (gpm)</u>
A.	60	75
B.	75	75
C.	60	84
D.	75	60

5. Unit 1 has experienced a **Safety Injection**.

Which one of the following completes the statement below?

RCP #1 Seal Leakoff will be directed to the ____ .

- A. Reactor Coolant Drain Tank
- B. Containment Sump
- C. Pressurizer Relief Tank
- D. Volume Control Tank

6. Unit 1 is in Mode 5 with the following conditions:

At 1000:

- RCS is in solid plant conditions.
- A Train RHR is in service in the cooldown mode.
- Low Pressure Letdown is aligned to A Train.
- Charging and Letdown flows are balanced.
- RCS pressure is stable at 250 psig.
- PK-145, LP LTDN PRESS controller, is in AUTO.

At 1010:

- A crud burst causes the **RCS Filter** to immediately clog.

Which one of the following completes the statement below?

RCS pressure will ____ .

- A. rise until RHR suction reliefs lift
- B. rise until the RHR loop suction isolation valves go closed
- C. lower and the VCT will divert to the RHTs
- D. lower and total Seal Injection flow will decrease

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

- 1B Charging pump is aligned to B Train.
- 1C Charging pump is Tagged Out.

At 1000:

- 1F 4160V Bus is de-energized and remains de-energized.

Which one of the following combinations lists the ECCS pumps that have power available?

	<u>Charging pump with power</u>	<u>RHR pump with power</u>
A.	1A	1A
B.	1A	1B
C.	1B	1A
D.	1B	1B

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

- HA5, PRZR PORV TEMP HI, is in alarm.
- Pressurizer pressure is 2225 psig and slowly going down.
- PRT pressure is slowly rising.
- Both PORV's indicate closed.

Which one of the following completes the statements below?

TI-463, PORV tailpipe temperature, will increase to (1) .

PI-472, PRT PRESS, will reach a maximum pressure of (2) .

- | <u>(1)</u> | <u>(2)</u> |
|--------------------------|------------|
| A. between 220 and 340°F | 100 psig |
| B. greater than 600°F | 100 psig |
| C. greater than 600°F | 75 psig |
| D. between 220 and 340°F | 75 psig |

9. Unit 1 is in Mode 3 with the following conditions:

- 1A RHR pump is running for a boron sample.
- A and B Train CCW are in operation.
- Normal Letdown is in service with 75 gpm flow.
- Excess Letdown is in service in preparation for a Tag Out of the Normal Letdown line.

Which one of the following is the effect of a **loss of Instrument Air** to individual CCW components?

A loss of air to (1) , would require (2) .

- A. 1) TCV-3083, LTDN HX CCW TEMP CONTROLLER
2) isolating Letdown per DF1, LTDN TO DEMIN DIVERTED-TEMP HI
- B. 1) HV-3404A, RHR PUMP 1A SEAL HX CCW PRESS REG
2) securing 1A RHR pump per CG1, 1A RHR PUMP CCW FLOW LO
- C. 1) HV-3095, CCW TO EXCESS LTDN/RCDT HX'S
2) isolating Excess Letdown per CH1, EXC LTDN HX OUTLET TEMP HI
- D. 1) RCV-3028, CCW SURGE TANK AIR VENT
2) closing RCV-3028 with the manual jack per SOP-23.0, Component Cooling Water System

10. Unit 1 has experienced a small break LOCA with the following conditions:

- RCS pressure is 2100 psig.
- CETCs are 750°F.
- All RCP's are stopped.
- FI-943, A TRAIN HHSI FLOW, indicates 0 gpm.
- FI-940, HHSI B TRAIN RECIRC FLOW, indicates 0 gpm.

Which one of the following actions is required as the primary mitigation strategy per the applicable Functional Restoration Procedure?

- A. Start a RCP.
- B. Establish HHSI flow.
- C. Perform a max rate cooldown.
- D. Reduce RCS pressure by opening one PORV.

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

- HV-8145, RCS PRZR AUX SPRAY valve, has just started leaking by the seat at 10 gpm.
- HC1, PRZR PRESS HI-LO, is in alarm.

Which one of the following completes the statement below?

Indication on FI-122A, CHG FLOW, will **initially** (1) .

Demand on PK-444A, PRZR PRESS REFERENCE controller, will (2) .

	<u>(1)</u>	<u>(2)</u>
A.	increase	increase
B.	increase	decrease
C.	decrease	increase
D.	decrease	decrease

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

At 10:00:

- 1B Charging pump is aligned to B Train.
- 1A Charging pump is running.

At 10:10:

- Pressurizer level is falling.
- VCT level is rising.
- DD1, RCP SEAL INJ FLOW LO, alarm is LIT.
- DE1, REGEN HX LTDN FLOW DISCH TEMP HI, alarm is LIT.
- EA2, CHG HDR FLOW HI-LO, alarm is LIT.

Which one of the following events has occurred?

- A. An RCS piping break has occurred causing an Auto Roll-over to the RWST.
- B. PCV-145, LP LTDN Pressure Control Valve, has failed open.
- C. FCV-122, CHG Flow control valve, has failed closed.
- D. 1A Charging pump has tripped.

13. Unit 1 has had a Reactor Trip and Safety Injection actuation with the following conditions:

- A Large Break LOCA has occurred.
- Containment pressure has reached 29 psig.
- EEP-0, Reactor Trip or Safety Injection, is in progress.
- RCS pressure is 200 psig and dropping.

Which one of the following describes the reason for securing RCP's under the above conditions?

- A. To delay two-phase flow in the RCS.
- B. To prevent overheating RCP motor bearings.
- C. To prevent a deeper and longer core uncover later in the event.
- D. To avoid the possibility of RCP motor overspeed and flywheel fracture.

14. Which one of the following completes the statements below?

The **minimum** coincidence (fewest number of channels or input signals) required to initiate an Intermediate Range High Flux Reactor Trip is (1) .

The **minimum** coincidence (number of Throttle Valves closed) to initiate a Reactor Trip from Turbine Trip is (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | 1 out of 2 | 3 out of 4 |
| B. | 2 out of 2 | 3 out of 4 |
| C. | 1 out of 2 | 4 out of 4 |
| D. | 2 out of 2 | 4 out of 4 |

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

At 10:00:

- PT-950, CTMT PRESS, has failed **HIGH**.
- The appropriate Tech Spec actions of T.S. 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation, have been completed.
- SPRAY ACTUATION BYPASS CH I TEST light is illuminated on the BYPASS & PERMISSIVE panel.

At 10:30:

- PT-953, CTMT PRESS, fails **HIGH**.

Which one of the following automatic actuations, if any, will occur?

- A. No automatic actuations
- B. Safety Injection ONLY
- C. Safety Injection and MSIV isolation ONLY
- D. Safety Injection, MSIV isolation, Phase B and Ctmt Spray actuation ONLY

16. Unit 1 is at 25% power with the following conditions:

- 1C RCP trips.

Which one of the following completes the statements below?

1C Steam Generator narrow range level will (1) .

After 1C RCP stops, 1C Loop delta T indication will be (2) than 1A and 1B Loop delta T indications.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | swell | higher |
| B. | swell | lower |
| C. | shrink | higher |
| D. | shrink | lower |

17. Unit 1 tripped from 75% power with the following conditions:

- N-35, Intermediate Range NI, is overcompensated.

Which one of the following completes the statements below?

N-35 will indicate (1) than actual power.

The Source Range NI's will energize as soon as (2) , Intermediate Range NI, reaches the P-6 setpoint.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | lower | N-35 |
| B. | lower | N-36 |
| C. | higher | N-35 |
| D. | higher | N-36 |

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

- An **LOSP** occurs and 1B Diesel Generator trips.
- Containment pressure is 34 psig due to a steam line break.
- BA1, 1A CTMT CLR FAN FAULT, comes into alarm due to a trip of the 1A Containment Cooler.

Which one of the following completes the statements below?

The (1) CTMT CLR FAN is required to be started per EEP-0, Reactor Trip or Safety Injection.

After the fan is started, Containment Pressure and Temperature (2) exceed design limits.

	<u>(1)</u>	<u>(2)</u>
A.	1C	WILL
B.	1B	WILL
C.	1C	will NOT
D.	1B	will NOT

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

At 10:00:

- All containment fan coolers are operating in FAST speed.

At 10:05:

- A steam leak occurs inside Containment.
- An automatic SI has occurred.

Which one of the following describes the expected operation of the Containment Coolers?

The Containment Coolers will be operating in (1) speed.

The Containment Cooler discharge dropout plate opens when Containment (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---------------------------|
| A. | FAST | pressure exceeds 4 psig |
| B. | SLOW | pressure exceeds 4 psig |
| C. | FAST | temperature exceeds 135°F |
| D. | SLOW | temperature exceeds 135°F |

20. The following conditions exist on Unit 1:

- Mode 6.
- The RCS level is at midloop.
- Both RHR pumps are in operation.
- Low Pressure Letdown is in service on A Train.

At 10:00:

The 1A RHR pump is in the following configuration:

- HIK-603A, 1A RHR HX DISCH VLV, is 0%.
- FK-605A, 1A RHR HX BYP FLOW, is in manual with 75% demand.

The 1B RHR pump is in the following configuration:

- HIK-603B, 1B RHR HX DISCH VLV, is 50%.
- FK-605B, 1B RHR HX BYP FLOW, is in manual with 25% demand.

At 10:05:

- 1A RHR pump trips.

Which one of the following completes the statement below?

RCS level will (1) , and RCS temperature will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|-----------------|-----------------|
| A. | increase | increase |
| B. | increase | remain the same |
| C. | remain the same | remain the same |
| D. | remain the same | increase |

21. Unit 1 is at 75% power with the following conditions:

- Automatic control of TK-144, LTDN HX OUTLET TEMP, has failed.
- Letdown temperature is 150°F and rising.

Which one of the following completes the statements below?

The alarm expected for this condition is (1) .

The appropriate ARP will direct the operator to place TK-144 in MANUAL and (2) controller demand.

- | <u>(1)</u> | <u>(2)</u> |
|--|------------|
| A. DF1, LTDN TO DEMIN DIVERTED-TEMP HI | raise |
| B. DE1, REGEN HX LTDN FLOW DISCH TEMP HI | raise |
| C. DF1, LTDN TO DEMIN DIVERTED-TEMP HI | lower |
| D. DE1, REGEN HX LTDN FLOW DISCH TEMP HI | lower |

22. Unit 1 tripped from 100% power with the following conditions:

- Safety Injection is in progress due to a Large Break LOCA.
- Containment Spray has actuated.
- The following MCB annunciators are in alarm:
 - CH4, RWST LVL A TRN LO-LO
 - CH5, RWST LVL B TRN LO-LO

Which one of the following completes the statements below?

The setpoint for the RWST LO-LO alarms is (1) .

The operator is required to (2) using ESP-1.3, Transfer to Cold Leg Recirculation.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--|
| A. | 4' 6" | verify the CS sump suction MOV's automatically opened |
| B. | 4' 6" | open the CS sump suction MOV's |
| C. | 12' 6" | verify the RHR sump suction MOV's automatically opened |
| D. | 12' 6" | open the RHR sump suction MOV's |

23. Which one of the following completes the statement below?

The Containment Spray System **reduces radioactive iodine** in the Containment atmosphere during a LOCA by spraying water from the (1) at a pH of approximately (2) .

- | | <u> (1) </u> | <u> (2) </u> |
|---------------------|----------------|----------------|
| A. containment sump | | 4.5 |
| B. RWST | | 7.5 |
| C. containment sump | | 7.5 |
| D. RWST | | 4.5 |

24. Unit 1 is at 75% power with the following conditions:

- PK-444A, PRZR PRESS REFERENCE controller, is failed such that it senses a constant input pressure equivalent to 2219 psig.

Which one of the following describes the automatic response of the Pressurizer Pressure Control system?

- A. PCV-445A, PRZR PORV, will cycle to control pressure.
- B. The variable heaters will cycle on and off at a higher setpoint.
- C. The spray valves will open to control pressure at a higher value.
- D. PCV-444B, PRZR PORV, will open and remain open until 2000 psig.

25. Unit 1 has just lost power to 600V Motor Control Center (MCC) 1A.

Which one of the following components will **NOT** have power?

- A. 1A Spent Fuel Pool pump
- B. 1A Containment Cooler Fan - Fast speed
- C. 1A Post LOCA Hydrogen Recombiner
- D. MOV-8808A, 1A Accumulator Discharge Isolation Valve

26. Given the following conditions on Unit 1:

- RCS pressure is 2350 psig.
- All SG pressures are 1035 psig.
- The reactor is NOT tripped.
- The crew is currently in FRP-S.1, Response to Nuclear Power Generation/ATWT, performing the step, "Check pressurizer pressure LESS THAN 2335 psig."

Which one of the following completes the statements below per FRP-S.1?

Open PRZR PORVs and PRZR PORV ISO valves and lower RCS pressure to (1) .

The reason for the pressure reduction is to (2) .

(1)

(2)

- | | |
|--------------|--|
| A. 2235 psig | increase charging flow into the RCS |
| B. 2235 psig | reduce the differential pressure between the SGs and the RCS |
| C. 2135 psig | increase charging flow into the RCS |
| D. 2135 psig | reduce the differential pressure between the SGs and the RCS |

27. Which one of the following describes the Fuel Transfer System's **Pit-Crane Interlock** and the reason for the interlock?

- A. Prevents the SFP lifting frame from being **lowered** while the SFP bridge crane is in the Transfer Canal area,
to prevent damage to a fuel assembly.
- B. Prevents movement of the SFP Bridge Crane when the lifting frame is **up**,
to prevent damage to the SFP Bridge Crane Hoist.
- C. Prevents the SFP lifting frame from being **raised** while the SFP bridge crane is in the Transfer Canal area,
to prevent damage to the lifting frame.
- D. Prevents operation of the SFP Bridge Crane hoist when the lifting frame is **down**,
to prevent bumping a fuel assembly when the frame is raised.

28. The following conditions exist on Unit 1:

- AOP-2.0, Steam Generator Tube Leak, is in progress.
- The Control Room crew is preparing for an RCS cooldown.
- The affected SG pressure is 980 psig.
- Desired subcooling is 30-32°F.

- 1) Using steam tables, which one of the following is the temperature at which the RCS cooldown is required to be stopped?
- 2) Per AOP-2.0, what temperature indication is used?

Reference Provided

	<u>(1)</u>	<u>(2)</u>
A.	513°F	Core exit T/C monitor
B.	544°F	Core exit T/C monitor
C.	513°F	RCS Hot Leg Temperature
D.	544°F	RCS Hot Leg Temperature

29. Unit 1 is shutdown with the following conditions:

At 10:00:

- An SI was initiated due to a Small Break LOCA.
- ESP-1.2, Post LOCA Cooldown and Depressurization, is in progress.
- Normal charging has been established.
- All SG narrow range levels are 40% and stable.

At 10:15:

- 1A SG narrow range level is 48% and going up with no AFW flow to the SG.
- 1B and 1C SG narrow range levels are 40% and stable.
- Pressurizer level is 20% and trending down with maximum charging flow.

Which one of the following completes the statement below?

The foldout page of ESP-1.2 requires the crew to establish HHSI flow and ____ .

- A. remain in ESP-1.2, Post LOCA Cooldown and Depressurization.
- B. re-enter EEP-0, Reactor Trip or Safety Injection.
- C. go to EEP-1, Loss of Reactor or Secondary Coolant.
- D. go to EEP-3, Steam Generator Tube Rupture.

30. Unit 2 is performing the initial heatup of the RCS following a Refueling outage, with the following conditions:

- RCS temperature is 480°F.
- All MSIV's are closed.
- The Unit Operator is preparing to open the MSIV's per SOP-17.0, Main and Reheat Steam.
- ALL MSIV Bypass valves are open.
- The steam dumps are aligned in the STM PRESS mode per SOP-18.0, Steam Dump System.
- All required testing and maintenance activities have been completed.

Which one of the following completes the statements below?

- 1) When 'A' steam line MSIV's are opened, 'A' MSIV Bypass valves will (1) .
- 2) When opening MSIV's, Main Steam header pressure should be monitored closely to prevent a Safety Injection due to (2) .

(1)

(2)

- | | | |
|----|---------------------|----------------------------------|
| A. | be manually closed | Low Steam Line pressure |
| B. | be manually closed | Steam Line Differential pressure |
| C. | automatically close | Low Steam Line pressure |
| D. | automatically close | Steam Line Differential pressure |

31. Unit 2 is at 12% power with the following conditions:

At 10:00:

- Tavg is 550°F and stable.
- Steam Dumps are in the STM PRESS mode.
- PK-464, STM HDR PRESS controller, is in AUTO.

At 10:05:

- PT-464, STM HDR PRESS, fails HIGH.

Which one of the following completes the statements below, with no operator action?

Steam flow will increase and then (1) .

PK-464, STM HDR PRESS controller, will (2) .

(1)

(2)

- | | |
|--------------------------------|--------------------------|
| A. stabilize at 40% steam flow | remain in AUTO |
| B. decrease to zero | shift to MANUAL at 543°F |
| C. decrease to zero | remain in AUTO |
| D. stabilize at 40% steam flow | shift to MANUAL at 543°F |

32. Unit 1 is at 32% power with the following conditions:

At 10:00:

- Steam dumps are Tagged Out to prevent operation due to a maintenance test in progress.
- The control rods are in MANUAL.

At 10:05:

- A malfunction of the DEH control system results in a Main Turbine trip.

Which one of the following completes the statements below?

SG water levels will (1) due to the Turbine trip.

The OATC is required to (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--|
| A. | swell | reduce Reactor power to < 8% |
| B. | swell | trip the Reactor and enter EEP-0, Reactor Trip or Safety Injection |
| C. | shrink | reduce Reactor power to < 8% |
| D. | shrink | trip the Reactor and enter EEP-0, Reactor Trip or Safety Injection |

33. **Unit 2** is ramping up with the following conditions:

At 10:00:

- KK1, TURB COND VAC LO, comes into alarm.
- Condenser vacuum is degrading.
- AOP-8, Partial Loss of Condenser Vacuum, actions are in progress.

At 10:15:

- KK2, TURB COND VAC LO-LO, comes into alarm.
- Main Turbine load is 225 MWe.
- Condenser vacuum is 2.1 psia and stable.

Which one of the following is/are the required action(s) per AOP-8.0?

- A. Trip the reactor and perform EEP-0, Reactor Trip or Safety Injection.
- B. Trip the Main Turbine and perform AOP-3.0, Turbine Trip Below P-9 Setpoint.
- C. Reduce load at the maximum controllable rate per AOP-17, Rapid Load Reduction.
- D. Stop the ramp in progress and stabilize the plant.

34. Unit 1 is shutdown with the following conditions:

At 10:00:

- There is a complete loss of all AC power.
- A Safety Injection has occurred.
- ECP-0.0, Loss of All AC Power, is in progress.
- 1B Diesel Generator (DG) is Tagged Out.
- 1-2A DG tripped on Low Lube Oil Pressure due to a clogged strainer.

At 10:15:

- 1-2A DG's on service lube oil strainer has been swapped.
- 1-2A DG will be started locally in Mode 4 per SOP-38.1, Emergency Starting of a Diesel Generator.

Which one of the following completes the statements below?

Prior to starting the 1-2A DG in Mode 4, the (1) must be depressed.

To close the 1-2A DG output breaker from the EPB, the 1-2A DG EPB Mode Selector Switch is required to be in the (2) position per SOP-38.0-1-2A, 1-2A Diesel Generator and Auxiliaries.

- A. 1) 1-2A DG ENGINE RESET pushbutton on the Local Control Panel
2) Mode 2
- B. 1) 1-2A DG ENGINE RESET pushbutton on the Local Control Panel
2) Mode 3
- C. 1) SIAS RESET pushbutton on the B1F Sequencer
2) Mode 2
- D. 1) SIAS RESET pushbutton on the B1F Sequencer
2) Mode 3

35. Unit 1 is at 70% power with the following conditions:

- R-15A, SJAE EXH, is in alarm.
- AOP-2.0, Steam Generator Tube Leakage, is in progress.
- The Turbine Building SO has placed the SJAE Filtration System in service.

Which one of the following completes the statement below?

After the SJAE Filtration system is placed in service, the reading on R-15A will (1) and the SJAE Filtration system will (2) .

(1)

(2)

- | | | |
|----|-----------------|------------------------------------|
| A. | decrease | be aligned in a recirc alignment |
| B. | remain the same | be aligned in a recirc alignment |
| C. | decrease | discharge to the Turbine Bldg roof |
| D. | remain the same | discharge to the Turbine Bldg roof |

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

At 10:00:

- 1B Condensate pump is in Standby and has a Caution tag stating that the pump has a degraded head condition.

At 10:05:

- 1C Condensate Pump trips.
- PR-4039, SGFP Suction Pressure recorder, indication drops to 274 psig for 20 seconds and then starts rising rapidly.
- KB4, SGFP SUCT PRESS LO, clears 25 seconds after the 1B condensate pump starts.

Which one of the following completes the statements below?

The 1B Condensate Pump started (1) .

The Control Room Crew is required to (2) per AOP-13, Condensate and Feedwater Malfunction.

- A. 1) immediately following the trip of the 1C Condensate pump
2) trip the Reactor
- B. 1) immediately following the trip of the 1C Condensate pump
2) stabilize Steam Generator levels
- C. 1) following a drop in SGFP suction pressure ONLY
2) trip the Reactor
- D. 1) following a drop in SGFP suction pressure ONLY
2) stabilize Steam Generator levels

37. Unit 2 is in Mode 3 with the following conditions:

- A Grid disturbance caused a dual unit LOSP.
- The following 230KV High Voltage lines are **out of service**:
 - Sinai Cemetery
 - Bainbridge
 - Webb
- #2 Auto Bank Transformer is **out of service**.
- The Shift Manager has directed performance of STP-27.1, A.C. Source Verification, on Unit 2.

Which one of the following completes the statements below?

The Unit 2 Startup Transformers are powered from the (1) side of the High Voltage Switchyard.

Per STP-27.1, (2) available to supply power to the Unit 2 Startup Transformers.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---------------------------|
| A. | 230KV | one off-site circuit is |
| B. | 500KV | one off-site circuit is |
| C. | 230KV | two off-site circuits are |
| D. | 500KV | two off-site circuits are |

38. The following conditions exist on Unit 1:

At 10:00:

- Reactor power is 80% and stable.
- Rod control is in AUTO with Bank D rods at 184 steps.
- LT-115, VCT LEVEL, is failed LOW.
- N-43, POWER RANGE NUCLEAR INSTRUMENT, has failed HIGH.
- All actions of AOP-100, Instrument Malfunction, have been completed for N-43.

At 10:15:

- Power is lost to the 1C 120V AC Vital Panel due to an Inverter malfunction.

Which one of the following conditions will occur due to 1C 120V AC Vital Panel being de-energized?

- A. A reactor trip will occur.
- B. An Auto makeup will commence.
- C. Automatic rod withdrawal is blocked.
- D. LCV-115B and D, RWST to CHG PUMP, will open.

39. The following conditions exist on Unit 2:

At 10:00:

- LB18, 2B BATTERY SUPPLY BREAKER, is open and Tagged Out for Battery cell replacement.

At 10:05:

- An LOSP occurs.

Which one of the following completes the statement below?

(1) Diesel Generator can be started **and** used to supply power to the Unit 2 B Train 4160V ESF busses because it has a(n) (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---|
| A. | 2C | power seeking ATS (Automatic Transfer Switch) |
| B. | 2C | emergency Air Start Solenoid |
| C. | 2B | power seeking ATS (Automatic Transfer Switch) |
| D. | 2B | emergency Air Start Solenoid |

40. Unit 1 is at 13% power with the following conditions:

- The Main Generator output breakers have been closed.
- JF1, 1A SG LVL DEV, is in alarm.
- A Systems Operator in the Main Steam Valve Room reports that the air supply line to FCV-479, 1A SG FW BYP FLOW, has blown off.

Which one of the following completes the statements below?

FCV-479 will fail (1) .

Per AOP-13.0, Condensate and Feedwater Malfunctions, the operator is required to trip the (2) if Steam Generator level can NOT be maintained.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--------------|
| A. | open | Main Turbine |
| B. | open | Reactor |
| C. | closed | Reactor |
| D. | closed | Main Turbine |

41. Which one of the following completes the statements below?

The purpose of TRSH-2293, AFW CHECK VALVE TEMPERATURE RECORDER, is to monitor the temperature on the discharge line of (1) .

Temperatures are monitored to determine if actions need to be taken to protect against (2) .

(1)

(2)

- | | | |
|----|---------------------|-------------------------------|
| A. | ALL AFW pumps | water hammer or steam binding |
| B. | ALL AFW pumps | water hammer ONLY |
| C. | ONLY the TDAFW pump | water hammer or steam binding |
| D. | ONLY the TDAFW pump | water hammer ONLY |

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

At 10:00:

- Unit 1 trips due to a Loss of Site Power (LOSP).

At 10:20:

- The 1A Steam Generator narrow range water level is 25%.
- The 1B and 1C Steam Generator narrow range water levels are 31%.
- The Rover reports that smoke is coming from the 1A MDAFW pump.
- The UO takes the handswitch for the 1A MDAFW pump to stop.

Which one of the following completes the statement below?

When the 1A MDAFW pump handswitch is taken to stop and released, the 1A MDAFW pump will (1) because the (2) signal is present.

(1)

(2)

- | | |
|----------------------------|----------------|
| A. stop and remain stopped | SG LO-LO level |
| B. stop and then restart | SG LO-LO level |
| C. stop and then restart | LOSP |
| D. stop and remain stopped | LOSP |

43. Unit 1 is at 100% power, with the following conditions:

- A failure has occurred in the controller/positioner for HV-3235A, TDAFWP STM SUPP FROM 1B SG, such that air is continuously supplied to HV-3235A.

Which one of the following completes the statement below?

The TDAFW pump will _____

- A. **NOT** autostart under any condition.
- B. immediately start and operate at full design capacity.
- C. autostart when a signal occurs and operate at full design capacity.
- D. autostart when a signal occurs, but **NOT** operate at full design capacity.

44. Unit 1 has experienced a Reactor Trip and Safety Injection with the following alarms:

- AF4, CTMT CLR SW FLOW HI-LO
SETPOINT: Lo Flow Range (< 1980 gpm): Diff Flow HI: $300 +0, -75$ gpm
Hi Flow Range (≥ 1980 gpm): Diff Flow HI: $750 +0, -30$ gpm
- AD4, SW PRESS A TRN LO -
SETPOINT: 60 ± 1 psig

Which one of the following would cause the conditions described above?

- A. The 1A Service Water Pump has degraded head.
- B. A piping failure has occurred upstream of the 1A containment cooler.
- C. A piping failure has occurred downstream of the 1C containment cooler.
- D. MOV-3024A, EMERG SW FROM 1A CTMT CLR, has failed to open on the SI.

45. Unit 1 has experienced a Reactor trip with the following conditions:

- An LOSP has occurred.
- A DG failure has occurred, and the A Train 4160V busses are de-energized.

Which one of the following states the minimum time that the A Train Auxiliary Building 125V DC System Battery is designed to carry the required DC loads in this condition?

- A. 30 minutes
- B. 2 hours
- C. 8 hours
- D. 12 hours

46. Unit 1 has experienced a Reactor trip with the following conditions:

- A Loss of All AC has occurred.
- ECP-0.0, Loss of All AC Power, is in progress.

Which one of the following completes the statements below?

The 1B Aux Building DC bus voltage will (1) .

DC loads are minimized in ECP-0.0 to (2) .

- A. 1) drop slowly at first; then later drop rapidly as the battery nears exhaustion
2) prolong battery life ONLY
- B. 1) drop slowly at first; then later drop rapidly as the battery nears exhaustion
2) prevent damage to the DC components AND prolong battery life
- C. 1) drop at a constant, linear rate the entire time the battery discharges
2) prolong battery life ONLY
- D. 1) drop at a constant, linear rate the entire time the battery discharges
2) prevent damage to the DC components AND prolong battery life

47. Unit 1 is in Mode 3 with the following conditions:

- The 1B MDAFW pump is operating to provide secondary inventory.
- The B Train Auxiliary Building 125V DC bus becomes de-energized.

Which one of the following completes the statements below?

The 1B MDAFW pump Main Control Board switch indication will (1) .

The 1B MDAFW pump will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|-------------------|-----------------|
| A. | NOT be LIT | continue to run |
| B. | NOT be LIT | trip |
| C. | be LIT | continue to run |
| D. | be LIT | trip |

48. Unit 1 is in Mode 3 with the following conditions:

- An LOSP has occurred on Unit 1 ONLY.

The Diesel Building SO reports that crankcase pressure is out of spec on the 1C DG.

Which one of the following completes the statement below?

The (1) CRANKCASE PRESSURE alarm comes in when 1C DG crankcase pressure reaches + 2" H₂O gauge and the 1C DG will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | HIGH | TRIP |
| B. | LOW | TRIP |
| C. | HIGH | NOT trip |
| D. | LOW | NOT trip |

49. Unit 1 tripped from 100% power with the following conditions:

- A steam line break occurred in Containment.
- In addition, a complete loss of all AFW occurred.
- FRP-H.1, Response To Loss Of Secondary Heat Sink, is in progress.
- Bleed and Feed criteria has been met.
- Containment pressure is 31 psig.

Which one of the following completes the statements below?

Bleed and Feed criteria was met as soon as two SG wide range levels were LESS THAN (1) .

Phase B isolation is reset in FRP-H.1 to (2) .

	<u>(1)</u>	<u>(2)</u>
A.	12%	restore CCW cooling to the RCPs
B.	12%	restore Instrument Air to Containment
C.	31%	restore CCW cooling to the RCPs
D.	31%	restore Instrument Air to Containment

50. Unit 1 was operating with PT-474, 1A SG PRESS, failed LOW when the following occurred:

- A fire onsite has required the Control Room to be evacuated.
- The crew has implemented AOP-28.2, Fire in the Control Room.
- Steam is coming from the MSVR roof.
- The crew has closed all MSIVs.

The crew is evaluating PCV-3371A, 1A SG ATMOSPHERIC RELIEF VLV, to determine if it is OPEN or leaking by.

Which one of the following completes the statement below?

The 1A SG Pressure indication (1) available for monitoring on the Hot Shutdown Panels.

Low Steam Line Pressure SI signal (2) be blocked on the Hot Shutdown Panels.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | is NOT | can NOT |
| B. | is NOT | CAN |
| C. | IS | can NOT |
| D. | IS | CAN |

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

- Containment Mini-Purge is in service.
- R-24B, CTMT PURGE, has failed HIGH.

Which one of the following completes the statements below?

Mini-Purge dampers inside (1) will isolate.

Mini-Purge supply and exhaust fans (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|-----------------------------|--------------------|
| A. | Containment | remain running |
| B. | Containment | automatically stop |
| C. | the Piping Penetration room | remain running |
| D. | the Piping Penetration room | automatically stop |

52. The following conditions exist on Unit 1:

- The 1B MDAFW pump has been started from the MCB and is running for STP-22.2, 1B MDAFW Pump Quarterly Inservice Test.
- R-19, SGBD SAMPLE, radiation monitor is in alarm and indication is stable above the alarm setpoint.
- The Shift Radio Chemist requests to sample the Steam Generators.

Which one of the following describes the actions that will allow the Shift Radio Chemist to obtain a sample of the Steam Generators per SOP-45.0, Radiation Monitoring System?

- A. Pull the INSTRUMENT power fuses for R-19, then open the sample valves.
- B. Pull the DC power fuses to each sample valve solenoid to fail the valve open.
- C. Place 1B MDAFW pump handswitch to the STOP position, then open the sample valves.
- D. Place R-19 Operation Selector Switch to the RESET position, then open the sample valves.

53. **Unit 2** is at 31% power with the following conditions:

- A lightning strike causes the 2A **AND** 2B Circulating Water pumps to trip.
- Main Condenser pressure is 6.0 psia and degrading rapidly.
- All Steam Generator narrow range levels are 50% and slowly falling.

Which one of the following completes the statement below?

An automatic Reactor trip (1) occurred, (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--------------------------|
| A. | HAS | Steam Dumps have opened |
| B. | HAS | MDAFW pumps have started |
| C. | has NOT | Steam Dumps have opened |
| D. | has NOT | MDAFW pumps have started |

54. Unit 1 is at 25% power with the following conditions:

At 10:00:

- The 1A S/U transformer is de-energized.
- The 1-2A DG restores power to the Unit 1 ESF busses.

At 10:15:

- A Safety Injection occurs.

Which one of the following describes the position of SW TO TURB BLDG ISO MOVs, 514, 515, 516, 517, following the Safety Injection?

- A. MOV's powered from A Train are throttled,
MOV's powered from B Train are closed.
- B. MOV's powered from A Train are closed,
MOV's powered from B Train are throttled.
- C. All MOV's are throttled.
- D. All MOV's are closed.

55. Unit 1 has high reactor coolant activity due to failed fuel as indicated by an upscale reading on the Gross Failed Fuel Detector (GFFD).

Which one of the following completes the statements below?

The GFFD provides indication of failed fuel by detection of (1) .

The GFFD (2) on a high radiation signal.

- | | <u>(1)</u> | <u>(2)</u> |
|----|----------------------|--|
| A. | N-16 gamma radiation | automatically isolates the RCS sample system |
| B. | N-16 gamma radiation | provides NO automatic isolation |
| C. | delayed neutrons | automatically isolates the RCS sample system |
| D. | delayed neutrons | provides NO automatic isolation |

56. Which one of the following completes the statement below?

MOV-515, SW TO TURB BLDG ISO, on Unit 1 is powered from 600V (1) , which is supplied from a(n) (2) Diesel Generator during an LOSP.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | MCC 1N | A Train |
| B. | MCC 1T | A Train |
| C. | MCC 1N | B Train |
| D. | MCC 1T | B Train |

57. The following conditions exist on Unit 2:

At 10:00:

- Reactor power is 25% and stable.
- PCC (Power Control Center) has notified the Control Room that the offsite grid has become degraded.

At 10:05:

- Multiple alarms occur in the Unit 2 Control Room.

Which one of the following alarms that are **LIT**, will be addressed and actions performed **FIRST**?

- A. EF1, 2A RCS LOOP FLOW LO OR 2A RCP BKR OPEN (Red Window)
- B. YE2, 2G 4KV BUS OV-OR-UV OR LOSS OF DC (White Window)
- C. KG2, EH FLUID LEVEL LO-LO (Red Window)
- D. MB1, 2B S/U XFMR UV (White Window)

58. **Unit 1** Air Compressors are aligned in the following configuration:

- The 1A air compressor panel key switch is in the **MCB** position and the AUTOMATIC OPERATION LED (green light) is LIT.
- The 1B and 1C air compressors are aligned to the sequencer panel.

Which one of the following describes the reason for this alignment?

- A. To prevent a complete loss of Instrument Air pressure due to a failure of the sequencer panel pressure transducer.
- B. To prevent a complete loss of Instrument Air pressure due to a loss of power to the sequencer panel.
- C. To ensure that the 1A air compressor is available to be started from the ESS or LOSP Sequencer.
- D. To ensure that all three air compressors do not run at the same time and possibly overheat due to insufficient Service Water flow.

59. Which one of the following describes the correct configuration for the Containment Main Personnel Access Hatch doors and equalizing valves while the airlock is in use for entering/exiting Containment?

- A. Outer door OPEN
Outer door equalizing valve OPEN

Inner door CLOSED
Inner door equalizing valve CLOSED
- B. Outer door OPEN
Outer door equalizing valve OPEN

Inner door CLOSED
Inner door equalizing valve OPEN
- C. Outer door CLOSED
Outer door equalizing valve OPEN

Inner door OPEN
Inner door equalizing valve CLOSED
- D. Outer door CLOSED
Outer door equalizing valve CLOSED

Inner door OPEN
Inner door equalizing valve CLOSED

60. Unit 1 has experienced a Reactor Trip and Safety Injection due to a LOCA, with the following conditions:

- EEP-0, Reactor Trip or Safety Injection, has been completed and EEP-1, Loss of Reactor or Secondary Coolant, has been entered.
- AOP-34.0, Malfunction of RCS Wide Range Pressure Indication, has been implemented to determine actual RCS pressure.
- PT-455, 456, 457, PRZR PRESS, all indicate 1700 psig.
- PT-402, RCS WR PRESS, indicates 1600 psig.
- PT-403, RCS WR PRESS, indicates 750 psig.
- FI-943, A TRN HHSI FLOW, indicates 550 gpm.

Which one of the following completes the statements below?

AOP-34.0 will require Charging Pump Miniflow valves to be (1) prior to RCS pressure determination.

Actual RCS pressure is (2) .

References Provided

	<u>(1)</u>	<u>(2)</u>
A.	open	750 psig
B.	open	1600 psig
C.	closed	750 psig
D.	closed	1600 psig

61. Unit 1 is in Mode 1 at 100% power with the following conditions.

- Chemistry reports that RCS Dissolved Oxygen is 50 ppm.

Which one of the following completes the statements below?

Per TRM 13.4.1, RCS Chemistry, the RCS Dissolved Oxygen limit (1) been exceeded.

(2) is used to control RCS Dissolved Oxygen in Mode 1.

- | | <u>(1)</u> | <u>(2)</u> |
|----|----------------|------------|
| A. | has NOT | Hydrazine |
| B. | HAS | Hydrazine |
| C. | has NOT | Hydrogen |
| D. | HAS | Hydrogen |

62. A one step Tagout has been issued to place a Danger Tag on an MOV handwheel.

The following condition exists:

- A Caution Tag is on the handwheel of the MOV.

Which one of the following completes the statement below?

Per NMP-AD-003-001, Tag Standards, the operator is required to ____

- A. return the Tagout to the Tagging Official because two tags cannot exist on the same component.
- B. place the Danger tag on the MOV handwheel, remove the Caution Tag, and return it to the Tagging Official.
- C. place the Danger tag on the MOV handwheel and ensure the Danger Tag is visible on top of the Caution Tag.
- D. place the Danger tag on the MOV handwheel and move the Caution Tag to another visible location on the MOV.

63. Unit 2 is shutdown with the following conditions:

- All Reactor Trip breakers are open.
- RCS pressure is 2200 psig.
- RCS temperature is 540°F and slowly decreasing.
- N-31, Source Range NI, is out of service for repairs.
- N-32, Source Range NI, has just failed LOW.
- A channel check on Gamma Metrics Source Range instrumentation has been performed.

Which ONE of the following describes Tech Spec 3.3.1, Reactor Trip System (RTS) Instrumentation, REQUIRED ACTION due **within one hour** for these conditions?

- A. Verify shutdown margin.
- B. Verify interlock is in required state.
- C. Commence an RCS heatup to 547°F.
- D. Place channel N-32 in the tripped condition.

64. Unit 1 is in Mode 5 for a refueling outage. A small accessible area in containment has a general area dose rate of 1150 mrem/hr. The top of this area cannot be enclosed for the purpose of locking the area.

Which one of the following completes the statement below?

Per Tech Spec 5.7.3, in addition to the area being barricaded off, the minimum control(s) required for this area is/are to ____ .

- A. be conspicuously posted **ONLY**
- B. be conspicuously posted **AND** have a flashing light
- C. have continuous surveillance by closed circuit TV **ONLY**
- D. have continuous surveillance by closed circuit TV **AND** have a flashing light

65. You have been given a task to perform an inspection of the Containment Equipment Sump. P017A & B, CTMT SUMP PUMP handswitches are in the "Pull-to-Lock" position on the BOP.

Which one of the following is a condition that would result in excessive radiation exposure rates in the Containment Equipment Sump Area?

- A. Draining the RCS to mid-loop prior to core off load.
- B. Withdrawal of the Incore Detectors from the core.
- C. Movement of irradiated fuel in the reactor vessel.
- D. A leak in the Auxiliary Building results in lowering Reactor Cavity level.

66. Which one of the following completes the statement below?

The maximum allowable exposure that may be required when performing emergency on-site actions **to protect valuable property** is ____ per EIP-14.0, Personnel Movement, Relocation, Re-entry and Site Evacuation.

- A. 5 Rem
- B. 10 Rem
- C. 25 Rem
- D. 100 Rem

67. Unit 1 has entered ESP-1.3, Transfer To Cold Leg Recirculation..

Which one of the following states the action required for implementing the Functional Restoration Procedures (FRP's) while in ESP-1.3, and the basis for the action?

- A. FRP's **should not** be implemented until RHR and Charging pumps are aligned for recirculation and flow is stable.

This is because of the limited amount of water in the RWST available for maintaining suction to ECCS pumps.

- B. FRP's **should not** be implemented while in ESP-1.3 until RWST level is < 4.5 feet.

This is because insufficient water may be present in the Containment Sump to prevent cavitation while on recirculation.

- C. FRP's **should** be implemented immediately at any time while in ESP-1.3.

This is because of the limited amount of water in the RWST available for maintaining suction to ECCS pumps.

- D. FRP's **should** be implemented immediately at any time while in ESP-1.3.

This is because they are always the highest priority while in the Emergency Procedures.

68. The following conditions exist on UNIT 1.

- MH1, FIRE, annunciator on the Unit 1 Main Control Board is in alarm and is LIT solid (NOT flashing).
- The Control Room Fire Alarm Panel has a single window in alarm, which contains the following information:

**"Aux Bldg EI 139 W Side
Det 1A-39, 43, 46, 53
1A-55, 59, 106"**

- At the PYR-A-LARM Panel, the window for 1A-59 panel is lit.

Which one of the following describes the **MINIMUM** actions required to enable MH1, FIRE, to reflash for a fire detection system actuation in zone 1A-106 per SOP-0.4, Fire Protection Administration Procedure?

- A. The Control Room Fire Alarm Panel must be acknowledged AND Zone 1A-59 placed in OVERRIDE at the PYR-A-LARM Panel.
- B. The Control Room Fire Alarm Panel must be acknowledged AND the Local Reflash Panel alarm for detection system 1A-59 must be acknowledged.
- C. ONLY the Control Room Fire Alarm Panel must be acknowledged.
- D. ONLY the Local Reflash Panel alarm for detection system 1A-59 must be acknowledged.

69. Unit 1 has had a Reactor trip and Safety Injection actuation with the following conditions:

- A LOCA has occurred in containment.
- EEP-0, Reactor Trip or Safety Injection, is in progress.
- RCS pressure is 1100 psig and stable.
- Containment pressure is 12 psig and slowly rising.

Which one of the following is an annunciator that will be in alarm at this time?

- A. MCB alarm JH1, 1A SG MSIV CLOSED
- B. MCB alarm CD1, 1A ACCUM PRESS HI-LO
- C. MCB alarm HD2, PRZR PRESS SI PORV BLOCK P-11
- D. BOP alarm LB3, RCP THRM BARR ISO HV-3184 AIR PRESS LO

70. The following conditions exist on Unit 1:

- A Small Break LOCA has occurred.
- Natural circulation has been established.
- The crew is performing ESP-1.2, Post LOCA Cooldown and Depressurization.

Which one of the following completes the statements below per ESP-1.2?

Opening (1) may cause voiding to occur.

Voiding is detected by (2) .

- A. 1) the steam dumps to establish a cooldown rate of 85°F/hr
2) LI-460, PRZR LVL, rapidly increasing
- B. 1) one PORV to reduce RCS pressure to refill the pressurizer
2) LI-460, PRZR LVL, rapidly increasing
- C. 1) the steam dumps to establish a cooldown rate of 85°F/hr
2) TI-2301, CORE EXIT THERMOCOUPLE MONITOR, rapidly increasing
- D. 1) one PORV to reduce RCS pressure to refill the pressurizer
2) TI-2301, CORE EXIT THERMOCOUPLE MONITOR, rapidly increasing

71. The crew has transitioned to ECP-1.2, LOCA Outside Containment.

Which one of the following completes the statements below per ECP-1.2?

(1) piping will be isolated.

The instrumentation used to determine when the intersystem LOCA has been isolated is (2) .

- A. 1) Low Head Safety Injection
2) Auxiliary Building radiation monitors decreasing
- B. 1) High Head Safety Injection
2) Auxiliary Building radiation monitors decreasing
- C. 1) Low Head Safety Injection
2) RCS LOOP Wide Range pressure indicators increasing
- D. 1) High Head Safety Injection
2) RCS LOOP Wide Range pressure indicators increasing

72. A loss of ALL feedwater has occurred on Unit 1. The team is implementing FRP-H.1, Response to Loss of Secondary Heat Sink, and the following conditions exist:

- SI has **NOT** actuated.
- RCS temp is 547°F.
- 1A SGFP has just been started and has been aligned to feed all SGs.
- Attachment 1, MAIN FEEDWATER BYPASS VALVES AUTOMATIC CLOSURE DEFEAT, has been completed.
- The red light is LIT on the following handswitches:
 - MOV-3232A, MAIN FW TO 1A SG STOP VLV
 - MOV-3232B, MAIN FW TO 1B SG STOP VLV
 - MOV-3232C, MAIN FW TO 1C SG STOP VLV

Immediately upon feeding the SGs, GB5, STM LINE LO PRESS RX TRIP SI, annunciator comes into alarm.

Which one of the following completes the statement below?

The 1A SGFP (1) trip.

MOV-3232A, B, C (2) automatically close.

	<u>(1)</u>	<u>(2)</u>
A.	will NOT	will NOT
B.	will NOT	WILL
C.	WILL	will NOT
D.	WILL	WILL

73. FRP-P.1, Response to Imminent Pressurized Thermal Shock Conditions, has been entered on Unit 1.

A one hour soak is required.

Which one of the following completes the statements below per FRP-P.1?

The soak allows thermal gradients on the (1) to be reduced, thus reducing corresponding stresses.

If a cooldown is required **AFTER** the soak, the maximum cooldown rate is (2) in any 60 minute period.

A. 1) Steam Generator shell wall

2) < 50°F

B. 1) Steam Generator shell wall

2) < 100°F

C. 1) Reactor Vessel wall

2) < 50°F

D. 1) Reactor Vessel wall

2) < 100°F

74. Unit 1 has experienced a Reactor trip and Safety Injection with the following conditions:

At 10:00:

- EEP-1.0, Loss of Reactor or Secondary Coolant, is entered due to a LOCA.

The following equipment problems have occurred:

- 1A RHR pump is tripped.
- MOV-3185A, CCW TO 1A RHR HX, will not open.
- 1C Charging Pump is tripped (1B Charging Pump is on A Train).
- MOV-8827B, CTMT SUMP TO 1B CS PUMP, breaker is tripped.
- MOV-8706B, 1B RHR HX TO CHG PUMP SUCT, breaker is tripped.

At 10:10:

- ECP-1.1, Loss of Emergency Coolant Recirculation, is entered.

Which one of the following equipment failures, if corrected, will restore Emergency Coolant Recirculation and allow exit of ECP-1.1?

- A. Power restored to MOV-8827B.
- B. 1A RHR pump returned to service.
- C. Power restored to MOV-8706B.
- D. 1C Charging pump returned to service.

75. Unit 1 has experienced a Large Break LOCA with the following conditions:

- Containment pressure is 32 psig.
- Containment sump level is 7.2 feet.
- ONLY 1B Containment Spray pump is running.
- Containment Spray flow is 1600 gpm.

Which one of the following completes the statement below?

A Containment CSF Status Tree ORANGE path ____ .

- A. exists for **BOTH** FRP-Z.1, Response To High Containment Pressure
AND FRP-Z.2, Response To Containment Flooding
- B. does **NOT** exist for **EITHER** FRP-Z.1, Response To High Containment Pressure
OR FRP-Z.2, Response To Containment Flooding
- C. exists for **ONLY** FRP-Z.2, Response To Containment Flooding
- D. exists for **ONLY** FRP-Z.1, Response To High Containment Pressure

76. Unit 1 is at 12% power controlling on the Steam Dumps with the following conditions and sequence of events:

At 1000:

- The Main Turbine is rolling at 600 rpm.
- Control Bank (CB) D is at 165 steps.
- Rods are in Manual.
- RCS Tavg is 550°F.

AT 1010:

- CB D rods are pulled 2 steps and rods continue to step outward after releasing the IN-HOLD-OUT switch.

The following response occurred:

- AOP-19.0, Malfunction of Rod Control System, was implemented.
- Rods were placed in AUTO but continued to step outward.
- An unsuccessful manual reactor trip was attempted with reactor power at 14%.
- The CRDM supply breakers were opened and all rod bottom lights illuminated.

Which one of the following completes the statements below?

When the ROD CONTROL BANK SELECTOR SWITCH was placed in AUTO, CB D rods should have (1) .

An emergency classification threshold value (2) been exceeded per NMP-EP-110-GL01, FNP EALS - ICs, Threshold Values And Basis.

- | | <u>(1)</u> | <u>(2)</u> |
|----|----------------------------|------------|
| A. | stepped IN | HAS |
| B. | stopped and remain stopped | HAS |
| C. | stepped IN | has NOT |
| D. | stopped and remain stopped | has NOT |

77. Unit 1 is in MODE 4, the following conditions exist:

- RCS temperature is 330°F and rising.
- RCS pressure is 350 psig.
- 1A and 1B RCPs are running.
- Both RHR pumps are secured with the following alignment:
 - 1A RHR is in the ECCS alignment.
 - 1B RHR is aligned for shutdown cooling.

The OATC starts the 1B RHR pump to stop the RCS temperature rise.

Which one of the following completes the statements below per UOP-1.1, Startup of Unit from Cold Shutdown to Hot Standby?

(1) RHR system(s) is/are OPERABLE.

A mode change from Mode 4 to Mode 3 (2) currently allowed.

- | | <u>(1)</u> | <u>(2)</u> |
|----|-------------|------------|
| A. | BOTH | IS |
| B. | BOTH | is NOT |
| C. | ONLY the 1A | IS |
| D. | ONLY the 1A | is NOT |

78. Unit 1 is at 100% power with AOP-1.0, RCS Leakage, is in progress. The following conditions exist:

- Containment Sump level is slowly rising.
- The leak has been located on the weld between an instrument piping penetration and the shell of the PZR.

Which one of the following completes the statement below in accordance with NMP-EP-110-GL01, FNP EALs - ICs, Threshold Values and Basis?

The leak is defined as (1) LEAKAGE and its threshold value is (2) for a Notification of An Unusual Event (NOUE).

<u>(1)</u>	<u>(2)</u>
A. IDENTIFIED	10 gpm
B. PRESSURE BOUNDARY	10 gpm
C. IDENTIFIED	25 gpm
D. PRESSURE BOUNDARY	25 gpm

79. The following conditions exist on Unit 1:

- NI-43, PR Nuclear Instrument, Axial Flux Comparator circuit within the Detector Current Comparator Drawer has failed.
- ALL other functions within the Detector Current Comparator Drawer are unaffected.
- NI-43C, PR3 PERCENT FLUX DIFF, indicates a constant +20% Δ FLUX.

Which one of the following completes the statements below?

The **Overpower Delta T (OP Δ T)** reactor trip setpoint (1) affected by this failure.

The **OP Δ T** reactor trip function (2) OPERABLE per TS 3.3.1, Reactor Trip System (RTS) Instrumentation.

	<u>(1)</u>	<u>(2)</u>
A.	IS	IS
B.	is NOT	IS
C.	IS	is NOT
D.	is NOT	is NOT

80. Unit 1 has experienced a LOCA. The following conditions exist:

- EEP-1.0, Loss of Reactor or Secondary Coolant, is in progress.
- The RCS is being cooled to $< 200^{\circ}\text{F}$.
- Containment pressure has remained < 20 psig.
- Hydrogen Analyzers have been placed in service.
- Containment Hydrogen is 4.1% by volume of dry air.

Which one of the following describes the hydrogen concentration within containment and the actions required per EEP-1.0?

The hydrogen concentration (1) exceed the lower **FLAMMABILITY** limit.

Hydrogen concentration will be lowered using (2) .

	<u>(1)</u>	<u>(2)</u>
A.	does NOT	SOP-10, POST LOCA Containment Pressurization and Vent System.
B.	does NOT	Attachment 3 of EEP-1.0, Post LOCA Hydrogen Recombiner Operation.
C.	DOES	SOP-10, POST LOCA Containment Pressurization and Vent System.
D.	DOES	Attachment 3 of EEP-1.0, Post LOCA Hydrogen Recombiner Operation.

81. Unit 1 has a steam leak. The following conditions exist:

- AOP-14.0, Secondary System Leakage, is in progress.
- The steam leak is in the MSVR upstream of the MSIVs and is unisolable.
- Rx power is 29%.
- PT-446, TURB FIRST STG PRESS, is 125 psig.
- SG STM FLOW indications are as follows (**LBS/HR X10⁶**):

1A
FI-474
1.21

1B
FI-484
1.23

1C
FI-494
1.23

Which one of the following completes the statements below?

AOP-14.0 requires a (1) to be initiated.

The Containment Barrier (2) INTACT per NMP-EP-110-GL01, FNP EALS - ICs, Threshold Values And Basis.

(1)

(2)

- | | | |
|----|--------------------------------|--------|
| A. | power reduction using the UOPs | is NOT |
| B. | power reduction using the UOPs | IS |
| C. | Rx Trip | is NOT |
| D. | Rx Trip | IS |

82. Unit 1 was operating at 100% power when the following occurred:

- PCV-3371A, 1A SG ATMOSPHERIC RELIEF VALVE, failed open.
- **NO** turbine load adjustments have been initiated by the crew.
- The REACTOR THERMAL POWER 12-HOUR AVG exceeded 102%.

Which one of the following completes the statements below?

The **maximum change** in turbine power would be (1) 35 MW.

A report to the NRC Operations Center (NRCOC) (2) required per EIP-8.0, Non-Emergency Notifications.

- | | <u>(1)</u> | <u>(2)</u> |
|----|--------------|------------|
| A. | LESS THAN | is NOT |
| B. | LESS THAN | IS |
| C. | GREATER THAN | is NOT |
| D. | GREATER THAN | IS |

83. Unit 1 was at 70% when the following sequence of events began:

AT 1000:

- A rapid ramp for a loss of a single SGFP per AOP-13.0, Condensate and Feedwater Malfunction, was performed.
- RX power was reduced to 55%.

AT 1040:

- Rx power has been ramped up to 60% power and is stable.
- The Shift Supervisor is closing out AOP-13.0 actions.

Which one of the following completes the statements below?

Sampling per STP-746, Primary Coolant System Dose Equivalent Iodine I-131, (1) required.

Operations Manager approval (2) required to reset the LOSS OF LOAD INTERLOCK C-7A .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | IS | is NOT |
| B. | IS | IS |
| C. | is NOT | is NOT |
| D. | is NOT | IS |

84. A Station Blackout has occurred on Unit 2. The following conditions exist:

- ECP-0.0, Loss of All AC Power, is in progress.
- The crew has commenced feeding and depressurizing the SGs after a significant delay due to a TDAFW pump malfunction.
- RCS pressure is 1675 psig and **very slowly** rising.
- ALL CETCs are 735°F and rising.
- Hot Leg temperatures are 612°F and rising.
- Cold Leg temperatures are 585°F and lowering.
- SG pressures are 885 psig and lowering.

Which one of the following completes the statements below?

Natural circulation (1) established.

The crew is required to implement FRP-C.2, Response to Inadequate Core Cooling, (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--|
| A. | IS | immediately upon exit from ECP-0.0 |
| B. | IS | after restarting equipment in ECP-0.2, Loss of ALL AC Power Recovery With SI Required. |
| C. | is NOT | immediately upon exit from ECP-0.0 |
| D. | is NOT | after restarting equipment in ECP-0.2, Loss of ALL AC Power Recovery With SI Required. |

85. Unit 1 has experienced a trip following a LOSS of the 1A Aux Building 125V DC bus. The plant has been stabilized and the crew has completed ESP-0.1, Reactor Trip Response.

AT 1000 the following was reported:

- LA-09, 125V DC BUS 1A SUPPLY BKR, has tripped open.
- 1A Battery Charger's DC output breaker is tripped open.
- The 1A 125V DC Battery Charger has been damaged.
- The 1A Battery terminals are damaged.

AT 1010 the following was reported by the Electricians:

- The fault is isolated to the battery terminals.
- The 1A 125V Battery has **NOT** been repaired.
- The 1A Aux Building 125V DC bus is ready for re-energization.

Which one of the following completes the statements below?

Before DC power is restored, the SG Atmospheric Relief Valves (1)
OPERABLE per TS 3.7.4, Atmospheric Relief Valves (ARVs).

Placing the 1C Battery Charger in service on the 1A 125V DC Bus AND restoring
bus voltage (2) restore OPERABILITY of the 1A Aux Building 125V DC bus
per TS 3.8.4, DC Sources—Operating.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | ARE | WILL |
| B. | ARE | will NOT |
| C. | are NOT | WILL |
| D. | are NOT | will NOT |

86. Which one of the following completes the statements below?

The alarm function(s) of R-5, SFP RM, (1) required for FUNCTIONALITY per TR 13.3.4, Radiation Monitoring Instrumentation.

R-5 (2) automatically trip the Fuel Handling Area Supply and Exhaust Fans on a HIGH radiation condition.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | is NOT | will NOT |
| B. | is NOT | WILL |
| C. | IS | will NOT |
| D. | IS | WILL |

87. Unit 1 is in MODE 6.

An Infrequently Performed Test, as defined by NMP-AD-006, Infrequently Performed Tests and Evolutions (IPTE), **is scheduled to be performed** requiring various MOVs to be torqued closed.

At 0500 MOV-3182, CCW FROM RCP OIL CLRS, was operated as follows:

- The supply breaker for MOV-3182 was opened.
- MOV-3182 was locally closed using the handwheel.

At 1900 the following occurred:

- MOV-3182 was locally opened.
- The supply breaker for MOV-3182 was closed.
- ON the MCB handswitch for MOV-3182, ONLY the RED light is LIT.
- NO maintenance activities have been conducted on MOV-3182.

Which one of the following completes the statements below?

The Operations Superintendent (1) provide the "Senior Line Manager" oversight required for the test per NMP-AD-006.

MOV-3182 (2) OPERABLE per SOP-0.0, General Instruction To Operations Personnel.

	<u>(1)</u>	<u>(2)</u>
A.	may NOT	is NOT
B.	may NOT	IS
C.	MAY	is NOT
D.	MAY	IS

88. Consider the following conditions which occurred on dayshift:

The crew performed STP-60.2, Gaseous Radwaste Treatment And Ventilation Exhaust Treatment Operability Verification.

- A Voluntary LCO was initiated due to HV-3096A & B, CCW from Evap Pkgs & H2 Recomb, being taken off the jack and opened during the performance of STP-60.2.
- STP-60.2 was completed UNSAT due to the Waste Gas compressors failing to run for 15 minutes.
- HV-3096A & B were returned to the Jacked Closed position and the Voluntary LCO was cleared.

Which one of the following completes the statements below?

In addition to a Control Room LCO Log entry, **an LCO/TR Status Sheet (1)** required to document the short duration Voluntary LCO on CCW.

A Waste Gas release **(2)** permitted **while the Waste Gas Compressors** are INOPERABLE, per the ODCM.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | IS | is NOT |
| B. | IS | IS |
| C. | is NOT | is NOT |
| D. | is NOT | IS |

89. Unit 1 has tripped following a small break LOCA.

- All High Head Safety Injection pumps have failed or are unavailable.
- PCV-444B, PRZR PORV, is leaking by its seat.
- MOV-8000B, PRZR PORV ISO, is closed with power still available.
- FRP-C.1, Response to Inadequate Core Cooling, is in progress.
- All RCPs are secured and power is **NOT** available.
- The crew is evaluating an RCS depressurization.

Which one of the following completes the statements below per FRP-C.1?

MOV-8000B, PRZR PORV ISO, (1) be opened to reduce RCS pressure with PCV-444B.

After opening available vent paths, IF the CETCS are >1200°F and rising, the crew shall (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--|
| A. | WILL | transition to SACRG-1,
Severe Accident Control Room
Guideline Initial Response |
| B. | WILL | return to the earlier step of FRP-C.1
to re-assess if RCPs can be started |
| C. | will NOT | transition to SACRG-1,
Severe Accident Control Room
Guideline Initial Response |
| D. | will NOT | return to the earlier step of FRP-C.1
to re-assess if RCPs can be started |

90. Unit 1 is at 100%.

Several substations are separated from the grid resulting in the following plant conditions:

- Unit 1 Generator Voltage is 20.45 kV.
- The following alarms have actuated:
 - WE2, 1F 4KV BUS OV-OR-UV OR LOSS OF DC.
 - VE2, 1G 4KV BUS OV-OR-UV OR LOSS OF DC.
- Grid frequency has fallen to 59.6 hertz and is stable.
- 4160V Bus voltages are 3840 Volts.
- This condition has existed for the past hour.

Which one of the following completes the statements below?

The Generator temperatures will (1) .

AOP-5.2, Degraded Grid, will require the crew to (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---|
| A. | RISE | immediately enter AOP-17.0, Rapid Load Reduction |
| B. | LOWER | immediately enter AOP-17.0, Rapid Load Reduction |
| C. | RISE | place the unit in mode 3 in the next 6 hours using UOP-3.1, POWER OPERATION |
| D. | LOWER | place the unit in mode 3 in the next 6 hours using UOP-3.1, POWER OPERATION |

91. Unit 1 is at 100%. The following conditions exist:

- The 1B Air Dryer is isolated.
- The 1A Air Dryer after filters clog.
- 1A header pressure is 75 psig and lowering.
- LCV-459, LTDN LINE ISO, RED and GREEN lights are both LIT.
- All Feed Reg Valves are showing intermediate with 100% demand on the controllers.

The Crew implemented EEP-0.0, Reactor Trip or Safety Injection, with the following results:

- Reactor Trip Breakers could not be opened and remain closed.
- BOTH MG set supply breakers were opened.
- ESP-0.1, Reactor Trip Response, has been entered.

Which one of the following completes the statements below?

V902, AIR DRYER AUTO BYP, will open at its setpoint of (1).

The Critical Safety Function Restoration procedure whose entry conditions will be met **FIRST if NO further actions** are taken in accordance with CSF-0.0, Critical Safety Function Status Trees, is (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--|
| A. | 55 psig | FRP-H.5, Response to Steam Generator Low Level |
| B. | 55 psig | FRP-I.1, Reponse to High Pressurizer Level |
| C. | 70 psig | FRP-H.5, Response to Steam Generator Low Level |
| D. | 70 psig | FRP-I.1, Reponse to High Pressurizer Level |

92. Unit 2 is in MODE 6, UOP-4.1, Controlling Procedure For Refueling, is in progress and the following conditions exist:

- Time since shutdown is 120 hours.
- Time to Core Boiling is 5.2 hours.
- Refueling cavity is 153' 6".
- The crew is unlatching the control rod drive shafts.
- The containment Equipment Hatch is closed.

Maintenance requests to open the Equipment Hatch and reports the following:

- A Maintenance Closure Response Team (MCRT) has been briefed and is available with all necessary equipment to close the Equipment Hatch.
- The estimated time to clear the Hatch and secure it with four (4) bolts is 100 minutes.

Which one of the following completes the statement below?

The Equipment Hatch (1) permitted to be opened because (2) per UOP-4.0, General Outage Operations Guidance.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---|
| A. | is NOT | insufficient time has elapsed to allow the decay of short lived fission products within the RCS |
| B. | is NOT | the time for the MCRT to sufficiently close the Equipment Hatch is too long |
| C. | IS | Refueling Integrity IS required but can be satisfied with the MCRT's response |
| D. | IS | Refueling Integrity is NOT required while unlatching the control rod drive shafts |

93. Which one of the following completes the statements below in accordance with FNP-0-FHP-0.0, Refueling Operations?

The Fuel Handling Supervisor (1) permitted to serve as one of the two people required to verify the correct manipulation of fuel assemblies and inserts in the core.

The Fuel Handling Supervisor is responsible for (2) .

(1)

(2)

- | | |
|-----------|---|
| A. IS | observing and directly supervising lifting operations of any load in excess of 3000 lbs over the Spent Fuel Storage Racks containing fuel |
| B. is NOT | observing and directly supervising lifting operations of any load in excess of 3000 lbs over the Spent Fuel Storage Racks containing fuel |
| C. IS | authorizing the unlatching of a fuel assembly from the Manipulator Crane in the Reactor Vessel |
| D. is NOT | authorizing the unlatching of a fuel assembly from the Manipulator Crane in the Reactor Vessel |

94. Unit 2 is in Mode 1 when the following is discovered:

- **At 1300** a routine 24-hour surveillance, applicable while in MODES 1 & 2, was last performed at 0600 on the **previous day (31 hours ago)**.

Which one of the following describes the minimum Tech Spec required response to the discovery?

The LCO for which the surveillance is required ____ .

- A. is declared **NOT** met, and the applicable action statements must be implemented within 24 hours
- B. is declared **NOT** met, and the applicable action statements must be implemented within one (1) hour
- C. IS met, and the completion may be delayed up to 0600 tomorrow, at which time, if not completed, the LCO must be declared **NOT** met
- D. IS met, and the completion may be delayed up to 1300 tomorrow, at which time, if not completed, the LCO must be declared **NOT** met

95. Unit 1 is preparing to enter Mid-Loop prior to core offload and the following conditions exist:

- Maintenance on the 1C Condensate pump is in progress.
- Southeast Division is performing maintenance in the 500 kV Switchyard.

Which one of the following completes the statements below per NMP-OS-010, Protected Train/Division and Protected Equipment Program?

Work on the 1C Condensate pump (1) required to be re-approved in the form of a GREEN SHEET.

Work in the 500kV switchyard (2) required to be re-approved in the form of a GREEN SHEET.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | IS | IS |
| B. | IS | is NOT |
| C. | is NOT | IS |
| D. | is NOT | is NOT |

96. Unit 2 has been in Mode 6 for 3 weeks, and the following conditions exist:

- Fuel movement is in progress.
- The following Alarms actuate:
 - FH2, SFP LVL HI-LO
 - EC5, RCS LVL HI-LO
 - PG3, CTMT SUMP LVL HI-HI OR TRBL.
- SFP and Refueling Cavity Levels are 142' and dropping.
- Both CTMT Sump Pumps are running and level is rising.
- Leakage around the Reactor Cavity Seal has been reported from Containment.
- Carriage at Pit lamp is ON in the SFP room.
- A used Fuel assembly is in the SFP side upender in the lowered position.

Which one of the following completes the statements below per AOP-30.0, Refueling Accident?

The fuel assembly (1) before the fuel transfer tube gate valve is closed.

The method that will be used to fill the reactor cavity will be from (2).

<u>(1)</u>	<u>(2)</u>
A. MAY be left in its current position	the boration flowpath IAW AOP-12.0, Residual Heat Removal System Malfunction
B. MAY be left in its current position	the RWST IAW SOP-7.0, Residual Heat Removal System
C. MUST be uprighted	the boration flowpath IAW AOP-12.0, Residual Heat Removal System Malfunction
D. MUST be uprighted	the RWST IAW SOP-7.0, Residual Heat Removal System

97. Unit 1 is operating at 100% power, and the following conditions exist:

- A release of the #2 Waste Monitor Tank (WMT) is planned.
- R-18, Liquid Radwaste Effluent Monitor, is INOPERABLE.
- Chemistry has taken two (2) samples of the #2 WMT and reports the activity is $<1.4 \times 10^{-5} \mu\text{Ci/mL}$ and is within the normal limits for a release.
- Two Shift Radio-Chemists have verified the manual input for the computer generated release rate calculation.

Which one of the following completes the statement below?

A WMT release (1) permitted (2) per the ODCM.

- | | <u>(1)</u> | <u>(2)</u> |
|----|---------------|---|
| A. | is NOT | UNTIL R-18 is returned to service |
| B. | is NOT | UNTIL the activity is lowered less than $<1 \times 10^{-7} \mu\text{Ci/mL}$ |
| C. | IS | BUT as a minimum two qualified plant personnel are required to verify the discharge lineup ONLY |
| D. | IS | BUT as a minimum two qualified plant personnel are required to verify the discharge lineup AND an SRO is required to verify the entire release rate calculation |

99. Which one of the following completes the statements below per the Precautions and Limitations of NMP-EP-112, Emergency Notifications?

It (1) acceptable to **change a previously issued** evacuation Protective Action Recommendation (PAR) to a shelter recommendation of the same zone.

A(An) (2) is the preferred PAR when a "PUFF" type release has occurred.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | IS | evacuation |
| B. | is NOT | evacuation |
| C. | IS | shelter |
| D. | is NOT | shelter |

100. A Reactor Trip has occurred on Unit 1 and the following conditions exist:

- FRP-H.1, Response to Loss of Secondary Heat Sink, is in progress.
- Bleed and Feed has been established.

Subsequently, the TDAFW pump has been returned to service and Bleed and Feed is secured with the following plant conditions:

- RCS Pressure is 1175 psig and rising slowly.
- Pressurizer level is 18% and stable.

Which one of the following completes the statements below per FRP-H.1?

The **minimum** SG level condition that permitted securing Bleed and Feed is (1) .

After Bleed and Feed was secured, the procedural transition will be to (2) .

- A. 1) any SG wide range level rising
2) EEP-1, Loss of Primary or Secondary Coolant
- B. 1) any SG wide range level rising
2) ESP-1.1, SI Termination
- C. 1) one SG narrow range level restored to greater than 31%
2) EEP-1, Loss of Primary or Secondary Coolant
- D. 1) one SG narrow range level restored to greater than 31%
2) ESP-1.1, SI Termination

KEY SRO

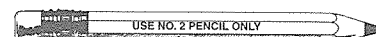
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O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P			
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q			
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R			
S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S			
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T			
U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U			
V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V			
W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W			
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
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A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E
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G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

TEST FORM
0
1
2
3
4
5
6
7
8
9

TEST VERSION
0
1
2
3
4
5
6
7
8
9

SOUTHERN COMPANY



- EXAMPLE: A B ☒ D E
- ERASE COMPLETELY TO CHANGE

(T)	(F)	(T)	(F)	(T)	(F)	(T)	(F)
1. A <input checked="" type="radio"/> B C D	26. A B <input checked="" type="radio"/> C D	51. <input checked="" type="radio"/> B C D	76. <input checked="" type="radio"/> B C D				
2. <input checked="" type="radio"/> B C D	27. <input checked="" type="radio"/> B C D	52. A B C <input checked="" type="radio"/> D	77. A B C D DELETE				
3. A <input checked="" type="radio"/> B C D	28. <input checked="" type="radio"/> B C D	53. A B C <input checked="" type="radio"/> D	78. A <input checked="" type="radio"/> B C D				
4. <input checked="" type="radio"/> B C D	29. A B C <input checked="" type="radio"/> D	54. A B C <input checked="" type="radio"/> D	79. A <input checked="" type="radio"/> B C D				
5. A B <input checked="" type="radio"/> C D	30. A B C <input checked="" type="radio"/> D	55. A B C <input checked="" type="radio"/> D	80. A B <input checked="" type="radio"/> C D				
6. <input checked="" type="radio"/> B C D	31. A <input checked="" type="radio"/> B C D	56. <input checked="" type="radio"/> B C D	81. A B C <input checked="" type="radio"/> D				
7. A B C <input checked="" type="radio"/> D	32. A B <input checked="" type="radio"/> C D	57. <input checked="" type="radio"/> B C D	82. A <input checked="" type="radio"/> B C D				
8. <input checked="" type="radio"/> B C D	33. A <input checked="" type="radio"/> B C D	58. <input checked="" type="radio"/> B C D	83. <input checked="" type="radio"/> B C D				
9. A B <input checked="" type="radio"/> C D	34. <input checked="" type="radio"/> B C D	59. <input checked="" type="radio"/> B C D	84. A B C <input checked="" type="radio"/> D				
10. A <input checked="" type="radio"/> B C D	35. A B C <input checked="" type="radio"/> D	60. A B C <input checked="" type="radio"/> D	85. A <input checked="" type="radio"/> B C D				
11. <input checked="" type="radio"/> B C D	36. A <input checked="" type="radio"/> B C D	61. A B C <input checked="" type="radio"/> D	86. A B <input checked="" type="radio"/> C D				
12. A B C <input checked="" type="radio"/> D	37. A B <input checked="" type="radio"/> C D	62. A B <input checked="" type="radio"/> C D	87. A B <input checked="" type="radio"/> C D				
13. A <input checked="" type="radio"/> B C D	38. A B C <input checked="" type="radio"/> D	63. <input checked="" type="radio"/> B C D	88. A B C <input checked="" type="radio"/> D				
14. A B <input checked="" type="radio"/> C D	39. <input checked="" type="radio"/> B C D	64. A <input checked="" type="radio"/> B C D	89. <input checked="" type="radio"/> B C D				
15. <input checked="" type="radio"/> B C D	40. A B <input checked="" type="radio"/> C D	65. A <input checked="" type="radio"/> B C D	90. A B <input checked="" type="radio"/> C D				
16. A B C <input checked="" type="radio"/> D	41. <input checked="" type="radio"/> B C D	66. A <input checked="" type="radio"/> B C D	91. A B C <input checked="" type="radio"/> D				
17. A <input checked="" type="radio"/> B C D	42. A B C <input checked="" type="radio"/> D	67. <input checked="" type="radio"/> B C D	92. A B <input checked="" type="radio"/> C D				
18. A B C <input checked="" type="radio"/> D	43. A B <input checked="" type="radio"/> C D	68. A <input checked="" type="radio"/> B C D	93. A B <input checked="" type="radio"/> C D				
19. A B C <input checked="" type="radio"/> D	44. A <input checked="" type="radio"/> B C D	69. A B <input checked="" type="radio"/> C D	94. A B C <input checked="" type="radio"/> D				
20. A <input checked="" type="radio"/> B C D	45. A <input checked="" type="radio"/> B C D	70. A <input checked="" type="radio"/> B C D	95. <input checked="" type="radio"/> B C D				
21. A B <input checked="" type="radio"/> C D	46. <input checked="" type="radio"/> B C D	71. A B <input checked="" type="radio"/> C D	96. A <input checked="" type="radio"/> B C D				
22. A <input checked="" type="radio"/> B C D	47. <input checked="" type="radio"/> B C D	72. A B C <input checked="" type="radio"/> D	97. A B <input checked="" type="radio"/> C D				
23. A B <input checked="" type="radio"/> C D	48. A B <input checked="" type="radio"/> C D	73. A B <input checked="" type="radio"/> C D	98. <input checked="" type="radio"/> B C D				
24. <input checked="" type="radio"/> B C D	49. A B C <input checked="" type="radio"/> D	74. A B <input checked="" type="radio"/> C D	99. A B C <input checked="" type="radio"/> D				
25. A B <input checked="" type="radio"/> C D	50. A B <input checked="" type="radio"/> C D	75. A <input checked="" type="radio"/> B C D	100. A B C <input checked="" type="radio"/> D				

SRO Key