

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

Name:

Date: October 21, 2014

Facility/Unit: FARLEY Unit 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 _____ / _____ / _____ Points

Applicant's Scores _____ / _____ / _____ Points

Applicant's Grade _____ / _____ / _____ Percent

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

- Rods are in manual.
- Control Bank D is at 225 steps.
- Median Tavg is 568.5°F.
- Tref is 571.0°F.

Subsequently, the operator places the ROD CONTROL BANK SELECTOR SWITCH in AUTO.

Which one of the following completes the statement below?

Rod Speed will indicate (1) and Control Bank D will (2) .

(1)

(2)

- | | |
|------------------------|---------------------|
| A. 40 steps per minute | remain at 225 steps |
| B. 40 steps per minute | begin to move out |
| C. 8 steps per minute | remain at 225 steps |
| D. 8 steps per minute | begin to move out |

2. The following conditions exist on Unit 1:

At 1000:

- Rod control is in AUTO.
- TI-408A, Tavg - Tref deviation, indicates 0°F and stable.
- Pressurizer level is stable.
- Reactor Power is approximately 75% and stable.
- Control Bank D step counters are at 144 steps.

At 1002:

- TI-408A, Tavg - Tref deviation, indicates +2°F and rising.
- Pressurizer level is slowly rising.
- Pressurizer spray valves have throttled open.
- Reactor Power is approximately 76% and slowly rising.
- Control Bank D step counters are at 150 steps and stepping out.
- There is no load change in progress.

Which one of the following completes the statement below?

The event in progress is an (1) and the action required is to (2) .

- A. 1) uncontrolled continuous Control Rod withdrawal
2) trip the reactor and enter EEP-0.0, Reactor Trip or Safety Injection
- B. 1) uncontrolled continuous Control Rod withdrawal
2) place the rod control mode selector switch to MANUAL and verify that rod motion stops
- C. 1) inadvertent RCS boration
2) trip the reactor and enter EEP-0, Reactor Trip or Safety Injection
- D. 1) inadvertent RCS boration
2) place the rod control mode selector switch to MANUAL and match Tavg with Tref by inserting rods

3. Unit 1 is at 45% power with the following conditions:

- DC2, RCP #1 SEAL LKOF FLOW HI, is in alarm.
- 1C RCP #1 seal leakoff flow is 6.5 gpm.
- There are NO other annunciators associated with the RCP seals in alarm.
- TE0126, RCP C SEAL WATER OUTLET TEMP, is 150°F and stable.
- TE0125, RCP C LOWER SEAL WATER BRG TEMP, is 155°F and stable.

Which one of the following describes actions required in accordance with AOP-4.1, Abnormal Reactor Coolant Pump Seal Leakage?

- A. Immediately trip the Reactor, secure 1C RCP and close the seal leakoff valve.
- B. Perform a controlled shutdown then secure 1C RCP and close the seal leakoff valve.
- C. Indefinite power operation is allowed, maintain 6-13 gpm seal injection flow.
- D. Continue power operation for a maximum of 24 hours, maintain >9 gpm seal injection flow.

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

- PK-145, LP LTDN PRESS, demand is failing to 0% in automatic.

Which one of the following completes the statements below?

Letdown flow will (1) .

The operator is required to take action to adjust letdown flow, not to exceed a MAXIMUM of (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | increase | 135 gpm |
| B. | increase | 125 gpm |
| C. | decrease | 135 gpm |
| D. | decrease | 125 gpm |

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

- An Auto makeup has just started.
- FK-113, BORIC ACID MKUP FLOW, is set to 5.0.
- FK-168, PRI WTR MKUP FLOW, is set to 7.5.
- MKUP MODE SELECTOR switch is in AUTO.
- MKUP MODE CONT switch RED light is LIT.

Which one of the following completes the statement below?

FCV114A, MKUP TO VCT, will _____ .

- A. open fully
- B. remain closed
- C. modulate open based on FK-113 pot setting
- D. modulate open based on FK-168 pot setting

6. Unit 1 is in Mode 4 preparing for a Refueling Outage with the following conditions:

- An RCS cooldown is in progress.
- The 'A' and 'B' RHR Loop suction valves have been opened.
- RCS temp is 250°F.

Per SOP-7.0, Residual Heat Removal System, which one of the following completes the statements below?

The reason (1) train(s) of RHR is(are) in service cooling down the RCS is to (2).

A. (1) ONE

(2) prevent RHR operability concerns

B. (1) ONE

(2) prevent excessive RCS cooldown

C. (1) TWO

(2) prevent excessive heatup of one train of CCW

D. (1) TWO

(2) ensure low temperature overpressure protection (LTOP) requirements are met

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

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

Subsequently, an LOSP with a concurrent Safety Injection occurs and the following conditions exist:

- 22 seconds after the actuation, EB1, CHG PUMP OVERLOAD TRIP, comes into alarm.
- The AMBER light on the handswitch for the 1C Charging pump is illuminated.

Which one of the following completes the statement below?

1B Charging pump _____.

- A. must be manually started
- B. will start from the ESS sequencer
- C. will remain running throughout the event per design
- D. will start due to 1C Charging Pump tripping on overload

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

The PRT is maintained with a (1) cover gas.

The PRT rupture disc is designed to rupture at (2) psid.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | Hydrogen | 100 |
| B. | Nitrogen | 100 |
| C. | Hydrogen | 150 |
| D. | Nitrogen | 150 |

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

- The RX TRIP ACTUATION handswitch is placed in TRIP.

Which one of the following completes the statement below?

The Reactor Trip Breaker Shunt Trip devices receive power from (1) and (2) to open the Reactor Trip Breakers.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|-------------|
| A. | 120VAC | energize |
| B. | 125VDC | energize |
| C. | 120VAC | de-energize |
| D. | 125VDC | de-energize |

10. Per SOP-1.2, Reactor Coolant Pressure Relief System, which one of the following completes the statements below?

During normal operation, the PRT temperature should not exceed a maximum of (1).

The NORMAL method to cooldown the PRT is using (2).

- A. (1) 120°F
(2) spray from RMWST and drain to the RCDT
- B. (1) 170°F
(2) spray from RMWST and drain to the RCDT
- C. (1) 120°F
(2) recirculation through the RCDT heat exchanger
- D. (1) 170°F
(2) recirculation through the RCDT heat exchanger

11. Unit 1 is in Mode 3 and the following conditions exist:

- PI-455, PRZR PRESS, is 1400 psig.
- PI-472, PRT PRESS, is 30 psig.
- PCV-444B, PRZR PORV, failed open and cannot be closed.
- PCV-444B is NOT capable of being manually cycled.

Which one of the following completes the statements below?

The temperature indicated on TI-463, PORV, is approximately (1).

Per TS 3.4.11, Pressurizer Power Operated Relief Valves (PORVs), within one hour, close and (2) MOV-8000B, PRZR PORV ISO.

Reference Provided

	<u>(1)</u>	<u>(2)</u>
A.	535°F	remove power from
B.	280°F	remove power from
C.	535°F	maintain power to
D.	280°F	maintain power to

12. Unit 1 is operating at 100% when the following conditions occur:

- The "On Service" Train of CCW has been lost.

Which one of the following completes the statement below?

The RCP (1) radial bearing temperatures will rapidly rise and (2) is the **MINIMUM** bearing temperature, if exceeded, at which the RCPs must be secured.

	<u>(1)</u>	<u>(2)</u>
A.	pump	195°F
B.	motor	195°F
C.	pump	260°F
D.	motor	260°F

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

At 1000:

- PCV-444B, PRZR PORV, failed open and cannot be closed.
- The immediate operator actions of AOP-100, Instrumentation Malfunction, are complete.

At 1015:

- A rupture occurs on the 1A SG and EEP-3.0, Steam Generator Tube Rupture, is in progress with the following conditions:
 - The operating crew is at the step to reduce RCS pressure.
 - Normal Pressurizer Spray is NOT available.

Per EEP-3.0, which one of the following completes the statements below?

The required method of RCS pressure reduction is using (1) .

PCV-444B (2) be used for the RCS pressure reduction.

	<u>(1)</u>	<u>(2)</u>
A. Auxiliary Spray		CAN
B. one Pressurizer PORV		CAN
C. Auxiliary Spray		CANNOT
D. one Pressurizer PORV		CANNOT

14. Unit 1 is operating at 100% power when the following occurs:

- PT-445, PRZR PRESS, fails HIGH.

Which one of the following completes the statements below?

PCV-444D, 1B LOOP SPRAY VLV, (1) open due to the failure.

RCS Pressure will (2).

A. (1) WILL

(2) lower causing a Reactor Trip and Safety Injection.

B. (1) will NOT

(2) lower causing a Reactor Trip and Safety Injection.

C. (1) WILL

(2) cycle at approximately 2000 psig.

D. (1) will NOT

(2) cycle at approximately 2000 psig.

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

- NI-42, POWER RANGE, has failed HIGH.
- AOP-100, Instrumentation Malfunction, is in progress.
- At the step to remove the control power fuses for NI-42, the UO inadvertently removes the control power fuses for NI-36, INTERMEDIATE RANGE.

Which one of the following completes the statements below?

The operating crew is required to (1).

The Source Range Nuclear Instruments (2) **immediately** energize.

Procedure name: EEP-0.0, Reactor Trip or Safety Injection

	<u>(1)</u>	<u>(2)</u>
A.	enter EEP-0.0	will NOT
B.	enter EEP-0.0	WILL
C.	continue in AOP-100	will NOT
D.	continue in AOP-100	WILL

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

- The 1A Auxiliary Building DC Bus de-energizes.
- An dual Unit LOSP occurs.
- An SI occurs on Unit 1 concurrently with the LOSP.

Which one of the following completes the statements below?

The 1-2A DG (1) start.

The B1F Sequencer (2) automatically sequence loads on.

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

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

At 1000:

- A Loss of all Offsite Power occurs.

At 1020:

- The following conditions exist:
 - RCS pressure is 2235 psig and steady.
 - RCS Loop THOT in all 3 loops is 595°F and decreasing slowly.
 - RCS Loop TCOLD in all 3 loops is 551°F and steady.
 - Core exit TCs indicate approximately 600°F and decreasing slowly.
 - Steam Generator pressures are approximately 1038 psig and steady.

Which one of the following completes the statement below?

At 1020, Natural Circulation (1) exist.

Per ESP-0.1, Reactor Trip Response, the (2) would be used to dump steam.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------------------------|
| A. | does NOT | Steam Dumps |
| B. | DOES | Steam Dumps |
| C. | does NOT | SG Atmospheric Relief Valves |
| D. | DOES | SG Atmospheric Relief Valves |

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

NI-32, SOURCE RANGE, is powered from (1) 120VAC Vital Panel.

NI-44, POWER RANGE, is powered from (2) 120VAC Vital Panel.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | 1A | 1D |
| B. | 1A | 1C |
| C. | 1B | 1D |
| D. | 1B | 1C |

19. Given the following plant conditions on Unit 2:

- The crew is performing ESP-0.1, Reactor Trip Response.
- Natural circulation verification is in progress.
- The Subcooled Margin Monitor is in CETC mode.
- All Core Exit Thermocouples are reading 600°F.
- Two upperhead Core Exit Thermocouples have failed due to **open** circuits.

Which one of the following completes the statement below?

The failed Core Exit Thermocouples' output will be failed (1) and the Subcooled Margin Monitor calculation (2) be **accurate**.

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

20. Unit 1 was operating at 100% power with the following conditions:

- 1A is selected on the CTMT CLR FAN SEL SWITCH.
- All containment cooler fans are running in FAST speed.

Subsequently, a Large Break LOCA occurred with the following conditions:

- Containment pressure reached 33 psig.
- A Dual Unit LOSP occurred.
- The 1B DG tripped when it auto started.
- BA1, 1A CTMT CLR FAN FAULT, is in alarm.
- The AMBER light above 1A CTMT CLR FAN SLOW SPEED handswitch is illuminated.
- EEP-0.0, Reactor Trip or Safety Injection, is in progress.

Which one of the following completes the statements below?

Per EEP-0.0, the operating crew will verify at least one Containment Cooler fan per train is running in (1) speed.

The 1B Containment Cooler SLOW speed fan (2) start when the 1A Containment Cooler SLOW speed fan trips.

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

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

At 1000:

- 1A RHR pump is tagged out.
- All SG Wide Range levels are 84%.
- Pzr level is being maintained at 21% on LI-462, PRZR LVL.
- RCS temperature is 195°F.
- RCS pressure is 325 psig.
- All RCPs are secured.
- 1B RHR pump is running in the cooldown lineup.

At 1005:

- PT-402, 1C LOOP RCS PRESS, fails HIGH.

Which one of the following completes the statements below?

At 1005, RHR cooling (1) been lost.

Per AOP-12.0, RHR Malfunction, a loss of RHR cooling would require (2) to be established for core cooling.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---------------------|
| A. | HAS | feed and bleed |
| B. | HAS | secondary heat sink |
| C. | has NOT | feed and bleed |
| D. | has NOT | secondary heat sink |

22. A LOCA has occurred on Unit 1 and the following conditions exist:

At 1000,

- 'B' Train Phase B failed to actuate and **cannot** be manually actuated.
- 1A Containment Spray flow is 600 gpm.
- Containment Pressure is 32 psig and slowly lowering.

At 1005, The Unit Operator manually starts the 1B Containment Spray pump.

Which one of the following completes the statements below?

At 1000, FRP-Z.1, Response to High Containment Pressure, entry conditions (1) met.

At 1005, MOV-8820B, 1B CS PUMP TO SPRAY HDR ISO, (2) automatically open.

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

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

- AOP-9.0, Loss of Component Cooling Water, is in progress due to a CCW malfunction.
- The standby CCW pump has been started.
- HV-3045, CCW FROM RCP THRM BARR, went closed during the transient.
- Seal injection flow to each RCP is:
 - A RCP 6.3 gpm
 - B RCP 6.5 gpm
 - C RCP 7.1 gpm

Which one of the following completes the statements below?

HV-3045 will close when downstream flow reaches (1) .

Per AOP-9.0, seal injection flow (2) adequate to allow continued RCP operation.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | 160 gpm | is NOT |
| B. | 75 gpm | is NOT |
| C. | 160 gpm | IS |
| D. | 75 gpm | IS |

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

A Train CS Pump, A Train HHSI Pump, and the A Train RHR Pump have (1) suction header(s) penetrating the RWST.

The Containment Spray (CS) Pump Room Coolers are DIRECTLY started (2).

- A. (1) three separate
(2) by a CS actuation signal
- B. (1) one common
(2) by a CS actuation signal
- C. (1) three separate
(2) when the CS pump breaker closes
- D. (1) one common
(2) when the CS pump breaker closes

25. Unit 2 is at 100% power, and PT-444, PRZR PRESS, is stuck at **2230 psig**.

Which one of the following describes the effects on PK-444A, PRZR PRESS REFERENCE, and the pressurizer liquid density due to this malfunction?

PK-444A controller demand goes (1) ,

and

the density of the Pressurizer liquid initially goes (2) .

- | | <u> (1) </u> | <u> (2) </u> |
|----|----------------|----------------|
| A. | down | up |
| B. | down | down |
| C. | up | up |
| D. | up | down |

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

To enhance the retention of Iodine in solution, the Containment Spray System sprays water from the (1) at a pH of approximately (2) .

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

27. Unit 1 is in Mode 4 and the following condition exists:

- Containment Mini-Purge is in service.
- R-24A and R-24B, CONTAINMENT PURGE, are rising but **NOT** at the alarm setpoint.
- The OATC manually actuates a Phase A Containment Isolation.

Which one of the following completes the statements below?

Radiation levels (1) stop rising in the Main Exhaust Plenum.

The Mini-Purge Supply and Exhaust fans (2) stop automatically.

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

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

- The 1B SG becomes faulted inside Containment.

Which one of the following describes the actions required by EEP-2.0, Faulted Steam Generator Isolation, to isolate the 1B SG?

The minimum action for Main Steam line isolation is to (1) .

The actions for isolation of AFW flow to the 1B SG is to (2) .

Valve nomenclature:

MOV-3764B & D, MDAFW TO 1B SG ISO

Q1N23V017B, TDAFWP TO 1B SG FCV INLET ISO

HV-3227B, MDAFWP TO 1B SG FLOW CONT

HV-3228B, TDAFWP TO 1B SG FLOW CONT

- A. 1) close ONLY the MSIVs for the 1B steam line
2) close MOV-3764B & D on the BOP **and** locally close Q1N23V017B
- B. 1) close ONLY the MSIVs for the 1B steam line
2) close HV-3227B and HV-3228B on the MCB **and** fail air locally
- C. 1) close all MSIVs
2) close MOV-3764B & D on the BOP **and** locally close Q1N23V017B
- D. 1) close all MSIVs
2) close HV-3227B and HV-3228B on the MCB **and** fail air locally

29. Given the following conditions on Unit 1:

At 1000:

- Mode 6 with core off-load in progress.
- Refueling Cavity level is 153 ft 6 in.

At 1015:

- The Refueling Cavity level is lowering rapidly.

At 1030:

- The leak has been isolated.
- Refueling Cavity level is **stable** at 143 ft.

Which one of the following completes the statements below?

At 1015, AOP-30, Refueling Accident, (1) required to be entered.

At 1030, TS 3.9.6, Refueling Cavity Water Level, (2) required to be entered.

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

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

- R-15A, SJAE EXH, is in alarm and the indication is stable.
- AOP-2.0, Steam Generator Tube Leakage, is in progress.

Which one of the following completes the statement below?

The SJAE Filtration system (1) automatically align for operation.

Once SJAE Filtration is in service, the R-15A reading will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|-----------------|
| A. | WILL | lower |
| B. | WILL | remain the same |
| C. | will NOT | lower |
| D. | will NOT | remain the same |

31. The following conditions exist on Unit 1:

- Operators are performing EEP-3.0, Steam Generator Tube Rupture.
- All RCPs have been secured.
- Operators have determined the required CETC temperature and started the RCS cooldown.

Subsequently, the following conditions exist:

- The required CETC temperature has **NOT** been reached.
- An Orange Path is indicated on the INTEGRITY CSF for the **ruptured** loop.

Per EEP-3.0, which one of the following describes the required actions?

The overall mitigating strategy is to (1) .

- A. continue the RCS cooldown at the current rate and remain in EEP-3.0
- B. reduce the RCS cooldown rate and remain in EEP-3.0
- C. reduce the RCS cooldown rate and apply the INTEGRITY CSF strategy
- D. stop the RCS cooldown and apply the INTEGRITY CSF strategy

32. Unit 1 was at 26% power and 240 MWe, and the following conditions occurred:

- The Reactor tripped.
- The "A" Reactor Trip Breaker failed to open.

Which one of the following completes the statements below?

The Steam Dumps are armed due to the (1).

RCS temperature will be controlled at (2).

	<u>(1)</u>	<u>(2)</u>
A.	P-4 signal	547°F
B.	P-4 signal	551°F
C.	C-7 signal	547°F
D.	C-7 signal	551°F

33. Unit 1 is cooling down with the following conditions:

- RCS Tcold is 480°F and stable.
- RCS pressure is 995 psig and stable.

The plan is to stabilize at this point for data collection. Steam dumps are in steam pressure mode and are ready to be placed in automatic to maintain the current RCS temperature.

Which one of the following completes the statement below?

PK-464, STM HEADER PRESS, SETPT will be set at (1).

Reference Provided

- A. 4.60
- B. 4.75
- C. 8.30
- D. 8.40

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

At 1000:

- A Load Rejection occurs.

At 1005:

- The following conditions exist:
 - Reactor Power is 70%.
 - Turbine Power is 550 MWe.
 - FE1, CONT ROD BANK POSITION LO, is in alarm.
 - Tavg is 564°F and stable.
 - Tref is 561°F and stable.

Which one of the following completes the statements below?

Per AOP-17.0, Turbine Load Rejection, the immediate operator actions require the Main Turbine to be (1).

At 1005, the operating crew is required to (2).

- A. (1) placed in MANUAL
(2) raise turbine load to match Reactor power
- B. (1) left in OPERATOR AUTO
(2) raise turbine load to match Reactor power
- C. (1) placed in MANUAL
(2) borate as necessary to withdraw rods
- D. (1) left in OPERATOR AUTO
(2) borate as necessary to withdraw rods

35. Unit 1 is operating at 40% power when the following occurs:

- Condenser pressure rapidly rises to 12 psia.

Subsequently, Tavg is being maintained at 551°F.

Which one of the following completes the statements below?

The Steam Dump (1) controller is enabled.

The Steam Dumps are (2) .

- | <u>(1)</u> | <u>(2)</u> |
|-----------------|------------|
| A. Plant Trip | CLOSED |
| B. Plant Trip | OPEN |
| C. Loss of Load | CLOSED |
| D. Loss of Load | OPEN |

36. Unit 2 is operating at 55% power when a transient in the Main Feedwater System results in the following:

- 2A SGFP high and low pressure stop valves indicate CLOSED.
- 2B SGFP is running at minimum speed.
- 2A SG level: 34% and lowering.
- 2B SG level: 27% and lowering.
- 2C SG level: 34% and lowering.

Which one of the following completes the statements below?

The MDAFW pumps (1) received an auto start signal.

The TDAFW pump will auto start when (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|----------------------------|
| A. | HAVE | 2B SGFP is TRIPPED |
| B. | have NOT | 2A SG NR level reaches 28% |
| C. | have NOT | 2B SGFP is TRIPPED |
| D. | HAVE | 2A SG NR level reaches 28% |

37. A station blackout has occurred on Unit 1 and ECP-0.0, Loss of All AC Power, has been implemented.

Which one of the following completes the statements below?

HV-3611, INST AIR SUPPLY TO CTMT, (1) CLOSE when Instrument Air pressure is lost.

The Pressurizer PORVs (2) have an available backup means to be operated.

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

38. Unit 1 was operating at 80% power when the following occurred:

- A malfunction of the SJAE's causes Condenser pressure to rise rapidly.

Which one of the following is the LOWEST pressure that will cause an **automatic** trip of the Main Turbine?

- A. 2.901 psia
- B. 3.800 psia
- C. 4.351 psia
- D. 5.900 psia

39. The following conditions exist on Unit 1:

- Unit 1 is in Mode 6.
- 'A' Train is on service.
- Fuel movement inside Containment is in progress.
- 1B DG is tagged out.
- 2C DG is tagged out.

Subsequently, the 1F 4160V bus loses power and remains de-energized.

Which one of the following completes the statements below?

Fuel movement inside Containment (1) allowed to continue per TS 3.8.2 AC Sources - Shutdown.

Per AOP-5.0, Loss of A or B Train Electrical Power, SFP Cooling is required to be restored using the (2) SFP Cooling pump.

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

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

- The Reactor Trip breakers are open.
- NI-32, SOURCE RANGE, is tagged out for power supply replacement.

Subsequently, the 1A 120V AC Vital Panel becomes de-energized.

Which one of the following completes the statement below?

Backup Source Range indication (1) available on the MCB from Gamma-Metrics.

The Reactor Make-up system (2) be affected by the malfunction of the 1A 120V Vital Panel.

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

41. The following conditions exist on Unit 1:

- 'A' Train Aux Building DC has been lost.
- AOP-29.1, Plant Stabilization in Hot Standby and Cooldown Without "A" Train AC or DC Power, is in progress.
- RCS temperature must be lowered.

Which one of the following completes the statements below?

Steam Dumps (1) be used for RCS temperature control.

If required, Atmospheric Relief valves (2) be operated from the Hot Shutdown Panel.

	<u> (1) </u>	<u> (2) </u>
A.	CAN	CANNOT
B.	CAN	CAN
C.	CANNOT	CANNOT
D.	CANNOT	CAN

42. Unit 1 is at 45% power with the following conditions:

- 1A SGFP is the only SGFP running.
- FT-477 is selected on FS/478Y, A SG FW FLOW SEL SW.

Subsequently, FT-477, 1A SG FW FLOW, fails **low**.

Which one of the following completes the statement below?

Controller demand on FK-478, 1A SG FW FLOW, will **initially** (1) .

Controller demand on SK-509A, SGFP MASTER CONT, will **initially** (2) .

	<u>(1)</u>	<u>(2)</u>
A.	rise	lower
B.	rise	rise
C.	lower	lower
D.	lower	rise

43. Unit 1 is at 100% power when the following occurs:

- 1B SGFP trips.
- AOP-13.0, Condensate and Feedwater Malfunction, immediate operator actions are complete.

Which one of the following describes the **overall** Steam Generator pressure response during the transient and the reason for the pressure change?

SG pressures ____ .

- A. rise due to the Main Turbine ramp down
- B. rise due to swell in the Steam Generators
- C. lower due to the Main Turbine ramp down
- D. lower due to shrink in the Steam Generators

44. The following conditions exist on Unit 1:

- EEP-1.0, Loss of Reactor or Secondary Coolant, is in progress.
- Make up to the CST is not available and the level is lowering.

Which one of the following completes the statements below?

The FIRST level at which AFW pump suction is required to be aligned to their backup source of water is (1).

The backup source of water to the AFW pump suction is (2).

	<u>(1)</u>	<u>(2)</u>
A.	5.3 ft	Service Water
B.	4.5 ft	Service Water
C.	5.3 ft	Fire Protection Water
D.	4.5 ft	Fire Protection Water

45. Unit 1 was operating at 30% power with **only** the 1A SGFP running when the following occurred.

- The 1A SGFP tripped.

Subsequently, BKR DG15, 1B S/U XFMR TO 1G 4160 V BUS, trips followed by a spurious Safety Injection.

- All SG NR levels are 50% and slowly rising.

Which one of the following completes the statement below, per SOP-22.0, Auxiliary Feedwater?

To stop the 1B MDAFW pump, in addition to placing the MCB switch to STOP, _____ is(are) required.

- A. no other actions
- B. resetting the SI
- C. placing the 1B MDAFWP AUTO/DEFEAT switch in DEFEAT
- D. locally cycling the control power breaker for the 1B MDAFW pump breaker

46. Given the following conditions on Unit 1:

- The 1A inverter is being **manually** transferred to the alternate source for maintenance in accordance with SOP-36.4, 120V AC Distribution Systems.

Which one of the following completes the statement below?

The MANUAL BYPASS switch (1) placed in the BYPASS SOURCE TO LOAD position and the inverter amperage output indication on the EPB (2) be available .

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

47. Unit 1 is operating at 100% reactor power when the following occurs:

- One of the Service Water to Turbine Building isolations has gone closed due to the malfunction of its associated D/P switch.
- AF5, SW TO TURB BLDG A OR B TRN FLOW HI, is in alarm.
- PI3001A, SW TO CCW HX HDR PRESS, is 91 psig.
- PI3001B, SW TO CCW HX HDR PRESS, is 109 psig.

Which one of the following completes the statements below?

(1) , has gone closed.

If the hand switch for the closed MOV is placed in the OPEN position by the operator, the valve will (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------------------------------|------------------|
| A. | MOV-517, SW TO TURB BLDG ISO B TRN | remain closed |
| B. | MOV-517, SW TO TURB BLDG ISO B TRN | open and reclose |
| C. | MOV-515, SW TO TURB BLDG ISO A TRN | remain closed |
| D. | MOV-515, SW TO TURB BLDG ISO A TRN | open and reclose |

48. The following indications and alarms are received:

- The UNIT 1 AUX BLDG DC BUS - A TRN GROUND DET white light comes ON momentarily and then goes OFF.
- WC3, 1A 125V DC BUS BATT BKR 72-LA05 TRIPPED, is **in alarm**.
- WC2, 1A 125V DC BUS UV OR GND, **alarms and clears**.

Which ONE of the following describes the status of the indications on the EPB for the 1A DC BUS and the 1A and 1B Inverters?

1A DC BUS VOLTAGE reads approximately (1).

1A and 1B INVERTER AMPERES are reading approximately (2).

- A. (1) 0 DC VOLTS
(2) 25 amps
- B. (1) 0 DC VOLTS
(2) 0 amps
- C. (1) 125 DC VOLTS
(2) 0 amps
- D. (1) 125 DC VOLTS
(2) 25 amps

49. ECP-0.0, Loss of All AC Power, is in progress and the Shift Supervisor dispatches operators to minimize DC loads per Attachment 4.

Which one of the following completes the statement below?

One of the loads that will be de-energized by the operators is the (1).

Minimizing DC loads per Attachment 4 will extend the availability of the (2).

(1)

(2)

- | | | |
|----|----------------------|-----------------|
| A. | Waste Gas Panel | MCB Indications |
| B. | Waste Gas Panel | TDAFWP |
| C. | SPDS Computer System | MCB Indications |
| D. | SPDS Computer System | TDAFWP |

50. The 1-2A DG was in Mode 1 when a Unit 1 LOSP occurred. The 1-2A DG started and and tied to its respective Emergency Bus.

Subsequently, WA1, 1-2A DG ENGINE S/D, was received on the EPB and the System Operator was dispatched to the local alarm panel.

Which one of the following alarm windows at the LOCAL alarm panel indicates the condition that was the cause of the shutdown?

- A. HIGH CRANKCASE PRESSURE
- B. GENERATOR BEARINGS TEMP HIGH
- C. LUBE OIL PRESSURE LOW
- D. JACKET COOLANT TEMP HIGH

51. A complete loss of instrument air has occurred on Unit 1, and the following conditions exist:

- AOP-6.0, Loss of Instrument Air is in progress.
- The Reactor was tripped.
- The TDAFW pump auto started.
- BOTH MDAFW pumps failed to start and **cannot** be started.
- SG NR Levels are:
 - 1A SG is 27% and slowly rising.
 - 1B SG is 29% and slowly rising.
 - 1C SG is 30% and slowly rising.

Which one of the following completes the statements below?

Alignment of the Emergency Air Compressors to the TDAFW components is required within a MAXIMUM of (1) in order to (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|----------------------------|
| A. | 1 hour | ensure adequate heat sink |
| B. | 2 hours | ensure adequate heat sink |
| C. | 1 hour | prevent excessive cooldown |
| D. | 2 hours | prevent excessive cooldown |

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

- A Control Room evacuation has been initiated per AOP-28.0, Control Room Inaccessibility.

Which one of the following completes the statements below?

In accordance with AOP-28.0, a Reactor trip is initiated (1) .

Expediently taking local control of Charging flow at the Hot Shutdown Panels is required because (2) .

- A. 1) from the Control Room prior to evacuation
2) letdown will not automatically isolate and Pressurizer pressure control will be degraded due to a loss of Pressurizer level
- B. 1) from the Control Room prior to evacuation
2) an automatic isolation of Letdown will complicate Pressurizer level control
- C. 1) locally at the Reactor Trip Switchgear after the Control Room evacuation
2) letdown will not automatically isolate and Pressurizer pressure control will be degraded due to a loss of Pressurizer level
- D. 1) locally at the Reactor Trip Switchgear after the Control Room evacuation
2) an automatic isolation of Letdown will complicate Pressurizer level control

53. Unit 2 is at 100% power with the following conditions:

- A #1 Waste Monitor Tank (WMT) release is in progress with the #1 WMT pump running.
- RCV-18, WMT DISCH TO ENVIRONMENT, is open.

Subsequently R-18, LIQ WASTE DISCH, alarms HIGH.

Which one of the following completes the statements below?

RCV-18 will (1) .

The #1 WMT pump will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|-------------|-----------------|
| A. | remain open | trip |
| B. | remain open | continue to run |
| C. | close | trip |
| D. | close | continue to run |

54. R-14, PLANT VENT, is in HIGH alarm on Unit 1.

Which one of the following actions will occur as a result of the high alarm on R-14?

- A. If in progress, the Waste Gas release will isolate.
- B. RADWASTE Exhaust fans will trip.
- C. Auxiliary Building Main Exhaust fans will trip.
- D. The Control Room Emergency Filtration/Pressurization system will auto start.

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

Q1P16V516, SW TO TURB BLDG ISO A TRN, 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 | B Train |
| C. | MCC 1N | B Train |
| D. | MCC 1T | A Train |

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

- WE2, 1F, 4KV BUS OV-OR-UV OR LOSS OF DC, is in alarm.
- AOP-5.2, Degraded Grid, has just been entered.
- Voltage on all emergency busses for both units are reading 3825 volts.
- MVARs are reading (+) 550 on the MCB.
- The Generator Capability Curve has been exceeded.
- The Shift Supervisor has directed to maintain (+) 400 MVARs.

Which one of the following completes the statements below?

The operator will (1) Voltage, to reach (+) 400 MVARs.

After adjusting voltage, current to large motors, such as the RCP or CW pump motors, will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | LOWER | LOWER |
| B. | LOWER | RISE |
| C. | RAISE | LOWER |
| D. | RAISE | RISE |

57. MOV-514, 515, 516 AND 517, SW to TURB BLDG ISOs have inadvertently closed.

Which one of the following completes the statements below?

The Instrument Air Compressors (1) have cooling supplied.

A back up source of cooling to the Condensate pumps (2) be aligned.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | DO | CAN |
| B. | DO | CANNOT |
| C. | do NOT | CAN |
| D. | do NOT | CANNOT |

58. A Large Break LOCA has occurred on Unit 2, and the following conditions exist:

- Containment pressure has risen to 18 psig and is stable.

Which one of the following completes the statements below?

R-11, CTMT PARTICULATE and R-12, CTMT GAS, (1) **isolated**.

HV-3184, CCW FROM RCP THRM BARR, (2) **closed**.

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

59. The OATC discovers that additional information is required to be inserted into the narrative of an archived log.

Per FNP-0-SOP-0.11, Watch Station Tours and Operator Logs, which one of the following completes the statements below?

The entry (1) required to be designated as a LATE ENTRY.

The entry (2) have to be recorded by the person that was responsible for the original log entry.

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

60. Both Units are operating at 100% power with the following conditions:

- A non-licensed Fire Protection Administrator who is qualified as a Shift Communicator is on shift.

Which one of the following completes the statements below?

Per EIP-0.0, Emergency Organization, a **minimum** of (1) licensed Plant Operators are required to staff the current shift.

The **maximum** number of hours that a Plant Operator may work in any 24 hour period is (2) per NMP-AD-016-003, Scheduling and Calculating Work Hours.

	<u>(1)</u>	<u>(2)</u>
A.	3	18
B.	3	16
C.	4	18
D.	4	16

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

RCS leakage is:

- Total Leakage is 7.06 gpm
- Leakage to the RCDT 4.01 gpm
- Leakage to PRT 0.00 gpm

Primary-to-Secondary leakage is:

- A Steam Generator 75.0 gpd
- B Steam Generator 80.0 gpd
- C Steam Generator 0.0 gpd

Per TS 3.4.13, RCS Operational LEAKAGE, which one of the following completes the statements below?

The Primary to Secondary Leakage LCO limit (1) been exceeded.

The Unidentified Leakage LCO limit (2) been exceeded.

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

62. Unit 1 is at approximately 30% power with the following conditions:

- The TSLB3 Bistable status is as follows:
 - 4-1, PR P8 NC-41N, Bistable light is LIT.
 - 4-2, PR P8 NC-42N, Bistable light is LIT.
 - 4-3, PR P8 NC-43N, Bistable light is DARK.
 - 4-4, PR P8 NC-44N, Bistable light is DARK.
- The Low Power Low Flow Trip Block P-8 light on the Bypass and Permissive Panel is DARK.

Which one of the following completes the statement below?

If 1A Reactor Coolant Pump trips, EEP-0.0, Reactor Trip or Safety Injection, entry (1) required.

If Reactor power is reduced to 25%, the Low Power Low Flow Trip Block P-8 light on the Bypass and Permissive Panel will be (2) .

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

63. The following conditions exist on Unit 2:

- The plant was operating at 100% power.
- A Steam Generator Tube Rupture has occurred in the 2B SG.
- The crew is performing the actions in EEP-3.0, Steam Generator Tube Rupture, to isolate the 2B SG.

Which one of the following describes the actions required to minimize radiation releases in accordance with EEP-3.0?

- A. Place the 2B SG Atmospheric Relief Valve in MANUAL and maintain closed.
- B. Verify the 2B SG Atmospheric Relief Valve in AUTO with controller setpoint at 8.25 (1035 psig).
- C. Verify the 2B SG Atmospheric Relief Valve in AUTO with controller setpoint at 8.56 (1070 psig).
- D. Place the 2B SG Atmospheric Relief Valve in MANUAL and control pressure at 1035 psig.

64. Two Plant Operators are in the RCA.

Subsequently, they are required to enter a **High Radiation Area** to align filters for a Tagging Order.

Which one of the following completes the statements below?

The MINIMUM radiation level at which this posting is required is (1).

A briefing by Health Physics (2) required prior to entering the High Radiation Area.

- | <u>(1)</u> | <u>(2)</u> |
|-------------------|------------|
| A. > 100 mrem/hr | IS |
| B. > 100 mrem/hr | is NOT |
| C. > 1000 mrem/hr | IS |
| D. > 1000 mrem/hr | is NOT |

65. The Unit 1 Plant Operators have just informed the Shift Supervisor that the Victoreen airborne detector R-31, RADWASTE AREA VENTS EL 121', is in HIGH alarm.

The source of their information was from which one of the following?

- A. Westinghouse PERMS radiation monitoring system panels on MCB.
- B. Gaseous Waste processing panel annunciator reported by the RADSIDE SO.
- C. Victoreen process and effluent monitoring system panel on BOP.
- D. A report from the systems operator in the area of the rad monitor.

66. An ALERT has been declared on Unit 1.

Per NMP-AD-021, Control Room Access and Decorum, which one of the following personnel can grant permission to enter the AT THE CONTROLS AREA (red carpet area)?

- A. Shift Manager ONLY.
- B. Shift Supervisor ONLY.
- C. Unit Operator or Operator At The Controls ONLY.
- D. Shift Supervisor, Unit Operator or Operator at the Controls.

67. A Unit Operator discovers a ruptured pipe in a system that is creating a flooding condition in the 1A MDAFW pump room.

Subsequently, the Unit Operator also discovers a small fire in a trash can.

Per EIP-1.0, Duties of an Individual who Discovers an Emergency Condition, which one of the following completes the statements below?

The Unit Operator (1) **required** to use the System Operating Procedure to isolate the ruptured pipe using an upstream valve from a safe location.

The Unit Operator (2) allowed to extinguish the small fire using portable fire fighting equipment in the area.

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

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

At 1000:

- RCS Tcold is 100°F.
- Both trains of RHR are in service.
- RCS level is 129'7".

At 1010: the following events occur:

- NE2, 1B RHR PUMP RM SUMP LVL HI-HI OR TRBL, alarms.
- Both 1B RHR PUMP RM SUMP PUMPS are running.
- RCS level is 129'2" and slowly lowering.
- There are no indications of cavitation on either RHR pump.
- Both RHR pump discharge flowrates are 3000 gpm and stable.
- AOP-12.0, Residual Heat Removal Malfunction, is in progress.

Which one of the following completes the statements below?

Per AOP-12.0, (1) RHR pump(s) is(are) secured and flowpath(s) isolated.

V013A & B are located in (2) .

Nomenclature: Q1E11V013B (1-RHR-V-8720B), 1B RHR Hx to CVCS Letdown Iso
Q1E11V013A (1-RHR-V-8720A), 1A RHR Hx to CVCS Letdown Iso

(1)

(2)

- | | | |
|----|----------------|-----------------------------|
| A. | ONLY 1B | the RHR Heat Exchanger room |
| B. | ONLY 1B | their respective pump rooms |
| C. | BOTH 1A and 1B | the RHR Heat Exchanger room |
| D. | BOTH 1A and 1B | their respective pump rooms |

69. Given the following conditions on Unit 1:

- A LOCA has occurred.
- RCS pressure is 500 psig and stable.
- Containment pressure rose to 20 psig and is currently 14.1 psig and stable.
- The crew is performing actions of ESP-1.2, Post LOCA Cooldown and Depressurization.

Which one of the following describes the method that will be used to perform the cooldown of the RCS?

- A. SG atmospherics at less than 100°F in any 60 minute period.
- B. SG atmospherics at the maximum attainable rate.
- C. Steam dumps at less than 100°F in any 60 minute period.
- D. Steam dumps at the maximum attainable rate.

70. The following conditions exist on Unit 1:

- The Operating crew has just entered ECP-1.2, LOCA Outside Containment, from EEP-0.0, Reactor Trip or Safety Injection.

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

Seal Injection (1) one of the flowpaths that will be isolated to check for leakage.

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

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

71. 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 statements 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

72. FRP-C.2, Response to Degraded Core Cooling, has been entered on Unit 2. The operating crew is at the step to "Check RCP Status" and the following conditions exist:

- All RCPs are running.
- 2B RCP seal injection is 4 gpm and cannot be raised any higher.
- HH1 and HH3, RCP 2A and 2C BRG UPPER/LOWER OIL RES LO LVL, are in alarm.

Which one of the following completes the statement below?

Per FRP-C.2, the operating crew is required to _____.

- A. stop 2B RCP ONLY
- B. stop ALL RCPs
- C. stop 2A and 2C RCPs ONLY
- D. leave ALL RCPs running

73. An RCS soak is in progress per FRP-P.1, Response to Imminent Pressurized Thermal Shock Condition, with the following conditions:

At 1000:

- RCS Pressure is 950 psig and stable.
- RCS Cold Leg Temperature is 450°F and stable.
- Narrow Range SG water level is 50% and stable on all SGs.

At 1000, Per FRP-P.1, which one of the following completes the statements below?

Isolating Accumulators (1) permitted.

Increasing AFW flow to the SGs (2) permitted.

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

74. The following conditions exist on Unit 1:

- A LOCA has occurred.
- EEP-1.0, Loss of Reactor or Secondary Coolant, is in progress.
- The operating crew is at the step to "Verify cold leg recirculation capability - AVAILABLE".

Which one of the following completes the statements below?

MOV-3185A, CCW TO 1A RHR HX, **not** capable of being opened (1) result in the loss of 'A' Train Cold Leg recirculation capability.

MOV-8706B, 1B RHR HX TO CHG PUMP SUCT, **not** capable of being opened (2) result in the loss of 'B' Train Cold Leg recirculation capability.

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

75. The following plant conditions exist on Unit 1 following a Large Break LOCA:

- ECCS is aligned for Cold Leg Recirculation.
- Containment pressure is 12 psig and stable.
- LI-3594A, CTMT SUMP LVL, indicates 8.2 feet and rising.
- The Motor Driven Fire Pump is running.

Which one of the following completes the statements below?

FRP-Z.2, Containment Flooding, (1) required to be entered.

A potential source of Containment flooding (2) water from the Fire Protection Header.

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

76. Unit 1 is at 98% power with the following conditions:

- Control Bank D is at 227 steps.
- Control Rod D12, located near N-42, has dropped to the bottom of the core.

Which one of the following completes the statements below?

Per the BASES of Tech Spec 3.1.4, Rod Group Alignment Limits, a power reduction to $\leq 75\%$ power is required to ensure (1) .

Quadrant Power Tilt Ratio (QPTR) will (2) due to the dropped rod.

- A. (1) the amount of stored energy in the fuel will not cause core design criteria to be exceeded
(2) increase
- B. (1) the amount of stored energy in the fuel will not cause core design criteria to be exceeded
(2) decrease
- C. (1) the local Linear Heat Rate increases will not exceed core design criteria
(2) increase
- D. (1) the local Linear Heat Rate increases will not exceed core design criteria
(2) decrease

77. Unit 1 is operating at 12% power when the following occurs:

- Two Underfrequency Relays on the 1A 4160V bus have actuated.
- Two Underfrequency Relays on the 1C 4160V bus have actuated.

Which one of the following completes the statements below?

An automatic Reactor trip (1) occur.

Per the BASES of Tech Spec 3.3.1, RTS Instrumentation, the RCP Underfrequency Reactor Trip (2).

A. (1) WILL

(2) provides a backup to the RCP Under Voltage (UV) Reactor Trip

B. (1) WILL

(2) ensures that protection is provided against violating the DNBR limit

C. (1) will NOT

(2) provides a backup to the RCP Under Voltage (UV) Reactor Trip

D. (1) will NOT

(2) ensures that protection is provided against violating the DNBR limit

78. Unit 1 was operating at 100% power and experienced a spurious Safety Injection (SI). The following conditions exist:

- EEP-0.0, Reactor Trip or Safety Injection, is in progress.
- SI termination criteria has been met.

Which one of the following completes the statements below?

Per the bases of EEP-0.0, the impact of **NOT** terminating the SI in a timely manner is (1).

The required procedure path to address the current plant conditions is to (2).

Procedure name: ESP-1.1, SI Termination

- A. (1) overfilling the Pressurizer
(2) immediately go to ESP-1.1
- B. (1) overfilling the Pressurizer
(2) terminate SI flow in EEP-0.0 then go to ESP-1.1
- C. (1) challenging the INTEGRITY Critical Safety Function
(2) immediately go to ESP-1.1
- D. (1) challenging the INTEGRITY Critical Safety Function
(2) terminate SI flow in EEP-0.0 then go to ESP-1.1

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

- AOP-19, Malfunction of Rod Control System, was in progress.
- The OATC placed both Reactor Trip handswitches to TRIP and the Red lights remained LIT on **both** Reactor Trip breakers.
- The CRDM supply breakers were opened from the MCB and all rod bottom lights illuminated.
- A Safety Injection did not occur.

Which one of the following completes the statements below?

The Main Turbine (1) have automatically tripped when the CRDM supply breakers were opened.

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. | SHOULD | HAS |
| B. | SHOULD | has NOT |
| C. | should NOT | HAS |
| D. | should NOT | has NOT |

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

- A Train is the On Service Train of CCW with 1C CCW pump running.
- A leak has been identified on the CCW miscellaneous header.
- AA5, CCW SRG TK LVL A TRN LO-LO, is in alarm.
- Makeup to the CCW surge tank is in progress.
- CCW surge tank level is 10" and lowering.

Subsequently, AOP-9.0, Loss of Component Cooling Water, is entered and a Reactor Trip is initiated.

Which one of the following completes the statements below?

1C CCW pump (1) automatically trip when the CCW Surge Tank reaches its LO-LO level.

The procedural actions required are to continue performance of AOP-9.0 (2) .

- | | <u> (1) </u> | <u> (2) </u> |
|----|----------------|---|
| A. | will NOT | <u>in parallel with</u> the Emergency Response procedures |
| B. | WILL | <u>in parallel with</u> the Emergency Response procedures |
| C. | will NOT | <u>after</u> the Emergency Response procedures are completed |
| D. | WILL | <u>after</u> the Emergency Response procedures are completed |

81. A LOCA has occurred on UNIT 1 with the following conditions:

- EEP-1.0 is in progress.
- Containment pressure has risen to 3 psig and is stable.
- Containment Hydrogen concentration is 3%.
- RCS pressure is 400 psig and stable.
- The crew is evaluating the step - Check LHSI flow in progress.

Which one of the following completes the statements below?

The Post LOCA Containment Hydrogen Recombiners (1) required to be placed in service.

The operating crew is required to (2).

Procedure name: EEP-1.0, Loss of Reactor or Secondary Coolant
ESP-1.2, Post LOCA Cooldown and Depressurization

	<u>(1)</u>	<u>(2)</u>
A.	ARE	remain in EEP-1.0
B.	ARE	go to ESP-1.2
C.	are NOT	remain in EEP-1.0
D.	are NOT	go to ESP-1.2

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

- NI-43, POWER RANGE, Lower Detector failed and is reading 0 microamps.
- NI-43 is reading 48.4%.
- NI-43C, PR3 PERCENT FLUX DIFF, is reading +30% Δ FLUX.

Which one of the following completes the statements below?

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

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

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

83. A Pressurizer pressure control system malfunction has occurred and the RCS has exceeded Safety Limit 2.1.2, RCS Pressure SL.

Per Safety Limit 2.1.2, RCS Pressure SL, which one of the following completes the statements below?

Exceeding the Safety Limit is MORE severe in (1).

The Safety Limit is based on (2) of design pressure of the RCS.

	<u>(1)</u>	<u>(2)</u>
A.	MODE 1	110%
B.	MODE 1	125%
C.	MODE 4	110%
D.	MODE 4	125%

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

- AOP-16.0, CVCS Malfunction, is in progress due to a loss of Pressurizer level control.
- At the step to "Check Pressurizer level", Pressurizer level is 68%.

Which one of the following completes the statements below?

The Pressurizer is (1) per Tech Spec 3.4.9, Pressurizer.

Per AOP-16.0, the operating crew is required to (2) .

(1)

(2)

- | | | |
|----|--------------|---|
| A. | OPERABLE | trip the Reactor and go to EEP-0.0, Reactor Trip or Safety Injection |
| B. | OPERABLE | reduce Reactor power/TAVG as necessary using UOP-3.1, Power Operation |
| C. | NOT OPERABLE | trip the Reactor and go to EEP-0.0, Reactor Trip or Safety Injection |
| D. | NOT OPERABLE | reduce Reactor power/TAVG as necessary using UOP-3.1, Power Operation |

85. FRP-S.1, Response to Nuclear Power Generation/ATWT, is in progress on Unit 1 with the following conditions:

- Immediate operator actions are in progress.
- RCS pressure is 2350 psig and rising.

Subsequently, both PORV's have been MANUALLY opened and RCS pressure is lowering.

Which one of the following completes the statements below?

Per FRP-S.1, the PORV's are required to be MANUALLY closed when RCS pressure is below the MAXIMUM pressure of (1).

The reduction in pressure is required to (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--------------------------------|
| A. | 2240 | raise boron injection flowrate |
| B. | 2135 | raise boron injection flowrate |
| C. | 2240 | prevent excessive PORV cycling |
| D. | 2135 | prevent excessive PORV cycling |

86. Unit 1 is performing dry cask storage operations in the Spent Fuel Pool (SFP) with the following conditions:

At 1000:

- The SFP Bridge Crane Operator is in the process of removing the SFP weir gate which weighs approximately 3600 lbs.

At 1015:

- R-5, SFP RM, alarms.
- EH2, SFP LVL HI-LO, alarms.
- HP reports rising radiation levels in the SFP area.

Which one of the following completes the statements below?

At 1000, per TR 13.9.4, Crane Travel - Spent Fuel Storage Building, the SFP weir gate (1) allowed to be moved over irradiated fuel assemblies in the SFP.

At 1030, the Shift Manager is required to declare a(n) (1).

Reference Provided

	<u>(1)</u>	<u>(2)</u>
A.	IS	NOUE (RU2)
B.	is NOT	NOUE (RU2)
C.	IS	ALERT (RA2)
D.	is NOT	ALERT (RA2)

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

- HUQR5, 1C 120V Regulated AC Panel Channel 1, is tagged OPEN to repair the 1C Solatron Regulator.
- LS/459Z, PRZR LVL CONT CH, is in the LT459/60 (CH I/II) position.

Subsequently, power is lost to the 1A 120V AC Vital Instrumentation Panel.

Which one of the following completes the statements below?

Actual Pressurizer level (1) be affected.

The Required Action Statement(s) of LCO (2) is(are) required to be performed.

Tech Specs: 3.3.1, Reactor Trip System (RTS) Instrumentation
3.8.9, Distribution Systems - Operating

	<u> (1) </u>	<u> (2) </u>
A.	WILL	3.3.1 AND 3.8.9
B.	WILL	3.8.9 ONLY
C.	will NOT	3.3.1 AND 3.8.9
D.	will NOT	3.8.9 ONLY

88. Unit 1 is in Mode 3 when the following occurs:

- A leak develops on the Service Water (SW) supply to the 1A RCP Motor Air Cooler.
- MOV-3131 and MOV-3134, SW FROM RCP MTR AIR CLRS, were closed.
- MOV-3135, SW TO RCP MTR AIR CLRS, was closed.
- The leak is now isolated.

Which one of the following completes the statements below?

A Service water leak was occurring on the (1) Train.

After the leak is isolated, per Tech Spec 3.7.8, Service Water System, the affected Train of SW is (2).

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

89. Unit 1 is operating at 100% power when the following occurred:

- PT3371B, 1B SG PRESS, failed low.

Subsequently, a fire has required the Control Room to be evacuated.

- AOP-28.2, Fire in the Control Room, is in progress.
- Unit 1 control room has shifted control to the Hot Shutdown Panels (HSDP).
- All MSIVs are closed.
- The crew is performing the step to maintain SG pressures at approximately 1005 psig.

Which one of the following completes the statements below?

Indication for 1B SG pressure on the HSDP (1) affected by the PT3371B failure.

Per Tech Spec 3.7.4, Atmospheric Relief Valves (ARVs), PCV-3371B, 1B SG ATMOS REL VLV, is (2).

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

90. A blown control power fuse on Unit 1 R-5, SFP RM, renders it NON FUNCTIONAL.

Which one of the following completes the statements below?

The loss of R-5 (1) automatically trip the Fuel Handling Area Supply and Exhaust Fan.

The compensatory actions required by TRM 13.3.4, Radiation Monitoring Instrumentation for R-5 being NON FUNCTIONAL is to (2).

(1)

(2)

- | | | |
|----|----------|---|
| A. | WILL | perform area surveys of the SFP every 24 hours |
| B. | WILL | install a DAD in the vicinity of R-5 with a setpoint of 15mRem/hr |
| C. | will NOT | perform area surveys of the SFP every 24 hours |
| D. | will NOT | install a DAD in the vicinity of R-5 with a setpoint of 15mRem/hr |

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

- R-23B, SGBD TO DILUTION is reading 100 cpm.

Subsequently, the following conditions exist:

- The R-23B Instrument Power fuse is blown.
- R-23B is reading MINIMUM scale.

Which one of the following completes the statements below?

The SGBD release (1) AUTOMATICALLY terminate.

Per the ODCM, SGBD releases to the environment can continue if (2) .

(1)

(2)

- | | | |
|----|----------|--|
| A. | WILL | grab samples are obtained and analyzed |
| B. | WILL | samples are continuously collected with auxiliary sampling equipment |
| C. | will NOT | grab samples are obtained and analyzed |
| D. | will NOT | samples are continuously collected with auxiliary sampling equipment |

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

- A rupture has occurred on the Instrument Air header piping in the MSVR.
- A Reactor Trip has occurred.
- AOP-6.0, Loss of Instrument Air, is in progress.
- Instrument Air is 75 psig and lowering.

Which one of the following completes the statements below?

Service Air (1) been **automatically** isolated from Instrument Air.

Per AOP-6.0, to maintain Pressurizer level, the operating crew is required to perform actions of (2) in conjunction with AOP-6.0.

Procedure names: AOP-16.0, CVCS Malfunction
SOP-2.1, CVCS Plant Startup and Operation

	<u>(1)</u>	<u>(2)</u>
A.	HAS	AOP-16.0
B.	has NOT	AOP-16.0
C.	HAS	SOP-2.1
D.	has NOT	SOP-2.1

93. Unit 1 is in Mode 6 with core offload stopped due to a problem with the gripper tube top limit switch on the Manipulator crane and the following conditions exist:

- No fuel is currently in the manipulator crane.
- The decision has been made to operate TS-3, Bridge Left Interlock Bypass switch, in order to move the bridge while the gripper tube is not at the top limit.

Which one of the following describes the approval authority for operating TS-3 per FHP-7.0, Limitations and Precautions for Handling Fuel Assemblies?

- A. Shift Manager
- B. Shift Supervisor
- C. Fuel Handling Supervisor
- D. Reactor Engineering Supervisor

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

At 1000:

- Chemistry discovers and reports that Surveillance Requirement 3.5.1.4, the Safety Injection Accumulator boron concentration verification, which is required at a frequency of 31 days, has been missed for the 1C Accumulator.
- The last 1C Accumulator boron sample result was 2350 ppm 45 days ago.
- The 1C Accumulator level has risen 1% due to RCS inleakage.
- A risk evaluation has been performed.

Which one of the following completes the statements below?

At 1000, the 1C Accumulator is (1) because (2).

A. (1) OPERABLE

(2) the delay period of SR 3.0.3 may be applied for up to 31 days

B. (1) OPERABLE

(2) the delay period of SR 3.0.3 may be applied for **ONLY** the next 24 hours

C. (1) NOT OPERABLE

(2) the surveillance frequency has been missed

D. (1) NOT OPERABLE

(2) the boron concentration is unknown

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

The **MINIMUM** steady state power level at which core power is in an unanalyzed condition is (1).

This condition is reportable under (2).

Procedures: NMP-AD-031, SNC Reportability Roles, Responsibilities, and Fleet Requirements
NMP-EP-110, Emergency Classification Determination and Initial Action

	<u>(1)</u>	<u>(2)</u>
A.	103%	NMP-AD-031
B.	103%	NMP-EP-110
C.	107%	NMP-AD-031
D.	107%	NMP-EP-110

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

Compliance with Technical Specification 3.4.16, RCS Specific Activity, ensures that the resulting doses at the site boundary will not exceed an appropriate fraction of (1) limits following a (2) or a Main Steam Line Break.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------------------------|
| A. | 10 CFR 100 | Steam Generator Tube Rupture |
| B. | 10 CFR 100 | Loss of Coolant Accident |
| C. | 10 CFR 20 | Steam Generator Tube Rupture |
| D. | 10 CFR 20 | Loss of Coolant Accident |

97. Both Units are operating at 100% power and the following conditions exist:

- Unit 1 dilution flow is 23,000 gpm.
- Unit 2 dilution flow is 23,500 gpm.
- A Unit 2 Waste Monitor Tank (WMT) release is in progress.

Subsequently, N1P16FR4107, SW DILUTION FLOW RECORDER, is declared INOPERABLE.

Which one of the following completes the statement below?

Per the Offsite Dose Calculation Manual (ODCM),
Unit 1 WMT #1 _____.

- A. CAN be released if WMT #1 activity is verified $< 0.01 \mu\text{Ci/gm}$
- B. CANNOT be released because a **Unit 2** WMT release is in progress
- C. CANNOT be released because N1P16FR4107 must be OPERABLE
- D. CAN be released if the **Unit 1** dilution flowrate is estimated at least once per 4 hours during the release

98. Per NMP-ES-035-010, Fire Brigade, which one of the following completes the statements below?

Personnel assigned as Technical Specification required minimum staffing (1) be assigned to the Fire Brigade.

A MINIMUM of (2) qualified personnel shall be assigned to the Fire Brigade per shift.

	<u>(1)</u>	<u>(2)</u>
A.	CAN	3
B.	CAN	5
C.	CANNOT	3
D.	CANNOT	5

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

At 1000:

- An unplanned loss of **ALL** Main Control Board Annunciators occurs.
- AOP-35.0, Loss of Main Control Board Annunciators, is in progress.

At 1015:

- 1B SGFP trips.
- The crew takes actions to stabilize the plant and a Reactor Trip does **NOT** occur.

Which one of the following completes the statements below?

At 1035, the emergency classification in effect is a(n) (1) per NMP-EP-110-GL01, FNP EALs - ICs, Threshold Values and Basis.

Per AOP-35.0, (2) is(are) required within one hour due to the loss of annunciator MH1, Fire.

Reference Provided

- A. (1) NOUE (SU3)
(2) a Pyrotronics panel firewatch
- B. (1) ALERT (SA4)
(2) a Pyrotronics panel firewatch
- C. (1) NOUE (SU3)
(2) hourly fire watches in all affected zones
- D. (1) ALERT (SA4)
(2) hourly fire watches in all affected zones

100. Unit 1 is conducting a natural circulation cooldown per ESP-0.3, Natural Circulation Cooldown with Allowance for Reactor Vessel Head Steam Voiding (with RVLIS).

- The following conditions exist:
 - Pressurizer level has risen to 93%
 - BOTH Trains of RVLIS indicates RED for the following:
 - Upper Head - 100% and 0%
 - Upper Support Plate - 100% and 72%
 - Upper Plenum 44%
 - All other RVLIS lights indicate GREEN

Which one of the following completes the statements below?

The **MAXIMUM** allowed cooldown rate for the current conditions is (1).

FRP-I.3, Response to Voids in Reactor Vessel, (2) be performed in conjunction with ESP-0.3.

- | | <u>(1)</u> | <u>(2)</u> |
|----|---------------------------------|------------|
| A. | < 50°F/hr | SHOULD |
| B. | < 50°F/hr | should NOT |
| C. | < 100°F in any 60 minute period | SHOULD |
| D. | < 100°F in any 60 minute period | should NOT |

UNIT 1 VOLUME III CURVE 21
 STEAM DUMP HEADER PRESSURE
 (Steam Dumps: TY-A...H)
 CONTROLLER: PK-464
 REV. 2.0 March 6, 2003 JSJ
 APPROVED:


 ES MANAGER

⁸
 5-12-03
 DATE

PSIG	AUTO SETPOINT	PSIG	AUTO SETPOINT	PSIG	AUTO SETPOINT	PSIG	AUTO SETPOINT
0	0.0						
10	0.1	310	2.6	610	5.1	910	7.6
20	0.2	320	2.7	620	5.2	920	7.7
30	0.3	330	2.8	630	5.3	930	7.8
40	0.3	340	2.8	640	5.3	940	7.8
50	0.4	350	2.9	650	5.4	950	7.9
60	0.5	360	3.0	660	5.5	960	8.0
70	0.6	370	3.1	670	5.6	970	8.1
80	0.7	380	3.2	680	5.7	980	8.2
90	0.8	390	3.3	690	5.8	990	8.3
100	0.8	400	3.3	700	5.8	1000	8.3
110	0.9	410	3.4	710	5.9	1010	8.4
120	1.0	420	3.5	720	6.0	1020	8.5
130	1.1	430	3.6	730	6.1	1030	8.6
140	1.2	440	3.7	740	6.2	1040	8.7
150	1.3	450	3.8	750	6.3	1050	8.8
160	1.3	460	3.8	760	6.3	1060	8.8
170	1.4	470	3.9	770	6.4	1070	8.9
180	1.5	480	4.0	780	6.5	1080	9.0
190	1.6	490	4.1	790	6.6	1090	9.1
200	1.7	500	4.2	800	6.7	1100	9.2
210	1.8	510	4.3	810	6.8	1110	9.3
220	1.8	520	4.3	820	6.8	1120	9.3
230	1.9	530	4.4	830	6.9	1130	9.4
240	2.0	540	4.5	840	7.0	1140	9.5
250	2.1	550	4.6	850	7.1	1150	9.6
260	2.2	560	4.7	860	7.2	1160	9.7
270	2.3	570	4.8	870	7.3	1170	9.8
280	2.3	580	4.8	880	7.3	1180	9.8
290	2.4	590	4.9	890	7.4	1190	9.9
300	2.5	600	5.0	900	7.5	1200	10.0

DRAWINGS:

Elementary: U176066 (7378D82)
 P & ID: D175033 sh. 1

Remarks: (1) The set point for PK-464 is 1005 psig when the Steam Dump Selector Switch is in the "TAVG" Position. Set M/A Station to 8.375V.
 (2) PK-464 Controls only when the Steam Dump Selector is in the "STM PRESS" Position.

SA4 - UNPLANNED Loss of Most or All Safety System Annunciation or Indication in the Control Room With EITHER (1) a SIGNIFICANT TRANSIENT in Progress, OR (2) Compensatory Non-Alarming Indicators are Unavailable. (pg. 51)

1. UNPLANNED loss of most OR all (approximately 75% of the MCB annunciators) OR indicators associated with safety systems for greater than 15 minutes.

AND EITHER

a. A SIGNIFICANT TRANSIENT is in progress

SU3 - UNPLANNED Loss of Most or All Safety System Annunciation or Indication in The Control Room for Greater Than 15 Minutes (pg. 56)

1. UNPLANNED loss of most OR all (approximately 75% of the MCB annunciators) OR indicators associated with safety systems for greater than 15 minutes.

RA2 - Damage to Irradiated Fuel OR Loss of Water Level that Has or Will Result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel (pg. 23)

1. UNPLANNED VALID alarm on any of the following radiation monitors:

Drumming Station RE-0008

Containment Purge Ventilation Monitor RE-24A **OR** B

Spent Fuel Pool Ventilation Monitor RE-25A **OR** B

Spent Fuel Pool Area Radiation Monitor RE-5

2. Loss of water level that has or will result in the uncovering of irradiated fuel outside the Reactor Vessel as indicated by ANY of the following:

Report of personnel during fuel assembly movements.

Spent Fuel Pool Storage Less than E1 129

Transfer Canal Less than E1 116

Reactor Core Elevation Less than E1 118

RU2 – Unexpected Rise in Plant Radiation (pg. 29)

1. a. VALID indication of uncontrolled water level lowering in the reactor refueling cavity, spent fuel pool, **OR** fuel transfer canal with all irradiated fuel assemblies remaining covered by water as indicated by any of the following:

Personnel report of low water level

Annunciator EH2 “SFP LVL HI/LO”

Personnel report of cavitation **OR** low discharge pressure for SFP Pump Discharge Pressure **AND/OR** RHR Pump Discharge Pressure

b. UNPLANNED VALID Direct Area Radiation Monitor readings rise on any of the foll:

RE-0005 in the fuel building

RE-0002 in containment

2. UNPLANNED VALID Direct Area Radiation Monitor readings rise by a factor of 1000 over normal* levels.

*Normal levels can be considered as the highest reading in the past twenty-four hours excluding the current peak value.

ANSWER KEY

ES-401

Site-Specific SRO Written Examination
Cover Sheet

Form ES-401-8

U.S. Nuclear Regulatory Commission Site-Specific SRO Written Examination	
Applicant Information	
Name:	
Date: October 21, 2014	Facility/Unit: FARLEY Unit 1 & 2
Region: I <input type="checkbox"/> II <input checked="" type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/>	Reactor Type: W <input checked="" type="checkbox"/> CE <input type="checkbox"/> BW <input type="checkbox"/> GE <input type="checkbox"/>
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	_____ / _____ / _____ Points
Applicant's Scores	_____ / _____ / _____ Points
Applicant's Grade	_____ / _____ / _____ Percent

ANSWER KEY

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

- Rods are in manual.
- Control Bank D is at 225 steps.
- Median Tavg is 568.5°F.
- Tref is 571.0°F.

Subsequently, the operator places the ROD CONTROL BANK SELECTOR SWITCH in AUTO.

Which one of the following completes the statement below?

Rod Speed will indicate (1) and Control Bank D will (2) .

(1)

(2)

- | | |
|------------------------|---------------------|
| A. 40 steps per minute | remain at 225 steps |
| B. 40 steps per minute | begin to move out |
| C✓ 8 steps per minute | remain at 225 steps |
| D. 8 steps per minute | begin to move out |

The following conditions exist on Unit 1:

At 1000:

- Rod control is in AUTO.
- TI-408A, Tavg - Tref deviation, indicates 0°F and stable.
- Pressurizer level is stable.
- Reactor Power is approximately 75% and stable.
- Control Bank D step counters are at 144 steps.

At 1002:

- TI-408A, Tavg - Tref deviation, indicates +2°F and rising.
- Pressurizer level is slowly rising.
- Pressurizer spray valves have throttled open.
- Reactor Power is approximately 76% and slowly rising.
- Control Bank D step counters are at 150 steps and stepping out.
- There is no load change in progress.

Which one of the following completes the statement below?

The event in progress is an (1) and the action required is to (2) .

- A. 1) uncontrolled continuous Control Rod withdrawal
2) trip the reactor and enter EEP-0.0, Reactor Trip or Safety Injection
- B✓ 1) uncontrolled continuous Control Rod withdrawal
2) place the rod control mode selector switch to MANUAL and verify that rod motion stops
- C. 1) inadvertent RCS boration
2) trip the reactor and enter EEP-0, Reactor Trip or Safety Injection
- D. 1) inadvertent RCS boration
2) place the rod control mode selector switch to MANUAL and match Tavg with Tref by inserting rods

3. 003K6.02 003

Unit 1 is at 45% power with the following conditions:

- DC2, RCP #1 SEAL LKOF FLOW HI, is in alarm.
- 1C RCP #1 seal leakoff flow is 6.5 gpm.
- There are NO other annunciators associated with the RCP seals in alarm.
- TE0126, RCP C SEAL WATER OUTLET TEMP, is 150°F and stable.
- TE0125, RCP C LOWER SEAL WATER BRG TEMP, is 155°F and stable.

Which one of the following describes actions required in accordance with AOP-4.1, Abnormal Reactor Coolant Pump Seal Leakage?

- A. Immediately trip the Reactor, secure 1C RCP and close the seal leakoff valve.
- B✓ Perform a controlled shutdown then secure 1C RCP and close the seal leakoff valve.
- C. Indefinite power operation is allowed, maintain 6-13 gpm seal injection flow.
- D. Continue power operation for a maximum of 24 hours, maintain >9 gpm seal injection flow.

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

- PK-145, LP LTDN PRESS, demand is failing to 0% in automatic.

Which one of the following completes the statements below?

Letdown flow will (1) .

The operator is required to take action to adjust letdown flow, not to exceed a MAXIMUM of (2) .

	<u>(1)</u>	<u>(2)</u>
A✓	increase	135 gpm
B.	increase	125 gpm
C.	decrease	135 gpm
D.	decrease	125 gpm

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

- An Auto makeup has just started.
- FK-113, BORIC ACID MKUP FLOW, is set to 5.0.
- FK-168, PRI WTR MKUP FLOW, is set to 7.5.
- MKUP MODE SELECTOR switch is in AUTO.
- MKUP MODE CONT switch RED light is LIT.

Which one of the following completes the statement below?

FCV114A, MKUP TO VCT, will _____ .

- A. open fully
- B✓ remain closed
- C. modulate open based on FK-113 pot setting
- D. modulate open based on FK-168 pot setting

Unit 1 is in Mode 4 preparing for a Refueling Outage with the following conditions:

- An RCS cooldown is in progress.
- The 'A' and 'B' RHR Loop suction valves have been opened.
- RCS temp is 250°F.

Per SOP-7.0, Residual Heat Removal System, which one of the following completes the statements below?

The reason (1) train(s) of RHR is(are) in service cooling down the RCS is to (2).

A✓ (1) ONE

(2) prevent RHR operability concerns

B. (1) ONE

(2) prevent excessive RCS cooldown

C. (1) TWO

(2) prevent excessive heatup of one train of CCW

D. (1) TWO

(2) ensure low temperature overpressure protection (LTOP) requirements are met

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

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

Subsequently, an LOSP with a concurrent Safety Injection occurs and the following conditions exist:

- 22 seconds after the actuation, EB1, CHG PUMP OVERLOAD TRIP, comes into alarm.
- The AMBER light on the handswitch for the 1C Charging pump is illuminated.

Which one of the following completes the statement below?

1B Charging pump _____.

- A. must be manually started
- B. will start from the ESS sequencer
- C. will remain running throughout the event per design
- D✓ will start due to 1C Charging Pump tripping on overload

8. 007A1.02 008

Which one of the following completes the statements below?

The PRT is maintained with a (1) cover gas.

The PRT rupture disc is designed to rupture at (2) psid.

- | | <u>(1)</u> | <u>(2)</u> |
|-------------|------------|------------|
| A. Hydrogen | | 100 |
| B✓ Nitrogen | | 100 |
| C. Hydrogen | | 150 |
| D. Nitrogen | | 150 |

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

- The RX TRIP ACTUATION handswitch is placed in TRIP.

Which one of the following completes the statement below?

The Reactor Trip Breaker Shunt Trip devices receive power from (1) and (2) to open the Reactor Trip Breakers.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|-------------|
| A. | 120VAC | energize |
| B✓ | 125VDC | energize |
| C. | 120VAC | de-energize |
| D. | 125VDC | de-energize |

Per SOP-1.2, Reactor Coolant Pressure Relief System, which one of the following completes the statements below?

During normal operation, the PRT temperature should not exceed a maximum of (1).

The NORMAL method to cooldown the PRT is using (2).

- A. (1) 120°F
(2) spray from RMWST and drain to the RCDT
- B. (1) 170°F
(2) spray from RMWST and drain to the RCDT
- C✓ (1) 120°F
(2) recirculation through the RCDT heat exchanger
- D. (1) 170°F
(2) recirculation through the RCDT heat exchanger

Unit 1 is in Mode 3 and the following conditions exist:

- PI-455, PRZR PRESS, is 1400 psig.
- PI-472, PRT PRESS, is 30 psig.
- PCV-444B, PRZR PORV, failed open and cannot be closed.
- PCV-444B is NOT capable of being manually cycled.

Which one of the following completes the statements below?

The temperature indicated on TI-463, PORV, is approximately (1).

Per TS 3.4.11, Pressurizer Power Operated Relief Valves (PORVs), within one hour, close and (2) MOV-8000B, PRZR PORV ISO.

Reference Provided

	<u>(1)</u>	<u>(2)</u>
A.	535°F	remove power from
B✓	280°F	remove power from
C.	535°F	maintain power to
D.	280°F	maintain power to

Unit 1 is operating at 100% when the following conditions occur:

- The "On Service" Train of CCW has been lost.

Which one of the following completes the statement below?

The RCP (1) radial bearing temperatures will rapidly rise and (2) is the **MINIMUM** bearing temperature, if exceeded, at which the RCPs must be secured.

	<u>(1)</u>	<u>(2)</u>
A.	pump	195°F
B✓	motor	195°F
C.	pump	260°F
D.	motor	260°F

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

At 1000:

- PCV-444B, PRZR PORV, failed open and cannot be closed.
- The immediate operator actions of AOP-100, Instrumentation Malfunction, are complete.

At 1015:

- A rupture occurs on the 1A SG and EEP-3.0, Steam Generator Tube Rupture, is in progress with the following conditions:
 - The operating crew is at the step to reduce RCS pressure.
 - Normal Pressurizer Spray is NOT available.

Per EEP-3.0, which one of the following completes the statements below?

The required method of RCS pressure reduction is using (1) .

PCV-444B (2) be used for the RCS pressure reduction.

	<u>(1)</u>	<u>(2)</u>
A. Auxiliary Spray		CAN
B. one Pressurizer PORV		CAN
C. Auxiliary Spray		CANNOT
D✓ one Pressurizer PORV		CANNOT

Unit 1 is operating at 100% power when the following occurs:

- PT-445, PRZR PRESS, fails HIGH.

Which one of the following completes the statements below?

PCV-444D, 1B LOOP SPRAY VLV, (1) open due to the failure.

RCS Pressure will (2).

A. (1) WILL

(2) lower causing a Reactor Trip and Safety Injection.

B. (1) will NOT

(2) lower causing a Reactor Trip and Safety Injection.

C. (1) WILL

(2) cycle at approximately 2000 psig.

D. (1) will NOT

(2) cycle at approximately 2000 psig.

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

- NI-42, POWER RANGE, has failed HIGH.
- AOP-100, Instrumentation Malfunction, is in progress.
- At the step to remove the control power fuses for NI-42, the UO inadvertently removes the control power fuses for NI-36, INTERMEDIATE RANGE.

Which one of the following completes the statements below?

The operating crew is required to (1).

The Source Range Nuclear Instruments (2) **immediately** energize.

Procedure name: EEP-0.0, Reactor Trip or Safety Injection

	<u>(1)</u>	<u>(2)</u>
A✓	enter EEP-0.0	will NOT
B.	enter EEP-0.0	WILL
C.	continue in AOP-100	will NOT
D.	continue in AOP-100	WILL

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

- The 1A Auxiliary Building DC Bus de-energizes.
- An dual Unit LOSP occurs.
- An SI occurs on Unit 1 concurrently with the LOSP.

Which one of the following completes the statements below?

The 1-2A DG (1) start.

The B1F Sequencer (2) automatically sequence loads on.

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

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

At 1000:

- A Loss of all Offsite Power occurs.

At 1020:

- The following conditions exist:
 - RCS pressure is 2235 psig and steady.
 - RCS Loop THOT in all 3 loops is 595°F and decreasing slowly.
 - RCS Loop TCOLD in all 3 loops is 551°F and steady.
 - Core exit TCs indicate approximately 600°F and decreasing slowly.
 - Steam Generator pressures are approximately 1038 psig and steady.

Which one of the following completes the statement below?

At 1020, Natural Circulation (1) exist.

Per ESP-0.1, Reactor Trip Response, the (2) would be used to dump steam.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------------------------|
| A. | does NOT | Steam Dumps |
| B. | DOES | Steam Dumps |
| C. | does NOT | SG Atmospheric Relief Valves |
| D✓ | DOES | SG Atmospheric Relief Valves |

Which one of the following completes the statement below?

NI-32, SOURCE RANGE, is powered from (1) 120VAC Vital Panel.

NI-44, POWER RANGE, is powered from (2) 120VAC Vital Panel.

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

Given the following plant conditions on Unit 2:

- The crew is performing ESP-0.1, Reactor Trip Response.
- Natural circulation verification is in progress.
- The Subcooled Margin Monitor is in CETC mode.
- All Core Exit Thermocouples are reading 600°F.
- Two upperhead Core Exit Thermocouples have failed due to **open** circuits.

Which one of the following completes the statement below?

The failed Core Exit Thermocouples' output will be failed (1) and the Subcooled Margin Monitor calculation (2) be **accurate**.

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

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

- 1A is selected on the CTMT CLR FAN SEL SWITCH.
- All containment cooler fans are running in FAST speed.

Subsequently, a Large Break LOCA occurred with the following conditions:

- Containment pressure reached 33 psig.
- A Dual Unit LOSP occurred.
- The 1B DG tripped when it auto started.
- BA1, 1A CTMT CLR FAN FAULT, is in alarm.
- The AMBER light above 1A CTMT CLR FAN SLOW SPEED handswitch is illuminated.
- EEP-0.0, Reactor Trip or Safety Injection, is in progress.

Which one of the following completes the statements below?

Per EEP-0.0, the operating crew will verify at least one Containment Cooler fan per train is running in (1) speed.

The 1B Containment Cooler SLOW speed fan (2) start when the 1A Containment Cooler SLOW speed fan trips.

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

Unit 1 is in Mode 5 with the following conditions:

At 1000:

- 1A RHR pump is tagged out.
- All SG Wide Range levels are 84%.
- Pzr level is being maintained at 21% on LI-462, PRZR LVL.
- RCS temperature is 195°F.
- RCS pressure is 325 psig.
- All RCPs are secured.
- 1B RHR pump is running in the cooldown lineup.

At 1005:

- PT-402, 1C LOOP RCS PRESS, fails HIGH.

Which one of the following completes the statements below?

At 1005, RHR cooling (1) been lost.

Per AOP-12.0, RHR Malfunction, a loss of RHR cooling would require (2) to be established for core cooling.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---------------------|
| A. | HAS | feed and bleed |
| B. | HAS | secondary heat sink |
| C. | has NOT | feed and bleed |
| D. | has NOT | secondary heat sink |

A LOCA has occurred on Unit 1 and the following conditions exist:

At 1000,

- 'B' Train Phase B failed to actuate and **cannot** be manually actuated.
- 1A Containment Spray flow is 600 gpm.
- Containment Pressure is 32 psig and slowly lowering.

At 1005, The Unit Operator manually starts the 1B Containment Spray pump.

Which one of the following completes the statements below?

At 1000, FRP-Z.1, Response to High Containment Pressure, entry conditions (1) met.

At 1005, MOV-8820B, 1B CS PUMP TO SPRAY HDR ISO, (2) automatically open.

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

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

- AOP-9.0, Loss of Component Cooling Water, is in progress due to a CCW malfunction.
- The standby CCW pump has been started.
- HV-3045, CCW FROM RCP THRM BARR, went closed during the transient.
- Seal injection flow to each RCP is:
 - A RCP 6.3 gpm
 - B RCP 6.5 gpm
 - C RCP 7.1 gpm

Which one of the following completes the statements below?

HV-3045 will close when downstream flow reaches (1) .

Per AOP-9.0, seal injection flow (2) adequate to allow continued RCP operation.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | 160 gpm | is NOT |
| B. | 75 gpm | is NOT |
| C✓ | 160 gpm | IS |
| D. | 75 gpm | IS |

Which one of the following completes the statements below?

A Train CS Pump, A Train HHSI Pump, and the A Train RHR Pump have (1) suction header(s) penetrating the RWST.

The Containment Spray (CS) Pump Room Coolers are DIRECTLY started (2).

- A. (1) three separate
(2) by a CS actuation signal
- B. (1) one common
(2) by a CS actuation signal
- C. (1) three separate
(2) when the CS pump breaker closes
- D✓ (1) one common
(2) when the CS pump breaker closes

25. 027AK1.02 025

Unit 2 is at 100% power, and PT-444, PRZR PRESS, is stuck at **2230 psig**.

Which one of the following describes the effects on PK-444A, PRZR PRESS REFERENCE, and the pressurizer liquid density due to this malfunction?

PK-444A controller demand goes (1),

and

the density of the Pressurizer liquid initially goes (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | down | up |
| B. | down | down |
| C. | up | up |
| D✓ | up | down |

Which one of the following completes the statement below?

To enhance the retention of Iodine in solution, the Containment Spray System sprays water from the (1) at a pH of approximately (2) .

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

Unit 1 is in Mode 4 and the following condition exists:

- Containment Mini-Purge is in service.
- R-24A and R-24B, CONTAINMENT PURGE, are rising but **NOT** at the alarm setpoint.
- The OATC manually actuates a Phase A Containment Isolation.

Which one of the following completes the statements below?

Radiation levels (1) stop rising in the Main Exhaust Plenum.

The Mini-Purge Supply and Exhaust fans (2) stop automatically.

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

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

- The 1B SG becomes faulted inside Containment.

Which one of the following describes the actions required by EEP-2.0, Faulted Steam Generator Isolation, to isolate the 1B SG?

The minimum action for Main Steam line isolation is to (1) .

The actions for isolation of AFW flow to the 1B SG is to (2) .

Valve nomenclature:

MOV-3764B & D, MDAFW TO 1B SG ISO
Q1N23V017B, TDAFWP TO 1B SG FCV INLET ISO
HV-3227B, MDAFWP TO 1B SG FLOW CONT
HV-3228B, TDAFWP TO 1B SG FLOW CONT

- A. 1) close ONLY the MSIVs for the 1B steam line
2) close MOV-3764B & D on the BOP **and** locally close Q1N23V017B
- B. 1) close ONLY the MSIVs for the 1B steam line
2) close HV-3227B and HV-3228B on the MCB **and** fail air locally
- C✓ 1) close all MSIVs
2) close MOV-3764B & D on the BOP **and** locally close Q1N23V017B
- D. 1) close all MSIVs
2) close HV-3227B and HV-3228B on the MCB **and** fail air locally

Given the following conditions on Unit 1:

At 1000:

- Mode 6 with core off-load in progress.
- Refueling Cavity level is 153 ft 6 in.

At 1015:

- The Refueling Cavity level is lowering rapidly.

At 1030:

- The leak has been isolated.
- Refueling Cavity level is **stable** at 143 ft.

Which one of the following completes the statements below?

At 1015, AOP-30, Refueling Accident, (1) required to be entered.

At 1030, TS 3.9.6, Refueling Cavity Water Level, (2) required to be entered.

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

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

- R-15A, SJAE EXH, is in alarm and the indication is stable.
- AOP-2.0, Steam Generator Tube Leakage, is in progress.

Which one of the following completes the statement below?

The SJAE Filtration system (1) automatically align for operation.

Once SJAE Filtration is in service, the R-15A reading will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|-----------------|
| A. | WILL | lower |
| B. | WILL | remain the same |
| C. | will NOT | lower |
| D✓ | will NOT | remain the same |

The following conditions exist on Unit 1:

- Operators are performing EEP-3.0, Steam Generator Tube Rupture.
- All RCPs have been secured.
- Operators have determined the required CETC temperature and started the RCS cooldown.

Subsequently, the following conditions exist:

- The required CETC temperature has **NOT** been reached.
- An Orange Path is indicated on the INTEGRITY CSF for the **ruptured** loop.

Per EEP-3.0, which one of the following describes the required actions?

The overall mitigating strategy is to (1) .

- A✓ continue the RCS cooldown at the current rate and remain in EEP-3.0
- B. reduce the RCS cooldown rate and remain in EEP-3.0
- C. reduce the RCS cooldown rate and apply the INTEGRITY CSF strategy
- D. stop the RCS cooldown and apply the INTEGRITY CSF strategy

Unit 1 was at 26% power and 240 MWe, and the following conditions occurred:

- The Reactor tripped.
- The "A" Reactor Trip Breaker failed to open.

Which one of the following completes the statements below?

The Steam Dumps are armed due to the (1).

RCS temperature will be controlled at (2).

	<u>(1)</u>	<u>(2)</u>
A.	P-4 signal	547°F
B.	P-4 signal	551°F
C✓	C-7 signal	547°F
D.	C-7 signal	551°F

Unit 1 is cooling down with the following conditions:

- RCS Tcold is 480°F and stable.
- RCS pressure is 995 psig and stable.

The plan is to stabilize at this point for data collection. Steam dumps are in steam pressure mode and are ready to be placed in automatic to maintain the current RCS temperature.

Which one of the following completes the statement below?

PK-464, STM HEADER PRESS, SETPT will be set at (1).

Reference Provided

A✓ 4.60

B. 4.75

C. 8.30

D. 8.40

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

At 1000:

- A Load Rejection occurs.

At 1005:

- The following conditions exist:
 - Reactor Power is 70%.
 - Turbine Power is 550 MWe.
 - FE1, CONT ROD BANK POSITION LO, is in alarm.
 - Tavg is 564°F and stable.
 - Tref is 561°F and stable.

Which one of the following completes the statements below?

Per AOP-17.0, Turbine Load Rejection, the immediate operator actions require the Main Turbine to be (1).

At 1005, the operating crew is required to (2).

A. (1) placed in MANUAL

(2) raise turbine load to match Reactor power

B. (1) left in OPERATOR AUTO

(2) raise turbine load to match Reactor power

C✓ (1) placed in MANUAL

(2) borate as necessary to withdraw rods

D. (1) left in OPERATOR AUTO

(2) borate as necessary to withdraw rods

35. 051AK3.01 035

Unit 1 is operating at 40% power when the following occurs:

- Condenser pressure rapidly rises to 12 psia.

Subsequently, Tavg is being maintained at 551°F.

Which one of the following completes the statements below?

The Steam Dump (1) controller is enabled.

The Steam Dumps are (2) .

<u>(1)</u>	<u>(2)</u>
A✓ Plant Trip	CLOSED
B. Plant Trip	OPEN
C. Loss of Load	CLOSED
D. Loss of Load	OPEN

Unit 2 is operating at 55% power when a transient in the Main Feedwater System results in the following:

- 2A SGFP high and low pressure stop valves indicate CLOSED.
- 2B SGFP is running at minimum speed.
- 2A SG level: 34% and lowering.
- 2B SG level: 27% and lowering.
- 2C SG level: 34% and lowering.

Which one of the following completes the statements below?

The MDAFW pumps (1) received an auto start signal.

The TDAFW pump will auto start when (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|-----|------------|----------------------------|
| A. | HAVE | 2B SGFP is TRIPPED |
| B. | have NOT | 2A SG NR level reaches 28% |
| C. | have NOT | 2B SGFP is TRIPPED |
| D.✓ | HAVE | 2A SG NR level reaches 28% |

A station blackout has occurred on Unit 1 and ECP-0.0, Loss of All AC Power, has been implemented.

Which one of the following completes the statements below?

HV-3611, INST AIR SUPPLY TO CTMT, (1) CLOSE when Instrument Air pressure is lost.

The Pressurizer PORVs (2) have an available backup means to be operated.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A✓ | WILL | DO |
| B. | WILL | do NOT |
| C. | will NOT | DO |
| D. | will NOT | do NOT |

38. 055K3.01 038

Unit 1 was operating at 80% power when the following occurred:

- A malfunction of the SJAE's causes Condenser pressure to rise rapidly.

Which one of the following is the LOWEST pressure that will cause an **automatic** trip of the Main Turbine?

- A. 2.901 psia
- B. 3.800 psia
- C✓ 4.351 psia
- D. 5.900 psia

The following conditions exist on Unit 1:

- Unit 1 is in Mode 6.
- 'A' Train is on service.
- Fuel movement inside Containment is in progress.
- 1B DG is tagged out.
- 2C DG is tagged out.

Subsequently, the 1F 4160V bus loses power and remains de-energized.

Which one of the following completes the statements below?

Fuel movement inside Containment (1) allowed to continue per TS 3.8.2 AC Sources - Shutdown.

Per AOP-5.0, Loss of A or B Train Electrical Power, SFP Cooling is required to be restored using the (2) SFP Cooling pump.

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

Unit 1 is in Mode 3 with the following plant conditions:

- The Reactor Trip breakers are open.
- NI-32, SOURCE RANGE, is tagged out for power supply replacement.

Subsequently, the 1A 120V AC Vital Panel becomes de-energized.

Which one of the following completes the statement below?

Backup Source Range indication (1) available on the MCB from Gamma-Metrics.

The Reactor Make-up system (2) be affected by the malfunction of the 1A 120V Vital Panel.

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

The following conditions exist on Unit 1:

- 'A' Train Aux Building DC has been lost.
- AOP-29.1, Plant Stabilization in Hot Standby and Cooldown Without "A" Train AC or DC Power, is in progress.
- RCS temperature must be lowered.

Which one of the following completes the statements below?

Steam Dumps (1) be used for RCS temperature control.

If required, Atmospheric Relief valves (2) be operated from the Hot Shutdown Panel.

	<u> (1) </u>	<u> (2) </u>
A.	CAN	CANNOT
B.	CAN	CAN
<input checked="" type="radio"/> C.	CANNOT	CANNOT
D.	CANNOT	CAN

Unit 1 is at 45% power with the following conditions:

- 1A SGFP is the only SGFP running.
- FT-477 is selected on FS/478Y, A SG FW FLOW SEL SW.

Subsequently, FT-477, 1A SG FW FLOW, fails **low**.

Which one of the following completes the statement below?

Controller demand on FK-478, 1A SG FW FLOW, will **initially** (1) .

Controller demand on SK-509A, SGFP MASTER CONT, will **initially** (2) .

	<u>(1)</u>	<u>(2)</u>
A.	rise	lower
B✓	rise	rise
C.	lower	lower
D.	lower	rise

Unit 1 is at 100% power when the following occurs:

- 1B SGFP trips.
- AOP-13.0, Condensate and Feedwater Malfunction, immediate operator actions are complete.

Which one of the following describes the **overall** Steam Generator pressure response during the transient and the reason for the pressure change?

SG pressures ____ .

- A✓ rise due to the Main Turbine ramp down
- B. rise due to swell in the Steam Generators
- C. lower due to the Main Turbine ramp down
- D. lower due to shrink in the Steam Generators

The following conditions exist on Unit 1:

- EEP-1.0, Loss of Reactor or Secondary Coolant, is in progress.
- Make up to the CST is not available and the level is lowering.

Which one of the following completes the statements below?

The FIRST level at which AFW pump suction is required to be aligned to their backup source of water is (1).

The backup source of water to the AFW pump suction is (2).

	<u>(1)</u>	<u>(2)</u>
A✓	5.3 ft	Service Water
B.	4.5 ft	Service Water
C.	5.3 ft	Fire Protection Water
D.	4.5 ft	Fire Protection Water

Unit 1 was operating at 30% power with **only** the 1A SGFP running when the following occurred.

- The 1A SGFP tripped.

Subsequently, BKR DG15, 1B S/U XFMR TO 1G 4160 V BUS, trips followed by a spurious Safety Injection.

- All SG NR levels are 50% and slowly rising.

Which one of the following completes the statement below, per SOP-22.0, Auxiliary Feedwater?

To stop the 1B MDAFW pump, in addition to placing the MCB switch to STOP, _____ is(are) required.

- A✓ no other actions
- B. resetting the SI
- C. placing the 1B MDAFWP AUTO/DEFEAT switch in DEFEAT
- D. locally cycling the control power breaker for the 1B MDAFW pump breaker

Given the following conditions on Unit 1:

- The 1A inverter is being **manually** transferred to the alternate source for maintenance in accordance with SOP-36.4, 120V AC Distribution Systems.

Which one of the following completes the statement below?

The MANUAL BYPASS switch (1) placed in the BYPASS SOURCE TO LOAD position and the inverter amperage output indication on the EPB (2) be available .

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

Unit 1 is operating at 100% reactor power when the following occurs:

- One of the Service Water to Turbine Building isolations has gone closed due to the malfunction of its associated D/P switch.
- AF5, SW TO TURB BLDG A OR B TRN FLOW HI, is in alarm.
- PI3001A, SW TO CCW HX HDR PRESS, is 91 psig.
- PI3001B, SW TO CCW HX HDR PRESS, is 109 psig.

Which one of the following completes the statements below?

(1) , has gone closed.

If the hand switch for the closed MOV is placed in the OPEN position by the operator, the valve will (2).

- | | <u>(1)</u> | <u>(2)</u> |
|---------------------------------------|------------|------------------|
| A. MOV-517, SW TO TURB BLDG ISO B TRN | | remain closed |
| B✓ MOV-517, SW TO TURB BLDG ISO B TRN | | open and reclose |
| C. MOV-515, SW TO TURB BLDG ISO A TRN | | remain closed |
| D. MOV-515, SW TO TURB BLDG ISO A TRN | | open and reclose |

The following indications and alarms are received:

- The UNIT 1 AUX BLDG DC BUS - A TRN GROUND DET white light comes ON momentarily and then goes OFF.
- WC3, 1A 125V DC BUS BATT BKR 72-LA05 TRIPPED, is **in alarm**.
- WC2, 1A 125V DC BUS UV OR GND, **alarms and clears**.

Which ONE of the following describes the status of the indications on the EPB for the 1A DC BUS and the 1A and 1B Inverters?

1A DC BUS VOLTAGE reads approximately (1).

1A and 1B INVERTER AMPERES are reading approximately (2).

- A. (1) 0 DC VOLTS
(2) 25 amps
- B. (1) 0 DC VOLTS
(2) 0 amps
- C. (1) 125 DC VOLTS
(2) 0 amps
- D✓ (1) 125 DC VOLTS
(2) 25 amps

ECP-0.0, Loss of All AC Power, is in progress and the Shift Supervisor dispatches operators to minimize DC loads per Attachment 4.

Which one of the following completes the statement below?

One of the loads that will be de-energized by the operators is the (1).

Minimizing DC loads per Attachment 4 will extend the availability of the (2).

(1)

(2)

- | | | |
|----|----------------------|-----------------|
| A✓ | Waste Gas Panel | MCB Indications |
| B. | Waste Gas Panel | TDAFWP |
| C. | SPDS Computer System | MCB Indications |
| D. | SPDS Computer System | TDAFWP |

50. 064G2.4.45 050

The 1-2A DG was in Mode 1 when a Unit 1 LOSP occurred. The 1-2A DG started and and tied to its respective Emergency Bus.

Subsequently, WA1, 1-2A DG ENGINE S/D, was received on the EPB and the System Operator was dispatched to the local alarm panel.

Which one of the following alarm windows at the LOCAL alarm panel indicates the condition that was the cause of the shutdown?

- A. HIGH CRANKCASE PRESSURE
- B. GENERATOR BEARINGS TEMP HIGH
- ☒ C. LUBE OIL PRESSURE LOW
- D. JACKET COOLANT TEMP HIGH

A complete loss of instrument air has occurred on Unit 1, and the following conditions exist:

- AOP-6.0, Loss of Instrument Air is in progress.
- The Reactor was tripped.
- The TDAFW pump auto started.
- BOTH MDAFW pumps failed to start and **cannot** be started.
- SG NR Levels are:
 - 1A SG is 27% and slowly rising.
 - 1B SG is 29% and slowly rising.
 - 1C SG is 30% and slowly rising.

Which one of the following completes the statements below?

Alignment of the Emergency Air Compressors to the TDAFW components is required within a MAXIMUM of (1) in order to (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|----------------------------|
| A. | 1 hour | ensure adequate heat sink |
| B✓ | 2 hours | ensure adequate heat sink |
| C. | 1 hour | prevent excessive cooldown |
| D. | 2 hours | prevent excessive cooldown |

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

- A Control Room evacuation has been initiated per AOP-28.0, Control Room Inaccessibility.

Which one of the following completes the statements below?

In accordance with AOP-28.0, a Reactor trip is initiated (1) .

Expeditiously taking local control of Charging flow at the Hot Shutdown Panels is required because (2) .

- A. 1) from the Control Room prior to evacuation
2) letdown will not automatically isolate and Pressurizer pressure control will be degraded due to a loss of Pressurizer level
- B✓ 1) from the Control Room prior to evacuation
2) an automatic isolation of Letdown will complicate Pressurizer level control
- C. 1) locally at the Reactor Trip Switchgear after the Control Room evacuation
2) letdown will not automatically isolate and Pressurizer pressure control will be degraded due to a loss of Pressurizer level
- D. 1) locally at the Reactor Trip Switchgear after the Control Room evacuation
2) an automatic isolation of Letdown will complicate Pressurizer level control

Unit 2 is at 100% power with the following conditions:

- A #1 Waste Monitor Tank (WMT) release is in progress with the #1 WMT pump running.
- RCV-18, WMT DISCH TO ENVIRONMENT, is open.

Subsequently R-18, LIQ WASTE DISCH, alarms HIGH.

Which one of the following completes the statements below?

RCV-18 will (1) .

The #1 WMT pump will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|-------------|-----------------|
| A. | remain open | trip |
| B. | remain open | continue to run |
| C. | close | trip |
| D✓ | close | continue to run |

54. 073K4.01 054

R-14, PLANT VENT, is in HIGH alarm on Unit 1.

Which one of the following actions will occur as a result of the high alarm on R-14?

- A✓ If in progress, the Waste Gas release will isolate.
- B. RADWASTE Exhaust fans will trip.
- C. Auxiliary Building Main Exhaust fans will trip.
- D. The Control Room Emergency Filtration/Pressurization system will auto start.

Which one of the following completes the statement below?

Q1P16V516, SW TO TURB BLDG ISO A TRN, 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 | B Train |
| C. | MCC 1N | B Train |
| D. | MCC 1T | A Train |

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

- WE2, 1F, 4KV BUS OV-OR-UV OR LOSS OF DC, is in alarm.
- AOP-5.2, Degraded Grid, has just been entered.
- Voltage on all emergency busses for both units are reading 3825 volts.
- MVARs are reading (+) 550 on the MCB.
- The Generator Capability Curve has been exceeded.
- The Shift Supervisor has directed to maintain (+) 400 MVARs.

Which one of the following completes the statements below?

The operator will (1) Voltage, to reach (+) 400 MVARs.

After adjusting voltage, current to large motors, such as the RCP or CW pump motors, will (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------|
| A. | LOWER | LOWER |
| B✓ | LOWER | RISE |
| C. | RAISE | LOWER |
| D. | RAISE | RISE |

MOV-514, 515, 516 AND 517, SW to TURB BLDG ISOs have inadvertently closed.

Which one of the following completes the statements below?

The Instrument Air Compressors (1) have cooling supplied.

A back up source of cooling to the Condensate pumps (2) be aligned.

- | | <u>(1)</u> | <u>(2)</u> |
|-----|------------|------------|
| A.✓ | DO | CAN |
| B. | DO | CANNOT |
| C. | do NOT | CAN |
| D. | do NOT | CANNOT |

58. 103A3.01 058

A Large Break LOCA has occurred on Unit 2, and the following conditions exist:

- Containment pressure has risen to 18 psig and is stable.

Which one of the following completes the statements below?

R-11, CTMT PARTICULATE and R-12, CTMT GAS, (1) **isolated**.

HV-3184, CCW FROM RCP THRM BARR, (2) **closed**.

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

59. G2.1.18 059

The OATC discovers that additional information is required to be inserted into the narrative of an archived log.

Per FNP-0-SOP-0.11, Watch Station Tours and Operator Logs, which one of the following completes the statements below?

The entry (1) required to be designated as a LATE ENTRY.

The entry (2) have to be recorded by the person that was responsible for the original log entry.

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

Both Units are operating at 100% power with the following conditions:

- A non-licensed Fire Protection Administrator who is qualified as a Shift Communicator is on shift.

Which one of the following completes the statements below?

Per EIP-0.0, Emergency Organization, a **minimum** of (1) licensed Plant Operators are required to staff the current shift.

The **maximum** number of hours that a Plant Operator may work in any 24 hour period is (2) per NMP-AD-016-003, Scheduling and Calculating Work Hours.

	<u>(1)</u>	<u>(2)</u>
A.	3	18
B✓	3	16
C.	4	18
D.	4	16

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

RCS leakage is:

- Total Leakage is 7.06 gpm
- Leakage to the RCDT 4.01 gpm
- Leakage to PRT 0.00 gpm

Primary-to-Secondary leakage is:

- A Steam Generator 75.0 gpd
- B Steam Generator 80.0 gpd
- C Steam Generator 0.0 gpd

Per TS 3.4.13, RCS Operational LEAKAGE, which one of the following completes the statements below?

The Primary to Secondary Leakage LCO limit (1) been exceeded.

The Unidentified Leakage LCO limit (2) been exceeded.

	<u>(1)</u>	<u>(2)</u>
A.	has NOT	has NOT
B.	HAS	HAS
C✓	has NOT	HAS
D.	HAS	has NOT

Unit 1 is at approximately 30% power with the following conditions:

- The TSLB3 Bistable status is as follows:
 - 4-1, PR P8 NC-41N, Bistable light is LIT.
 - 4-2, PR P8 NC-42N, Bistable light is LIT.
 - 4-3, PR P8 NC-43N, Bistable light is DARK.
 - 4-4, PR P8 NC-44N, Bistable light is DARK.
- The Low Power Low Flow Trip Block P-8 light on the Bypass and Permissive Panel is DARK.

Which one of the following completes the statement below?

If 1A Reactor Coolant Pump trips, EEP-0.0, Reactor Trip or Safety Injection, entry (1) required.

If Reactor power is reduced to 25%, the Low Power Low Flow Trip Block P-8 light on the Bypass and Permissive Panel will be (2) .

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

The following conditions exist on Unit 2:

- The plant was operating at 100% power.
- A Steam Generator Tube Rupture has occurred in the 2B SG.
- The crew is performing the actions in EEP-3.0, Steam Generator Tube Rupture, to isolate the 2B SG.

Which one of the following describes the actions required to minimize radiation releases in accordance with EEP-3.0?

- A. Place the 2B SG Atmospheric Relief Valve in MANUAL and maintain closed.
- B✓ Verify the 2B SG Atmospheric Relief Valve in AUTO with controller setpoint at 8.25 (1035 psig).
- C. Verify the 2B SG Atmospheric Relief Valve in AUTO with controller setpoint at 8.56 (1070 psig).
- D. Place the 2B SG Atmospheric Relief Valve in MANUAL and control pressure at 1035 psig.

Two Plant Operators are in the RCA.

Subsequently, they are required to enter a **High Radiation Area** to align filters for a Tagging Order.

Which one of the following completes the statements below?

The MINIMUM radiation level at which this posting is required is (1).

A briefing by Health Physics (2) required prior to entering the High Radiation Area.

(1)

(2)

A✓ > 100 mrem/hr

IS

B. > 100 mrem/hr

is NOT

C. > 1000 mrem/hr

IS

D. > 1000 mrem/hr

is NOT

65. G2.3.5 065

The Unit 1 Plant Operators have just informed the Shift Supervisor that the Victoreen airborne detector R-31, RADWASTE AREA VENTS EL 121', is in HIGH alarm.

The source of their information was from which one of the following?

- A. Westinghouse PERMS radiation monitoring system panels on MCB.
- B. Gaseous Waste processing panel annunciator reported by the RADSIDE SO.
- C. Victoreen process and effluent monitoring system panel on BOP.
- D✓ A report from the systems operator in the area of the rad monitor.

66. G2.4.37 066

An ALERT has been declared on Unit 1.

Per NMP-AD-021, Control Room Access and Decorum, which one of the following personnel can grant permission to enter the AT THE CONTROLS AREA (red carpet area)?

- A. Shift Manager ONLY.
- B. Shift Supervisor ONLY.
- ☒ C. Unit Operator or Operator At The Controls ONLY.
- D. Shift Supervisor, Unit Operator or Operator at the Controls.

A Unit Operator discovers a ruptured pipe in a system that is creating a flooding condition in the 1A MDAFW pump room.

Subsequently, the Unit Operator also discovers a small fire in a trash can.

Per EIP-1.0, Duties of an Individual who Discovers an Emergency Condition, which one of the following completes the statements below?

The Unit Operator (1) **required** to use the System Operating Procedure to isolate the ruptured pipe using an upstream valve from a safe location.

The Unit Operator (2) allowed to extinguish the small fire using portable fire fighting equipment in the area.

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

Unit 1 is in Mode 5, with the following conditions:

At 1000:

- RCS Tcold is 100°F.
- Both trains of RHR are in service.
- RCS level is 129'7".

At 1010: the following events occur:

- NE2, 1B RHR PUMP RM SUMP LVL HI-HI OR TRBL, alarms.
- Both 1B RHR PUMP RM SUMP PUMPS are running.
- RCS level is 129'2" and slowly lowering.
- There are no indications of cavitation on either RHR pump.
- Both RHR pump discharge flowrates are 3000 gpm and stable.
- AOP-12.0, Residual Heat Removal Malfunction, is in progress.

Which one of the following completes the statements below?

Per AOP-12.0, (1) RHR pump(s) is(are) secured and flowpath(s) isolated.

V013A & B are located in (2) .

Nomenclature: Q1E11V013B (1-RHR-V-8720B), 1B RHR Hx to CVCS Letdown Iso
Q1E11V013A (1-RHR-V-8720A), 1A RHR Hx to CVCS Letdown Iso

(1)

(2)

- | | | |
|----|----------------|-----------------------------|
| A✓ | ONLY 1B | the RHR Heat Exchanger room |
| B. | ONLY 1B | their respective pump rooms |
| C. | BOTH 1A and 1B | the RHR Heat Exchanger room |
| D. | BOTH 1A and 1B | their respective pump rooms |

Given the following conditions on Unit 1:

- A LOCA has occurred.
- RCS pressure is 500 psig and stable.
- Containment pressure rose to 20 psig and is currently 14.1 psig and stable.
- The crew is performing actions of ESP-1.2, Post LOCA Cooldown and Depressurization.

Which one of the following describes the method that will be used to perform the cooldown of the RCS?

- A✓ SG atmospherics at less than 100°F in any 60 minute period.
- B. SG atmospherics at the maximum attainable rate.
- C. Steam dumps at less than 100°F in any 60 minute period.
- D. Steam dumps at the maximum attainable rate.

The following conditions exist on Unit 1:

- The Operating crew has just entered ECP-1.2, LOCA Outside Containment, from EEP-0.0, Reactor Trip or Safety Injection.

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

Seal Injection (1) one of the flowpaths that will be isolated to check for leakage.

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

	<u>(1)</u>	<u>(2)</u>
A✓	IS	RCS pressure
B.	is NOT	RCS pressure
C.	IS	Pressurizer Level
D.	is NOT	Pressurizer Level

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 statements 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

FRP-C.2, Response to Degraded Core Cooling, has been entered on Unit 2. The operating crew is at the step to "Check RCP Status" and the following conditions exist:

- All RCPs are running.
- 2B RCP seal injection is 4 gpm and cannot be raised any higher.
- HH1 and HH3, RCP 2A and 2C BRG UPPER/LOWER OIL RES LO LVL, are in alarm.

Which one of the following completes the statement below?

Per FRP-C.2, the operating crew is required to _____.

- A✓ stop 2B RCP ONLY
- B. stop ALL RCPs
- C. stop 2A and 2C RCPs ONLY
- D. leave ALL RCPs running

An RCS soak is in progress per FRP-P.1, Response to Imminent Pressurized Thermal Shock Condition, with the following conditions:

At 1000:

- RCS Pressure is 950 psig and stable.
- RCS Cold Leg Temperature is 450°F and stable.
- Narrow Range SG water level is 50% and stable on all SGs.

At 1000, Per FRP-P.1, which one of the following completes the statements below?

Isolating Accumulators (1) permitted.

Increasing AFW flow to the SGs (2) permitted.

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

The following conditions exist on Unit 1:

- A LOCA has occurred.
- EEP-1.0, Loss of Reactor or Secondary Coolant, is in progress.
- The operating crew is at the step to "Verify cold leg recirculation capability - AVAILABLE".

Which one of the following completes the statements below?

MOV-3185A, CCW TO 1A RHR HX, **not** capable of being opened (1) result in the loss of 'A' Train Cold Leg recirculation capability.

MOV-8706B, 1B RHR HX TO CHG PUMP SUCT, **not** capable of being opened (2) result in the loss of 'B' Train Cold Leg recirculation capability.

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

75. W/E15EK1.2 075

The following plant conditions exist on Unit 1 following a Large Break LOCA:

- ECCS is aligned for Cold Leg Recirculation.
- Containment pressure is 12 psig and stable.
- LI-3594A, CTMT SUMP LVL, indicates 8.2 feet and rising.
- The Motor Driven Fire Pump is running.

Which one of the following completes the statements below?

FRP-Z.2, Containment Flooding, (1) required to be entered.

A potential source of Containment flooding (2) water from the Fire Protection Header.

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

Unit 1 is at 98% power with the following conditions:

- Control Bank D is at 227 steps.
- Control Rod D12, located near N-42, has dropped to the bottom of the core.

Which one of the following completes the statements below?

Per the BASES of Tech Spec 3.1.4, Rod Group Alignment Limits, a power reduction to $\leq 75\%$ power is required to ensure (1) .

Quadrant Power Tilt Ratio (QPTR) will (2) due to the dropped rod.

- A. (1) the amount of stored energy in the fuel will not cause core design criteria to be exceeded
(2) increase
- B. (1) the amount of stored energy in the fuel will not cause core design criteria to be exceeded
(2) decrease
- C✓ (1) the local Linear Heat Rate increases will not exceed core design criteria
(2) increase
- D. (1) the local Linear Heat Rate increases will not exceed core design criteria
(2) decrease

Unit 1 is operating at 12% power when the following occurs:

- Two Underfrequency Relays on the 1A 4160V bus have actuated.
- Two Underfrequency Relays on the 1C 4160V bus have actuated.

Which one of the following completes the statements below?

An automatic Reactor trip (1) occur.

Per the BASES of Tech Spec 3.3.1, RTS Instrumentation, the RCP Underfrequency Reactor Trip (2).

A. (1) WILL

(2) provides a backup to the RCP Under Voltage (UV) Reactor Trip

B✓ (1) WILL

(2) ensures that protection is provided against violating the DNBR limit

C. (1) will NOT

(2) provides a backup to the RCP Under Voltage (UV) Reactor Trip

D. (1) will NOT

(2) ensures that protection is provided against violating the DNBR limit

Unit 1 was operating at 100% power and experienced a spurious Safety Injection (SI). The following conditions exist:

- EEP-0.0, Reactor Trip or Safety Injection, is in progress.
- SI termination criteria has been met.

Which one of the following completes the statements below?

Per the bases of EEP-0.0, the impact of **NOT** terminating the SI in a timely manner is (1).

The required procedure path to address the current plant conditions is to (2).

Procedure name: ESP-1.1, SI Termination

- A. (1) overfilling the Pressurizer
(2) immediately go to ESP-1.1
- B✓ (1) overfilling the Pressurizer
(2) terminate SI flow in EEP-0.0 then go to ESP-1.1
- C. (1) challenging the INTEGRITY Critical Safety Function
(2) immediately go to ESP-1.1
- D. (1) challenging the INTEGRITY Critical Safety Function
(2) terminate SI flow in EEP-0.0 then go to ESP-1.1

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

- AOP-19, Malfunction of Rod Control System, was in progress.
- The OATC placed both Reactor Trip handswitches to TRIP and the Red lights remained LIT on **both** Reactor Trip breakers.
- The CRDM supply breakers were opened from the MCB and all rod bottom lights illuminated.
- A Safety Injection did not occur.

Which one of the following completes the statements below?

The Main Turbine (1) have automatically tripped when the CRDM supply breakers were opened.

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. | SHOULD | HAS |
| B. | SHOULD | has NOT |
| C✓ | should NOT | HAS |
| D. | should NOT | has NOT |

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

- A Train is the On Service Train of CCW with 1C CCW pump running.
- A leak has been identified on the CCW miscellaneous header.
- AA5, CCW SRG TK LVL A TRN LO-LO, is in alarm.
- Makeup to the CCW surge tank is in progress.
- CCW surge tank level is 10" and lowering.

Subsequently, AOP-9.0, Loss of Component Cooling Water, is entered and a Reactor Trip is initiated.

Which one of the following completes the statements below?

1C CCW pump (1) automatically trip when the CCW Surge Tank reaches its LO-LO level.

The procedural actions required are to continue performance of AOP-9.0 (2) .

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|---|
| A✓ | will NOT | <u>in parallel with</u> the Emergency Response procedures |
| B. | WILL | <u>in parallel with</u> the Emergency Response procedures |
| C. | will NOT | <u>after</u> the Emergency Response procedures are completed |
| D. | WILL | <u>after</u> the Emergency Response procedures are completed |

A LOCA has occurred on UNIT 1 with the following conditions:

- EEP-1.0 is in progress.
- Containment pressure has risen to 3 psig and is stable.
- Containment Hydrogen concentration is 3%.
- RCS pressure is 400 psig and stable.
- The crew is evaluating the step - Check LHSI flow in progress.

Which one of the following completes the statements below?

The Post LOCA Containment Hydrogen Recombiners (1) required to be placed in service.

The operating crew is required to (2).

Procedure name: EEP-1.0, Loss of Reactor or Secondary Coolant
ESP-1.2, Post LOCA Cooldown and Depressurization

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|-------------------|
| A. | ARE | remain in EEP-1.0 |
| B✓ | ARE | go to ESP-1.2 |
| C. | are NOT | remain in EEP-1.0 |
| D. | are NOT | go to ESP-1.2 |

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

- NI-43, POWER RANGE, Lower Detector failed and is reading 0 microamps.
- NI-43 is reading 48.4%.
- NI-43C, PR3 PERCENT FLUX DIFF, is reading +30% Δ FLUX.

Which one of the following completes the statements below?

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

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

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

A Pressurizer pressure control system malfunction has occurred and the RCS has exceeded Safety Limit 2.1.2, RCS Pressure SL.

Per Safety Limit 2.1.2, RCS Pressure SL, which one of the following completes the statements below?

Exceeding the Safety Limit is MORE severe in (1).

The Safety Limit is based on (2) of design pressure of the RCS.

	<u>(1)</u>	<u>(2)</u>
A.	MODE 1	110%
B.	MODE 1	125%
C✓	MODE 4	110%
D.	MODE 4	125%

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

- AOP-16.0, CVCS Malfunction, is in progress due to a loss of Pressurizer level control.
- At the step to "Check Pressurizer level", Pressurizer level is 68%.

Which one of the following completes the statements below?

The Pressurizer is (1) per Tech Spec 3.4.9, Pressurizer.

Per AOP-16.0, the operating crew is required to (2) .

(1)

(2)

- | | | |
|----|--------------|---|
| A. | OPERABLE | trip the Reactor and go to EEP-0.0, Reactor Trip or Safety Injection |
| B. | OPERABLE | reduce Reactor power/TAVG as necessary using UOP-3.1, Power Operation |
| C. | NOT OPERABLE | trip the Reactor and go to EEP-0.0, Reactor Trip or Safety Injection |
| D✓ | NOT OPERABLE | reduce Reactor power/TAVG as necessary using UOP-3.1, Power Operation |

FRP-S.1, Response to Nuclear Power Generation/ATWT, is in progress on Unit 1 with the following conditions:

- Immediate operator actions are in progress.
- RCS pressure is 2350 psig and rising.

Subsequently, both PORV's have been MANUALLY opened and RCS pressure is lowering.

Which one of the following completes the statements below?

Per FRP-S.1, the PORV's are required to be MANUALLY closed when RCS pressure is below the MAXIMUM pressure of (1).

The reduction in pressure is required to (2).

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|--------------------------------|
| A. | 2240 | raise boron injection flowrate |
| B✓ | 2135 | raise boron injection flowrate |
| C. | 2240 | prevent excessive PORV cycling |
| D. | 2135 | prevent excessive PORV cycling |

Unit 1 is performing dry cask storage operations in the Spent Fuel Pool (SFP) with the following conditions:

At 1000:

- The SFP Bridge Crane Operator is in the process of removing the SFP weir gate which weighs approximately 3600 lbs.

At 1015:

- R-5, SFP RM, alarms.
- EH2, SFP LVL HI-LO, alarms.
- HP reports rising radiation levels in the SFP area.

Which one of the following completes the statements below?

At 1000, per TR 13.9.4, Crane Travel - Spent Fuel Storage Building, the SFP weir gate (1) allowed to be moved over irradiated fuel assemblies in the SFP.

At 1030, the Shift Manager is required to declare a(n) (1).

Reference Provided

	<u>(1)</u>	<u>(2)</u>
A.	IS	NOUE (RU2)
B.	is NOT	NOUE (RU2)
C.	IS	ALERT (RA2)
D✓	is NOT	ALERT (RA2)

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

- HUQR5, 1C 120V Regulated AC Panel Channel 1, is tagged OPEN to repair the 1C Solatron Regulator.
- LS/459Z, PRZR LVL CONT CH, is in the LT459/60 (CH I/II) position.

Subsequently, power is lost to the 1A 120V AC Vital Instrumentation Panel.

Which one of the following completes the statements below?

Actual Pressurizer level (1) be affected.

The Required Action Statement(s) of LCO (2) is(are) required to be performed.

Tech Specs: 3.3.1, Reactor Trip System (RTS) Instrumentation
3.8.9, Distribution Systems - Operating

	<u>(1)</u>	<u>(2)</u>
A.	WILL	3.3.1 AND 3.8.9
B✓	WILL	3.8.9 ONLY
C.	will NOT	3.3.1 AND 3.8.9
D.	will NOT	3.8.9 ONLY

Unit 1 is in Mode 3 when the following occurs:

- A leak develops on the Service Water (SW) supply to the 1A RCP Motor Air Cooler.
- MOV-3131 and MOV-3134, SW FROM RCP MTR AIR CLRS, were closed.
- MOV-3135, SW TO RCP MTR AIR CLRS, was closed.
- The leak is now isolated.

Which one of the following completes the statements below?

A Service water leak was occurring on the (1) Train.

After the leak is isolated, per Tech Spec 3.7.8, Service Water System, the affected Train of SW is (2).

	<u>(1)</u>	<u>(2)</u>
A.	A	OPERABLE
B✓	B	OPERABLE
C.	A	NOT OPERABLE
D.	B	NOT OPERABLE

Unit 1 is operating at 100% power when the following occurred:

- PT3371B, 1B SG PRESS, failed low.

Subsequently, a fire has required the Control Room to be evacuated.

- AOP-28.2, Fire in the Control Room, is in progress.
- Unit 1 control room has shifted control to the Hot Shutdown Panels (HSDP).
- All MSIVs are closed.
- The crew is performing the step to maintain SG pressures at approximately 1005 psig.

Which one of the following completes the statements below?

Indication for 1B SG pressure on the HSDP (1) affected by the PT3371B failure.

Per Tech Spec 3.7.4, Atmospheric Relief Valves (ARVs), PCV-3371B, 1B SG ATMOS REL VLV, is (2).

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

A blown control power fuse on Unit 1 R-5, SFP RM, renders it NON FUNCTIONAL.

Which one of the following completes the statements below?

The loss of R-5 (1) automatically trip the Fuel Handling Area Supply and Exhaust Fan.

The compensatory actions required by TRM 13.3.4, Radiation Monitoring Instrumentation for R-5 being NON FUNCTIONAL is to (2).

(1)

(2)

- | | | |
|----|----------|---|
| A. | WILL | perform area surveys of the SFP every 24 hours |
| B. | WILL | install a DAD in the vicinity of R-5 with a setpoint of 15mRem/hr |
| C✓ | will NOT | perform area surveys of the SFP every 24 hours |
| D. | will NOT | install a DAD in the vicinity of R-5 with a setpoint of 15mRem/hr |

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

- R-23B, SGBD TO DILUTION is reading 100 cpm.

Subsequently, the following conditions exist:

- The R-23B Instrument Power fuse is blown.
- R-23B is reading MINIMUM scale.

Which one of the following completes the statements below?

The SGBD release (1) AUTOMATICALLY terminate.

Per the ODCM, SGBD releases to the environment can continue if (2) .

	<u>(1)</u>	<u>(2)</u>
A✓	WILL	grab samples are obtained and analyzed
B.	WILL	samples are continuously collected with auxiliary sampling equipment
C.	will NOT	grab samples are obtained and analyzed
D.	will NOT	samples are continuously collected with auxiliary sampling equipment

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

- A rupture has occurred on the Instrument Air header piping in the MSVR.
- A Reactor Trip has occurred.
- AOP-6.0, Loss of Instrument Air, is in progress.
- Instrument Air is 75 psig and lowering.

Which one of the following completes the statements below?

Service Air (1) been **automatically** isolated from Instrument Air.

Per AOP-6.0, to maintain Pressurizer level, the operating crew is required to perform actions of (2) in conjunction with AOP-6.0.

Procedure names: AOP-16.0, CVCS Malfunction
SOP-2.1, CVCS Plant Startup and Operation

	<u>(1)</u>	<u>(2)</u>
A✓	HAS	AOP-16.0
B.	has NOT	AOP-16.0
C.	HAS	SOP-2.1
D.	has NOT	SOP-2.1

93. G2.1.41 093

Unit 1 is in Mode 6 with core offload stopped due to a problem with the gripper tube top limit switch on the Manipulator crane and the following conditions exist:

- No fuel is currently in the manipulator crane.
- The decision has been made to operate TS-3, Bridge Left Interlock Bypass switch, in order to move the bridge while the gripper tube is not at the top limit.

Which one of the following describes the approval authority for operating TS-3 per FHP-7.0, Limitations and Precautions for Handling Fuel Assemblies?

- A. Shift Manager
- B. Shift Supervisor
- ☒ C. Fuel Handling Supervisor
- D. Reactor Engineering Supervisor

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

At 1000:

- Chemistry discovers and reports that Surveillance Requirement 3.5.1.4, the Safety Injection Accumulator boron concentration verification, which is required at a frequency of 31 days, has been missed for the 1C Accumulator.
- The last 1C Accumulator boron sample result was 2350 ppm 45 days ago.
- The 1C Accumulator level has risen 1% due to RCS inleakage.
- A risk evaluation has been performed.

Which one of the following completes the statements below?

At 1000, the 1C Accumulator is (1) because (2).

A✓ (1) OPERABLE

(2) the delay period of SR 3.0.3 may be applied for up to 31 days

B. (1) OPERABLE

(2) the delay period of SR 3.0.3 may be applied for **ONLY** the next 24 hours

C. (1) NOT OPERABLE

(2) the surveillance frequency has been missed

D. (1) NOT OPERABLE

(2) the boron concentration is unknown

Which one of the following completes the statements below?

The **MINIMUM** steady state power level at which core power is in an unanalyzed condition is (1).

This condition is reportable under (2).

Procedures: NMP-AD-031, SNC Reportability Roles, Responsibilities, and Fleet Requirements
NMP-EP-110, Emergency Classification Determination and Initial Action

	<u>(1)</u>	<u>(2)</u>
A✓	103%	NMP-AD-031
B.	103%	NMP-EP-110
C.	107%	NMP-AD-031
D.	107%	NMP-EP-110

Which one of the following completes the statement below?

Compliance with Technical Specification 3.4.16, RCS Specific Activity, ensures that the resulting doses at the site boundary will not exceed an appropriate fraction of (1) limits following a (2) or a Main Steam Line Break.

- | | <u>(1)</u> | <u>(2)</u> |
|----|------------|------------------------------|
| A✓ | 10 CFR 100 | Steam Generator Tube Rupture |
| B. | 10 CFR 100 | Loss of Coolant Accident |
| C. | 10 CFR 20 | Steam Generator Tube Rupture |
| D. | 10 CFR 20 | Loss of Coolant Accident |

Both Units are operating at 100% power and the following conditions exist:

- Unit 1 dilution flow is 23,000 gpm.
- Unit 2 dilution flow is 23,500 gpm.
- A Unit 2 Waste Monitor Tank (WMT) release is in progress.

Subsequently, N1P16FR4107, SW DILUTION FLOW RECORDER, is declared INOPERABLE.

Which one of the following completes the statement below?

Per the Offsite Dose Calculation Manual (ODCM),

Unit 1 WMT #1 _____.

- A. CAN be released if WMT #1 activity is verified $< 0.01 \mu\text{Ci/gm}$
- B. CANNOT be released because a **Unit 2** WMT release is in progress
- C. CANNOT be released because N1P16FR4107 must be OPERABLE
- D✓ CAN be released if the **Unit 1** dilution flowrate is estimated at least once per 4 hours during the release

98. G2.4.26 098

Per NMP-ES-035-010, Fire Brigade, which one of the following completes the statements below?

Personnel assigned as Technical Specification required minimum staffing (1) be assigned to the Fire Brigade.

A MINIMUM of (2) qualified personnel shall be assigned to the Fire Brigade per shift.

	<u>(1)</u>	<u>(2)</u>
A.	CAN	3
B.	CAN	5
C.	CANNOT	3
D✓	CANNOT	5

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

At 1000:

- An unplanned loss of **ALL** Main Control Board Annunciators occurs.
- AOP-35.0, Loss of Main Control Board Annunciators, is in progress.

At 1015:

- 1B SGFP trips.
- The crew takes actions to stabilize the plant and a Reactor Trip does **NOT** occur.

Which one of the following completes the statements below?

At 1035, the emergency classification in effect is a(n) (1) per NMP-EP-110-GL01, FNP EALs - ICs, Threshold Values and Basis.

Per AOP-35.0, (2) is(are) required within one hour due to the loss of annunciator MH1, Fire.

Reference Provided

- A. (1) NOUE (SU3)
(2) a Pyrotronics panel firewatch
- B✓ (1) ALERT (SA4)
(2) a Pyrotronics panel firewatch
- C. (1) NOUE (SU3)
(2) hourly fire watches in all affected zones
- D. (1) ALERT (SA4)
(2) hourly fire watches in all affected zones

Unit 1 is conducting a natural circulation cooldown per ESP-0.3, Natural Circulation Cooldown with Allowance for Reactor Vessel Head Steam Voiding (with RVLIS).

- The following conditions exist:
 - Pressurizer level has risen to 93%
 - BOTH Trains of RVLIS indicates RED for the following:
 - Upper Head - 100% and 0%
 - Upper Support Plate - 100% and 72%
 - Upper Plenum 44%
 - All other RVLIS lights indicate GREEN

Which one of the following completes the statements below?

The **MAXIMUM** allowed cooldown rate for the current conditions is (1).

FRP-I.3, Response to Voids in Reactor Vessel, (2) be performed in conjunction with ESP-0.3.

- | | <u>(1)</u> | <u>(2)</u> |
|----|---------------------------------|------------|
| A. | < 50°F/hr | SHOULD |
| B. | < 50°F/hr | should NOT |
| C. | < 100°F in any 60 minute period | SHOULD |
| D. | < 100°F in any 60 minute period | should NOT |

UNIT 1 VOLUME III CURVE 21
 STEAM DUMP HEADER PRESSURE
 (Steam Dumps: TY-A...H)
 CONTROLLER: PK-464
 REV. 2.0 March 6, 2003 JSJ
 APPROVED:


 ES MANAGER

⁸
 5-12-03
 DATE

PSIG	AUTO SETPOINT	PSIG	AUTO SETPOINT	PSIG	AUTO SETPOINT	PSIG	AUTO SETPOINT
0	0.0						
10	0.1	310	2.6	610	5.1	910	7.6
20	0.2	320	2.7	620	5.2	920	7.7
30	0.3	330	2.8	630	5.3	930	7.8
40	0.3	340	2.8	640	5.3	940	7.8
50	0.4	350	2.9	650	5.4	950	7.9
60	0.5	360	3.0	660	5.5	960	8.0
70	0.6	370	3.1	670	5.6	970	8.1
80	0.7	380	3.2	680	5.7	980	8.2
90	0.8	390	3.3	690	5.8	990	8.3
100	0.8	400	3.3	700	5.8	1000	8.3
110	0.9	410	3.4	710	5.9	1010	8.4
120	1.0	420	3.5	720	6.0	1020	8.5
130	1.1	430	3.6	730	6.1	1030	8.6
140	1.2	440	3.7	740	6.2	1040	8.7
150	1.3	450	3.8	750	6.3	1050	8.8
160	1.3	460	3.8	760	6.3	1060	8.8
170	1.4	470	3.9	770	6.4	1070	8.9
180	1.5	480	4.0	780	6.5	1080	9.0
190	1.6	490	4.1	790	6.6	1090	9.1
200	1.7	500	4.2	800	6.7	1100	9.2
210	1.8	510	4.3	810	6.8	1110	9.3
220	1.8	520	4.3	820	6.8	1120	9.3
230	1.9	530	4.4	830	6.9	1130	9.4
240	2.0	540	4.5	840	7.0	1140	9.5
250	2.1	550	4.6	850	7.1	1150	9.6
260	2.2	560	4.7	860	7.2	1160	9.7
270	2.3	570	4.8	870	7.3	1170	9.8
280	2.3	580	4.8	880	7.3	1180	9.8
290	2.4	590	4.9	890	7.4	1190	9.9
300	2.5	600	5.0	900	7.5	1200	10.0

DRAWINGS:

Elementary: U176066 (7378D82)
 P & ID: D175033 sh. 1

Remarks: (1) The set point for PK-464 is 1005 psig when the Steam Dump Selector Switch is in the "TAVG" Position. Set M/A Station to 8.375V.
 (2) PK-464 Controls only when the Steam Dump Selector is in the "STM PRESS" Position.

RA2 - Damage to Irradiated Fuel OR Loss of Water Level that Has or Will Result in the Uncovering of Irradiated Fuel Outside the Reactor Vessel (pg. 23)

1. UNPLANNED VALID alarm on any of the following radiation monitors:

Drumming Station RE-0008

Containment Purge Ventilation Monitor RE-24A **OR** B

Spent Fuel Pool Ventilation Monitor RE-25A **OR** B

Spent Fuel Pool Area Radiation Monitor RE-5

2. Loss of water level that has or will result in the uncovering of irradiated fuel outside the Reactor Vessel as indicated by ANY of the following:

Report of personnel during fuel assembly movements.

Spent Fuel Pool Storage Less than E1 129

Transfer Canal Less than E1 116

Reactor Core Elevation Less than E1 118

RU2 – Unexpected Rise in Plant Radiation (pg. 29)

1. a. VALID indication of uncontrolled water level lowering in the reactor refueling cavity, spent fuel pool, **OR** fuel transfer canal with all irradiated fuel assemblies remaining covered by water as indicated by any of the following:

Personnel report of low water level

Annunciator EH2 “SFP LVL HI/LO”

Personnel report of cavitation **OR** low discharge pressure for SFP Pump Discharge Pressure **AND/OR** RHR Pump Discharge Pressure

b. UNPLANNED VALID Direct Area Radiation Monitor readings rise on any of the foll:

RE-0005 in the fuel building

RE-0002 in containment

2. UNPLANNED VALID Direct Area Radiation Monitor readings rise by a factor of 1000 over normal* levels.

*Normal levels can be considered as the highest reading in the past twenty-four hours excluding the current peak value.

SA4 - UNPLANNED Loss of Most or All Safety System Annunciation or Indication in the Control Room With EITHER (1) a SIGNIFICANT TRANSIENT in Progress, OR (2) Compensatory Non-Alarming Indicators are Unavailable. (pg. 51)

1. UNPLANNED loss of most OR all (approximately 75% of the MCB annunciators) OR indicators associated with safety systems for greater than 15 minutes.

AND EITHER

a. A SIGNIFICANT TRANSIENT is in progress

SU3 - UNPLANNED Loss of Most or All Safety System Annunciation or Indication in The Control Room for Greater Than 15 Minutes (pg. 56)

1. UNPLANNED loss of most OR all (approximately 75% of the MCB annunciators) OR indicators associated with safety systems for greater than 15 minutes.

ANSWER KEY REPORT
for ILT 37 SRO exam Final Test Form: 0

				Answers
#	ID	Points	Type	0
1	001A3.06 1	1.00	MCS	C
2	001AG2.4.11 2	1.00	MCS	B
3	003K6.02 3	1.00	MCS	B
4	004A1.07 4	1.00	MCS	A
5	004K1.06 5	1.00	MCS	B
6	005K5.02 6	1.00	MCS	A
7	006A4.01 7	1.00	MCS	D
8	007A1.02 8	1.00	MCS	B
9	007EK2.02 9	1.00	MCS	B
10	007K4.01 10	1.00	MCS	C
11	008AK2.01 11	1.00	MCS	B
12	008K3.03 12	1.00	MCS	B
13	010A4.03 13	1.00	MCS	D
14	010K6.01 14	1.00	MCS	D
15	012A2.03 15	1.00	MCS	A
16	013K2.01 16	1.00	MCS	B
17	015AK1.01 17	1.00	MCS	D
18	015K2.01 18	1.00	MCS	C
19	017K6.01 19	1.00	MCS	C
20	022A2.01 20	1.00	MCS	B
21	025AK3.01 21	1.00	MCS	D
22	026A2.03 24	1.00	MCS	A
23	026AA1.07 22	1.00	MCS	C
24	026K1.01 23	1.00	MCS	D
25	027AK1.02 25	1.00	MCS	D
26	027K1.01 26	1.00	MCS	C
27	029A1.02 27	1.00	MCS	B
28	035A4.06 28	1.00	MCS	C
29	036AA2.02 29	1.00	MCS	A
30	037AA2.07 30	1.00	MCS	D
31	038EG2.4.6 31	1.00	MCS	A
32	039K4.02 32	1.00	MCS	C
33	041K5.02 33	1.00	MCS	A
34	045A2.12 34	1.00	MCS	C
35	051AK3.01 35	1.00	MCS	A
36	054AA2.03 36	1.00	MCS	D
37	055EA2.01 37	1.00	MCS	A
38	055K3.01 38	1.00	MCS	C
39	056AG2.2.39 39	1.00	MCS	C
40	057AA1.05 40	1.00	MCS	A
41	058AK3.02 41	1.00	MCS	C
42	059A4.08 42	1.00	MCS	B
43	059K3.03 43	1.00	MCS	A
44	061A1.04 44	1.00	MCS	A
45	061G2.1.23 45	1.00	MCS	A
46	062A1.03 46	1.00	MCS	C
47	062AA2.03 47	1.00	MCS	B

ANSWER KEY REPORT
for ILT 37 SRO exam Final Test Form: 0

				Answers
#	ID	Points	Type	0
48	063A3.01 48	1.00	MCS	D
49	063G2.4.35 49	1.00	MCS	A
50	064G2.4.45 50	1.00	MCS	C
51	065AK3.04 51	1.00	MCS	B
52	068AK3.18 52	1.00	MCS	B
53	068K4.01 53	1.00	MCS	D
54	073K4.01 54	1.00	MCS	A
55	076K2.08 55	1.00	MCS	B
56	077AG2.4.31 56	1.00	MCS	B
57	078K1.04 57	1.00	MCS	A
58	103A3.01 58	1.00	MCS	A
59	G2.1.18 59	1.00	MCS	B
60	G2.1.5 60	1.00	MCS	B
61	G2.2.42 61	1.00	MCS	C
62	G2.2.44 62	1.00	MCS	D
63	G2.3.11 63	1.00	MCS	B
64	G2.3.12 64	1.00	MCS	A
65	G2.3.5 65	1.00	MCS	D
66	G2.4.37 66	1.00	MCS	C
67	G2.4.49 67	1.00	MCS	C
68	G2.4.9 68	1.00	MCS	A
69	W/E03EK2.2 69	1.00	MCS	A
70	W/E04EK2.1 70	1.00	MCS	A
71	W/E05EK1.1 71	1.00	MCS	D
72	W/E06EG2.1.20 72	1.00	MCS	A
73	W/E08EA1.1 73	1.00	MCS	D
74	W/E11EA1.1 74	1.00	MCS	D
75	W/E15EK1.2 75	1.00	MCS	A
SECTION 1 (75 items)		75.00		
76	003AG2.2.22 76	1.00	MCS	C
77	003G2.4.2 77	1.00	MCS	B
78	006A2.13 78	1.00	MCS	B
79	007EG2.4.41 79	1.00	MCS	C
80	008G2.4.8 80	1.00	MCS	A
81	009EG2.1.7 81	1.00	MCS	B
82	012A2.05 82	1.00	MCS	B
83	027AG2.2.25 83	1.00	MCS	C
84	028AG2.1.32 84	1.00	MCS	D
85	029EA2.05 85	1.00	MCS	B
86	034G2.4.30 86	1.00	MCS	D
87	057AA2.16 87	1.00	MCS	B
88	062AA2.01 88	1.00	MCS	B
89	068AA2.08 89	1.00	MCS	C
90	072A2.03 90	1.00	MCS	C
91	073A2.02 91	1.00	MCS	A

ANSWER KEY REPORT
for ILT 37 SRO exam Final Test Form: 0

				Answers
#	ID	Points	Type	0
92	079A2.01 92	1.00	MCS	A
93	G2.1.41 93	1.00	MCS	C
94	G2.2.37 94	1.00	MCS	A
95	G2.2.38 95	1.00	MCS	A
96	G2.3.14 96	1.00	MCS	A
97	G2.3.6 97	1.00	MCS	D
98	G2.4.26 98	1.00	MCS	D
99	G2.4.32 99	1.00	MCS	B
100	W/E10EA2.2 100	1.00	MCS	D
SECTION BREAK (25 items)		25.00		