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1. Given the following:

- Unit 2 was at 60% power when a reactor trip occurred as a result of an inadvertent Train "A" Feedwater Isolation Signal.
- After the plant was stabilized, the OATC observed the following on Annunciator Panel 2-XA-55-4D, "Reactor First Out":
 - LS-3-97B, "STM GEN LOOP 3 LEVEL LOW-LOW REACTOR TRIP" window lit and NOT flashing.
 - "P-9 TURBINE TRIP REACTOR TRIP" window flashing.

Which ONE of the following identifies the cause of the reactor trip and the status of the Reactor Trip First Out Panel?

- A. The reactor tripped due to the turbine trip;
The Reactor Trip First Out panel has been acknowledged, but NOT reset.
- B. The reactor tripped due to the turbine trip;
The Reactor Trip First Out panel has NOT been acknowledged and the SG Low-Low level window came in after the reactor trip occurred.
- C. The reactor tripped due to the SG low level;
The Reactor Trip First Out panel has been acknowledged, but NOT reset.
- D. The reactor tripped due to the SG low level;
The Reactor Trip First Out panel has been acknowledged and the P-9 Turbine Trip Reactor Trip window came in after the panel was acknowledged.

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2. Given the following:

- Unit 2 operating at 100% steady-state power.
- A Pressurizer safety valve fails partially open resulting in the crew initiating a manual Reactor Trip and Safety Injection.
- The crew observed the following post-trip indications:
 - Pressurizer pressure: 1820 psig and lowering
 - Pressurizer level: 53% and rising
 - PRT pressure: 45 psig and rising

Given the above conditions, which ONE of the following annunciators would indicate ~~a~~^{an additional} leak was occurring in addition to the leaking safety valve?

- A. TS-68-309 PRESSURIZER RELIEF TANK TEMP HIGH
- B. XS-68-363 PRESSURIZER RELIEF VALVE OPEN
- C. MS-30-241 LOWER COMPT MOISTURE HIGH
- D. LS-68-335D/E PRESSURIZER LEVEL HIGH-LOW

3. In accordance with AOP-R.05, "RCS Leak and Leak Source Identification", which ONE of the following changes in containment conditions discriminates between a small break LOCA and a steam line break inside containment?
- A. Radiation
 - B. Humidity
 - C. Pressure
 - D. Temperature

4. In accordance with AOP-R.04, "Reactor Coolant Pump Malfunction", which ONE of the following identifies the LOWEST temperature on the Reactor Coolant Pump lower bearing, that if exceeded would require tripping the #1 RCP?
- A. 170°F
 - B. 200°F
 - C. 220°F
 - D. 225°F

5. Given the following:

- Unit 2 is operating at 100% power.
- The crew entered AOP-R.05, "RCS Leak and Leak Source Identification".
- The crew is re-establishing charging flow in accordance with EA-62-5, "Establishing Normal Charging and Letdown".
- RCP seal injection flows are as follows:

<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
9.2 gpm	10.5 gpm	11.9 gpm	13.4 gpm

Which ONE of the following identifies the adjustment needed to 2-FCV-62-89, "Seal Water FCV" and the effect it will have on charging flow through the Regen Heat Exchanger?

	<u>2-FCV-62-89 needs to be throttled</u>	<u>Charging Flow to the Regen Heat Exchanger WILL</u>
A.	OPEN	Increase
B.	OPEN	Decrease
C.	CLOSED	Increase
D.	CLOSED	Decrease

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6. Given the following:

- Unit 1 has been shutdown and a cooldown is in progress.
- Tavg is currently 220°F.
- Current RCP status is:

<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>
Off but available	Running	Off & tagged	Off & tagged

- All S/G levels are between 28 - 34% narrow range.
- The operating crew is in the process of placing the unit on RHR cooling using Train "B".
- During relay testing on 6.9kV Shutdown board 1A-A a differential relay is actuated.

If RHR Pump 1B-B trips when a start is attempted, which ONE of the following identifies the status of Technical Specification 3.4.1.3, "Reactor Coolant System - Shutdown"?

- A. LCO entry is NOT required, the Technical Specification is met.
- B. LCO would be entered until RCP #1 was placed in service.
- C. LCO would be entered until one RHR pump was restored to service.
- D. LCO would be entered until either both RHR pumps were returned to operable status or the RCS was cooled to less than 200°F

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7. Given the following:

- Both Units are at 100% RTP.
- 1A-A Containment Spray Pump is tagged for maintenance.
- Unit 2 CCS is supplying the Spent Fuel Pool Cooling System.
- The C-S CCS Pump suffers a catastrophic bearing failure.
- The crew enters AOP-M.03, "Loss Of Component Cooling Water".

Which ONE of the following identifies the Containment Spray Pump(s) to be locked out and the compensatory alignment required prior to restoring the pumps?

Containment Spray Pump(s) <u>Locked Out</u>	Compensatory <u>Alignment Required</u>
A. 2B-B only	Realign 2B-B CCS Pump for "B" Train cooling.
B. 1B-B and 2B-B	Realign 2B-B CCS Pump for "B" Train cooling.
C. 2B-B only	Realign 1B-B CCS Pump for "B" Train cooling.
D. 1B-B and 2B-B	Realign 1B-B CCS Pump for "B" Train cooling.

8. Given the following:

- Unit 1 experiences an ATWS following a turbine trip.
- Due to a trip of the Boric acid pump aligned to the unit, the operators establish Emergency Boration from the RWST in accordance with EA-68-4, "Emergency Boration".
- All plant equipment functions as designed except for the Reactor Trip breakers and the boric acid pump.
- When completing the step for establishing emergency boration flow, the crew notes Pressurizer pressure is 2260 psig and dropping.

For the above conditions, which ONE of the following identifies the existing flowpath for emergency boration and correct status of the Pressurizer PORVs?

Emergency Boration <u>Flow Path</u>	Pressurizer <u>PORVs</u>
A. Through CCPIT	Manually OPENED
B. Through CCPIT	In AUTO and CLOSED
C. Through charging line	Manually OPENED
D. Through charging line	In AUTO and CLOSED

9. Given the following:

- Unit 2 is at 100% power.
- SG #3 main steam line ruptured inside containment.
- Containment pressure is 6 psig and rising.
- All systems functioned as designed.

Which ONE of the following describes the minimum requirements for AFW flow to the intact SG and how the intact SG levels will be maintained while responding to the event in progress?

<u>Continue to feed the intact SGs with...</u>	<u>Then, maintain intact SG levels between ...</u>
A. > 440 gpm AFW flow until one SG narrow range level > 10%	10% and 50% Narrow Range.
B. > 440 gpm AFW flow until one SG narrow range level > 25%	25% and 50% Narrow Range.
C. > 880 gpm AFW flow until one SG narrow range level > 10%	10% and 50% Narrow Range.
D. > 880 gpm AFW flow until one SG narrow range level > 25%	25% and 50% Narrow Range.

10. Given the following:

- FR-H.1, "Loss Of Secondary Heat Sink", is in progress.
- RCS bleed and feed had been initiated when Auxiliary Feedwater (AFW) capability was restored.
- All Steam generators (SGs) indicate approximately 8% Wide Range level and approximately 90 psig.
- Incore TC temperatures are stable at 552°F.

Which ONE of the following identifies an acceptable method of re-establishing feed flow under these conditions and the reason why?

- A. Feed ONLY one SG at a rate of 25 gpm to prevent MSIV closure due to negative rate signal.
- B. Feed ONLY one SG at a rate of 25 gpm to minimize thermal stresses to the SG components.
- C. Feed ALL SGs at maximum rate to ensure the minimum AFW flow required for heat sink is established to allow termination of bleed and feed.
- D. Feed ALL SGs at maximum rate to establish minimum steam generator level requirements to allow termination of RCS bleed and feed.

11. Given the following:

- The crew is performing ECA-0.0, "Loss Of All AC Power".
- ECA-0.0, Appendix A, Locking Out Shutdown Board Loads has been completed.
- Offsite power has been restored and the crew is ready to re-energize the Shutdown Boards.

Which ONE of the following identifies the pumps that will remain in A-AUTO and available to start when power is restored to the Shutdown Boards?

- A. Centrifugal Charging Pumps
- B. Component Cooling Water Pumps
- C. Essential Raw Cooling Water Pumps
- D. Motor Driven Auxiliary Feedwater Pumps

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12. Given the following:

- A Large Break LOCA occurred on Unit 1.
- A loss of offsite power occurs after ES-1.3, "Transfer To RHR Containment Sump" had been completed.
- Shutdown Boards 1A and 1B were re-energized by the diesel generators.

In accordance with ES-1.3, which ONE of the following sequence of actions is taken to restore core cooling following the loss of offsite power?

- A. Restart the RHR pumps.
Restart the SI pumps.
Ensure the CCPs auto start.
- B. Place the CCPs in Pull-To-Lock.
Restart the RHR pumps.
Restart the CCPs and SI pumps.
- C. Ensure the RHR pumps auto start.
Restart the SI pumps.
Ensure the CCPs auto start.
- D. Place the CCPs in Pull-To-Lock.
Ensure the RHR and SI pumps auto start.
Restart CCPs.

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13. Given the following:

- Unit 1 is at 100% RTP.
- MCR alarms received indicate that an electrical board has failed.
- All trip status lights on Panel 1-XX-55-5 (1-M-5) are OFF .
- The crew responds in accordance with the appropriate procedure.

Which ONE of the following identifies (1) the electrical board that failed and (2) the reason that manipulation of Auxiliary Feedwater (AFW) controls will be required?

- | <u>(1)</u> | <u>(2)</u> |
|---|--|
| A. 120 VAC Vital Instrument Board 1-I. | To prevent overcooling due to excessive AFW flow due to the LCVs failing open. |
| B. 120 VAC Vital Instrument Board 1-I. | To allow the turbine driven AFW pump to be operated above minimum speed. |
| C. 120 VAC Vital Instrument Board 1-II. | To prevent overcooling due to excessive AFW flow due to the LCVs failing open. |
| D. 120 VAC Vital Instrument Board 1-II. | To allow the turbine driven AFW pump to be operated above minimum speed. |

14. Given the following conditions:

- Unit 1 is at 100% power.
- Unit 2 is in Mode 6 with upper internals removal in progress.
- 125V DC Vital Battery III output breaker tripped and can **NOT** be reclosed.

In accordance with 0-SO-250-1, "125 Volt DC Vital Power System", which ONE of the following describes the alignment when 125V DC Vital Battery Board III is restored to Operable status?

- A. 125V DC Vital Battery V and Charger V aligned to the board.
- B. 125V DC Vital Battery Bank V and Spare Charger 2-S aligned to the board.
- C. 125V DC Vital Battery Bank V and Spare Charger 1-S aligned to the board.
- D. 125V DC Vital Battery Bank V and 125v DC Battery Charger III to the board.

15. Given the following:

- Unit 1 in service at 90% power for previous 12 hours after running at 100% power for the past 360 days.
- Unit 2 in service at 100% power for 3 days following a refueling outage.
- Spent Fuel Pit cooling is being supplied from Unit 1.

Subsequently:

- All ERCW flow is lost due to an explosion at the ERCW pumping station.
- AOP-M.01, "Loss of Essential Raw Cooling Water" is implemented on both Units.
- The operators are preparing to establish temporary cooling to a CCP on one of the Units.

Which ONE of the following identifies which Unit should have the CCP temporary cooling established first and the reason why?

	<u>Unit to have CCP temporary Cooling Established First</u>	<u>Reason</u>
A.	Unit 1	Because Unit has higher decay heat due to operating longer.
B.	Unit 1	Because Unit is aligned to supply Spent Fuel Pit cooling.
C.	Unit 2	Because Unit will have a faster CCS heat up rate and is more time critical.
D.	Unit 2	Because Unit has higher decay heat since tripped from a higher power level.

16. Which ONE of the following is the reason for the backup air supply for the Turbine Driven AFW Pump LCVs and the action/condition required to align the backup supply?
- A. Allows the LCVs to be CLOSED during a Station Blackout event and will require manual alignment locally when needed.
 - B. Allows the LCVs to be CLOSED during a Station Blackout event and automatically supplied when air pressure drops below regulator setpoint.
 - C. Allows the LCVs to be OPENED during a Station Blackout event and will require manual alignment locally when needed.
 - D. Allows the LCVs to be OPENED during a Station Blackout event and automatically supplied when air pressure drops below regulator setpoint.

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17. Given the following:

- Unit 1 is at 100% RTP.
- All systems are aligned normally.
- Generator reactive load is currently at "0" MVARs.
- The Transmission Operator has notified the plant that system voltage problems require Unit 1 to establish the maximum allowable outgoing reactive load.

Which ONE of the following identifies the MAXIMUM outgoing reactive load in accordance with GOI-6, "Apparatus Operation", and the correct operation of the Exciter Voltage Adjuster?

	<u>Maximum Outgoing Reactive Load</u>	<u>Exciter Voltage Adjuster</u>
A.	240 MVARs	Lower
B.	240 MVARs	Raise
C.	300 MVARs	Lower
D.	300 MVARs	Raise

18. Given the following conditions:

- With Unit 1 initially at full power a large break LOCA occurred.
- Containment pressure = 11 psig.
- Both Containment Spray Pumps are running
- RWST level = 26%.
- The crew transitioned to ECA-1.1, "Loss Of RHR Sump Recirculation", and is at the table in Step 8 to determine the proper containment spray pump alignment and operation.

Which ONE of the following will result in the proper alignment of the containment spray pumps under existing plant conditions?

- A. Stop both containment spray pumps and place the handswitches in PULL TO LOCK.
- B. Continue to run both containment spray pumps until RWST level is less than or equal to 8%, then stop both containment spray pumps.
- C. Stop one containment spray pump and allow the remaining containment spray pump to take suction from the RWST.
- D. Stop both containment spray pumps until suction can be aligned to the containment sump, then restart one containment spray pump.

19. Given the following:

- Unit 1 is operating near EOL at 80% power.
- Rod control is in AUTOMATIC with Control Bank "D" at 186 steps.
- 1-PT-1-73, Turbine Impulse Pressure Transmitter fails HIGH.

Which ONE of the following identifies the direction Control Bank "D" rods will move and why the Rod Position Indicating (RPI) System Technical Specification requires the individual rod RPIs to be ± 12 steps of the respective group step counter?

<u>Direction</u>	<u>T/S Requirement to be ± 12 steps of Step Counter</u>
A. Insert	To maintain acceptable power distribution limits.
B. Insert	To ensure moderator temperature coefficient remains negative.
C. Withdraw	To maintain acceptable power distribution limits.
D. Withdraw	To ensure moderator temperature coefficient remains negative.

20. Given the following:

- Following a load reduction to 70% power, Control Bank "D" Rod M-8 was found misaligned from its bank by greater than 12 steps for twenty minutes.
- The crew entered AOP-C.01, "Rod Control System Malfunctions", and is preparing to realign the control rod.
- Reactor Engineering has determined the following:
 - No restrictions apply to realigning the control rod.
 - The misaligned rod is to be moved to the affected bank position.

Which ONE of the following identifies how the Rod Control System will be operated to realign the control rod in accordance with AOP-C.01?

Operators will disconnect the lift coil(s) for ...

- A. the misaligned rod and adjust the affected group step counter to match the misaligned rod position.
- B. the misaligned rod and adjust the affected bank step counters to match the misaligned rod position.
- C. each rod in the affected group (except M-8) and adjust the affected bank step counters to match the misaligned rod position.
- D. each rod in the affected bank (except M-8) and adjust the affected group step counter to match the misaligned rod position.

21. Given the following:

- A Reactor Trip occurred followed by the crew implementing EA-68-4, Section 4.2, "Emergency Boration from BAT".
- After placing 1-HS-62-138A, Emergency Boration FCV in OPEN, the OATC released the handswitch after observing flow indicated on 1-FI-62-137A, Emerg Boration Flow.
- Two minutes later, the OATC observed both 1-HS-62-138A RED and GREEN lights LIT and flow stable at 50 gpm.

Which ONE of the following identifies the status of FCV-62-138, Emergency Boration FCV and the corresponding emergency boration flow rate?

FCV-62-138...

- A. stopped opening when the handswitch was released and the flow rate is BELOW the minimum required.
- B. stopped opening when the handswitch was released and the flow rate is ABOVE the minimum required.
- C. should be full open but has stopped due to thermal overload and the flow rate is BELOW the minimum required.
- D. should be full open but has stopped due to thermal overload and the flow rate is ABOVE the minimum required.

22. Given the following sequence of events:

- Unit 1 in Mode 6 with core reload in progress.
- Shutdown monitor was last reset when the count rate was at a steady state 6 cps.
- Source Range instruments indicate counts are rising unexpectedly.
- Annunciator "Source Range High Flux Level At Shutdown" alarms

Which ONE of the following indicates the rise in count rate required to cause the alarm of the "Source Range High Flux Level At Shutdown" annunciator and the action(s) required if the alarm is valid?

	<u>Alarm Setpoint</u>	<u>Required Actions</u>
A.	9 cps;	Announce over the PA system to evacuate containment and notify the Refueling SRO to immediately suspend core alterations.
B.	9 cps;	ONLY notify the Refueling SRO to immediately suspend core alterations
C.	18 cps;	Announce over the PA system to evacuate containment and notify the Refueling SRO to immediately suspend core alterations.
D.	18 cps;	ONLY notify the Refueling SRO to immediately suspend core alterations

23. Given the following:

- An accidental spill of the Monitor Tank occurred in the Auxiliary Building.
- After isolating the spill, Radcon reported the following conditions:
 - General area radiation levels of 125 mR/hr at 30 cm
 - Highest contamination reading of $3.6E3$ dpm/100 cm²

Which ONE of the following describes the combination of postings required for the area and the radiological concern associated with the types of radiation?

<u>Postings Required</u>	<u>Radiological Concern</u>
A. Radiation Area; Contamination Area	Radiation is a gamma concern; Contamination is a beta concern.
B. Radiation Area; High Contamination Area	Radiation is a beta concern; Contamination is a gamma concern.
C. High Radiation Area; Contamination Area	Radiation is a gamma concern; Contamination is a beta concern.
D. High Radiation Area; High Contamination Area	Radiation is a beta concern; Contamination is a gamma concern.

24. Given the following:

- A fire is reported on MFPT Oil Tank 1A.
- The HPFP System is actuated from the Control Room using control switch 1-HS-26-75A, MFPT OIL TANK 1A FOG CONTROL.

Which ONE of the following combinations shows the expected status of the indicating lights on 1-HS-26-75A after actuating the HPFP System?

	<u>AMBER</u>	<u>WHITE</u>	<u>RED</u>
A.	OFF	LIT	LIT
B.	LIT	OFF	LIT
C.	LIT	LIT	OFF
D.	LIT	LIT	LIT

25. Given the following:

- Unit 1 reactor tripped and a natural circulation cooldown was required.
- The LTOPs system was placed in service in accordance with ES-0.2, "Natural Circulation Cooldown".
- Subsequently, a faulted steam generator resulted in entry into FR-P.1, "Pressurized Thermal Shock".
- All RCS temperatures have been stabilized at approximately 290°F.
- RCS Pressure is 630 psig.
- Loop 3 Cold Leg Temperature fails LOW.

Which ONE of the following describes the effect on the unit?

- A. PORV PCV-68-334 will open and remain open unless it is manually closed.
- B. PORV PCV-68-340 will open and remain open unless it is manually closed.
- C. PORV PCV-68-334 will open until RCS pressure drops below the minimum LTOP setpoint.
- D. PORV PCV-68-340 will open until RCS pressure drops below the minimum LTOP setpoint.

26. Given the following:

- Unit 1 experienced a reactor trip and loss of offsite power.
- The crew is performing ES-0.4, "Natural Circulation Cooldown With Steam Void in Vessel (Without RVLIS)".

While performing RCS depressurization steps in ES-0.4, which ONE of the following explains a function served by using the Pressurizer heaters to repressurize the RCS by 100 psig when Pressurizer level exceeds 90%?

- A. Promotes heat removal from the upper head region of the vessel by collapsing the steam void.
- B. Maintains Pressurizer conditions that allow restarting the Reactor Coolant Pumps when power is restored.
- C. Provides exchange of liquid in the pressurizer to maintain Pressurizer and RCS boron concentrations within 50 ppm.
- D. Allows transfer of the upper head void into the RCS hot legs where the RCS subcooled mass will collapse the void.

27. Which one of the following states interlocks that must be met before valve FCV-72-23 (Train A Containment Spray Suction from Containment Sump) can be opened?
- A. Both FCV-74-3 (RHR Suction from RWST) closed and FCV-72-40 (RHR Discharge to RHR Spray) must be closed.
 - B. Both FCV-72-40 (RHR Discharge to RHR Spray) and FCV-72-34 (Containment Spray Pump Recirc) must be closed.
 - C. Both FCV-72-22 (Containment Spray Suction from RWST) and FCV-74-3 (RHR Suction from RWST) must be closed.
 - D. Both FCV-72-34 (Containment Spray Pump Recirc) and FCV-72-22 (Containment Spray Suction from RWST) must be closed.

28. Given the following:

- Unit 1 is at 100% power.
- Annunciator Panel 1-XA-55-5B, Window B-5: "LS-68-34A/B REAC COOL PMP 2 OIL RESERVOIR LEVEL HI-LOW" alarms.
- RCP #2 motor bearing temperatures are within limits, stable, and being monitored.
- Reactor Building Pocket Sump level is 52%.

Which ONE of the following identify actions required by the Annunciator Response Procedure?

- A. Pump pocket sump level down and monitor pocket sump level for significant change in rate of rise.
Request Electricians to determine the oil level.
- B. Pump pocket sump level down and monitor pocket sump level for significant change in rate of rise.
Place RCP Lift Oil Pump in service until oil levels can be verified.
- C. Lockout the pocket sump pumps to prevent pumping oil until status of RCP motor bearing oil levels can be determined.
Request Electricians to determine the oil level.
- D. Lockout the pocket sump pumps to prevent pumping oil until status of RCP motor bearing oil levels can be determined.
Place RCP Lift Oil Pump in service until oil levels can be verified.

29. Given the following:

- Unit 1 is in Mode 5 with water solid operation.
- RHR Train "A" is operating in shutdown cooling mode.
- RCS is at 160°F.
- VCT temperature is 115°F.
- #2 RCP as the only RCP running was inadvertently stopped 10 minutes ago after a 1 hour run.

Which ONE of the following identifies the requirements that must be met prior to attempting a restart of the #2 RCP?

- A. Must wait 30 minutes from the time the pump was stopped and can be restarted with current plant conditions.
- B. Must wait 30 minutes from the time the pump was stopped but a steam bubble must be established in the Pressurizer.
- C. No time restriction on restarting the pump and can be restarted with current plant conditions.
- D. No time restriction on restarting the pump but a steam bubble must be established in the Pressurizer.

30. Given the following:

- Operators are responding to a small break LOCA on Unit 1 in accordance with E-1, "Loss Of Reactor or Secondary Coolant".
- The Non-Essential Control Air header inside containment was depressurized and isolated due to a pipe rupture.

Which ONE of the following identifies how the CVCS charging and letdown isolation valves automatically respond to the given plant conditions?

	<u>1-FCV-62-90</u> <u>Charging FCV Isolation</u>	<u>1-FCV-62-69</u> <u>Letdown Isolation</u>
A.	OPEN	OPEN
B.	OPEN	CLOSED
C.	CLOSED	OPEN
D.	CLOSED	CLOSED

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31. Plant conditions are as follows:

- Unit 1 is in Mode 4.
- RHR Train "A" is in service per 0-SO-74-1, "Residual Heat Removal System".
- RCS temperature is stable at the current RHR flow rate.

Which ONE of the following malfunctions will result in a REDUCTION in flow through the RHR Heat Exchanger 1A?

A loss of ...

- A. air to 1-FCV-74-32, RHR HTX Bypass.
- B. air to 1-FCV-74-16, RHR HTX "A" Outlet.
- C. 120V AC Vital Instrument Power Board 1-II.
- D. 480V Shutdown Board 1A1-A.

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32. Given the following:

- A Main Steam Line Break occurred on Unit 2.
- Reactor Trip and Safety Injection actuated automatically.
- No operator actions have been taken.

Which ONE of the following identifies the expected ECCS valve position for these conditions?

<u>VALVE</u>	<u>POSITION</u>
A. FCV-63-25, CCPIT Outlet Valve	Closed
B. LCV-62-133, VCT Outlet Valve	Open
C. FCV-62-98, CCP Miniflow Valve	Open
D. FCV-74-16, RHR Heat Exch. Outlet Valve	Closed

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33. Given the following:

- Unit 1 is operating at 100% power.
- Annunciator Panel 1-XA-55-5A, Window D-1: "PS-68-301 PRESSURIZER RELIEF TANK PRESS HIGH" alarms.
- The OATC observes the following conditions:
 - PRT pressure is 8.5 psig and slowly rising.
 - PRT temperature is 104°F and stable.
 - PRT level is 72%.

Which ONE of the following describes (1) the reason for the high pressure and (2) the action required?

(1)

(2)

- | | |
|----------------------------|---|
| A. Nitrogen regulator leak | Reduce PRT pressure by reducing level |
| B. Nitrogen regulator leak | Vent the PRT to the Waste Gas Vent Header |
| C. Letdown relief lifted | Reduce PRT pressure by reducing level |
| D. Letdown relief lifted | Vent the PRT to the Waste Gas Vent Header |

34. Given the following:

- Both Units are at 100% RTP.
- The CCS System is in a normal alignment with the 1A-A, C-S, and 2B-B pumps in service.
- CCS Pumps 1B-B and 2A-A are in A-AUTO.
- 6.9kv Shutdown Board 1A-A normal feeder breaker trips open spuriously.
- Diesel Generator 1A-A starts and loads normally.

Which ONE of the following identifies the CCS pumps that are load shed and the pumps that are running after load sequencing is complete?

	<u>Load Shed</u>	<u>Following Load Sequencing</u>
A.	Only the 1A-A	Only 1A-A, C-S, and 2B-B
B.	Only the 1A-A	1A-A, 1B-B, C-S, and 2B-B
C.	Both 1A-A & C-S	Only 1A-A, C-S, and 2B-B
D.	Both 1A-A & C-S	1A-A, 1B-B, C-S, and 2B-B

35. Given the following:

- Unit 1 is at 100% power.
- VCT pressure is at 18 psig.

Which ONE of the following identifies the location of a CCS leak that would result in the condition listed below?

<u>LEAK LOCATION</u>	<u>CONDITION</u>
A. RCP Thermal Barrier	TBBP in A-P auto starts
B. Letdown Heat Exchanger	CCS Rad Monitor rising
C. RHR 1B-B Heat Exchanger	CCS Surge Tank level rising
D. Seal Return Heat Exchanger	VCT level dropping

36. Given the following:

- Unit 1 is at 100% power.
- Pressurizer pressure is 2235 psig with both spray valves closed.
- Annunciator "MOTOR TRIPOUT PNL 1-M-1 THRU 1-M-6" alarms.
- Operator notes Pressurizer pressure slowly dropping.
- There are no other annunciators in alarm.

Which ONE of the following identifies...

- (1) the breaker trip that caused the motor tripout alarm
and
(2) the action associated with 1-PIC-68-340A, "Pressurizer Pressure Control"
that could be taken to restore Pressurizer pressure?

- A. (1) Centrifugal Charging Pump.
(2) Raise the controller output.
- B. (1) Centrifugal Charging Pump.
(2) Lower the controller output.
- C. (1) Pressurizer heater Control Group D.
(2) Raise the controller output.
- D. (1) Pressurizer heater Control Group D.
(2) Lower the controller output.

37. Given the following:

- Unit 1 is at 100% power.
- A loss of 125V DC Vital Battery Board I occurs.

Which ONE of the following describes the effect on Main Control Board (MCB) indication and the associated Reactor Trip Breaker?

- A. MCB indication is lost and the reactor trip breaker is NOT capable of tripping on a SHUNT trip.
- B. MCB indication is lost and the reactor trip breaker trips OPEN due to loss of power to the SHUNT coil.
- C. MCB indication remains lit. The reactor trip breaker is NOT capable of tripping on a SHUNT trip.
- D. MCB indication remains lit. The reactor trip breaker trips OPEN due to loss of power to the SHUNT coil.

38. Given the following:

- Unit 2 was in Mode 3 performing Shutdown Bank withdrawal.
- Three (3) minutes ago, Safety Injection actuated when a Pressurizer PORV inadvertently opened before the PORV block valve was closed.
- Both reactor trip breakers failed to OPEN.
- The reactor was tripped locally by opening the M-G set motor supply breakers per FR-S.1, "Response to Nuclear Power Generation/ATWS".
- Pressurizer pressure is currently 1940 psig.
- Bypass and Permissive Panel annunciators are as follows:
 - D-4 S.I. ACTUATED is LIT.
 - C-4 AUTO S.I. BLOCKED is DARK.

If the SI Reset push buttons were depressed, which ONE of the following represents the correct annunciator status and associated reason following the reset of Safety Injection for the above conditions?

- A. SI ACTUATED will remain LIT because P-11 Permissive has NOT been met.
- B. SI ACTUATED will remain LIT because Pressurizer pressure is less than the SI setpoint.
- C. AUTO SI BLOCKED will remain DARK because the SI timing relay has NOT timed OUT.
- D. AUTO SI BLOCKED will remain DARK because the P-4 Permissive has NOT been met.

39. Which ONE of the following Containment Cooling System fans will trip and isolate as a **DIRECT** result of a manual Containment Isolation Phase-A Signal?
- A. Lower Compartment Coolers
 - B. Upper Compartment Coolers
 - C. Control Rod Drive Motor coolers
 - D. Incore Instrument Room coolers

40. Which ONE of the following Ice Condenser temperatures is within the optimum range to minimize sublimation, frost buildup, and ice condenser door binding problems?

A. 18°F

B. 21°F

C. 24°F

D. 27°F

41. Which ONE of the following identifies an ice condenser door that would require entering a 1 hour Technical Specification LCO if the door was found to be physically restrained from opening and which of the doors are equipped with flow proportioning springs to control opening?

<u>Require 1 hour LCO entry if physically restrained from opening</u>	<u>Doors equipped with flow proportioning springs</u>
A. Only an inlet door	Inlet doors
B. Only an inlet door	Intermediate doors
C. Either an inlet or intermediate deck door	Inlet doors
D. Either an inlet or intermediate deck door	Intermediate doors

42. Given the following:

- Unit 1 and Unit 2 6.9kV Shutdown Boards are aligned as follows:
 - 1A-A from normal feed
 - 1B-B from normal feed
 - 2A-A from alternate feed
 - 2B-B from normal feed
- Diesel Generator 2B-B is tagged for maintenance.
- 6.9kV Unit Board 2C is de-energized due to a fire.

Which ONE of the following has lost power?

- A. Reactor MOV Board 1B1-B
- B. Motor Driven AFW Pump 1A-A
- C. Containment Spray Pump 2B-B
- D. Residual Heat Removal Pump 2A-A

43. Given the following conditions:

- Unit 1 is operating at 100% power.
- 1A-A Containment Spray (CS) Pump is out of service.
- A large break LOCA occurs
- 1B-B RHR Pump trips on instantaneous overcurrent and is damaged.
- 60 minutes later, the following conditions exist:
 - Containment pressure is 10 psig.
 - FR-Z.1, "High Containment Pressure" is in progress.
 - ES-1.3, "Transfer To RHR Containment Sump" has been completed.
 - The crew observes 1B-B CS Pump running with a discharge flow of approximately 4000 gpm.

Which ONE of the following describes the condition of the Containment Spray System and the FR-Z.1 direction concerning RHR spray?

- A. Containment spray flow is normal and RHR spray should be placed in service.
- B. Containment spray flow is normal and RHR spray should NOT be placed in service.
- C. Containment spray flow is LOWER than normal and RHR spray should be placed in service.
- D. Containment spray flow is LOWER than normal and RHR spray should NOT be placed in service.

44. Given the following:

- Plant startup in progress with MSIVs and bypass valves closed.
- RCS at 2235 psig and 547°F.
- The crew began warming the main steam lines and observed the following RCS temperature changes:

0900 - 547°F

0915 - 522°F

0930 - 495°F

0945 - 467°F

1000 - 453°F

1015 - 424°F

1030 - 410°F

1045 - 398°F

1100 - 402°F

Which ONE of the following identifies the status of the RCS cooldown rate Technical Specification limit and the component stress that represent the bases for the limit?

<u>Cooldown Rate</u>	<u>Limiting Component</u>
A. Tech Spec limit was exceeded	Reactor Vessel
B. Tech Spec limit was exceeded	Steam Generator Tube Sheet
C. Maintained within the Tech Spec limit	Reactor Vessel
D. Maintained within the Tech Spec limit	Steam Generator Tube Sheet

45. Given the following:

- Unit 1 is at 100% power.
- A significant feedwater heater level transient results in HI-HI levels in Feedwater Heaters A1 and B1.
- Extraction steam to the feedwater heaters isolates.

In accordance with AOP-S.04, "Condensate or Heater Drains Malfunction", which ONE of the following will be the effect on indicated SG narrow range levels, RCS T_{cold}, and reactor power?

- A. SG NR levels will decrease, RCS T_{cold} will decrease, and reactor power will increase.
- B. SG NR levels will decrease, RCS T_{cold} will decrease, and reactor power will decrease.
- C. SG NR levels will increase, RCS T_{cold} will increase, and reactor power will increase.
- D. SG NR levels will increase, RCS T_{cold} will increase, and reactor power will decrease.

46. Given the following conditions:

- Unit 2 is initially at 100% power.
- Instrument failures cause a spurious Main Feedwater Isolation Signal.
- NO Auxiliary Feedwater Pumps start.
- The reactor does NOT trip.
- AMSAC fails to actuate.

Assuming **NO** operator action, which ONE of the following is the primary concern to plant systems and why?

- A. Main steamline break due to thermal shock on Steam Generator shell.
- B. SG tube rupture due to high primary-to-secondary differential pressure.
- C. Challenge to PZR PORVs and safety valves due to overpressure transient in the RCS.
- D. Overpower condition due to the failure of the turbine to receive a trip signal.

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47. Given the following:

- A reactor trip occurred on Unit 1, while the unit was at 100% power.
- The only operator action taken was to manually close the LCVs to the SGs supplied from 1A-A MDAFW Pump.

Which ONE of the following describes the flow that will continue to be passed through the pump?

- A. 30 GPM to the CST
- B. 30 GPM to the condenser hotwell
- C. 165 GPM to the CST
- D. 165 GPM to the condenser hotwell

48.

Given the following:

- Loss of off site power occurred on Unit 1 resulting in a Reactor Trip and Safety Injection.
- The Emergency Diesel Generators (DGs) started and DG 1A-A loaded to 4.6 MWs.

In accordance with AOP-P.01, "Loss of Offsite Power", which ONE of the following describes the operation of DG 1A-A under this load condition?

- A. Must be immediately tripped.
- B. May operate for up to 2 hours.
- C. May operate for up to 24 hours.
- D. May operate indefinitely.

49. Given the following:

- Unit 2 at 100% power.
- Panel 2-M-1 Annunciator Window "125V DC VITAL CHGR III FAIL/VITAL BAT III DISCHARGE" alarms.
- The crew enters AOP-P.02, "Loss Of 125V DC Vital Battery Board".
- A reactor trip occurs on high PZR pressure.

Which ONE of the following identifies the allowed usage of AOP-P.02 after the Emergency Operating Procedure network is entered following the reactor trip?

Continued performance of AOP-P.02 is ...

- A. allowed after the crew enters ES-0.1, "Reactor Trip Response" because ES-0.1 is NOT an accident mitigation EOP.
- B. allowed after the crew enters ES-0.1, "Reactor Trip Response" because restoring power could have an impact on meeting the goals of the EOP.
- C. NOT allowed until the crew exits ES-0.1, "Reactor Trip Response" because the procedure reader must remain dedicated to the EOP in effect until the EOPs are exited.
- D. NOT allowed until the crew exits ES-0.1, "Reactor Trip Response" because actions taken in AOP-P.02 could degrade the performance of the EOP.

50. Given the following:

- D/G 1A-A is running at 4.4 MW for surveillance testing.
- D/G Day Tank levels are as follows:
 - 1A1 - 250 gallons
 - 1A2 - 300 gallons
- Neither Fuel Transfer Pump starts in automatic.

Which ONE of the following represents how long D/G 1A-A would continue to operate **WITHOUT** makeup to D/G 1A1 Day Tank AND the effect on D/G 1A2 Day Tank if the 1A1 Fuel Transfer Pump is able to be manually started?

- A. Greater than 4 hours.
D/G 1A2 Day Tank level rises.
- B. Greater than 4 hours.
D/G 1A2 Day Tank level continues to drop.
- C. Less than 4 hours.
D/G 1A2 Day Tank level rises.
- D. Less than 4 hours.
D/G 1A2 Day Tank level continues to drop.

51. Given the following plant conditions:

- Unit 1 & 2 are steady-state at 100% power.
- 125V DC Vital Battery Board IV is inadvertently deenergized.
- All 4 Diesel Generators start.

Which ONE of the following describes an effect this has on the diesel generators?

- A. Diesel Generator 1B-B could only be shutdown using the EMERGENCY STOP pushbutton on 0-M-26.
- B. Diesel Generator 2B-B could only be shutdown using the Local Panel EMERGENCY STOP pushbutton at the DG Building.
- C. All engine trips except for overspeed on Diesel Generator 1B-B would be disabled and ALL generator trips would remain enabled.
- D. All generator trips except for generator differential on Diesel Generator 2B-B would be disabled and ALL engine trips would remain enabled.

52. Given the following:

- A Source check is to be performed on 0-RM-90-101B, "Auxiliary Building Vent Rad Monitor".
- The ESF function of the monitor is to be blocked using 0-HS-90-136A3, "Process Rad Monitor System Block Switch".

In accordance with the applicable System Operating Instruction, which ONE of the following describes how ...

- (1) the block switch would be positioned during the source check.
and
 - (2) the effect the positioning of the block switch will have on the ability to block the ESF function of 1-RM-90-130, "Containment Purge Rad Monitor"?
- A. (1) The block switch would be placed to the "101B" position and pulled out.
(2) 1-RM-90-130A could be blocked without pulling the HI RAD relay.
 - B. (1) The block switch would be placed to the "101B" position and pulled out.
(2) 1-RM-90-130A could NOT be blocked without pulling the HI RAD relay.
 - C. (1) The block switch would be placed to the "101B" position and pushed in.
(2) 1-RM-90-130A could be blocked without pulling the HI RAD relay.
 - D. (1) The block switch would be placed to the "101B" position and pushed in.
(2) 1-RM-90-130A could NOT be blocked without pulling the HI RAD relay.

53. Given the following Unit 1 conditions:

- All ERCW pump controls are in a normal preferred alignment per 0-SO-67-1, "Essential Raw Cooling Water".
- ERCW Pump L-B trips.
- Train "B" ERCW header stabilizes at 68 psig.
- The CRO places L-B pump handswitch in STOP PULL-TO-LOCK.

In accordance with AOP-M.01, "Loss of Essential Raw Cooling Water", which ONE of the following identifies the additional action(s) required to be taken in response to this event?

- A. Manually start ERCW Pump N-B. Reposition 0-XS-67-286, DG Power Selector Switch.
- B. Manually start ERCW Pump N-B. Do NOT reposition switch 0-XS-67-286, DG Power Selector Switch.
- C. Pressure remains within the normal operating band. Reposition 0-XS-67-286, DG Power Selector Switch.
- D. Pressure remains within the normal operating band. Do NOT reposition switch 0-XS-67-286, DG Power Selector Switch.

54. Given the following:

- Unit 1 is in Mode 5 with 6.9kV Shutdown Board 1A-A tagged for maintenance.
- Subsequently, 6.9kV Shutdown Board 2B-B trips and locks out due to relay operation.

Which ONE of the following identifies the status of the Auxiliary Air Compressor power supplies?

- A. Both Auxiliary Air Compressors have a power supply available.
- B. Neither Auxiliary Air Compressor has a power supply available.
- C. Only the Auxiliary Air Compressor A-A has a power supply available.
- D. Only the Auxiliary Air Compressor B-B has a power supply available.

55. Which ONE of the following identifies...

(1) when FCV-30-46, 47, & 48, "Containment Vacuum Relief System Isolation Valves" would automatically close

AND

(2) the condition(s) required prior to the valves being manually re-opened?

A. (1) Only a containment pressure rise to 1.5 psid relative to the annulus;
(2) Containment pressure must be less than 1.0 psid.

B. (1) Only a containment pressure rise to 1.5 psid relative to the annulus;
(2) Containment pressure must be less than 1.0 psid and safety injection must be reset.

C. (1) Initiation of any Safety Injection signal;
(2) Containment pressure must be less than 1.0 psid.

D. (1) Initiation of any Safety Injection signal;
(2) Containment pressure must be less than 1.0 psid and safety injection must be reset.

56. Given the following:

- Unit 1 is at 85% power steady-state.
- Rod control is in MANUAL.
- RCS Tavg Auctioneering Unit fails to 530°F.

Which ONE of the following identifies the effect the failure has on Pressurizer level and pressure with **NO** operator action?

	<u>Pressurizer Level</u>	<u>Pressurizer Pressure</u>
A.	Drops until letdown isolates.	Drops due to heaters deenergizing.
B.	Drops until letdown isolates.	Rises due to level rising after letdown isolates.
C.	Stabilizes before letdown isolates.	Stabilizes with variable heaters energized.
D.	Stabilizes before letdown isolates.	Stabilizes with spray valves opening.

57. Given the following:

- A Unit 1 reactor startup is in progress.
- Control Bank "D" rods are being withdrawn when Rod H-8 dropped into the core.
- Control Bank "D" step counters indicated 31 steps and Rod H-8 RPI indicated 28 steps at the time of the rod drop.

Which ONE of the following identifies the status of the H-8 Rod Bottom Light and Annunciator Panel 1-XA-55-4B, Window D-7: "FULL LENGTH RODS RODS AT BOTTOM" for the above conditions?

<u>H-8 Rod Bottom Light</u>	<u>Annunciator D-7</u>
A. LIT before the rod dropped and remained LIT after the rod dropped.	In alarm
B. LIT before the rod dropped and remained LIT after the rod dropped.	NOT in alarm
C. DARK before the rod dropped and LIT after the rod dropped.	In alarm
D. DARK before the rod dropped and LIT after the rod dropped.	NOT in alarm

58. Given the following:

- Unit 1 is at 100% power.
- Power Range Channel NI-44 fails due to a loss of instrument power.

Which ONE of the following identifies the impact the failure of NI-44 has on Annunciator Panel 1-XA-55-4B, Window D-4: "COMPUTER ALARM ROD DEV& SEQ NIS RANGE TILTS"?

The window will alarm due to ICS sensing ...

- A. An AFD alarm and the window has reflash capability for alarms from other sources.
- B. An AFD alarm, but the window does NOT have reflash capability for alarms from other sources.
- C. A QPTR alarm and the window has reflash capability for alarms from other sources.
- D. A QPTR alarm, but the window does NOT have reflash capability for alarms from other sources.

59. Which ONE of the following identifies the alternate locations available for Charging flow control and indication outside of the Main Control Room?

Aux Control Room
(1-L-10)

Locally in the Aux Building
(1-L-112A)

- | | |
|---|--|
| A. Controller functions and the flow indication reads only with Nor-Aux switch in AUX. | No control function on panel, flow indication only |
| B. Controller functions and the flow indication reads only with Nor-Aux switch in AUX. | Panel has both controller function and flow indication |
| C. Controller functions only with Nor-Aux switch in AUX. Indication reads with Nor-Aux switch in either position. | No control function on panel, flow indication only |
| D. Controller functions only with Nor-Aux switch in AUX. Indication reads with Nor-Aux switch in either position. | Panel has both controller function and flow indication |

60. Given the following:

- Unit 2 operating at 10% reactor power.
- **CONDITION 1:** Two hours following a reactor trip and trip of all RCPs.
- **CONDITION 2:** Two hours following a reactor trip with all RCPs running.

Which ONE of the following identifies the correct combination of expected indications for incore thermocouple temperatures (TCs) and RCS cold leg temperatures (T_{cold}) for the stated conditions?

CONDITION 1
(No RCPs)

CONDITION 2
(ALL RCPs)

- | | |
|---|--|
| A. TCs only slightly above T_{cold} | TCs only slightly above T_{cold} |
| B. TCs only slightly above T_{cold} | TCs several degrees greater than T_{cold} |
| C. TCs several degrees greater than T_{cold} | TCs only slightly above T_{cold} |
| D. TCs several degrees greater than T_{cold} | TCs several degrees greater than T_{cold} |

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61. Which ONE of the following is the power supply to the Emergency Gas Treatment System (EGTS) Fan B?
- A. C & A Vent Board 1B1-B
 - B. C & A Vent Board 2B1-B
 - C. Reactor Vent Board 1B-B
 - D. Reactor Vent Board 2B-B

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62. Given the following:

- Unit 1 is at 50% power and stable when a transient occurs.
- The CRO reports the following parameters and trends for SG #1 with similar trends on the other SG's:
 - SG Pressure: 860 psig and lowering
 - SG Level: 46% and rising
 - SG Steam Flow: 2.0×10^6 pph and rising

Which ONE of the following identifies the event in progress?

- A. SG tube has ruptured
- B. SG atmospheric relief valve open
- C. RCS dilution event is in progress
- D. Main turbine runback in progress

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63. Given the following:

- Unit 1 is at 10% power during a plant startup.
- A reactor trip occurs.

Steam dumps should be controlling steam pressure at approximately ...

- A. 870 psig
- B. 965 psig
- C. 1005 psig
- D. 1040 psig

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64. Given the following:

- Unit 2 is operating at 1160 MWe.
- Generator reactive load is 325 MVARs incoming.
- All systems are operating normally.

Which ONE of the following hydrogen pressures is the LOWEST that will provide acceptable generator cooling in accordance with the generator capability curve?

REFERENCE PROVIDED

- A. 55 psig
- B. 60 psig
- C. 65 psig
- D. 70 psig

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65. Given the following:

- Waste Gas Decay Tank A is "IN SERVICE".
- Waste Gas Decay Tank D is in "STANDBY MODE".
- An automatic transfer occurs from WGDT A to WGDT D.
- An AUO dispatched to respond to the transfer reports the following:
 - WGDT A pressure is 120 psig.
 - WGDT D pressure is 9 psig.

Which ONE of the following describes BOTH the transfer from WGDT A to WGDT D and the status of the WGDT D pressure?

- A. The transfer occurred prior to the automatic swapover setpoint.
WGDT D pressure is above the minimum pressure to be "IN SERVICE".
- B. The transfer occurred prior to the automatic swapover setpoint.
WGDT D pressure needs to be raised by adding nitrogen to the tank.
- C. The transfer occurred past the automatic swapover setpoint .
WGDT D pressure is above the minimum pressure to be "IN SERVICE".
- D. The transfer occurred past the automatic swapover setpoint.
WGDT D pressure needs to be raised by adding nitrogen to the tank.

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66. Following Safety Injection, which ONE of the following identifies the **'Procedural Requirement'** to ensure a plant announcement has been made regarding the reactor trip/safety injection?
- A. Immediately after completing the Immediate Action Steps in E-0, "Reactor Trip or Safety Injection".
 - B. Immediately after transitioning from E-0, "Reactor Trip or Safety Injection" to another ERG procedure.
 - C. When directed to by a step in ES-0.1, "Reactor Trip Response".
 - D. When directed to by a step in ES-0.5, "Equipment Verifications".

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67. Which ONE of the following identifies the items in the list below that are required to be reviewed by an oncoming OATC during Shift Turnover in accordance with OPDP-1, "Conduct of Operations"?
1. Abnormal equipment lineup/conditions
 2. SI/Test in progress/planned
 3. Standing Order changes since last shift worked
 4. Work Orders generated since last shift worked
 5. Tech Spec LCOs in effect
 6. Priority 1 and 2 Operator Workarounds
- A. All EXCEPT 1 and 2
- B. All EXCEPT 1 and 4
- C. All EXCEPT 2 and 6
- D. All EXCEPT 4 and 6

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68. The administrative requirements for reactivity management contained in OPDP-1, "Conduct of Operations" states that Unit Operators are responsible for ...
- A. personally overseeing all reactivity changes in the MCR.
 - B. making positive reactivity changes by only one method at a time.
 - C. reviewing and approving all planned reactivity changes as developed by Reactor Engineering.
 - D. notifying the shift Reactor Engineer of unplanned reactivity changes that exceed 1% thermal power.

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69. Given the following plant conditions:

- Unit 1 in Mode 5.
- 1-FCV-62-93, "Charging Flow Control Valve", is selected as a boundary isolation valve for a clearance on the CVCS charging header.

In accordance with SPP-10.2, "Clearance Procedure to Safely Control Energy", which ONE of the following is an acceptable method for tagging 1-FCV-62-93?

- A. Ensure the air isolation valve in the open position, place handswitch in closed position and tag both the air isolation valve and the handswitch.
- B. Close the valve, install a jacking device, isolate the air supply and tag both the jacking device and the air isolation valve.
- C. Dog the valve closed with its handwheel, isolate the air supply and tag both the handwheel and the air isolation valve.
- D. Isolate the air supply to the valve, place handswitch in closed position and tag both the air isolation valve and the handswitch.

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70. Given the following:

- Both Units are at 100% power with all systems are aligned normal.
- ERCW pumps J-A and M-B are tagged out of service for maintenance.

Which ONE of the following identifies the MAXIMUM average ERCW temperature allowed without entering a Technical Specification LCO, and the LCO that would be entered if the temperature was exceeded?

	Maximum Allowed Temperature	LCO Entered
A.	73°F	3.7.4, Essential Raw Cooling Water System
B.	73°F	3.7.5, Ultimate Heat Sink
C.	87°F	3.7.4, Essential Raw Cooling Water System
D.	87°F	3.7.5, Ultimate Heat Sink

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71. Which ONE of the following identifies the FIRST radiation monitor that should respond to a SGTR and the effect on the monitor when the SGTR results in Safety Injection being actuated?
- A. RM-90-119, Condenser Vacuum Exhaust Monitor. The monitor will automatically isolate.
 - B. RM-90-119, Condenser Vacuum Exhaust Monitor. The monitor will NOT automatically isolate.
 - C. RM-90-120/121, Steam Generator Blowdown Sample Monitor. The monitor will automatically isolate.
 - D. RM-90-120/121, Steam Generator Blowdown Sample Monitor. The monitor will NOT automatically isolate.

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72. Given the following plant conditions:

- A LOCA has occurred and a SAE has been declared.
- The TSC and OSC have been activated.
- To prevent damage to equipment needed for protection of the public, it is recommended that an individual make an entry into the 1A-A Safety Injection Pump Room 1A.
- Projected dose rate in the pump room is 1.0×10^5 mR/hr.
- Duration of the exposure is expected to be 6 minutes.

Which ONE of the following individuals must authorize this exposure?

- A. Radcon Manager
- B. Site Emergency Director
- C. Plant Manager
- D. Site Vice President

73. Given the following:

- Unit 2 was at 100% power when an inadvertent reactor trip occurred.
- After completing the Immediate Actions of E-0, "Reactor Trip or Safety Injection", the crew transitioned to ES-0.1, "Reactor Trip Response".
- The STA was delayed from arriving in the MCR.

Who should be assigned to monitor the Critical Safety Function Status Trees until the STA arrives in accordance with EPM-4, "User's Guide"?

- A. Extra Operator
- B. OATC
- C. Unit Supervisor
- D. Shift Manager

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74. In response to a Heat Sink Red Path condition, the crew entered FR-H.1, "Loss Of Secondary Heat Sink". While progressing through FR-H.1, the STA reports the following Status Tree conditions:

- Subcriticality: Orange Path - FR-S.1, "Nuclear Power Generation/ATWS"
- Core Cooling: Green Path
- Heat Sink: Green Path
- Integrity: Green Path
- Containment: Red Path - FR-Z.1, "High Containment Pressure"
- Inventory: Green Path

Which ONE of the following describes the required procedural actions in response to the above conditions?

- A. Immediately exit FR-H.1 and implement to FR-Z.1.
- B. Immediately exit FR-H.1 and implement to FR-S.1.
- C. Complete FR-H.1, then implement to FR-Z.1.
- D. Complete FR-H.1, then implement to FR-S.1.

75. Given the following:

- The Unit 1 CRO is in the Cafeteria eating lunch with an AUO who is assigned as an OSC responder.
- A Site Area Emergency is declared on Unit 1.

In accordance with EPIP-8 "Personnel Accountability And Evacuation", which ONE of the following identifies responsibilities of the CRO and the AUO following the initiation of Assembly and Accountability.

- A. CRO - Report to the Main Control Room, swipe badge in the MCR card reader.
AUO - Swipe badge in the Cafeteria card reader, and report to the OSC.
- B. CRO - Report to the Main Control Room, swipe badge in the MCR card reader.
AUO - Report to the Main Control Room, swipe badge in the MCR card reader and then report to the OSC.
- C. CRO - Swipe badge in the Cafeteria card reader, and report to the Main Control Room.
AUO - Swipe badge in the Cafeteria card reader, and report to the OSC.
- D. CRO - Swipe badge in the Cafeteria card reader, Report to the Main Control Room.
AUO - Report to the Main Control Room, swipe badge in the MCR card reader and then report to the OSC.

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76. Given the following:

- Unit 1 at 100% power when a pressurizer safety valve failed open.
- The operator manually tripped the reactor and initiated a safety injection.
- While performing the step to determine if the RHR spray should be placed in service in accordance with E-1, "Reactor Trip or Safety Injection", the crew determines the following:
 - When pressurizer pressure dropped to 1280 psig, the safety valve reclosed and pressurizer pressure started to rise.
 - Containment pressure rose to 2.6 psig, and began trending down.
 - Pressurizer level is 100%.
 - RCS subcooling is 43°F.
 - All four SG levels at 33% narrow range.

Which ONE of the following identifies the correct procedure implementation and operation of the RCPs for the above conditions?

- A. Transition from E-1 to ES-1.1, SI Termination;
The RCPs will have remained running throughout the event.
- B. Transition from E-1 to ES-1.1, SI Termination;
The RCPs would have been shutdown but will be restarted in ES-1.1, SI Termination.
- C. Continue E-1 until a transition is directed to ES-1.2, Post LOCA Cooldown;
The RCPs will have remained running throughout the event.
- D. A transition will be made to ES-1.2, Post LOCA Cooldown;
The RCPs would have been shutdown but will be restarted in ES-1.2, Post LOCA Cooldown.

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77. Given the following:

- Unit 1 is operating at 100% power when a loss of offsite power occurs.
- The operators subsequently initiate Safety Injection due to a small break LOCA.
- Thirty minutes after the Safety Injection, the following conditions exist:
 - E-1, "Loss of Reactor or Secondary Coolant" is being performed.
 - All 4 SG pressures are approximately 1010 psig and stable.
 - RCS pressure is 2230 psig and stable.
 - T_{hot} is approximately 575°F in all 4 loops and lowering slowly.
 - Core Exit TCs indicate approximately 580°F and slowly rising.
 - T_{cold} is approximately 560°F in all 4 loops and stable.

Based on the above indications, which ONE of the following identifies the condition of the RCS and the procedure transition that will be directed?

- A. Natural Circulation exists and a transition will be directed to ES-0.2, "Natural Circulation Cooldown" as the E-1 procedure is continued.
- B. Natural Circulation exists and a transition will be directed to ES-1.2, "Post LOCA Cooldown" as the E-1 procedure is continued.
- C. Natural Circulation does NOT exist and a transition will be directed to ES-0.2, "Natural Circulation Cooldown" as the E-1 procedure is continued.
- D. Natural Circulation does NOT exist and a transition will be directed to ES-1.2, "Post LOCA Cooldown" as the E-1 procedure is continued.

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78. Given the following:

- Unit 1 is at 100% power.
- RHR Pump 1B-B is tagged for motor bearing maintenance.
- A Safety Injection occurs due to a LOCA.
- RHR Pump 1A-A trips on instantaneous overcurrent.
- Thirty minutes after the LOCA, the crew transitions from E-1, "Loss of Reactor or Secondary Coolant", to ECA-1.1, "Loss of RHR Sump Recirculation".
- The following conditions are noted:
 - RCS pressure is currently 230 psig
 - RWST level is 54% and dropping
 - The lowest RCS Tcold is 228°F.

Which ONE of the following describes the required operator action?

A transition to FR-P.1, "Pressurized Thermal Shock" is...

- A. NOT required due to the ECA-1.1 entry.
- B. required but should NOT be made until transfer to the containment sump is accomplished.
- C. NOT required because RCS pressure is less than 300 psig.
- D. required but a transition back to ECA-1.1 will be directed due to no RHR pump running.

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79. Given the following:

- Unit 1 is at 32% power.
- The following annunciator windows alarm on 1-M-6:
 - FS-68-48A REACTOR COOLANT LOOP 3 LOW FLOW
 - RCP BUS UNDERFREQUENCY / UNDERVOLTAGE
- RCP #3 indications are:
 - Ammeter - '0' amps.
 - Green and white lights above the handswitch are lit.
 - Flow - '0' on all 3 indicators.
- The other RCPs remain in service and the reactor trip breakers remain closed.
- The OATC manually trips the reactor as directed by the SRO.

Which ONE of the following identifies the condition causing the RCP trip and the earliest NRC notification required by 10CFR50.72?

	<u>Condition causing RCP Trip</u>	<u>Notification Requirement</u>
A.	Under voltage	1 hour
B.	Under voltage	4 hours
C.	Under frequency	1 hour
D.	Under frequency	4 hours

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80. Given the following:

- Unit 1 is in Mid-Loop Operation in accordance with GO-13, "Reactor Coolant System Drain and Fill Operations" with the reactor core reloaded.
- RHR Train A in service.
- SG nozzle dams are installed.
- SI pump 1B-B is tagged and disassembled for impeller replacement
- CCP 1A-A trips due to motor failure.
- RCS level begins to drop and the RHR pump 1A-A is stopped due to cavitation.
- Attempts to open 1-FCV-63-1, RHR Pump Suction from RWST, are unsuccessful.
- Core exit thermocouples have increased to 208°F.

Which ONE of the following identifies the procedure to be used and how SI pump IA-A will be aligned during performance of the procedure?

- A. AOP-R.02, "Shutdown LOCA".
SI pumps will be aligned for Hot Leg injection.
- B. AOP-R.02, "Shutdown LOCA".
SI pumps will be prevented from injecting due to LTOP requirements.
- C. AOP-R.03, "RHR System Malfunction".
SI pumps will be aligned for Hot Leg injection.
- D. AOP-R.03, "RHR System Malfunction".
SI pumps will be prevented from injecting due to LTOP requirements.

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81. Given the following:

- Unit 2 is operating at 100% power with the switchyard in a normal alignment.
- Generator is operating at 24 KV and +150 MVAR.
- An electrical disturbance on the grid occurs causing the following annunciators to alarm:
 - on 0-XA-55-ECB6-A;
"GEN 2 MVAR ABNORMAL OR MVAR RELAY FAILURE"
"OSCILLOGRAPH OPERATION OR FAILURE"
 - on 0-XA-55-ECB6-B;
"CC RELAY TEST OR OPERATION"
 - on 2-XA-55-1A
"GEN VOLT REGULATOR TRIP"
- The BLUE light on "161 KV CONCORD LINE CARRIER RECEIVED" is lit.
- Reactive power stabilized at +230 MVARS following the disturbance and Concord line PCB in the switchyard remains closed.

Which ONE of the following statements describes required actions?

- A. Manually open the Concord line PCB.
Notify the Southeast Area Load Dispatcher to evaluate offsite power voltage requirements.
- B. Manually open the Concord line PCB.
Declare both trains of Offsite power inoperable until the Southeast Area Load Dispatcher completes evaluation of offsite power voltage requirements.
- C. Notify the Southeast Area Load Dispatcher to evaluate offsite power voltage requirements.
Within 24 hours, notify the Operations Duty Specialist of the time period the unit was without automatic voltage control.
- D. Declare both trains of Offsite power inoperable until the Southeast Area Load Dispatcher completes evaluation of offsite power voltage requirements.
Within 24 hours, notify the Operations Duty Specialist of the time period the unit was without automatic voltage control.

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82. Given the following:

- 0900 - Conditions require the Unit 2 Main Control Room (MCR) to be abandoned.
- 0902 - All MCR actions of AOP-C.04, "Shutdown From Auxiliary Control Room" have been completed and the crew leaves the MCR.
- 0915 - The crew establishes control in the Auxiliary Control Room.
- 0915 - Tech Spec 3.0.3 is entered.
- 1130 - The crew initiates a natural circulation cooldown and the following SG pressure trends are observed.

<u>Time</u>	<u>SG Pressures</u>
1130 -	1040 psig
1150 -	825 psig
1210 -	550 psig
1230 -	470 psig
1250 -	385 psig

Which ONE of the following identifies...

- (1) whether the RCS cooldown rate has violated the Tech Spec limit and
 - (2) the latest time allowed by Tech Specs to place the unit in Mode 5?
- A. (1) Cooldown rate limit has been violated.
(2) 1515 the next day.
 - B. (1) Cooldown rate limit has been violated.
(2) 2215 the next day.
 - C. (1) Cooldown rate limit has NOT been violated.
(2) 1515 the next day.
 - D. (1) Cooldown rate limit has NOT been violated.
(2) 2215 the next day.

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83. Given the following conditions:

- Unit 1 is in Mode 3 with RCS at normal operating pressure and temperature awaiting secondary plant equipment repair to continue the startup.
- At 1300 on 01/25/09 RCS Activity was determined to be 0.38 microcuries/gram DOSE EQUIVALENT I-131.
- At 1300 on 01/27/09 Chemistry reports that the RCS Activity has been on a continuous slow increase and is now 0.43 microcuries/gram DOSE EQUIVALENT I-131.

Which ONE of the following identifies actions that are required by 1900 on 01/27/09 and the bases for the RCS Specific Activity limit?

- A. Reduce RCS Tavg below 500°F to limit doses at the site boundary in the event of a LOCA in conjunction with 0.25La leakage from containment.
- B. Reduce RCS Tavg below 500°F to limit doses at the site boundary in the event of a SGTR in conjunction with steady state SG tube leakage of 1 gpm.
- C. Reduce RCS Tavg below 350°F to limit doses at the site boundary in the event of a LOCA in conjunction with 0.25La leakage from containment.
- D. Reduce RCS Tavg below 350°F to limit doses at the site boundary in the event of a SGTR in conjunction with steady state SG tube leakage of 1 gpm.

84. Given the following:

- Unit 2 is operating at 100% power when a loss of Train A CCS occurs.
- The crew enters AOP-M.03, "Loss of Component Cooling Water", and initiates a Reactor trip.
- As the crew is performing the Immediate Operator Actions of E-0, "Reactor Trip or Safety Injection", an automatic Safety Injection occurs.
- The crew performs E-0 to the last step without identifying a transition.

Which ONE of the following identifies both the correct use of the Emergency Procedure and the proper crew action relative to the use of the Abnormal Operating Procedure?

<u>Emergency Instructions</u>	<u>Abnormal Operating Procedures</u>
A. Loop back in E-0 to re-perform steps to identify a transition.	AOP-M.03 can NOT be implemented in parallel with E-0.
B. Loop back in E-0 to re-perform steps to identify a transition.	AOP-M.03 can be implemented in parallel with E-0.
C. Transition to ES-0.0, "Rediagnosis", and identify the proper transition.	AOP-M.03 can NOT be implemented in parallel with ES-0.0, "Rediagnosis".
D. Transition to ES-0.0, "Rediagnosis", and identify the proper transition.	AOP-M.03 can be implemented in parallel with ES-0.0, "Rediagnosis".

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85. Given the following:

- Unit 1 is at 100% power.
- A LOCA occurred inside containment.
- The crew has just implemented E-1, "Loss of Reactor or Secondary Coolant".
- The STA has completed the initial performance of the status trees and reports the highest priority path exists on the CONTAINMENT status tree.
- Containment conditions are as follows:
 - Pressure is 2.6 psig and lowering.
 - Upper containment Rad Monitors read 85 R/hr.
 - Lower containment Rad Monitors read 125 R/hr .
 - Containment Sump Level is 58%.

Based on the above conditions, the Unit Supervisor ...

- A. is required to IMMEDIATELY implement and complete FR-Z.2, "Containment Flooding", then transition back to E-1.
- B. will acknowledge entry criteria for FR-Z.2, "Containment Flooding", is met but entry into the FR is optional.
- C. is required to IMMEDIATELY implement and complete FR-Z.3, "High Containment Radiation", then transition back to E-1.
- D. will acknowledge entry criteria for FR-Z.3, "High Containment Radiation", is met but entry into the FR is optional.

86. Given the following:

- Unit 1 in Mode 3 with RCS at normal operating temperature and pressure .
- RCPs #1, #2 and #3 are running.
- Following the start of RCP #4, the pump stabilizes as follows:
 - Motor current at 625 amps.
 - #1 seal leakoff at 1.1 gpm.
 - All pump and motor temperatures stable and within limits.
- The operators implement AOP-R.04, "Reactor Coolant Pump Malfunctions".

Which ONE of the following identifies why AOP-R.04 entry was required and the action directed by the AOP?

- A. The AOP was entered due to the high motor current and the AOP will direct removal of the RCP from service.
- B. The AOP was entered due to the high motor current but the AOP will NOT direct removal of the RCP unless bearing or stator temperatures are increasing.
- C. The AOP was entered due to the low #1 seal leakoff flow and the AOP will direct removal of the RCP from service.
- D. The AOP was entered due to the low #1 seal leakoff flow but the AOP will NOT direct removal of the RCP unless lower bearing or seal water temperatures are increasing.

87. Given the following:

- Unit 1 at 100% power with Containment Spray Pump 1A-A out of service and tagged.
- A LOCA results in a Reactor Trip and Safety Injection.
- After transferring to the containment sump the crew observes the amps fluctuating on Containment Spray Pump 1B-B.
- In response, the crew stops the pump and transitions to ECA-1.3, "Containment Sump Blockage".
- The STA reports a RED path to FR-Z.1, "High Containment Pressure".

Which ONE of the following identifies the condition that results in the restart of Containment Spray Pump 1B-B and what would be the desired flow rate?

- A. Due to implementing FR-Z.1, the pump will be restarted and the desired flow rate is the DESIGN spray flow due to the challenge to the Containment Barrier.
- B. Due to implementing FR-Z.1, the pump will be restarted and the desired flow rate is the MINIMUM spray flow required to control containment pressure provided it does not cause the RHR pump to cavitate.
- C. Due to implementing ECA-1.3, the spray pump can be restarted after TSC evaluation and the desired flow rate is the DESIGN spray flow due to the challenge to the Containment Barrier.
- D. Due to implementing ECA-1.3, the spray pump can be restarted after TSC evaluation and the desired flow rate is the MINIMUM spray flow required to control containment pressure provided it does not cause the RHR pump to cavitate.

88. Given the following:

- Unit 1 is at 100% power when a LOCA occurs.
- The reactor trips when the containment pressure rise causes a Safety Injection.
- The EOP network is entered.
- RCS pressure stabilizes at 1580 psig.
- Containment pressure rises to 2.4 psig and stabilizes.
- The crew is in the process of terminating Safety Injection.
- When determining if the SI pumps should be stopped the following is noted:
 - RCS pressure is now 1540 psig and trending down.
 - RCS subcooling is 43°F.
 - Pressurizer level is 19% and dropping.
 - SG pressures:
 - #1 - 590 psig and dropping.
 - #2 - 600 psig and dropping.
 - #3 - 580 psig and dropping.
 - #4 - 605 psig and dropping.

Which ONE of the following identifies the status of the MSIVs and the proper crew response to the conditions?

- A. The MSIVs have failed to automatically close.
SI Reinitiation Criteria does NOT exist, a transition should be made to E-2, Faulted Steam Generator Isolation.
- B. The MSIVs have failed to automatically close.
SI Reinitiation Criteria exists, restart the CCP, establish CCPIT flow and Go To E-1, Loss of Reactor or Secondary Coolant.
- C. MSIV automatic closure signal should NOT have been initiated.
SI Reinitiation Criteria does NOT exist, a transition should be made to E-2, Faulted Steam Generator Isolation.
- D. MSIV automatic closure signal should NOT have been initiated.
SI Reinitiation Criteria exists, restart the CCP, establish CCPIT flow and Go to E-1, Loss of Reactor or Secondary Coolant.

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89. Given the following:

- Unit 1 is operating at 100% power
- Diesel Generator 1B-B is out of service and is expected to return to service in 2 hours.

Subsequently, the following events occur:

- A loss of offsite power occurs.
- The reactor trips and the crew enters the emergency procedures.
- SI is NOT actuated.
- The crew transitions to FR-H.1, "Loss of Secondary Heat Sink" due to a RED Path condition and is performing the first step.
- A fault on Shutdown Board 1A-A results in the emergency supply breaker from Diesel Generator 1A-A tripping due a differential relay.

Which ONE of the following identifies the correct action to be taken and the bases for the action?

- A. Transition to ECA-0 .0, "Loss of All AC Power" because the ECA will direct actions to establish heat sink with the TDAFW pump.
- B. Remain in FR-H.1 to recover and establish a heat sink with the TDAFW pump because restoring heat sink is the highest priority evolution in progress.
- C. Transition to ECA-0 .0, "Loss of All AC Power" because all other procedures in the EOP network assume a minimum of at least one 6.9kV Shutdown Board is available.
- D. Remain in FR-H.1 and initiate EA-202-4, "Emergency Use of 6900 V Shutdown Utility Bus" to energize Shutdown Board 1B-B because restoring heat sink is the highest priority evolution in progress.

90. Given the following plant conditions:

- Both Units operating at 100% power.
- ERCW system in normal alignment.
- The following annunciators are LIT on Essential Raw Cooling Water 0-XA-55-27A panel on 1-M-27:
 - "UNIT 1 HEADER A PRESSURE LOW".
 - "UNIT 2 HEADER A PRESSURE LOW".
 - "PUMP J-A DISCH PRESS LOW".
 - "PUMP Q-A DISCH PRESS LOW".
- The following annunciator status on Miscellaneous 1-XA-55-15B panel on 1-M-15:
 - "ERCW DECK SUMP PUMP A RUNNING" is LIT.
- ERCW headers 1A and 2A indicating LOW flow.
- The crew implements AOP-M.01, "Loss of Essential Raw Cooling Water".

Which ONE of the following identifies the correct section of AOP-M.01 to be implemented for the conditions and a mitigating action directed to be taken in response to the conditions?

- A. Section 2.7, "Supply Header 1A/2A Failure in the Yard";
Start additional ERCW pumps to maintain pressure.
- B. Section 2.7, "Supply Header 1A/2A Failure in the Yard";
Stop and Lockout out all A Train ERCW pumps.
- C. Section 2.9, "Supply Header A Failure Upstream of Strainer Inlet Valves";
Start additional ERCW pumps to maintain pressure.
- D. Section 2.9, "Supply Header A Failure Upstream of Strainer Inlet Valves";
Stop and Lockout out all A Train ERCW pumps.

91. Which ONE of the following correctly completes the statement below?

1-RM-90-255, "Condenser Vacuum Mid Range Radiation Monitor", is used in the Radiological Emergency Plan (REP) to classify an event based on...

- A. gaseous effluent release and is included in Tech Spec LCO 3.3.3.7, "Accident Monitoring Instrumentation".
- B. fission product barrier matrix and is included in Tech Spec LCO 3.3.3.7, "Accident Monitoring Instrumentation".
- C. gaseous effluent release and is **NOT** included in Tech Spec LCO 3.3.3.7, "Accident Monitoring Instrumentation".
- D. fission product barrier matrix and is **NOT** included in Tech Spec LCO 3.3.3.7, "Accident Monitoring Instrumentation".

92. Given the following:

- A release of Waste Gas Tank B is in progress when power is lost to 0-RM-90-118, "Waste Gas Effluent Rad Monitor".

Which ONE of the following identifies (1) the effect the loss of power will have on the release and (2) the requirement to allow any additional release of the tank with the radiation monitor out of service?

- A. (1) The release will automatically terminate;
(2) A new 0-SI-CEM-077-410.4, "Waste Gas Decay Tank Release", package would be required for any additional release of the tank after ODCM actions were met.
- B. (1) The release will automatically terminate;
(2) The existing 0-SI-CEM-077-410.4, "Waste Gas Decay Tank Release", package could be used for any additional release of the tank after ODCM actions were met.
- C. (1) A manual termination of the release will be required;
(2) A new 0-SI-CEM-077-410.4, "Waste Gas Decay Tank Release", package would be required for any additional release of the tank after ODCM actions were met.
- D. (1) A manual termination of the release will be required;
(2) The existing 0-SI-CEM-077-410.4, "Waste Gas Decay Tank Release", package could be used for any additional release of the tank after ODCM actions were met.

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93. Given the following:

- Unit 1 operating at 100% power.
- Unit 2 in MODE 6 with the core off-load in progress.
- An internal electrical failure causes the output of 0-RM-90-103, "Spent Fuel Pit Area Radiation Monitor" to fail above the HI RAD setpoint.

Which ONE of the following identifies the recovery required using 0-SO-30-10 "Auxiliary Building Ventilation Systems" as a result of the Auxiliary Building Isolation (ABI) and whether the actuation is required to be reported to the NRC in accordance with SPP-3.5, "NRC Reporting Requirements"?

- A. Only Train B recovery is required;
8-hour notification required.
- B. Only Train B recovery is required;
8-hour notification NOT required.
- C. Only Train A recovery is required;
8-hour notification required.
- D. Only Train A recovery is required;
8-hour notification NOT required.

94. Given the following:

- Unit 1 at 100% power with Boric Acid Tank (BAT) A aligned.
- RWST Boric Acid concentration is 2575 ppm.

Which ONE of the following identifies BAT A Volume and Boric Acid Concentration that will meet Operability requirements and when the maximum expected boration capability requirement occurs in accordance with the Technical Requirement Bases?

REFERENCE PROVIDED

- A. 9600 gallons at 6500 ppm;
Near End of Life peak Xenon conditions.
- B. 9600 gallons at 6500 ppm;
Near Beginning of Life peak Xenon conditions.
- C. 9200 gallons at 6775 ppm;
Near End of Life peak Xenon conditions.
- D. 9200 gallons at 6775 ppm;
Near Beginning of Life peak Xenon conditions.

95. Given the following:

- Unit 1 is at 100% power.
- An air operated containment isolation valve has failed a stroke time surveillance test.
- All actions to comply with Tech Spec 3.6.3, "Containment Isolation Valves" have been completed.

Which ONE of the following identifies if the penetration could be restored to service to perform troubleshooting activities or post maintenance testing?

The penetration could...

- A. be restored to service to perform EITHER troubleshooting activities or post maintenance testing.
- B. ONLY be restored to service to perform troubleshooting activities.
- C. ONLY be restored to service to perform post maintenance testing.
- D. NOT be restored to service to perform EITHER troubleshooting activities or post maintenance testing.

96. Given the following:

- Unit 1 is in MODE 5 during a refueling outage.
- It is determined that procedure 1-SO-63-1, "Cold Leg Injection Accumulators" needs an Urgent "Minor/Editorial Change" revision to support system alignment changes due to system modification.

Which ONE of the following statements identifies the need for an Independent Qualified Reviewer (IQR) and if the Unit SRO can be the approval authority for the procedure revision?

- A. An IQR is required.
The Unit SRO may sign as the approval authority.
- B. An IQR is required.
The Unit SRO may NOT sign as the approval authority.
- C. An IQR is NOT required.
The Unit SRO may sign as the approval authority.
- D. An IQR is NOT required.
The Unit SRO may NOT sign as the approval authority.

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97. Given the following:

- Unit 2 was shutdown for refueling on 01/20/09 at 2400.
- Today is 01/25/09 at 0200 and the Unit is in Mode 5.
- Lower cavity fill has not been started.
- 2-78-610, "Transfer Tube Wafer Valve", is open for repair.

In accordance with 0-GO-9, "Refueling Operations", which ONE of the following identifies conditions both of which would be acceptable to minimize the potential spread of airborne contamination?

	<u>Containment Equipment Hatch...</u>	<u>Containment Purge System...</u>
A.	open	in service and aligned to upper containment
B.	open	stopped.
C.	held closed by a minimum of 4 bolts.	in service and aligned to upper containment.
D.	held closed by a minimum of 4 bolts.	stopped.

98. Given the following conditions:

- Both Units operating at 100% power.
- 0600 Due to extremely heavy rainfall, RSO/KEOC issues a Stage I flood warning.

Which one of the following identifies the time the Stage 1 flood mode actions are required to be completed, and if Stage II actions are required, how the Tritiated Drain Collector Tank would be prepared to prevent a possible release of radioactivity?

	<u>Time</u>	<u>Tritiated Drain Collector Tank</u>
A.	1600	Pressurized to greater than 23 psig.
B.	1600	Filled with water.
C.	2300	Pressurized to greater than 23 psig..
D.	2300	Filled with water.

99. Given the following:

- Both units in service at 100% power.
- The plant is operating with minimum operations staffing.
- A fire develops at the ERCW pumping station.
- AOP-N.01, "Plant Fires", is implemented.
- The Shift Manager declares an ALERT emergency and initiates Assembly and Accountability.
- Fire Ops actions to extinguish the fire continue.

Which ONE of the following identifies...

- (1) the direction the AUOs are to be given
and
- (2) if 10 minutes after the REP initiation, the Shift Manager determines the need to implement AOP-N.08, "Appendix R Fire Safe Shutdown", must both units enter the AOP or can the decision to enter the AOP be made separately for each unit?

- A. (1) Direct all AUOs to report to the Main Control Room.
(2) Decision to enter AOP-N.08 can be made separately on each unit.
- B. (1) Direct all AUOs to report to the Main Control Room.
(2) Decision to enter AOP-N.08 must be made on both units at the same time.
- C. (1) Direct 2 AUOs to report to the OSC and the rest to report to the Main Control Room.
(2) Decision to enter AOP-N.08 can be made separately on each unit.
- D. (1) Direct 2 AUOs to report to the OSC and the rest to report to the Main Control Room.
(2) Decision to enter AOP-N.08 must be made on both units at the same time.

100. Given the following:

- Both units trip from power operation due to a loss of offsite power.
- Nuclear Security reports the following:
 - Sabotage is suspected.
 - An unexploded bomb has been discovered at the door of the Medical Building.
 - Concerns exist for the safety of oncoming emergency responders.
- Nuclear Security recommends implementation of the Two-person line of sight rule.
- The Shift Manager declares an Alert.

Which ONE of the following describes...

- (1) the selection the Shift Manager will make when activating the Emergency Paging System (EPS)
and
(2) why EPIP-8, "Personnel Accountability and Evacuation" is required by the emergency plan to be implemented?
- A. (1) STAGING AREA will be selected on the EPS;
(2) Because an ALERT emergency has been declared.
- B. (1) STAGING AREA will be selected on the EPS;
(2) Because the Two-person line of sight rule has been implemented.
- C. (1) EMERGENCY will be selected on the EPS;
(2) Because an ALERT emergency has been declared.
- D. (1) EMERGENCY will be selected on the EPS;
(2) Because the Two-person line of sight rule has been implemented.

SRO Reference Package

- 1. TI-28, Fig. A.14**
- 2. TRM Figure 3.1.2.6, Boric Acid Tank Limits Based on RWST Boron Concentration**

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Answers

#	ID	0
1	007 EK2.03 1	B
2	008 AG2.4.45 2	C
3	009 EA2.10 3	A
4	015 AA2.08 4	D
5	022 AK1.02 5	A
6	025 AG2.2.36 6	A
7	026 AA2.03 7	D
8	029 EG2.1.31 8	D
9	040 AK1.06 9	B
10	054 AK1.02 10	B
11	055 EK2.04 11	C
12	056 AA1.11 12	B
13	057 AK3.01 13	A
14	058 AA1.01 14	B
15	062 AK3.03 15	C
16	065 AK3.04 16	A
17	077 AA1.03 17	B
18	W/E11 EK2.1 18	C
19	001 AK3.02 19	C
20	005 AA1.01 20	D
21	024 AA2.01 21	B
22	036 AK3.01 22	C
23	059 AK1.02 23	C
24	067 AG2.1.31 24	D
25	W/E08 EA1.1 25	C
26	W/E10 EK 1.1 26	A
27	WE14 EK2.1 27	C
28	003 A1.04 28	A
29	003 K4.02 29	D
30	004 A3.11 30	D
31	005 K6.03 31	A
32	006 A3.06 32	C
33	007 A2.05 33	B
34	008 A3.04 34	B
35	008 K1.04 35	B
36	010 A.2.01 36	D
37	012 K2.01 37	A
38	013 G2.4.46 38	D
39	022 K4.03 39	D
40	025 K5.02 40	A
41	025 K6.01 41	A
42	026 K2.01 42	C
43	026 K3.02 43	C
44	039 K5.05 44	C
45	059 K3.04 45	A
46	061 K3.01 46	C

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#	ID	0
47	061 K5.03 47	A
48	062 K1.02 48	B
49	063 G2.4.8 49	B
50	064 A1.02 50	C
51	064 K1.04 51	B
52	073 A4.02 52	A
53	076 A4.01 53	A
54	078 K2.02 54	C
55	103 A1.01 55	A
56	011 K1.02 56	D
57	014 K5.02 57	D
58	015 K3.04 58	C
59	016 K4.01 59	D
60	017 A3.01 60	C
61	027 K2.01 61	A
62	035 K6.02 62	B
63	041 A1.02 63	C
64	045G2.1.25 64	B
65	071 A4.16 65	D
66	G 2.1.14 66	D
67	G 2.1.3 67	D
68	G 2.1.37 68	B
69	G 2.2.13 69	B
70	G 2.2.37 70	D
71	G 2.3.11 71	B
72	G 2.3.4 72	B
73	G 2.4.13 73	A
74	G 2.4.23 74	C
75	G 2.4.39 75	A
76	008 AG2.4.2 76	A
77	009 EA2.37 77	D
78	011 EA2.14 78	D
79	015 AA2.01 79	B
80	022 AG2.1.28 80	C
81	077 AG2.4.5 81	C
82	068 AG2.4.7 82	C
83	076 AA2.02 83	B
84	W/E01 EG2.4.11 84	B
85	W/E16 EA2.1 85	D
86	003 A2.03 86	A
87	026 G2.4.20 87	D
88	039 A2.01 88	A
89	062 G2 4.18 89	C
90	076 A2.02 90	D
91	055 G2.4.3 91	C
92	071 A2.05 92	A

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#	ID	0
93	072 A2.02 93	B
94	G 2.1.25 94	C
95	G 2.2.21 95	C
96	G 2.2.6 96	A
97	G 2.3.13 97	B
98	G 2.3.14 98	B
99	G 2.4.27 99	A
100	G 2.4.28 100	B