

1. 2005 ILT RO 1

Consider the following plant conditions:

- Both Units are at End of Life.
- Unit 1 is at 10% reactor power.
- Unit 2 is at 100% reactor power.
- All Reactor Trip Breakers on both units open simultaneously.

Which Unit(s) will be <2% power after 15 seconds? How long before Unit 2 Source Range detectors energize?

	<2% in 15 seconds:	Unit <u>2</u> SR energize in:
	Units 1 and 2	6 - 8 minutes
A.		
B.	Units 1 and 2	13 -17 minutes
C.	Only Unit 1	21 - 24 minutes
D.	Neither Unit	21 - 24 minutes

2. 2005 ILT RO 2

Consider the following Unit 2 conditions:

- Crew has entered the EOP network for a Pressurizer Steam Space break.
- The following procedural flowpath has been followed:
 - EOP-0, Reactor Trip or Safety Injection
 - EOP-1, Loss of Reactor or Secondary Coolant
 - EOP-1.2, Small Break LOCA Cooldown and Depressurization
 - 30 minutes has elapsed since the reactor trip.

Performing the Cooldown and Depressurization of the plant per EOP-1.2 will ...

- A. have no effect on flowrate out of the steam space break and PZR level will be stable.
- B. have no effect on flowrate out of the steam space break and PZR level will be lowering.
- C. reduce flowrate out of the steam space break and PZR level will be lowering.
- D. reduce flowrate out of the steam space break and PZR level will be off-scale high.

3. 2005 ILT RO 3

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- An RCS leak has developed and the crew is responding using AOP-1A, Reactor Coolant Leak.
- Maximum charging has been established.
- Letdown has been manually isolated.
- VCT level is 17% and lowering.
- Pressurizer level is 29% and lowering.

Which of the following describes the proper response to these conditions?

- A. Commence manual makeup to recover VCT level.
- B. Manually restore Letdown flow to recover VCT level.
- C. Manually shift charging pump suction to the RWST and trip Unit 1 reactor.
- D. Manually trip Unit 1 reactor, manually initiate Safety Injection and Containment Isolation.

4. 2005 ILT RO 4

Consider the following Unit 1 conditions:

- A LOCA occurred one hour ago.
- During the performance of EOP-1.3, Transfer to Containment Sump Recirculation – Low Head Injection, 1SI-851 A and 1SI-851B, RHR Suctions from Containment Sump 'B', could NOT be opened.
- ECA-1.1, Loss of Containment Sump Recirculation, Step 22 "Check If SI Should Be Terminated" is now in progress.
- RCPs are off.
- Reactor Vessel level is 45 feet and stable.
- Subcooling is 50°F and stable.
- RWST level is 28% and lowering.
- The crew is now attempting to establish charging flow.

What is the significance of establishing charging flow under these conditions?

- A. Provide core cooling while preserving remaining RWST inventory.
- B. Refill the loops to ensure secondary heat transfer is available.
- C. Recover subcooling to allow SI termination.
- D. Protect RCP seals by providing seal injection flow.

5. 2005 ILT RO 5

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- 1C04 1C 1-5, "P-1A&B RCP Vibration" Alarm is LIT.
- Vibration on 'A' RCP is confirmed with a shaft vibration of 21 mils and rising at 0.1 mils per hour.
- Crew is implementing AOP-1B, Reactor Coolant Pump Malfunction.

Which of the following statements describes the correct course of action?

- A. Shut down the unit using AOP-17A, Rapid Power Reduction, then trip 'A' RCP.
- B. Continue implementing AOP-1B, Reactor Coolant Pump Malfunction, while continuing to monitor vibration of 'A' RCP. If shaft vibration exceeds 25 mils, trip Unit 1 reactor and 'A' RCP.
- C. Trip Unit 1 reactor, carry out EOP immediate actions, then trip 'A' RCP.
- D. Immediately trip 'A' RCP to prevent further damage, then perform EOP immediate actions.

6. 2005 ILT RO 6

Why are the CV-300A&B, RCP Seal Injection Throttle valves, closed during a loss of all AC Power?

- A. To prevent damage to the RCP seals from thermal shock when charging flow is restored.
- B. To prevent filling the Seal Return heat exchanger with steam when charging flow is restored.
- C. To prevent rupturing the Thermal Barrier heat exchanger from thermal and pressure shock.
- D. To prevent steam created in the seal package from steam binding the charging pumps via backleakage through the seal supply lines.

7. 2005 ILT RO 7

Consider the following Unit 1 conditions:

- Unit 1 is shutdown for refueling.
- Initial RCS temp was 80°F.
- 'A' RHR pump was running but became air bound, crew responded IAW SEP-1, Degraded RHR System Capability.
- 'A' RHR pump was successfully restarted after about 30 minutes.
- Final RCS temp is 110°F.

The crew now wishes to return the plant to the pre-event temperature using 'A' RHR pump.

Which of the following correctly identifies the RHR pump flow directed by SEP-1 and **MAXIMUM** allowed RCS cooldown rate while returning the plant to its initial conditions?

- A. 450-650 GPM flow; 50°F/hr cooldown rate
- B. 900-1100 GPM flow; 100°F/hr cooldown rate
- C. 1400-1600 GPM flow; 200°F/hr cooldown rate
- D. 2800-3000 GPM flow; Maximum cooldown rate does not apply while in SEP-1.

8. 2005 ILT RO 8

The following series of events have taken place on Unit 1:

- PC-431K, Pressurizer Master Pressure Controller, output failed high.
- 1RC-431 A and 1RC-431B, PZR Spray valves, opened.
- Pressurizer pressure lowered to 2100 PSIG.
- Unit 1 CO took manual control of 1HC-431K and lowered the output, causing the Spray valves to close.
- Unit 1 CO manually energized all Pressurizer heaters to raise Pressurizer pressure.
- Pressurizer pressure rose to 2325 PSIG.
- Unit 1 CO placed Pressurizer heater control switches to off.
- Pressurizer pressure slowly returned to 2235 PSIG.

Which of the following is accurate regarding this transient?

1. Technical Specification Action Condition should have been entered for **Low** Pressurizer Pressure.
2. **High** RCS Pressure Safety Limit has been exceeded.
3. Automatic **Low** Pressurizer Pressure Reactor trip failed to actuate.
4. Automatic **High** Pressurizer Pressure Reactor trip failed to actuate.

- A. Only 1
- B. Only 4
- C. 1 and 3
- D. 2 and 4

9. 2005 ILT RO 9

Unit 1 has experienced an Anticipated Transient without Scram (ATWS) and has transitioned to CSP-S.1, Response To Nuclear Power Generation/ATWS.

Which of the following correctly describes the expected control switch

MANIPULATIONS for 1CV-112B, RWST to Charging Pump suction MOV, and 1CV-112C, VCT to Charging Pump suction MOV prior to opening 1CV-350, Emergency Borate valve?

	1CV-112B control switch (RWST to Charging Pumps)	1CV-112C control switch (VCT to Charging Pumps)
A.	Open	Open
B.	Open	Close
C.	Close	Open
D.	Close	Close

10. 2005 ILT RO 10

Consider the following Unit 2 conditions:

- Unit 2 'A' Steam Generator has a Tube Rupture.
- The following RMS alarms and valve positions are noted:
 - RMS ALARMS:
 - 2RE-222, Unit 2 SGBD Tank Area Monitor in ALERT
 - 2RE-219, Unit 2 SGBD Sample Line Monitor in HIGH ALARM
 - VALVE POSITIONS:
 - 2MS-5958, Unit 2 'A' SG BD Isolation valve - CLOSED
 - 2MS-5959, Unit 2 'B' SG BD Isolation valve - CLOSED
 - 2MS-2040, Unit 2 SGBD Tank Outlet Isolation valve - CLOSED
 - 2MS-2083, Unit 2 'A' SGBD Sample Isolation valve - OPEN
 - 2MS-2084, Unit 2 'B' SGBD Sample Isolation valve - OPEN

Are the listed valves in the required position for the given alarm conditions? Why or why not? (Assume no operator action.)

- A. Yes, the Sample Isolation valves will go closed if 2RE-222 goes into HIGH Alarm.
- B. Yes, the Sample Isolation valves do NOT automatically close on RMS alarms and will need to be manually closed, if desired.
- C. No, with 2RE-219 in HIGH Alarm, all listed valves should be closed.
- D. No, since the SG Tube Rupture is on the 'A' SG, only 2MS-5958 and 2083 should be closed. The remaining valves should all be open.

11. 2005 ILT RO 11

Consider the following Unit 1 conditions:

- Unit 1 was at 100% reactor power.
- Twenty minutes ago, an RCP flywheel catastrophically failed, damaging both Main Steam lines inside containment.
- AFW flow of 100 GPM per SG was established in EOP-0, Reactor Trip or Safety Injection.
- ECA-2.1, Uncontrolled Depressurization of Both Steam Generators, feed control step is in progress.
- SG 'A' level is 200" WR and lowering slowly.
- SG 'B' level is 100" WR and lowering.
- RCS temperature is now 400°F and slowly lowering.

Which of the following actions will the crew take regarding AFW flow to the Steam Generators IAW ECA-2.1 and what is the reason for this action?

- A. Maintain AFW flow at 100 GPM to each SG, since 200 GPM flow is required to maintain adequate heat sink.
- B. Secure AFW flow to 'B' SG and raise AFW flow to 'A' SG to 200 GPM to isolate feed to the more severely faulted SG and maintain adequate heat sink.
- C. Secure AFW flow to 'B' SG and maintain AFW flow to 'A' SG at 100 GPM since 100 GPM flow is directed to minimize RCS cooldown and 'B' SG level is lowering faster.
- D. Reduce AFW flow to 50 GPM to each SG to minimize cooldown while maintaining both SGs in a "wet" condition.

12. 2005 ILT RO 12

Consider the following Unit 1 conditions:

- Unit 1 is at 85% reactor power.
- 1CS-2190, P-28A Main Feed Pump Discharge MOV, begins to close due to an electrical malfunction.

Which of the following automatic **OR** manual actions will be required to recover Steam Generator levels?

- A. Turbine Runback will automatically lower steam flow.
- B. 1CS-2273, LP FWH Bypass valve, will automatically open to raise feed flow.
- C. Crew must manually lower Turbine load to lower steam flow.
- D. Crew must manually open Main Feed Regulating valves to raise feed flow.

13. 2005 ILT RO 13

Consider the following plant conditions:

- Loss of all AC power has occurred.
- 1P-29 and 2P-29, Turbine Driven AFW pumps are providing flow to the SGs.

What is the fail position for 1AF-4002 and 2AF-4002, TDAFW Pump Recirc valves, and how long are the backup accumulators for these valves expected to last before manual control of the gagging devices is needed?

- A. Valves fail closed, 2 hours
- B. Valves fail open, 90 minutes
- C. Valves fail open, 1 hour
- D. Valves fail closed, 30 minutes

14. 2005 ILT RO 14

Unit 2 was operating at 100% reactor power when a loss of offsite power caused the RCPs to trip. The crew is performing EOP-0.1, Reactor Trip Response.

Identify the proper indications that natural circulation has been **ESTABLISHED**.
(Assume subcooling is 50°F and Stable.)

- 1 – Core Exit Thermocouples – Lowering
- 2 – Core Exit Thermocouples – Rising
- 3 – RCS Hot Leg temperature – Lowering
- 4 – RCS Hot Leg temperature – Rising
- 5 – SG pressure – Lowering
- 6 – SG pressure – Rising
- 7 – RCS **HOT** Leg temperature – near saturation for SG pressure
- 8 – RCS **COLD** Leg temperature – near saturation for SG pressure

- A. 1, 3, 5, 8
- B. 1, 3, 6, 7
- C. 2, 4, 5, 7
- D. 2, 4, 6, 8

15. 2005 ILT RO 15

Breaker 1 on D-26 panel, power to DY0A, Red Swing Inverter, opens. Which of the following would be the expected position or indication on DY0A following this loss of power?

- | | DC Input Breaker | Frequency Meter | AC Output Breaker |
|----|------------------|-----------------|-------------------|
| A. | Open | 60 Hz | Closed |
| B. | Closed | 60 Hz | Closed |
| C. | Closed | 0 Hz | Open |
| D. | Open | 0 Hz | Open |

16. 2005 ILT RO 16

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- "Instrument Air Header Pressure Low" is in alarm.

If a ruptured Instrument Air header is causing a continuous lowering of Instrument Air header pressure, which of the following will require a Reactor Trip IAW AOP-5B, Loss of Instrument Air?

- A. Loss of Letdown Orifice Isolation valve control
- B. Loss of Steam Generator Water level control
- C. Loss of Charging pump speed control
- D. Loss of Pressurizer Spray valve control

17. 2005 ILT RO 17

Which of the following systems is considered to be the most likely location for a LOCA outside containment and is therefore the first system verified to be intact during the performance of ECA-1.2, LOCA Outside Containment?

- A. Safety Injection
- B. RHR
- C. CVCS Letdown
- D. CCW

18. 2005 ILT RO 18

Consider the following Unit 1 conditions:

- Unit 1 was at 100% reactor power when a Reactor Trip and Safety Injection occurred.
- Subsequent failures have resulted in a total loss of Auxiliary Feedwater flow.
- The crew has transitioned to CSP-H.1, Response to Loss of Secondary Heat Sink.
- While attempting to restore 1P-29, Turbine Driven AFW Pump, using CSP-H.1, the following conditions are noted:
 - 1MS-2019, 1P-29 Steam Supply valve - green light off, red light lit.
 - 1MS-2020, 1P-29 Steam Supply valve - green light off, red light lit.
 - 1MS-2082, 1P-29 AFP Low Suction/Ovrspd Trip valve - green light off, red light lit.
 - 1MS-2082 Trip Valve Position/Reset Operator - amber light lit, red light off.
 - 1P-29 AFP suction pressure is 10 PSIG and stable.
 - "Unit 1 Auxiliary Feedwater System Disabled" Alarm is LIT.

Which of the following is the reason 1P-29 is **NOT** running?

- A. 1P-29 tripped on low suction pressure, local operator action is required to start 1P-29.
- B. 1P-29 did NOT receive a start signal, Trip Valve 1MS-2082 must be opened manually.
- C. 1P-29 tripped on overspeed, local operator action is required to start 1P-29.
- D. 1P-29 attempted to start but failed to start because Trip Valve 1MS-2082 was manually closed from the Control Room.

19. 2005 ILT RO 19

Consider the following Unit 1 conditions:

- Unit 1 is at 95% reactor power.
- CBD Control rod C-7 is at 178 steps.
- Remaining Control Bank 'D' rods are at 198 steps.
- Control Room crew has entered AOP-6B, Stuck or Misaligned Control Rod, and actions to realign the rod have been completed.
- Following the realignment of the rod, the P/A converter is **NOT** set to actual bank position as required in the procedure.
- Subsequently, a plant transient occurs and rods begin to drive in until the "Rod Insertion Limit Bank D **LOW**" (1C04 1A 1-11) Alarm actuates.

Relative to **ACTUAL** Rod Insertion Limits, at what rod height will the alarm actuate? Would this be conservative or non-conservative? Why?

- A. Alarm will actuate 30 steps **ABOVE** Rod Insertion Limit. This would be conservative since the alarm would provide early warning of an inadvertent dilution.
- B. Alarm will actuate 10 steps **ABOVE** Rod Insertion Limit. This would be conservative since the alarm would provide early warning that rod position could cause Axial Flux to exceed allowable limits.
- C. Alarm will actuate 10 steps **BELOW** Rod Insertion Limit. This would be non-conservative since the alarm warning, for a possible loss of Shutdown Margin, would be received late.
- D. Alarm will actuate 30 steps **BELOW** Rod Insertion Limit. This would be non-conservative since the alarm warning for rod position, which could cause DNB Ratio to exceed allowable limits, would be received late.

20. 2005 ILT RO 20

The following conditions have developed on Unit 1 over the past 10 minutes:

- Unit 1 is at 100% reactor power.
- 1P-2A Charging pump is in automatic, 1P-2C Charging pump is in manual.
- Pressurizer level is slowly lowering.
- 1P-2A Charging pump has ramped to minimum speed and "Charging Pump Speed Control High/Low" Alarm is LIT.
- All Pressurizer heaters are energized.
- Pressurizer pressure is 2250 PSIG and trending to setpoint.
- Pressurizer Spray valves are both open slightly.

What actions are needed and why?

- A. Take manual control of 1P-2A, Charging pump, since 1HC-428A, 1P-2A Charging Pump Speed Controller, has failed low.
- B. Take 1PC-431K, Pressurizer Pressure Master Controller, to manual and manually adjust to de-energize heaters and control pressure since 1PC-431K output has failed low.
- C. Start additional charging pump to restore Pressurizer level in response to an RCS leak.
- D. Take manual control of charging to restore Pressurizer level since controlling channel for Pressurizer level has failed high.

21. 2005 ILT RO 21

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- AOP-3, Steam Generator Tube Leak, was then entered due to increased radiation levels on 1RE-215, Condenser Air Ejector Gas Monitor Unit 1.
- The appropriate response actions for RCS inventory control with a SG tube leak have been taken.

Which of the following conditions will require a manual Reactor Trip and Safety Injection for this SG tube leak?

- A. SG tube leakage rate of change is determined to be 100 GPD/hour for the last 15 minutes based on 1RE-215, Condenser Air Ejector Gas Monitor.
- B. PZR level continues to slowly lower with charging flow maximized and letdown isolated.
- C. 1RE-219, Unit 1 SG Sample Line Radiation Monitor, goes into HIGH alarm.
- D. RCS subcooling reading of 50°F.

22. 2005 ILT RO 22

Consider the following Unit 1 conditions:
(AOP-5A, Figure 1 provided)

- Unit 1 was at 100% reactor power.
- Unit 1 condenser vacuum began to degrade.
- Crew responded using AOP-5A, Loss of Condenser Vacuum.
- Crew lowered power as directed.
- Source of Condenser air in-leakage was found and patched but is still leaking.
- Conditions are now as follows:
 - Power ramp is now at 75% of full electrical output.
 - Condenser pressure is 6" Hg absolute and degrading slowly.
 - Annunciator 1C03 1F 1-4, "Condenser Vacuum Low" is LIT.
 - Annunciator 1C03 1E 3-1, "Condenser Vacuum Lo" Turbine Trip First Out Alarm is NOT LIT.
 - OS1 directs CO1 to trip the Unit 1 reactor.

Why was the Reactor Trip directed? Have the annunciators listed functioned properly?

- A. Trip was directed due to being outside of allowable turbine operating range. Annunciator 1C03 1F 1-4, "Condenser Vacuum Low" should NOT have alarmed until 22" Hg Condenser vacuum.
- B. Trip was directed since turbine failed to automatically trip. "Condenser Vacuum Lo" first out annunciator (1C03 1E 3-1) should have alarmed at 25" Hg Condenser vacuum.
- C. Trip was directed due to being outside of allowable turbine operating range. Annunciators have functioned as designed.
- D. Trip was directed since turbine failed to automatically trip. Annunciators have functioned as designed.

23. 2005 ILT RO 23

What is the whole body dose limit at or beyond the **SITE BOUNDARY** resulting from releases of **NOBLE GAS**?

- A. 500 mrem/yr
- B. 1500 mrem/yr
- C. 3000 mrem/yr
- D. 5000 mrem/yr

24. 2005 ILT RO 24

Radiography is being performed on 2MS-2019, 'B' Train Steam Supply to the Unit 2 Turbine Driven AFW pump.

The RP supervisor responsible for the evolution contacts the Control Room to inform the operators of RMS alarms which would be expected to be received during the performance of the radiography.

Which of the following Radiation Monitors would be included in the report by the RP supervisor?

- A. 2RE-217, Unit 2 CC Water Liquid Monitor
- B. 2RE-232, Steam Line 2B Monitor
- C. RE-218B, Background Monitor for Waste Disposal Liquid Monitor
- D. RE-223B, Background Monitor for Waste Distillate Tank Overboard Monitor

25. 2005 ILT RO 25

Consider the following plant conditions:

- A plant worker reports a small amount of blue smoke and acrid smell originating from the Cable Spreading Room (CSR).
- The Turbine Hall AO is dispatched to verify this report and finds that the room has filled with smoke and all personnel have been evacuated from the CSR.
- Various Unit 1 Instrumentation begins operating erratically.
- The Control Room crew enters AOP-10A, Safe Shutdown - Local Control.

Which of the following is the correct course of action with regard to the reactor trip system?

- A. Only Unit 1 should be manually tripped from the Control Room.
- B. Only Unit 1 should be locally tripped from its Rod Drive Room.
- C. Both Units should be manually tripped from the Control Room.
- D. Both Units should be locally tripped from their respective Rod Drive Rooms.

26. 2005 ILT RO 26

Consider the following Unit 1 conditions:

- A large break LOCA has occurred inside containment.
- Containment radiation levels were stable at 1.5×10^5 R/hr for a number of hours.
- Containment radiation levels have recently fallen to 5×10^4 R/hr and have stabilized.
- Containment pressure is 8 PSIG and stable.
 - The crew now wishes to relax adverse containment setpoints.

Which of the following statements applies to this situation?

- A. Once radiation levels are $<10^5$ R/hr, adverse containment may be exited.
- B. Once adverse containment has been entered due to radiation levels, the Shift Technical Advisor will need to calculate a total containment dose and may recommend relaxing adverse containment setpoints based on this calculation.
- C. Once adverse containment has been entered due to radiation levels, the Technical Support Center will need to calculate a total containment dose and may recommend relaxing adverse containment setpoints based on this calculation.
- D. Once adverse containment has been entered due to radiation levels, I & C personnel must evaluate each affected instrument for operability prior to relaxing adverse containment setpoints.

27. 2005 ILT RO 27

Consider the following Unit 1 conditions:

- A Small Break LOCA has occurred.
- Due to a failure of 4160V Fast Bus Transfer, 1A-01 and 1A-02, Unit 1 Non-vital 4160 V buses, are de-energized.
- All Unit 1 Charging pumps are running in manual.
- Letdown is isolated.
- Crew is ready to depressurize the RCS to refill the Pressurizer using EOP-1.2, Small Break LOCA Cooldown and Depressurization.

How will this depressurization be achieved?

- A. Open 1RC-431A or 1RC-431B, Pressurizer Normal Spray valves, to spray down the Pressurizer.
- B. Open **ONE** RC-430 **OR** 431C, Pressurizer PORV, to vent the Pressurizer.
- C. Open **BOTH** RC-430 **AND** 431C Pressurizer PORVs, to vent the Pressurizer.
- D. Open 1CV-296, Pressurizer Auxiliary Spray valve, to spray down the Pressurizer.

28. 2005 ILT RO 28

Two **IDENTICAL** units with identical power histories have tripped from the same power level.

- Unit 1 RCPs are running.
- Unit 2 RCPs have tripped.

The units are being maintained at the same RCS temperature using AFW and SG atmospheric steam dumps.

Which unit will have the **HIGHER** AFW flow? Which unit will have the **HIGHER** RCS loop delta-T?

	HIGHER AFW FLOW	HIGHER DELTA T
A.	Unit 1	Unit 1
B.	Unit 1	Unit 2
C.	Unit 2	Unit 1
D.	Unit 2	Unit 2

29. 2005 ILT RO 29

When an RCP is started with cold RCS conditions, what is the approximate value expected for stable, running current (after starting surge has dissipated)? Will the current rise or lower as the RCS is heated up?

- A. 475-525 Amps. Value is expected to rise as RCS heats up.
- B. 600-650 Amps. Value is expected to rise as RCS heats up.
- C. 725-775 Amps. Value is expected to lower as RCS heats up.
- D. 850-900 Amps. Value is expected to lower as RCS heats up.

30. 2005 ILT RO 30

Consider the following Unit 1 conditions:

- Unit 1 is in MODE 5.
- The RCS is solid on RHR.
- RCS pressure is 300 PSIG.
- 1HC-135, Letdown Line Pressure Controller, is in MANUAL to control RCS pressure.
- Charging pumps are in MANUAL.
- Letdown is aligned to RHR.
- All RCS and RHR conditions are stable.

The PAB operator then performs a blowdown of the Service Water side of 1HX-12A and HX-12B, Component Cooling Water Heat Exchangers.

If no other operator actions are taken, RCS pressure will...

- A. lower because the Non-Regenerative heat exchanger Letdown outlet temperature will rise.
- B. rise because Service Water blowdown flow will bypass the CCW heat exchanger tubes.
- C. rise because more RHR flow will bypass the RHR heat exchangers.
- D. lower because RHR temperature will lower.

31. 2005 ILT RO 31

Consider the following Unit 1 conditions:

- Unit is at 100% reactor power.
- 1HC-130, NRHX Letdown Outlet Temperature Controller, output fails LOW.

What is the impact on the NRHX flow and RCS boron concentration? (Assume no operator action.)

- A. CVCS flow will lower; RCS boron concentration will lower.
- B. CVCS flow will lower; RCS boron concentration will rise.
- C. CCW flow will rise; RCS boron concentration will lower.
- D. CCW flow will rise; RCS boron concentration will rise.

32. 2005 ILT RO 32

Consider the following Unit 2 conditions:

- A Large Break LOCA has occurred.
- Containment pressure is 30 PSIG and lowering slowly.
- RWST level is 8% and stable.
- Required actions have been taken per Attachment B of CSP-Z.1, Response to High Containment Pressure, to place 'A' Train of Containment Spray on sump recirc using 'A' train of RHR as the suction source.
- 'A' RHR pump subsequently trips.

Which of the following describes what will happen to the 'A' Containment Spray Train?

- A. 'A' Containment Spray pump will trip when RHR discharge pressure is <210 PSIG.
- B. 'A' Containment Spray pump will continue to run, manual action will be needed to secure 'A' Containment Spray pump.
- C. With 2SI-871A, Containment Spray pump RHR Suction, open, the 'A' Containment Spray pump breaker will open on interlock when the 'A' RHR pump breaker opens.
- D. 2SI-870A, RWST to 'A' Containment Spray pump, will automatically open to supply RWST water to Containment Spray pump.

33. 2005 ILT RO 33

Consider the following plant conditions:

- A Service Water pump supplied by 1B-03, 480 VAC Safeguards Bus has developed a significant ground.
- Service Water pump supply breaker (1B52-12C) trips.
- 1X-13, 1B-03 Transformer Feeder breaker (1A52-58) trips.
- 1A-03 feeder to 1A-05 (1A52-57) trips.
- G01 EDG starts and loads as expected.
- Assume no other failures and no operator action.

Which of the following Train 'A' ECCS pump(s) is/are currently **AVAILABLE**?

- A. ONLY 1P-15A SI pump is available.
- B. ONLY 1P-10A RHR pump is available.
- C. **BOTH** 1P-10A **AND** 1P-15A pumps are available.
- D. **NEITHER** 1P-10A **NOR** 1P-15A pump is available.

34. 2005 ILT RO 34

Consider the following Unit 2 conditions:

- Unit 2 was at 100% reactor power.
- 'A' Main Steam Line developed a Steam Line break.
- 'A' Main Steam Line pressure lowered to 500 PSIG.

Which of the following would be the expected valve alignment for the following valves:

- 2SI-878 A and C, Vessel Safety Injection MOVs
- 2SI-878 B and D, Loop B Safety Injection MOVs
- 2SI-852 A and B, Train A and B Core Deluge valves

- | | 2SI-878A and C | 2SI-878B and D | 2SI-852A and B |
|----|----------------|----------------|----------------|
| A. | Closed | Open | Closed |
| B. | Open | Open | Closed |
| C. | Open | Closed | Open |
| D. | Closed | Open | Open |

35. 2005 ILT RO 35

Consider the following Unit 1 conditions:

- Unit was operating at 100% reactor power when a Reactor Trip and Safety Injection occurred due to low Pressurizer pressure.
- Five minutes after the SI actuation, the following conditions were observed:
 - Unit 1 Containment Radiation Monitors are showing an increase in radiation levels.
 - Containment humidity and Containment pressure have just begun rising.
 - Unit 1 Containment Sump 'A' level is rising.
 - 1C01 1C 1-1, "1T-2 PRT Press Hi, Temp Hi, Level Hi or Lo" Alarm is LIT.

Assuming **NO** operator actions were taken, which of the following would result in these conditions?

- A. RCP #1 Seal failure
- B. Pressurizer PORV stuck open
- C. Steam Generator Blowdown piping failure
- D. Incore Thimble Tube failure at Reactor Vessel Penetration

36. 2005 ILT RO 36

The following PRT parameters are noted (Unit 1 is at 100% reactor power):

- Level is 74%.
- Pressure is 4 PSIG.
- Temperature is 145°F.
- "PRT Press HI, Temp HI, Level HI or LO" Alarm is LIT.

Which action should be taken because of these conditions?

- A. PRT level should be raised.
- B. PRT level should be lowered.
- C. PRT pressure should be lowered.
- D. PRT temperature should be lowered.

37. 2005 ILT RO 37

Consider the following plant conditions:

- Unit 2 was at 95% reactor power with Excess Letdown in service.
- Unit 2 experienced an automatic Safety Injection.
- All systems functioned as designed.

Which of the following CCW cooled components will still have CCW flow following the Unit 2 SI?

- A. Blowdown Evaporator
- B. Unit 2 RCP Thermal Barrier heat exchangers
- C. Unit 1 Letdown Gas Stripper
- D. Unit 2 Excess Letdown heat exchanger

38. 2005 ILT RO 38

Consider the following Unit 1 conditions:

- A load rejection due to an EH malfunction has occurred from 100% power.
- Reactor power is now 80%.
- Pressurizer level is 52%.
- Pressurizer pressure is 2275 PSIG.
- RCS T_{avg} is 573°F.

What Pressurizer Pressure Control system indications are expected on the Main Control Boards?

- A. PZR Backup heaters are all on ONLY.
- B. PZR Spray valves have modulated open ONLY.
- C. PZR Spray valves AND PZR PORVs are open.
- D. PZR Backup heaters are on AND PZR Spray valves have modulated open.

39. 2005 ILT RO 39

During the performance of RESP-1.9, Alternate Calculation of Reactor Thermal Power, at 100% power, a Reactor Engineer uses a feedwater temperature 30°F HIGHER than actual.

Would the calculated value of power be HIGHER or LOWER than actual power and would an adjustment of the NIS Power Range channels, based on this value, be CONSERVATIVE or NON-CONSERVATIVE with respect to Reactor Trip setpoints?

- A. Higher/Non-conservative
- B. Higher/Conservative
- C. Lower/Non-conservative
- D. Lower/Conservative

40. 2005 ILT RO 40

Concerning the Engineered Safety Features Actuation System (ESFAS), there are _____ channels of Steam Line Pressure instrumentation per Steam Generator which input to _____ safety trains of ESFAS.

- | | Number of Channels | Number of Trains |
|----|--------------------|------------------|
| A. | 4 | 4 |
| B. | 4 | 2 |
| C. | 3 | 3 |
| D. | 3 | 2 |

41. 2005 ILT RO 41

Consider the following Unit 1 conditions:

- Unit 1 was operating at 100% reactor power.
- 1P-14A, 'A' Train Containment Spray (CS) pump is out of service for maintenance.
- All other plant equipment is OPERABLE.
- A Design Basis LOCA occurs inside Containment, destroying the ductwork for **'B' AND 'C'** Containment Accident fans, rendering them INOPERABLE.

With these conditions, would Containment be expected to **EXCEED** design basis limits? Why or why not?

- A. Containment limits should NOT be exceeded. ONE CS pump and TWO Accident fans are sufficient to protect containment.
- B. Containment limits should NOT be exceeded. ONE CS pump ALONE is sufficient to protect containment.
- C. Containment limits MAY BE exceeded. TWO CS pumps and FOUR Accident fans are needed to protect Containment.
- D. Containment limits MAY BE exceeded. With one CS pump INOPERABLE, THREE Accident fans are needed to protect Containment.

42. 2005 ILT RO 42

Consider the following Unit 1 conditions:

- A Large Break LOCA has occurred inside Containment.
- Containment pressure is 32 PSIG and lowering slowly.
- Both Containment Spray trains are running and delivering flow to Containment.
- Unit 1 CO is performing the Immediate Action steps of EOP-0, Reactor Trip or Safety Injection.
- Unit 1 BOP notices that 1SI-836A and 1SI-836B, Spray Additive Eductor Suction valves, did NOT open.

What are the potential consequences of this failure and what is an appropriate course of action for the Unit 1 BOP?

- A. Increased hydrogen generation within Containment; manually open valves during the performance of EOP-0 Attachment A, Automatic Action Verification.
- B. Increased corrosion of components within Containment; allow completion of EOP-0 Immediate Action steps, then inform OS of failure and open 1SI-836A and 1SI-836B.
- C. Decreased retention of radioactive iodine in the Containment sump; ensure Unit 1 CO manually initiates Containment Spray during the performance of Step 4 of EOP-0 Immediate Actions.
- D. Higher than expected radiation levels within Containment; inform OS of failure and immediately open 1SI-836A and 1SI-836B.

43. 2005 ILT RO 43

Consider the following Unit 1 conditions:

- Unit was at 15% reactor power.
- Main Steam Line Break on 'B' SG has occurred inside containment.
- An automatic Reactor Trip and Safety Injection occurred.
- The following parameters are now noted:
 - Containment pressure - 7 PSIG and rising.
 - T_{cold} is 450°F and lowering.
 - 'B' Steam flow is 1.8×10^6 lbm/hr.
 - 'A' Steam flow is 1.0×10^6 lbm/hr.
 - 'B' MSIV is closed.
 - 'A' MSIV is open.

Which of the following is correct regarding the 'A' MSIV?

- 'A' MSIV should have closed due to High Containment Pressure.
- A.
- B. 'A' MSIV should have closed due to Low T_{avg} and High Steam Flow coincident with the SI signal.
- C. 'A' MSIV is in the proper alignment but will close if 'A' High-High Steam Flow bistable actuates coincident with the SI signal.
- D. 'A' MSIV is in the proper alignment but will close if containment reaches High Containment Pressure setpoint.

44. 2005 ILT RO 44

Consider the following plant conditions:

- Unit 1 is in MODE 3.
- Unit 1 SG Levels were at program level.
- Unit 2 SG Levels are at program level.
- AFW Pump and Valve Switches in Normal/Auto.
- 1A-01 and 1A-02, 4160 Non-Safeguards Bus voltages normal.
- 1P-28A, Main Feed pump is in pullout.
- 1P-28B, Main Feed pump is running.
- 1P-28B subsequently trips and locks out.
- Control Operator places 1P-28B control switch to pullout.

The following conditions are now noted:

- Unit 1 'A' SG level is 23% and lowering.
- Unit 1 'B' SG level is 39% and lowering.

Which of the following correctly describes which AFW pumps would be running?

- A. No AFW pumps would be running.
- B. ONLY 1P-29, Unit 1 TDAFW pump, would be running.
- C. 1P-38A and 1P-38B, MDAFW pumps, would be running.
- D. BOTH 1P-29 and P-38A would be running.

45. 2005 ILT RO 45

Consider the following Unit 1 conditions:

- Unit 1 is starting up following refueling.
- OP-13A, Secondary Plant Startup, is ongoing.
- Preparations are being made to start 1P-28A, Main Feed Water pump.
- 1P-28B, Main Feed Water pump, is NOT running.
- The following conditions exist for 1P-28A:
 - 1CS-2190, 1P-28A Discharge, is CLOSED.
 - 1CS-51, 1P-28A Suction, is OPEN.
 - 1CS-2180, 1P-28A Mini Recirc Flow Control, is CLOSED.
 - 1P-99 A and B, SGFP Seal Water pumps, are running.
 - Seal Water DP is 50 PSID.
 - MFP Suction pressure is 175 PSIG.
 - 1P-73B, 'A' Main Feed Pump Oil pump, is running.
 - 1P-28A oil pressure is 16 PSIG.

Will 1P-28A start with the above listed conditions?

- A. Yes, Pump permissives are satisfied.
- B. No, Feed Pump oil pressure is too low.
- C. No, Feed Pump suction pressure is too low.
- D. No, 1CS-2180, Mini Recirc Flow Control valve must be OPEN.

46. 2005 ILT RO 46

Which of the following is the power supply to P-38B, Motor-Driven AFW pump?

- A. 1B-03
- B. 1B-04
- C. 2B-03
- D. 2B-04

47. 2005 ILT RO 47

Consider the following Unit 1 conditions:

- Unit 1 has tripped due to a Small Break LOCA.
- EOP-1.2, Small Break LOCA Cooldown and Depressurization, is being performed.
- RCS Temperature is being maintained using AFW and Atmospheric Steam Dumps.
- The following conditions are now noted:
 - C01A 3-9, "T24 A or B CST Level Lo-Lo" Alarm has just actuated.

On lowering CST level, at what level would the entry conditions for AOP-23, Aligning Alternate AFW Suction Supply, **FIRST** be met?

- A. 13.5 feet
- B. 10 feet
- C. 8 feet
- D. 6.5 feet

48. 2005 ILT RO 48

While performing Monthly Emergency Diesel Generator Test on G01 EDG, the following conditions are noted while paralleling G01 to 1A-05:

- Sync Selector Switch for 1A52-60, G01 to 1A-05 breaker, is ON.
- Running Voltmeter reads 123 volts.
- Incoming Voltmeter reads 118 volts.
- Synchroscope is rotating 10 RPM in the SLOW direction.

What must the operator do to match voltage and make the Synchroscope turn 2 to 5 RPM in the **FAST** direction?

- A. Go to **Raise** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Raise** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.
- B. Go to **Lower** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Raise** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.
- C. Go to **Raise** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Lower** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.
- D. Go to **Lower** on the G01 Diesel Generator Voltage Regulator to match voltages. Go to **Lower** on the G01 Diesel Generator Governor control switch to make Synchroscope turn properly.

49. 2005 ILT RO 49

Consider the following plant conditions:

- Multiple DC grounds have occurred, causing one of the two fuses supplying D-11, 125 VDC distribution panel, to fail open.

Which of the following correctly describes the expected plant response and what actions should be taken in response to this failure?

- A. Only Unit 2 will trip. Crew will enter EOP-0, Reactor Trip or Safety Injection, for Unit 2 and perform AOP-0.0, Vital DC System Malfunction in parallel. When maintenance determines the cause of the blown fuse, direct maintenance to replace ONLY the blown fuse one time.
- B. Both Units 1 and 2 trip. Crew will enter EOP-0 for both units and perform AOP-0.0 when EOP-0.1, Reactor Trip Response, is completed. When maintenance determines the cause of the blown fuse, direct maintenance to replace BOTH fuses one time.
- C. Only Unit 1 will trip. Crew will enter EOP-0 for Unit 1 and perform AOP-0.0 in parallel. When maintenance determines the cause of the blown fuse, direct maintenance to replace BOTH fuses one time.
- D. Both Units will remain at power. Supply fuses are in parallel and blowing one fuse will NOT cause D-11 to lose power. Respond to the failure of one fuse using ARB guidance. When maintenance determines the cause of the blown fuse, direct maintenance to replace ONLY the blown fuse one time.

50. 2005 ILT RO 50

Consider the following plant conditions:

- Both units are at 100% reactor power with the electric plant in its normal alignment.
- 2X-04 Transformer locks out.
- Normal supply breaker to 2A-05 fails closed.

What effect will this have on the Emergency Diesels?

- A. All EDGs will start, but only G02 will supply its respective bus.
- B. All EDGs will start, but only G04 will supply its respective bus.
- C. All EDGs will start and both G02 and G04 will supply their respective buses.
- D. Only G02 and G04 will start and both will supply their respective buses.

51. 2005 ILT RO 51

Consider the following plant conditions:

- Both Units are at 100% reactor power.
- Service Water Overboard is aligned to Unit 1.
- 'A' Waste Distillate Tank is going to be discharged.
- Discharge permit has been initiated by Chemistry and an extra CO has been assigned to do monitor checks IAW OI-140, Standard Radioactive Batch Release.
- 1RE-229, Unit 1 SW Overboard is designated as the release point monitor.
- RE-223, Waste Distillate Tank Overboard Monitor is the "At Tank" Monitor.
- When the CO arrives at the RMS System Server, he notes that 1RE-229 and RE-223 both indicate "Fail External".

Are these indications expected?

- A. Yes, Both radiation monitors should indicate Fail External until tank discharge commences.
- B. No, neither radiation monitor should indicate Fail External.
- C. No, 1RE-229 should indicate Fail External until the tank discharge commences but RE-223 should NOT indicate Fail External.
- D. No, RE-223 should be indicating Fail External until the tank discharge commences but 1RE-229 should NOT indicate Fail External.

52. 2005 ILT RO 52

Consider the following plant conditions:

- Both Units were at 100% reactor power.
- P-32 A, B and E Service Water pumps are running.
- Unit 2 Safety Injection occurs.
- All systems function as designed.

What is the expected response of the Service Water System to the Safety Injection?

- A. SW-2869/2870, Service Water Cross-Connect valves close to isolate the West Service Water header.
- B. 2SW-2907/2908, 2HX-15A-D Containment Recirc Heat Exchanger Emergency flow control valves open to raise flow to Containment Accident Coolers.
- C. 2SW-2880, Unit 2 Turbine Hall Service Water Supply valve closes to isolate Service Water to Unit 2 Turbine Hall.
- D. SW-2930A/2930B, SFP Heat Exchanger Outlet valves close and SW-2927A/2927B, SFP Heat Exchanger Inlet valves remain open.

53. 2005 ILT RO 53

Consider the following plant conditions:

- Both units are at 100% reactor power.
- C01 A 1-5, "Service Water Strainer DP High" Alarm is LIT.
- C01 A 2-5, "North or South SW Header Strainers" Alarm is LIT.
- SW Header Pressure is 60 PSIG.
- AO is dispatched to investigate alarm:
 - AO reports that the South SW Main Zurn strainer had stopped backwashing and the DP on the strainer was 4 PSID.
 - AO reports that he has opened SW-3, South SW Main Zurn Bypass valve, and that DP has returned to normal.

What direction should be given to the AO and what is the reason for this action?

- A. Direct AO to immediately close Strainer Bypass valve. An open Strainer Bypass valve makes SW and AFW inoperable.
- B. Direct AO to immediately close Strainer Bypass valve. An open Strainer Bypass valve upsets SW flow balance and may cause insufficient flow to North SW header.
- C. Maintain bypass open to ensure South Service Water header has sufficient flow for required heat loads. Contact System Engineer to evaluate system flow conditions.
- D. Maintain bypass open to ensure SW is available to safety related components normally supplied from the South SW header. SW supply to these components should be swapped to the alternate header as soon as possible.

54. 2005 ILT RO 54

Consider the following plant conditions:

- K2A, Instrument Air compressor, is selected to Constant.
- K2B, Instrument Air compressor, is selected to Auto.
- K3A and K3B Service Air compressors are in a normal alignment.

If K2A trips and Instrument Air header pressure drops continuously, in what order will the following automatic actions occur.

- A. Instrument Air Dryer Bypass opens.
- B. Instrument Air Low Pressure Alarm annunciates.
- C. Standby Instrument Air compressor starts.
- D. Standby Service Air compressor starts.

A. C, D, B, A

B. B, A, C, D

C. C, B, D, A

D. B, C, A, D

55. 2005 ILT RO 55

Which of the following represents a potential loss of Containment operability during power operations? (Assume no other components are out of alignment.)

- A. Opening upper containment airlock outer door without Control Room permission.
- B. Opening 2RC-595, PRT Nitrogen Isolation valve, with dedicated operator stationed.
- C. Discovering two loose bolts on the Containment Equipment Hatch during a containment inspection.
- D. Leaving upper containment airlock inner door vent valve open during a radiation survey inside containment.

56. 2005 ILT RO 56

Consider the following Unit 1 conditions:

- One **Control Bank A** control rod has become misaligned.
- Crew is implementing AOP-6B, Stuck or Misaligned Control Rod, and is to the point of recovering the misaligned rod.
- As the CO begins to withdraw the control rod, the "Rod Control Urgent Failure" Alarm is received.

What actions should be taken as a result of this alarm?

- A. Continue withdrawing the control rod, Urgent Failure alarm is expected.
- B. Immediately trip Unit 1 reactor and proceed to EOP-0, Reactor Trip or Safety Injection.
- C. Stop withdrawing the control rod, place lift coil disconnect switch in Disconnect, contact I & C to troubleshoot Rod Control system.
- D. Stop withdrawing control rod, immediately commence shutdown per Technical Specification requirements.

57. 2005 ILT RO 57

During natural circulation cooldown, it is possible for a bubble to form in the reactor vessel head. The existence of a bubble in the reactor vessel is normally indicated by the Reactor Vessel Level Indication System (RVLIS).

If RVLIS is **NOT** available, which of the following instruments would provide **direct** indication of the existence of a bubble in the reactor vessel head?

- A. Pressurizer level
- B. RCS Cold Leg temperature (Wide Range)
- C. Core Exit Thermocouple temperature
- D. RCS pressure (Wide Range)

58. 2005 ILT RO 58

Consider the following Unit 1 conditions:

- A plant startup is in progress with reactor power at 8 percent.
- Intermediate Range drawer N-36 Level Trip switch is in the BYPASS position.

What is the plant response to removal of N-36 **CONTROL** power fuses and the reason for the plant response?

- A. A trip will occur because the Level Trip Bypass function will be removed.
- B. A trip will occur because the Level Trip Bypass function is active only above P-10.
- C. A trip will NOT occur because the Level Trip switch is in the BYPASS position and power is less than P-10.
- D. A trip will NOT occur because the Level Trip switch is in the BYPASS position and the bypass function is NOT affected by removal of Control Power fuses.

59. 2005 ILT RO 59

Consider the following Unit 1 conditions:

- PT-482, Steam Generator Pressure Loop A (Blue) channel has failed for an unknown reason and has been removed from service IAW 0-SOP-IC-001 Blue, Removing Safeguards or Protection Sensor from Service.
- While I&C was collecting comparison data from PT-468, Steam Generator Pressure Loop A (Red) channel, an inadvertent short caused PT-468 output to fail low.

Which of the following describes the expected crew response to this failure?

- A. Place HC-466, SG 'A' MFRV Controller, HC-480, SG 'A' MFRV Bypass controller and HC-468, SG 'A' Atmospheric Controller, in manual per AOP-24, Response to Instrument Malfunctions. Remove PT-468 from service IAW 0-SOP-IC-001 Red.
- B. Enter EOP-0, Reactor Trip or Safety Injection, and subsequently transition to EOP-0.1, Reactor Trip Response.
- C. Enter EOP-0, Reactor Trip or Safety Injection, and subsequently transition to EOP-1.1, SI Termination.
- D. Reduce load per AOP-17A, Rapid Power Reduction, to prevent overpower from excessive steam and feed flow.

60. 2005 ILT RO 60

Consider the following Unit 1 conditions:

- A Unit 1 reactor trip occurred due to the loss of offsite power.
- RCS Cold Leg temperature is 528 °F and slowly lowering.
- RCS pressure is 1335 PSIG and slowly rising.
- Steam generator pressure is 860 PSIG and lowering.
- Pressurizer level is 17% and slowly rising.
- Core Exit Thermocouple temperatures are 540°F.

Which of the following describes the condition in the upper head region?

- A. The head region is subcooled.
- B. The head region is superheated.
- C. The head region is at saturation with voids.
- D. The head region is at saturation with no voids.

61. 2005 ILT RO 61

While attempting to purge the Main Generator gas space of hydrogen for maintenance, the Auxiliary Operator inadvertently aligns Instrument Air to the Main Generator.

Which of the following is a potential consequence of this action?

- A. Explosion within the Main Generator
- B. Accelerated Generator winding corrosion
- C. Thermal overload trip of the Hydrogen Purity blower
- D. Overheating of the Generator Dryer package

62. 2005 ILT RO 62

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- Rod control is in automatic.
- A single set of Main Air Ejectors is in service.
- 1MS-2074, Air Ejector Steam Supply control valve fails closed.

Which of the following conditions will result if **NO** operator action is taken?

- A. Rising megawatt output and rising gland seal header pressure
- B. Rising megawatt output and rising condenser hotwell level
- C. Lowering megawatt output and lowering hotwell temperature
- D. Lowering megawatt output and rising hotwell temperature

63. 2005 ILT RO 63

When a Waste Gas Decay Tank is being discharged to atmosphere, what condition will automatically terminate the gas release?

- A. RE-214, Aux Building Vent Exhaust Monitor high alarm
- B. Both Auxiliary Building Stack fans (W-21A and W-21B) trip
- C. Pressure of 8 PSIG in Waste Gas Decay tank being discharged
- D. Both Waste Gas compressors trip

64. 2005 ILT RO 64

Consider the following plant conditions:

- Both Units were at 100% reactor power with normal electric plant lineup.
- P-32A, P-32B and P-32D Service Water pumps were running.
- Subsequently, 2X04, 480V Vital Bus Transformer, lockout occurred.
- Unit 2 Safety Injection occurred simultaneously with the 2X04 Lockout.
- G04 Emergency Diesel Generator output breaker failed to close.

Which of the following indicates which Service Water pumps will be running two minutes later? (Assume no operator action)

- A. A, B and F
- B. A, B, C and F
- C. A, B, E and F
- D. A, B, C, D and E

65. 2005 ILT RO 65

A maintenance mechanic calls the Control Room and reports that a fire is burning on the 8' level of Unit 1 Turbine Hall.

Which of the following describes the actions which must be taken to sound the plant fire alarm?

- A. Turn Fire Alarm switch on C01 Rear.
- B. Depress Fire Alarm pushbutton on C-900, Main Fire Detection Annunciator Panel.
- C. Actuate Fire Alarm icon on the 1C20 Fireworks PC Station.
- D. Contact Unit 1 Turbine Hall and request the Fire Alarm switch on D-400, Main Fire Protection Fire Alarm Control Panel, be activated in the Cable Spreading Room.

66. 2005 ILT RO 66

Consider the following Unit 1 conditions:

- Unit 1 is at 100% reactor power.
- The RCS leak rate surveillance indicates the following:
 - Total Leakage is 5.8 GPM.
 - Leakage to PRT is 2.3 GPM.
 - Leakage to RCDT is 1.4 GPM.
 - 'A' SG Leakage is .24 GPM.
 - 'B' SG Leakage is .08 GPM.

Which of the following Technical Specification leak rates has been exceeded?

- A. Identified Leakage
- B. Unidentified Leakage
- C. 'A' Steam Generator Leakage
- D. Total Steam Generator Leakage

67. 2005 ILT RO 67

While at 100% reactor power, 1PT-429, Unit 1 Pressurizer Pressure channel, has failed **LOW**.

Channel is being removed from service using 0-SOP-IC-001 RED, Removal of Safeguards or Protection Sensors from Service.

Which of the following correctly identifies the expected "Proving Lamp" status after bistable switches are taken to "Trip"?

- A. Over Temp Trip - ON
High Pressure Trip - OFF
Low Pressure Trip - ON
Unblock SI - OFF
- B. Over Temp Trip - OFF
High Pressure Trip - ON
Low Pressure Trip - OFF
Unblock SI - ON
- C. Over Temp Trip - OFF
High Pressure Trip - OFF
Low Pressure Trip - ON
Unblock SI - ON
- D. Over Temp Trip - ON
High Pressure Trip - ON
Low Pressure Trip - OFF
Unblock SI - OFF

68. 2005 ILT RO 68

Consider the following Unit 1 conditions:

- RCS Temperature is at 400°F, heating up to 450-470°F.
- RCS Pressure is at 750 PSIG, pressurizing to 900-950 PSIG.

Below is a list of major action steps in OP-1A, Cold Shutdown to Hot Standby, while heating up and pressurizing to Normal Operating Temperature and Pressure:

1. _____.
2. Begin Pressurization to 1600 PSIG.
3. Begin Heatup to 500°F.
4. At >480°F, Begin Pressurization to Normal Op. Pressure (NOP).
5. _____.
6. At NOP, Place Pressurizer Pressure Controls in Auto.
7. _____.
8. Heat Up to Normal Op. Temp.

- A. Verify SI unblocks
- B. Place SI Accumulators in service
- C. Lower Pressurizer level to 20%, Place Pressurizer level controls in Auto

Which letter sequence correctly describes the order of task performance?

- A. B, C, A
- B. B, A, C
- C. C, A, B
- D. C, B, A

69. 2005 ILT RO 69

Which of the following is a responsibility of the Control Room CO during refueling operations?

- A. Check source range counts while a fuel assembly is being placed in the core.
- B. Verify proper operation of the High Flux at Shutdown Alarm every 72 hours.
- C. Authorize changes to fuel movement sequence.
- D. Maintain a ICRR plot during core offload operations.

70. 2005 ILT RO 70

Consider the following plant conditions:

- Refueling Operations are ongoing IAW RP-1C, Refueling.
- You are the Manipulator Crane operator inside Containment.
- A fuel assembly has been removed from the core and is in the "UP" position within the Manipulator Mast.
- Control Room informs you that the "Spent Fuel Pool Temp High, Level High or Lo" Alarm has actuated.
- A leak has been identified on the **CAVITY DRAIN** line.
- You note a slowly lowering level in the Refueling Pool.

Which of the following is the proper location to place the fuel assembly?

- A. RCCA Change Fixture
- B. Back in the Reactor Vessel
- C. Containment Upender in the horizontal position
- D. Within the Manipulator Mast.

71. 2005 ILT RO 71

Consider the following Unit 1 conditions:

- 'B' SG is ruptured.
- Crew is performing EOP-3, Steam Generator Tube Rupture.

Which of the following describes how 1HC-478, 'B' Atmospheric Steam Dump Controller, will be aligned to minimize steam dumped from the 'B' Steam Generator?

- A. Controller in AUTO, Set at 1050 PSIG.
- B. Controller in AUTO, Set at 1085 PSIG.
- C. Controller in MANUAL, Manually closed.
- D. Controller in MANUAL, CO maintaining 'B' SG pressure <1085 PSIG.

72. 2005 ILT RO 72

Unit 1 was shutdown for refueling when a fuel handling accident occurred in the PAB. A spent fuel bundle was smashed into the side of the canal and a section of its cladding was damaged.

- Your current annual dose is 1500 mrem TEDE.
- Dose rate in the area of the SFP bridge controls is 1500 mrem/hr.
- RP has specified full PCs and a SCBA for entry.

Which one of the following represents the maximum stay time in the area of the SFP bridge controls prior to exceeding **10CFR20** whole body dose limits (federal limit)? (Assume that management approval for exceeding NMC administrative dose limits has been received.)

- A. 20 minutes
- B. 100 minutes
- C. 140 minutes
- D. 540 minutes

73. 2005 ILT RO 73

Consider the following Unit 2 conditions:

- Unit 2 is at 100% reactor power.
- Containment Forced Vent is in progress IAW OP-9C, Containment Venting and Purging.
- 2P-707B, Containment Forced Vent pump is running.

IF 2RE-212, Unit 2 Containment Noble Gas Monitor fails to **HIGH ALARM**, which of the following automatic actions will occur and what actions will the Unit 2 operators take?

NOTE: CVI – Containment Ventilation Isolation
CI – Containment Isolation

- A. No automatic actions will occur. Operators will compare 2RE-212 readings to other Containment radiation monitors and decide whether forced vent may continue.
- B. CVI will automatically occur. Operators will need to manually secure 2P-707B, Containment Forced Vent pump, to prevent it from running without a discharge path.
- C. CVI will automatically occur. Operators will verify that 2P-707B, Containment Forced Vent pump, is off and that 2RM-3200H, Containment Forced Vent pump discharge valve, is closed.
- D. CI and CVI will automatically occur. Operators will verify 2P-707B, Containment Forced Vent pump, is off, 2RM-3200H, Containment Forced Vent pump discharge valve is closed and that all Containment Isolation Valves repositioned as required.

74. 2005 ILT RO 74

Following a large break LOCA, the Unit 2 operators are attempting to determine the status of the unit using Post Accident Monitoring instrumentation.

Which of the following indications is **NOT** qualified as a post-accident monitor (PAM)?

- A. Intermediate Range power
- B. Pressurizer level
- C. Wide Range Steam Generator Water level
- D. Core Exit Thermocouple temperature

75. 2005 ILT RO 75

Consider the following Unit 1 conditions:

- A LOCA has occurred, systems have responded normally.
- P-38 A and P-38B, Motor Driven AFW pumps, are running, supplying water to the SGs.
- SG levels are 40% and rising slowly.
- Crew has returned to EOP-1, Loss of Reactor or Secondary Coolant, from EOP-1.3, Transfer to Containment Sump Recirculation – Low Head Injection, following sump recirc preparation steps.
- During the performance of EOP-1.3 alignment, the crew noted that Containment radiation levels were beginning to rise.
- RWST level was at 40% and lowering when the crew returned to EOP-1.

If all the alarms listed below were received **CONCURRENTLY**, which of the alarms would be given the highest priority?

- A. Unit 1 Containment High Range Radiation High (1C20 D 1-9)
- B. 1T-13 RWST Level Low (C01 B 2-9)
- C. Aux Feed Pump Suction Pressure Low (C01 A 4-9)
- D. G-03 Emergency Diesel (C02 E 2-2)