

FACILITY NAME: Sequoyah

Section 8

REPORT NUMBER: 2009-302

## FINAL RO WRITTEN EXAM

### CONTENTS:

- Final RO Written Exam (75 'as given' questions with changes made during administration annotated)
- Reference Handouts Provided To Applicants
- Answer Key

### Location of Electronic Files:

---

---

---

---

Submitted By: Phil Capehart

Verified By: 

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

**Applicant Information**

Name:

Date: **09/09/2009**

Facility/Unit: Sequoyah 1 &amp; 2

Region: I  II **X** III  IV Reactor Type: W **X** CE  BW  GE 

Start Time:

Finish Time:

**Instructions**

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

**Applicant Certification**

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

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

**Results**

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

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

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

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

1. Given the following:

- Unit 1 is at 55% power.
- Solid State Protection System (SSPS) Train 'B' Actuation Logic testing is being performed.
- Train 'B' SSPS Mode Selector switch is in the 'TEST' position.
- Train 'B' SSPS Input Error Inhibit switch is in the 'INHIBIT' position.

Which ONE of the following identifies the status of the reactor if a loss of one of the two 48v DC power supplies were to occur on Train 'A' SSPS?

- A. The Reactor will remain at 55% power with a General Warning for Train 'A' SSPS only.
- B. The Reactor will remain at 55% power with a General Warning for Train 'B' SSPS only.
- C. The Reactor will trip due to a General Warning for both Train 'A' and Train 'B' SSPS and 1-XA-55-4D "Reactor First Out" annunciator panel windows LIT.
- D. The Reactor will trip due to a General Warning for both Train 'A' and Train 'B' SSPS and 1-XA-55-4D "Reactor First Out" annunciator panel windows DARK.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

2. Given the following:

- In response to a small break LOCA, the crew is performing ES-1.2, "Post LOCA Cooldown and Depressurization."
- The next step is to depressurize the RCS to refill the pressurizer.
- Core Exit Temperature is 546°F and lowering.
- RCS Tavg is 531 °F and lowering.
- RCS wide range pressure is 1520 psig
- RCPs have been removed from service.

Which ONE of the following identifies the current RCS subcooling margin and the operational impact if subcooling is lost during the depressurization?

- A. 53°F;  
The RCS cooldown will stop.
- B. 53°F;  
Cause rapid increase in Pressurizer level.
- C. 68°F;  
The RCS cooldown will stop.
- D. 68°F;  
Cause rapid increase in Pressurizer level.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

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

- SI actuated.
- BOTH SI Pumps are TRIPPED.
- RCS pressure is 10 psig.
- RCS Subcooling is 0°F.
- Containment pressure is 3.4 psig.
- All other equipment is running per design.
- The crew is performing actions of E-0, "Reactor Trip or Safety Injection."

Which ONE of the following describes the required action and reason for the action with respect to the Reactor Coolant Pumps?

- A. Stop all RCPs to minimize fluid mass loss out of the break.
- B. Stop all RCPs to prevent mechanical damage to the pump and motor.
- C. Leave all RCPs running to provide forced steam flow to cool the core.
- D. Leave all RCPs running to prevent phase separation of RCS liquid.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

4. Given the following plant conditions:

- Unit 1 operating at 100% power.
- A failure of the Loop 4 RCP #2 seal occurs.

Which ONE of the following identifies how the Loop 4 RCP #2 seal failure would affect the Loop 4 RCP #1 seal leakoff flow indication and the RCP standpipe level alarm?

<b><u>#1 Seal Leakoff Flow Indication</u></b>	<b><u>RCP Standpipe Level Alarm</u></b>
A. Increases	Alarm due to LOW level
B. Increases	Alarm due to HIGH level
C. Decreases	Alarm due to LOW level
D. Decreases	Alarm due to HIGH level

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

5. Given the following:

- Unit 2 at 20% RTP.
- CCP 2A-A trips due to an electrical relay operation.
- Pressurizer level 27% and trending down.

When the OATC is determining status of the plant following the CCP trip, which ONE of the following identifies the expected position of the listed CVCS letdown valves?

2-LCV-69 and -70  
Letdown Isolation Valves

2-LVC-62-72, -73 and -74  
Letdown Orifice Isolation Valves

- |    |        |        |
|----|--------|--------|
| A. | OPEN   | CLOSED |
| B. | OPEN   | OPEN   |
| C. | CLOSED | CLOSED |
| D. | CLOSED | OPEN   |

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

6. Given the following:

- Both Units in service at 100% RTP with all equipment in a normal alignment.

Which ONE of the following would result in a loss of Component Cooling Water (CCS) to ESF equipment on Unit 1?

- A. Loss of Train A Essential air.
- B. Loss of Train B Essential air.
- C. Loss of 6.9kV Shutdown Board 1B-B.
- D. Loss of 6.9kV Shutdown Board 2B-B.



1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

7. To ensure safety limits will not be exceeded during an ATWS event, which ONE of the following identifies the time requirements (in seconds) for tripping the turbine and starting AFW flow?

	<u>Turbine tripped within...</u>	<u>AFW flow within...</u>
A.	30	30
B.	30	60
C.	60	30
D.	60	60

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

8. Given the following:

- A Steam Generator Tube Rupture occurs on Unit 1 in #2 Steam Generator (S/G).
- Operating crew is ready to perform the rapid cool down in E-3, "Steam Generator Tube Rupture."
- Tavg is currently 544°F.
- Target Incore temperature is determined to be 480°F.
- The MSIVs are closed.
- All 4 SG pressures are 975 - 980 psig.

After the cooldown is started, which ONE of the following identifies the Loop(s) that would indicate steam flow?

- A. None of loops
- B. Loop #2 only
- C. Loops #1, #3, & #4 only
- D. All 4 Loops

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

9. Given the following:

- Unit 1 was operating at 100% RTP when an inadvertent automatic signal caused all 4 MSIV's to close.
- The highest Steam Generator outlet steam pressure increased to 1051 psig when a safety valve opened.
- After opening, the safety valve stuck open.
- The operator tripped the reactor and initiated a safety injection.
- The OAC determined  $T_{avg}$  is 537°F and dropping.
- All SG levels are between 2% and 7% on Narrow Range.

Which ONE of the following describes...

- (1) the opening of the safety valve  
and
  - (2) the requirements for AFW flow during performance of E-0, "Reactor Trip or Safety Injection" with the current conditions.
- A. (1) The safety valve opened below its nominal lift setpoint.  
(2) AFW flow CANNOT be reduced.
- B. (1) The safety valve opened below its nominal lift setpoint.  
(2) AFW flow will be reduced to between 440 - 600 gpm.
- C. (1) The steam pressure exceeded the safety valve nominal lift setpoint.  
(2) AFW flow CANNOT be reduced.
- D. (1) The steam pressure exceeded the safety valve nominal lift setpoint.  
(2) AFW flow will be reduced to between 440 - 600 gpm.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

10. The following conditions exist on a Unit 1:

- A reactor trip has occurred due to a loss of MFW.
- FR-H.1, "Loss of Secondary Heat Sink" is in progress.
- The RCS is in a feed-and-bleed condition with RCS temperature stable at 570°F.
- The operators restore a feedwater source and prepare to feed the S/Gs.
- S/G wide range levels are as follows:  
#1 - 7% #2 - 6% #3 - 8% #4 - 9%
- The US directs the operator to establish feed water flow to only one S/G.

Which ONE of the following describes the reason for feeding only one S/G under these conditions?

- A. To ensure that if a S/G failure occurs due to excessive stresses, the failure is isolated to one S/G.
- B. To limit the rate of positive reactivity addition to the core due to the cooling of the reactor coolant system.
- C. To prevent a rapid cooldown of the RCS that could lead to a pressurized thermal shock condition on the reactor vessel.
- D. To establish the minimum S/G level to meet Heat Sink requirements as rapidly as possible to allow termination of bleed and feed.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

11. Which ONE of the following identifies the basis in accordance with EPM-3-ECA-0.0, "Basis Document for ECA-0.0 Loss of All AC Power," for depressurizing and controlling the Intact Steam Generators at approximately 160 psig?"
- A. To reduce inventory loss through RCP seals.
  - B. To promote natural circulation in the RCS loops.
  - C. To initiate injection of the Cold Leg Accumulators.
  - D. To ensure steam pressure supply for TDAFW pump.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

12. Given the following:

- A LOCA occurred on Unit 1.
- RCS pressure has stabilized at 1320 psig.
- The crew responded in accordance with the emergency procedures and has now entered ES-1.2, "Post LOCA Cooldown."
- The RHR pumps have been stopped in accordance with ES-1.2.
- NO other ECCS equipment has been removed from service.

If a Loss of Offsite power were to occur, which ONE of the following identifies the status of the ECCS pumps after the shutdown board load sequencing was complete?

	<u>Centrifugal Charging Pumps</u>	<u>Safety Injection Pumps</u>
A.	Running	Running
B.	Running	OFF
C.	OFF	Running
D.	OFF	OFF

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

13. Given the following:

- Unit 1 is operating at 93% power.
- All control systems are aligned normally.

Which ONE of the following identifies...

- (1) the 120V AC Vital Instrument Power Board that can be lost without requiring an immediate manual reactor trip,  
and
- (2) a valid reason for manually tripping the reactor if the stated plant condition occurred following the board loss?

	<u>Board</u>	<u>Reason for manual reactor trip</u>
A.	1-IV	Pressurizer pressure approaches PORV lift setpoint due to loss of PORV automatic control.
B.	1-IV	Volume Control Tank (VCT) level is at 20% and dropping with makeup in progress to prevent CCP suction swapover to RWST at 13%.
C.	1-II	Pressurizer pressure approaches PORV lift setpoint due to loss of PORV automatic control.
D.	1-II	Volume Control Tank (VCT) level is at 20% and dropping with makeup in progress to prevent CCP suction swapover to RWST at 13%.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

14. Given the following:

- Both Units at 100% power.
- The following alarm is received in the control room:  
125 V DC VITAL CHARG III FAIL /VITAL BAT III DISCHARGE
- Local inspection determines...
  - 125V Vital Battery Charger III DC Output breaker has tripped and can **NOT** be reset.
  - 125V Vital DC Battery Board III voltage is 128 volts.

Which ONE of the following identifies both...

- (1) the current status of 125V Vital DC Battery Channel III,  
and  
(2) the battery charger that will be placed in service to the board?

(1) <u>125v DC Channel III status</u>	(2) <u>Charger to be placed in service</u>
A. INOPERABLE	1-S Spare Vital Battery Charger
B. INOPERABLE	2-S Spare Vital Battery Charger
C. OPERABLE	1-S Spare Vital Battery Charger
D. OPERABLE	2-S Spare Vital Battery Charger



1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

15. Which ONE of the following identifies the containment isolation signal that would cause a loss of the ERCW supply to the Containment Lower Compartment Coolers and the reason for the isolation?

<u>Isolation Signal</u>	<u>Reason for isolating</u>
A. Phase A Isolation	To ensure a broken ERCW pipe does <b>NOT</b> cause containment flooding.
B. Phase A Isolation	To ensure potential containment release paths are isolated.
C. Phase B Isolation	To ensure a broken ERCW pipe does <b>NOT</b> cause containment flooding.
D. Phase B Isolation	To ensure potential containment release paths are isolated.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

16. Given the following:

- Unit 1 is at 69% power when control air pressure starts dropping.
- The crew implements AOP-M.02, "Loss of Control Air."
- The Control Air system pressure is stabilized when a leak is identified and isolated.
- The isolation resulted in depressurizing the header supplying air to Unit 1 CVCS valves.

In accordance with AOP-M.02, "Loss of Control Air," at what pressurizer level would the crew be directed to evaluate the need to initiate a unit shutdown using 0-GO-5, "Normal Power Operations?"

- A. 17% and dropping
- B. 44% and dropping
- C. 54% and rising
- D. 70% and rising

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

17. Given the following:

- Both units operating at 100% with the switchyard and electrical board feeds in a normal configuration.
- 0-SI-OPS-082-007.W, "AC Electrical Power Source Operability Verification," completed on the previous shift.
- At 0901, a disturbance in the switchyard results in the following:
  - 6.9kV Shutdown Boards 1A-A and 2A-A voltage dropped to 5300v.
  - 6.9kV Shutdown Boards 1B-B and 2B-B voltage dropped to 5700v.
  - All sections of 161kv Bus 2 are de-energized due to a differential relay operation.
- At 0902, operators note the following:
  - All shutdown boards at normal voltage.
  - All switchyard breakers in the normal position except for all 161kV Bus 2 breakers which have tripped.

Which ONE of the following identifies...

(1) the Diesel Generators that would be running  
and

(2) the requirement relative to the performance of 0-SI-OPS-082-007.W?

- A. (1) Only the Train A DGs would be running;  
(2) Within 1 hour perform 0-SI-OPS-082-007.W to verify one offsite power supply is operable
- B. (1) Only the Train A DGs would be running;  
(2) Performance of SI-OPS-082-007.W is NOT required since it was performed on the previous shift.
- C. (1) All four DGs would be running;  
(2) Within 1 hour perform 0-SI-OPS-082-007.W to verify one offsite power supply is operable.
- D. (1) All four DGs would be running;  
(2) Performance of SI-OPS-082-007.W is NOT required since it was performed on the previous shift.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

18. Given the following:

- A LOCA has occurred on Unit 1.
- During performance ES-1.3, "Transfer to RHR Containment Sump", the following conditions develop:
  - RHR pump 1B-B trips and cannot be restarted.
  - Train "A" Containment Sump Valve (63-72) cannot be opened.
  - RWST level has dropped to 23%.
  - Containment pressure is 5.3 psig.
  - A transition is made to ECA-1.1, "Loss of Containment Recirculation."
  - Due to the containment pressure, FR-Z.1 "High Containment Pressure" is being performed concurrently with ECA-1.1.

Which ONE of the following identifies...

- (1) the procedure that determines the number of containment spray pumps that would be operating  
and,  
(2) the number of containment spray pumps that would be running if suction aligned to the RWST?

<u>(1)</u>	<u>(2)</u>
A. FR-Z.1	0
B. ECA-1.1	0
C. FR-Z.1	1
D. ECA-1.1	1

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

19. The following plant conditions exist:

- Unit 1 Reactor is at 70% RTP.
- The OATC notices that control bank D group 2 rod H-8 has dropped into the core.
- The operating crew enters AOP-C.01, "Rod Control System Malfunctions" Section 2.2, "Dropped Rod(s)- Reactor Initially in Mode 1 or 2."
- Prior to withdrawing H-8, the OATC is directed to adjust the group step counter for Control Bank D Group 2 to ZERO steps.

Which ONE of the following describes the reason the group step counter is adjusted to ZERO?

- A. Ensures that rod URGENT FAILURE alarm will not annunciate during rod retrieval.
- B. Restores low insertion limit alarm function associated with M-4B Window A-7 ROD CONTROL BANKS LIMIT LOW.
- C. Restores rod to rod misalignment alarm function associated with M-4B Window D-4 COMPUTER ALARM ROD DEV AND SEQ NIS PWR RANGE TILTS.
- D. Allows the operator to determine that rod control system is attempting to withdraw the dropped rod and enables the operator to match individual rod position to bank position.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

20. Given the following:

- Unit 1 startup in progress.
- Reactor is critical in the source range.
- Intermediate Range monitors read  $2 \times 10^{-5}\%$  power.
- 120VAC Vital Instrument Power Board 1-II is deenergized.

Which ONE of the following describes effects associated with the loss of the instrument power board?

- A. Reactor remains critical - Only one SRM is energized.
- B. Reactor remains critical - Both SRMs remain energized.
- C. Reactor trips - Only one SRM is energized.
- D. Reactor trips - Both SRMs remain energized.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

21. Which ONE of the following radiation monitors is not designed to automatically terminate an accidental radiation release?
- A. 0-RM-90-212, Turbine Building Sump Rad Monitor
  - B. 1-RM-90-120, S/G Blowdown Effluent Rad Monitor
  - C. 0-RM-90-225, Condensate Demineralizer Rad Monitor
  - D. 0-RM-90-122, Liquid Waste Disposal System Effluent Rad Monitor

22. Given the following;

- The Unit 1 Operating crew implemented AOP-C.04, "Shutdown From Auxiliary Control Room," and established control from the Auxiliary Control Room.

Which ONE of the following identifies..

- (1) the use of Emergency Operating Procedures (EOPs) when evacuating the Main Control Room  
and
- (2) the procedural requirements when it is determined that control can be re-established in Main Control Room (MCR)?

Emergency Operating Procedures...

- A. remain applicable when evacuating the MCR and AOP-C.04 does contain the actions required to return to the MCR.
- B. remain applicable when evacuating the MCR and when returning to the MCR a procedure would have to be written because AOP-C.04 does **NOT** contain the required actions.
- C. are **NOT** applicable when evacuating the MCR and AOP-C.04 does contain the actions required to return to the MCR.
- D. are **NOT** applicable when evacuating the MCR and when returning to the MCR a procedure would have to be written because AOP-C.04 does **NOT** contain the required actions.



1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

23. Given the following:

- Unit 1 at 100% power with a 48 gpd steady state S/G #2 tube leak for the past 9 hours.
- 1-RM-90-119, "Condenser Vacuum Exhaust" and 1-RM-90-106, "Lower Containment" radiation monitor count rates begin to rise concurrently.

In accordance with AOP-R.01, "Steam Generator Tube Leak," which ONE of the following could cause the concurrent increase in the radiation monitors?

- A. The development of a sudden fuel defect.
- B. The development of an RCS leak inside containment.
- C. A rapid temperature rise inside containment.
- D. An oscillating primary to secondary leak (Spiking).

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

24. Given the following:

- In responding to a LOCA on Unit 1, the crew has transitioned to ES-1.2, "Post LOCA Cooldown."
- The crew has terminated ECCS flow and established normal charging
- Currently RCS Thot is at 415°F
- RCS pressure is 1125 psig.
- The crew is preparing to isolate the Cold Leg Accumulators (CLAs).

Which ONE of the following identifies...

- (1) a condition required to be met prior to isolating the CLAs  
and
  - (2) if one of the CLA isolation valves cannot be closed, where will the nitrogen be routed to be released as the CLA is being vented?
- A. (1) RCS subcooling must be reduced to less 50°F;  
(2) inside containment.
- B. (1) RCS subcooling must be reduced to less 50°F;  
(2) to be Waste Gas System.
- C. (1) RCS pressure must be reduced to less than 1000 psig;  
(2) inside containment.
- D. (1) RCS pressure must be reduced to less than 1000 psig;  
(2) to the Waste Gas System.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

25. Given the following:

- A LOCA is in progress on Unit 2.
- Crew currently performing E-1, "Loss of Reactor or Secondary Coolant."
- Due to power and equipment failures the only ECCS pumps running are the RHR pumps.
- Containment Pressure is 4.6 psig.
- RCS Pressure is 805 psig.
- Core Exit TC's are 521°F.
- RVLIS indicates 43%.

Which ONE of the following identifies which range of RVLIS is used for the current conditions and the procedure directed by the Core Cooling Critical Safety Function Status Tree?

**Reference Provided**

<u>RVLIS Range being used</u>	<u>Procedure direction provided by Core Cooling Status Tree</u>
A. Lower Range	Go To FR-C.2
B. Lower Range	Go To FR-C.3
C. Dynamic Range	Go To FR-C.2
D. Dynamic Range	Go To FR-C.3

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

26. Given the following:

- Unit 1 tripped due to a loss of off-site power.
- While performing a natural circulation cooldown, the crew determines the need for a more rapid cooldown and transitions to ES-0.3, "Natural Circulation Cooldown with Steam Voids in Vessel (with RVLIS)."

When establishing conditions to continue the RCS natural circulation cooldown and de-pressurization, which ONE of the following identifies the range that is established for pressurizer level and why?

In accordance with ES-0.3, pressurizer level will be established ...

- A. greater than 90% to enable the restart of a RCP when off-site power is restored.
- B. greater than 90% to accommodate the rapid decrease in pressurizer level when the voids in the head collapse.
- C. between 20% and 30% to accommodate any growth of the void in the vessel head.
- D. between 20% and 30% to maintain pressurizer liquid at saturated conditions using pressurizer heaters.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

27. With a LOCA in progress on Unit 2, which ONE of the following identifies operating conditions on the EGTS that would indicate the system is operating within proper operating limits?

<u>Annulus <math>\Delta P</math></u>	<u>EGTS Filter Bank <math>\Delta P</math>s</u>
A. -0.5" to -0.6" water $\Delta P$	3.5" to 5.0" water $\Delta P$
B. -0.5" to -0.6" water $\Delta P$	9.5" to 10.5" water $\Delta P$
C. -5.4" to -5.5" water $\Delta P$	3.5" to 5.0" water $\Delta P$
D. -5.4" to -5.5" water $\Delta P$	9.5" to 10.5" water $\Delta P$

28. Given the following:

- Unit 1 is Mode 4 with heatup in progress.
- All Reactor Coolant Pumps (RCPs) are in service.
- Pressurizer pressure is 435 psig.

Which ONE of the following identifies the RCP #1 Seal  $\Delta P$  minimum limit with the RCPs in service and how the  $\Delta P$  indication will change as pressurizer pressure is raised to 900 psig?

- A. 220 psid;  
Indication will rise and go off scale high.
- B. 220 psid;  
Indication will rise and stabilize at approximately 400 psid.
- C. 325 psid;  
Indication will rise and go off scale high.
- D. 325 psid;  
Indication will rise and stabilize at approximately 400 psid.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

29. Given the following:

- Unit 1 at 100% power at EOL conditions.
- CVCS Mix Bed A being used for deborating.

Which ONE of the following combinations of letdown flow and temperature would maximize the amount of boron removed from the RCS?

<u>Letdown Flow</u>	<u>Letdown Temperature</u>
A. 45 gpm	106°F
B. 45 gpm	102°F
C. 75 gpm	106°F
D. 75 gpm	102°F

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

30. Given the following:

- Unit 1 is operating at 100% power.
- Control rods are in automatic.

Which ONE of the following identifies both...

- (1) the CCS heat exchanger leak that would cause inadvertent control rod motion  
and,  
(2) which alarm would first require immediately initiating boration?

(1)

(2)

- |                              |                                 |
|------------------------------|---------------------------------|
| A. Letdown Heat Exchanger    | ROD CONTROL BANKS LIMIT LOW     |
| B. Letdown Heat Exchanger    | ROD CONTROL BANKS LIMIT LOW-LOW |
| C. Seal Water Heat Exchanger | ROD CONTROL BANKS LIMIT LOW     |
| D. Seal Water Heat Exchanger | ROD CONTROL BANKS LIMIT LOW-LOW |



1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

31. With Unit 1 operating at 100% power, the RHR Cross-tie Isolation valves 1-FCV-74-33 and 1-FCV-74-35 are required to be maintained in the open position to ensure \_\_\_\_\_ .
- A. capability to inject into RCS hot legs
  - B. both trains of RHR spray would remain available
  - C. capability to inject into all four RCS cold legs
  - D. low pressure injection will be provided through both RHR heat exchangers

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

32. Unit 1 was operating at a 100% and is now experiencing a large break LOCA. Which ONE of the following describes the order of ECCS component injection as the RCS pressure drops?
- A. CCPs, Cold Leg Accumulators, SI Pumps, RHR Pumps.
  - B. SI Pumps, CCPs, Cold Leg Accumulators, RHR Pumps.
  - C. CCPs, SI Pumps, Cold Leg Accumulators, RHR Pumps.
  - D. SI Pumps, CCPs, RHR Pumps, Cold Leg Accumulators.

33. Given the following:

- Unit 2 has experienced a reactor trip.
- ES-0.1, "Reactor Trip Response" is in progress.
- The following conditions exist:
  - T-avg is 545°F and rising slowly.
  - RCS pressure is 2220 psig and rising slowly.

Subsequently, PZR PORV PCV-68-334, sticks open and the associated block valve will NOT close.

The maximum temperature in the PZR Relief Tank (PRT) will be between \_\_\_\_\_ and the correct crew actions are to

\_\_\_\_\_.

- A. 320°F - 340°F  
manually actuate SI and return to E-0, "Reactor Trip or Safety Injection."
- B. 320°F - 340°F  
remain in ES-0.1, unless an auto SI occurs, then transition to E-0, "Reactor Trip or Safety Injection."
- C. 220°F - 240°F  
manually actuate SI and return to E-0, "Reactor Trip or Safety Injection."
- D. 220°F - 240°F  
remain in ES-0.1, unless an auto SI occurs, then transition to E-0, "Reactor Trip or Safety Injection."

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

34. Given the following:

- Unit 1 is operating at 100% RTP BOL, with all systems in a normal alignment.
- Annunciator "TS-62-75 LOW PRESSURE LETDOWN RELIEF TEMP HIGH" on 1-M-6 is in alarm.

If the low pressure letdown line relief valve is leaking through, which ONE of the following describes the long term effects on both PZR level and PRT level?

	<u>PZR Level</u>	<u>PRT Level</u>
A.	lowering	rising
B.	lowering	stable
C.	stable	rising
D.	stable	stable

35. Which ONE of the following identifies both...

(1) the conditions that would cause an automatic isolation due to a leak in the #3 RCP Thermal Barrier Heat Exchanger

and

(2) the effect the isolation would have on the CCS flow through the #4 RCP Thermal Barrier Heat Exchanger?

(1)

(2)

- |                             |                         |
|-----------------------------|-------------------------|
| A. Inlet flow > Outlet flow | CCS flow would increase |
| B. Inlet flow > Outlet flow | CCS flow would isolate  |
| C. Outlet flow > Inlet flow | CCS flow would increase |
| D. Outlet flow > Inlet flow | CCS flow would isolate  |

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

36. Given the following:

- Unit 1 is in Mode 3.
- The block valve for pressurizer PORV 334 is closed due to leakage through the PORV.
- 1-XS-68-340D, "Press Control Channel Selector," is in the 340/334 position.
- 1-PIC-68-340A, "PZR Pressure Control," is in MANUAL with output at 28%.

Subsequently, an RCS over pressure transient occurred and the crew was able to reduce RCS pressure below the safety limit in less than 1 minute.

Which ONE of the following identifies whether PORV 340 would have automatically opened during this event and if NRC notification is required?

<u>PORV 340 would have...</u>	<u>NRC notification required...</u>
A. opened	No, because pressure was reduced below the safety limit within 5 minutes.
B. opened	Yes, because the safety limit was exceeded.
C. remained closed	No, because pressure was reduced below the safety limit within 5 minutes.
D. remained closed	Yes, because the safety limit was exceeded.

37. Given the following:

- Unit 1 shutdown is in progress.
- Reactor power is 14% and decreasing.
- Intermediate Range NI-36 fails HIGH.

Which ONE of the following identifies how the failure of the NI will affect the reactor trip system and the effect the failure will have on the Source Range NIs?

<b><u>Reactor Trip System</u></b>	<b><u>Effect on Source Range NIs</u></b>
A. Reactor trip will occur at the time of failure.	Source Range NIs will AUTOMATICALLY reinstate.
B. Reactor trip will occur at the time of failure.	Source Range NIs will have to be MANUALLY reinstated.
C. Reactor trip will occur if the power reduction is continued.	Source Range NIs will AUTOMATICALLY reinstate.
D. Reactor trip will occur if the power reduction is continued.	Source Range NIs will have to be MANUALLY reinstated.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

38. Given the following:

- A Safety Injection occurred 30 minutes ago due to a faulted S/G on Unit 1.
- The crew has transitioned to ES-1.1, "SI Termination."
- Reactor trip breaker "A" failed to open.
- Both SIS Reset pushbuttons have been depressed.
- Both SI Pump control switches have been placed to STOP and returned to A-Auto.

Which ONE of the following describes the status of "A" Train Safety Injection (SI) and the 1A-A SI Pump?

	<u>"A" Train SI</u>	<u>1A-A SI Pump</u>
A.	RESET	ON
B.	RESET	OFF
C.	NOT RESET	ON
D.	NOT RESET	OFF



1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

39. Given the following:

- Unit 2 is operating at 100% power.
- Due to a loss of Lower Compartment Cooling, lower containment temperature has risen from 103°F to 119°F.
- Actions are in progress to restore cooling.

If the temperature continues to rise in containment, which ONE of the following describes the effect on pressurizer level indication?

The controlling pressurizer level channel will indicate slightly...

- A. higher than actual level, and remain lower than the cold-calibrated pressurizer level instrument.
- B. lower than actual level, and remain lower than the cold-calibrated pressurizer level instrument.
- C. higher than actual level, and remain higher than the cold-calibrated pressurizer level instrument.
- D. lower than actual level, and remain higher than the cold-calibrated pressurizer level instrument.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

40. Given the following:

- Unit 1 at 100% RTP when a LOCA occurs.
- A Safety Injection occurs due to containment pressure.
- The containment pressure continues to rise above the Phase B setpoint.

Which ONE of the following identifies...

- (1) when the Containment Air Return Fans would automatically start  
and  
(2) the indicating light(s) on the MCR handswitch that would be LIT if the  
1A-A Air Return Fan tripped on overload when the start was attempted?

Containment Air Return Fans  
would automatically start...

If 1A-A tripped, the  
indicating light(s) LIT are the...

- |  |                        |
|--|------------------------|
| A. 10 minutes after the<br>Safety Injection signal.  | White ONLY.            |
| B. 10 minutes after the<br>Safety Injection signal.  | Green, White, and Red. |
| C. 10 minutes after the<br>Phase B isolation signal. | White ONLY.            |
| D. 10 minutes after the<br>Phase B isolation signal. | Green, White, and Red. |

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

41. With Unit 1 in Mode 3, which ONE of the following conditions associated with the Ice Condenser System would cause a Technical Specification LCO to be entered?
- A. The Ice Bed Temperature highest reading indicated 25°F.
  - B. One pair of inlet doors is discovered to be pinned closed.
  - C. Stored ice with boron concentration of 2400 ppm sodium tetraborate.
  - D. Chemical sample determined the average pH of the stored ice to be 9.3.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

42. Given the following:

- Unit 1 was in Mode 1 when a Reactor Trip/Safety Injection occurred.
- The following conditions are noted:

<u>Time</u>	
0735	Reactor trip/safety injection
0738	Containment Pressure is 1.8 psig
0741	Containment Pressure is 2.9 psig
0746	Containment Pressure is 3.1 psig
0747	Offsite power supply to 6.9 Kv 1A-A S/D Bd is lost
0749	Containment Pressure is 2.9 psig

Which ONE of the following describes the status of the containment spray system at 0749?

- A. The Containment Spray Signal is actuated.  
1A-A Containment Spray Pump is running.
- B. The Containment Spray Signal is actuated.  
1A-A Containment Spray Pump is **NOT** running.
- C. The Containment Spray Signal is **NOT** actuated.  
1A-A Containment Spray Pump is running.
- D. The Containment Spray Signal is **NOT** actuated.  
1A-A Containment Spray Pump is **NOT** running.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

43. Given the following conditions:

- Unit 1 is operating at 100% power with Safety Injection Pump (SIP) 1A-A out of service when a LOCA occurs.
- When a safety injection is initiated, the 6.9kV Shutdown Board 1B-B trips due to relay actuation and is determined to be damaged.
- ES-1.3, "Transfer To RHR Containment Sump" has been completed.
- FR-Z.1, "High Containment Pressure" has been performed.
- 2 hours after the accident, the following conditions exist:
  - Containment Spray Pump 1A-A trips.
  - Containment pressure rises from 5.0 to 9.7 psig.

Which ONE of the following describes the proper action associated with RHR spray and the reason why?

Residual Heat Removal (RHR) spray would...

- A. **NOT** be placed in service because neither SIP is running.
- B. **NOT** be placed in service because only one CCP running.
- C. be placed in service immediately due to the pressure in containment.
- D. be placed in service after the minimum time since the accident elapses.

44. Given the following plant conditions:

- Unit 1 heatup in progress.
- Operators are warming the main steam lines using the MSIV bypasses.
- The OAC observes that the RCS has cooled down 96°F in the past hour.
- The CRO observes that the main steam lines have heated up 103°F in the past hour.

Which ONE of the following identifies the status of the RCS cooldown and Main Steam line heatup rate limits?

- A. RCS cooldown rate limit was **NOT** exceeded.  
Main Steam line heat-up rate limit was exceeded;
- B. RCS cooldown rate limit was exceeded;  
Main Steam line heat-up rate limit was **NOT** exceeded.
- C. **Both** RCS cooldown **and** Main Steam line heat-up rate limits were exceeded.
- D. **Neither** RCS cooldown **NOR** Main Steam line heatup rate limit was exceeded.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

45. Given the following

- Unit 1 is at 100% RTP.
- Main Feed Pump Turbine 1A trips.

Which ONE of the following describes the EHC indicating light that will be LIT and the automatic plant response to this condition?

(Assume no operator action taken)

- A. The VALVE POS LIMIT light and plant power reduces to ~72%.
- B. The VALVE POS LIMIT light and plant power reduces to ~76%.
- C. The RUNBACK OPER light and plant power reduces to ~72%.
- D. The RUNBACK OPER light and plant power reduces to ~76%.

46. Given the following:

- Unit 1 was operating at 25% power.
- A #2 S/G low-low level reactor trip occurred due to a feedwater reg valve problem.
- Following the trip,  $T_{avg}$  dropped to 542°F.
- The crew enters ES-0.1, "Reactor Trip Response."

Assuming NO action has been taken by the crew, which ONE of the following describes the status of the AFW system after the steam generator levels return to the programmed level setpoint?

MD AFW Pumps  
running with...

TD AFW Pump...

- |  |                                     |
|--|-------------------------------------|
| A. LCVs full open.                                       | running with LCVs full open.        |
| B. LCVs full open.                                       | <b>NOT</b> running and LCVs closed. |
| C. LCVs throttling in response to steam generator level. | running with LCVs full open.        |
| D. LCVs throttling in response to steam generator level. | <b>NOT</b> running and LCVs closed. |



47. Given the following:

- Unit 1 tripped from 100% power.
- TDAFW pump is tagged.
- 1B-B AFW pump failed to start.

Which ONE of the following identifies the steam generators (S/G's) that would be supplied by AFW and which steam generators still have blowdown flow aligned?

	<u>AFW flow to S/G's</u>	<u>Blowdown flow aligned to S/G's</u>
A.	1 & 2	All 4
B.	1 & 2	1 & 3
C.	1 & 3	All 4
D.	1 & 3	1 & 3

48. Given the following:

- Both Units operating at 100% RTP when a loss of offsite power occurs.
- All systems respond as designed.

Which ONE of the following identifies the Control and Station Air Compressors that can be placed in service prior to an offsite power supply being restored?

- A. Only A and B compressors
- B. Only A and D compressors
- C. Only B and C compressors
- D. Only C and D compressors

49. An equalizing charge has been started on the 250V DC Battery #1 in accordance with 0-PI-EBM-000-001.1, "Battery Equalize Charge."

Which ONE of the following is the expected voltage ("250V Battery Volts") and current response ("250V Battery Amps") on 1-M-1?

	<u>250V Battery Volts</u>	<u>250V Battery Amps</u>
A.	higher than before start of charge	would be indicating upscale from zero
B.	higher than before start of charge	would be indicating downscale from zero
C.	the same as before start of charge	would be indicating upscale from zero
D.	the same as before start of charge	would be indicating downscale from zero

50. Given the following:

- Shutdown board 1A-A is being supplied by DG 1A-A following a blackout signal.
- An operating crew is in the process of implementing EA-202-1, "Restoring Off-Site Power to 6900V Shutdown Boards," for shutdown board 1A-A.
- Black-out Relays have been reset and the 6.9kV Unit Board 1B synchronize switch to SYN position.
- The synchroscope is rotating fast in the FAST direction.

Which ONE of the following identifies...

- (1) the direction the speed control switch will initially have to be manipulated to establish conditions for closing Shutdown Board 1A-A NOR supply breaker, and
- (2) the mode of speed control after the SD Bd 1A-A NOR supply breaker is closed in parallel with the diesel?

- A. (1) lower  
(2) speed droop
- B. (1) lower  
(2) without speed droop
- C. (1) raise  
(2) speed droop
- D. (1) raise  
(2) without speed droop

51. Given the following:

- Unit 1 is at 100% RTP.
- Alarm "0-RA-90-212B STA SUMP DISCH INSTR MALFUNC" annunciates.

In accordance with the Annunciator Response, which ONE of the following is a condition that would cause the alarm and mitigating action required?

<u>Cause</u>	<u>Mitigating Action</u>
A. Loss of power to the radiation monitor	Release can continue, but ODCM actions for sampling must be implemented.
B. Loss of power to the radiation monitor	Release will automatically terminate, and cannot be restarted until ODCM actions for sampling are implemented.
C. High flow through the radiation monitor	Release can continue, but ODCM actions for sampling must be implemented.
D. High flow through the radiation monitor	Release will automatically terminate, and cannot be restarted until ODCM actions for sampling are implemented.

52. Given the following plant conditions:

- Unit #1 is operating at 100%.
- All systems aligned normal.
- Loss of ERCW Supply header 2A occurs due to a rupture in the yard.

Which ONE of the following conditions would result from the loss of the ERCW Supply Header 2A? (Assume no operator actions).

- A. Loss of cooling to Main Control Room Chiller A.
- B. Loss of cooling to Shutdown Board Room Chiller A.
- C. Increasing temperature on Control and Station Air Compressors.
- D. Increasing level in Component Cooling Water (CCS) surge tank.

53. Given the following plant conditions and information:

- Unit 1 was operating at 100% power.
- Both of the following valves are in the full open position.
  - 0-FCV-67-152, "CCS HX 0B1 & 0B2 Outlet to Disch Hdr B."
  - 1-FCV-67-146, "CCS HX 1A1 & 1A2 Outlet to Disch Hdr B."

Which ONE of the following identifies how the position of the listed CCS heat exchanger ERCW outlet valves will be affected by a Unit 1 Safety Injection signal?

0-FCV-67-152...

1-FCV-67-146...

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| A. remains in full open position.     | remains in full open position.     |
| B. remains in full open position.     | is positioned to the 35% position. |
| C. is positioned to the 35% position. | remains in full open position.     |
| D. is positioned to the 35% position. | is positioned to the 35% position. |

54. Given the following:

- Both Units operating at 100% power.
- A problem with the control air system results in decreasing pressure on Train A essential air header.

Which ONE of the following identifies the decreasing air pressure on the Train A header where equipment supported by Auxiliary Air would need to be evaluated for operability in accordance with AOP M.02, "Loss of Control Air?"

- A. 78 psig
- B. 74 psig
- C. 70 psig
- D. 66 psig



55. Which ONE of the following identifies two ventilation system fans that can exhaust out one of the Shield Building Exhaust Vents?
- A. EGTS Fans and Annulus Vacuum Control Fans
  - B. EGTS Fans and Containment Purge Exhaust Fans
  - C. Fuel Handling Exhaust Fans and Annulus Vacuum Control Fans
  - D. Fuel Handling Exhaust Fans and Containment Purge Exhaust Fans

56. Given the following:

- Unit 2 is at 100% power.
- All systems are normally aligned.
- 2-XS-68-339E, "Level Control Channel Selector" is in the LT-68-339 & 335 position.
- VCT level is at 38%
- Pressurizer level transmitter 2-LT-68-339 loses the level in its reference leg.
- **No** ESF actuations occur as a result of the reference leg leak.

If the operating crew takes no action, which ONE of the following describes how the VCT level will respond throughout the event?

The VCT level will...

- A. rise and be maintained between 63% and 93%.
- B. drop, then be maintained between 20% and 41%.
- C. rise to between 63% and 93%, then drop and be maintained between 20% and 41%.
- D. drop to 7%, cause charging pump suction to transfer to the RWST, and remain low.

57. Which ONE of the following identifies all nuclear instruments that are powered from 120V AC Vital Instrument Power Board 1-I?

- A. N-31 and N-41 only
- B. N-35 and N-41 only
- C. N-31 and N-35 only
- D. N-31, N-35, and N-41

58. Given the following:

- Unit 1 operating at 100% RTP when a large break LOCA occurs.
- Offsite power is lost following the accident and Diesel Generator 1B-B fails to start.
- Crew is performing FR-Z.1, "High Containment Pressure."
- 'A' Hydrogen Recombiner is placed in service with a stable operating temperature of 700°F.
- When Train B shutdown boards are restored, the containment hydrogen concentration is 1.2% and slowly rising.

Which ONE of the following identifies...

- (1) how containment hydrogen concentration will be affected after the 'A' Hydrogen Recombiner is placed in service  
and  
(2) the correct action relative to placing 'B' Hydrogen Recombiner in service?

<u>Hydrogen concentration will...</u>	<u>'B' Hydrogen Recombiner can be placed in service...</u>
A. continue to rise.	with the current conditions.
B. continue to rise.	ONLY if containment hydrogen concentration is reduced to <0.5%
C. start to lower.	with the current conditions.
D. start to lower.	ONLY if containment hydrogen concentration is reduced to <0.5%

59. Given the following:

- Unit 1 at 100% RTP.
- The crew has been preparing to place Train A Containment Purge in service in support of a containment lower entry by an RCS leak investigation team.
- Current plant conditions and indications are:
  - Containment Pressure is 0.16 psid.
  - Containment Purge Train A Filter Assembly drain loop seal level is 60%.
  - Environmental Allowance Monitor (EAM) indicating lights are DARK.
  - Containment Rad Monitor 1-RM-90-112 is aligned to lower containment due to 1-RM-90-106 being out of service.

Which ONE of the following conditions must be changed to allow the purge to be placed in service?

- A. Pressure in containment.
- B. Radiation Monitor alignment.
- C. Environmental Allowance Monitor alignment.
- D. Purge Filter Assembly drain loop seal level.

60. Given the following:

- Unit 1 in Mode 5 making preparations to go to Mode 4.
- Unit 2 at 100% power
- A large leak occurs on the discharge line of the in-service Spent Fuel Pit Cooling System (SFPCS) pump.

Which ONE of the following identifies...

- (1) what would occur, without operator action,  
and  
(2) after the leak was isolated, which of the listed makeup supplies would be used to restore the Spent Fuel Pit level in accordance with AOP-M.06, "Loss of Spent Fuel Cooling?"

(1)  
The SFPCS pump ...

(2)  
Makeup to the SFP would be from...

- |  |                                   |
|--|-----------------------------------|
| A. trips on low spent fuel pit level interlock.      | the Demin Water System            |
| B. trips on low spent fuel pit level interlock.      | the U-1 Refuel Water Storage Tank |
| C. becomes air-bound when the suction line uncovers. | the Demin Water System            |
| D. becomes air-bound when the suction line uncovers. | the U-1 Refuel Water Storage Tank |

61. Given the following:

- Both Units at 100% RTP.
- Fuel Assembly shuffles are being made in the Spent Fuel Pit.
- 0-RM-90-102, Spent Fuel Pit Radiation Monitor, has been declared INOPERABLE and removed from service due to an instrument malfunction.

Which ONE of the following identifies...

- (1) whether Technical Specifications would allow continued movement of fuel assemblies in the Spent Fuel Pit ,  
and
  - (2) the Auxiliary Building isolation that would automatically initiate if '0-RM-90-103', Spent Fuel Pit Radiation Monitor, subsequently detected Hi Radiation?
- A. (1) Fuel assembly shuffles must stop;  
(2) Both trains of isolation would be automatically initiated.
  - B. (1) Fuel assembly shuffles must stop;  
(2) Only one train of isolation would be automatically initiated.
  - C. (1) Fuel assembly shuffles can continue;  
(2) Both trains of isolation would be automatically initiated.
  - D. (1) Fuel assembly shuffles can continue;  
(2) Only one train of isolation would be automatically initiated.

62. Given the following

- Unit 1 operating at 100% power when a complete loss of load event occurs.

Which ONE of the following identifies...

- (1) how the condenser steam dump system is designed to open the steam dump valves,  
and
- (2) if the steam dump valves failed to open, how the reactor coolant system (RCS) design pressure limit would be impacted?

Condenser Steam Dumps

RCS pressure...

- |  |   |
|--|---|
| A. trip open due to bistable operation | would exceed 110% of the design pressure.       |
| B. trip open due to bistable operation | would remain below 110% of the design pressure. |
| C. ramp open due to controller demand  | would exceed 110% of the design pressure.       |
| D. ramp open due to controller demand  | would remain below 110% of the design pressure. |



63. Given the following:

- Waste Gas Decay Tank 'B' is being released through Unit 1 Shield Building Exhaust Stack in accordance with 0-SO-77-15.

Subsequently, the following occurs:

- ABGTS fan A-A trips due to overcurrent.
- The AB AUO reports that Radiation Control Valve, 0-FCV-77-119 is OPEN.
- 0-RM-90-118, Waste Gas Effluent Radiation Monitor, is indicating normal.

Which ONE of the following identifies...

(1) if the position of 0-FCV-77-119 is consistent with current plant conditions?

and

(2) If release can continue or must be terminated?

- A. (1) Yes - consistent  
(2) can continue
- B. (1) Yes - consistent  
(2) must be terminated
- C. (1) No - inconsistent  
(2) can continue
- D. (1) No - inconsistent  
(2) must be terminated

64. Given the following:

- Both units are operating at 100% power.
- Control air system pressure begins to drop.

Which ONE of the following identifies...

- (1) the pressure setpoint that the 0-PCV-33-4, "Service Air isolation from Control Air", will close  
and  
(2) the expected position of 0-FCV-32-82, "Train A Control Air Supply Valve," if the air pressure is stabilized at 73 psig?

**0-PCV-33-4**

**0-FCV-32-82**

- |    |         |        |
|----|---------|--------|
| A. | 88 psig | Open   |
| B. | 88 psig | Closed |
| C. | 77 psig | Open   |
| D. | 77 psig | Closed |

65. Given the following:

- Both Units in service at 100% power.
- An alarm is received on 0-M-29.
- The CRO determines the alarm to be Cross Zone alarms from Zones 522 and Zone 523, both in Unit 2 Aux Building Supply Duct.

Which ONE of the following identifies how the Aux Bldg Supply and Exhaust Fans are automatically affected by these detection signals and the requirements for dispatching the Fire Brigade?

- A. All supply and exhaust fans trip;  
Immediately dispatch the Fire Brigade.
- B. All supply and exhaust fans trip;  
Confirm the alarm is valid prior to dispatching the Fire Brigade.
- C. Only the supply fans trip;  
Immediately dispatch the Fire Brigade.
- D. Only the supply fans trip;  
Confirm the alarm is valid prior to dispatching the Fire Brigade.

66. Given the following:

- A reactor core re-load is in progress with sixty assemblies loaded in the core.
- The movement of a Source Bearing Fuel assembly is in progress.
- Source Range Detector NI-31 indicating 9 cps.
- Source Range Detector NI-32 failed to bottom of scale.
- Both SRM High Flux at Shutdown switches are in "BLOCK" position
- Annunciator "SOURCE RANGE HIGH SHUTDOWN FLUX ALARM BLOCK" is in alarm.
- Source Range counts are audible in containment.
- Annunciator "LS-78-3 SPENT FUEL PIT LEVEL HIGH-LOW" is in alarm.
- Spent Fuel Pit level is at elevation 725' 11".
- Spent Fuel Pit Boron concentration is 2180 ppm.

In accordance with Tech Specs, why must core alterations be suspended?

- A. Spent Fuel Pit level is below the minimum.
- B. Only one Source Range Nuclear Monitor is in service.
- C. Spent Fuel Pit boron concentration is below the minimum.
- D. Source Range High Flux Level at Shutdown alarm must be in service.

67. Given the following:

- Unit 1 is in Mode 6 with core reloading in progress.

In accordance with FHI-3, "Movement of Fuel," which ONE of the following identifies a condition which would require fuel loading to be immediately stopped?

- A. One Source Range Monitor increases by a factor of five (5) during the loading of the fourth (4<sup>th</sup>) fuel assembly.
- B. Both Source Range Monitors increase by a factor of two (2) during the loading of the seventh (7<sup>th</sup>) fuel assembly.
- C. One Source Range Monitor increases by a factor of five (5) during the loading of the tenth (10<sup>th</sup>) fuel assembly.
- D. Both Source Range Monitors increase by a factor of two (2) during the loading of the thirteenth (13<sup>th</sup>) fuel assembly.

68. In accordance with OPDP-8, "Limiting Conditions for Operation Tracking," which ONE of the following identifies the official time of entry into an LCO action statement and the person responsible for entering an LCO into the LCO Tracking Log.

	<u>Official time is the time entered in the ...</u>	<u>Person responsible for entering an LCO into the LCO Tracking Log</u>
A.	Unit Log	Control Room Operator (CRO)
B.	Unit Log	Unit Supervisor (US)
C.	LCO Tracking Log	Control Room Operator (CRO)
D.	LCO Tracking Log	Unit Supervisor (US)

69. Given the following:

- Unit 1 is being returned to 100% power after a refueling outage.
- The unit is at approximately 50% power with the following bistable conditions on the Status Panels.
  - Channel 1 P-9 Bistable Light LIT
  - Channel 2 P-9 Bistable Light LIT
  - Channel 3 P-9 Bistable Light DARK
  - Channel 4 P-9 Bistable Light DARK

Which ONE of the following identifies...

- (1) if an automatic reactor trip would currently occur if the turbine tripped,  
and
- (2) how the Status Panel P-9 bistable indications would be affected as the load increase was continued?

- A. (1) The Reactor would automatically trip.  
(2) All four P-9 Status lights would be LIT.
- B. (1) The Reactor would automatically trip.  
(2) All four P-9 Status lights would be DARK.
- C. (1) The Reactor would NOT automatically trip.  
(2) All four P-9 Status lights would be LIT.
- D. (1) The Reactor would NOT automatically trip.  
(2) All four P-9 Status lights would be DARK.

1/2009 Sequoyah RO NRC Exam Retake  
9/9/2009

70. Unit 1 has tripped from 100% power and the following conditions exist:

- 1-RA-90-119A "CNDS VAC PMP LO RNG AIR EXH MON HIGH RAD" alarm is lit
- 1-RA-90-120A/121A "STM GEN BLDN LIQ SAMP MON HI RAD" alarm is lit
- Steam Generator parameters are as follows:

	<u>SG 1</u>	<u>SG 2</u>	<u>SG 3</u>	<u>SG 4</u>
NR Level	27%	28%	32%	21%
	(stable)	(lowering)	(rising)	(rising)
AFW Flow	70 gpm	0 gpm	0 gpm	200 gpm

Which ONE of the following is an action required to be taken to minimize the radiation release?

- A. Raise #2 SG Atmospheric relief valve setpoint.
- B. Raise #3 SG Atmospheric relief valve setpoint.
- C. Isolate the Steam Supply from the #1 SG to the TD AFW Pump turbine.
- D. Isolate the Steam Supply from the #4 SG to the TD AFW Pump turbine.



71. Given the following:

- The CRO is performing a source check on radiation monitor 0-RM-90-103, Spent Fuel Pit Radiation Monitor.

Which ONE of the following completes the following statement?

When the radiation monitor control switch is positioned to the CHECK SOURCE position the \_\_\_\_\_ (1) \_\_\_\_\_ and the High Rad relay \_\_\_\_\_ (2) \_\_\_\_\_ be automatically blocked.

(1)

(2)

- |                                   |                 |
|-----------------------------------|-----------------|
| A. indicator will deflect upscale | will <b>NOT</b> |
| B. indicator will deflect upscale | will            |
| C. operate light will illuminate  | will <b>NOT</b> |
| D. operate light will illuminate  | will            |

72. Given the following:

- Operators are releasing a clearance on a valve inside the Auxiliary Building radiologically controlled area (RCA).
- As left position of the valve is throttled.
- Valve is located 8 feet above floor level requiring a ladder to access.

Which ONE of the following identifies...

- (1) if any additional Rad Ops support is needed to access the valve and,  
(2) the required verification technique in accordance with SPP-10.3, "Verification Program"?

(1)

(2)

- |  |                          |
|--|--------------------------|
| A. <u>No</u> additional support required | Concurrent Verification  |
| B. <u>No</u> additional support required | Independent Verification |
| C. Additional support required           | Concurrent Verification  |
| D. Additional support required           | Independent Verification |

73. Given the following:

- Unit 1 at 100% RTP.
- A failure of the Pressurizer pressure controller occurs.

In accordance with AOP-I.04, "Pressurizer Instrument and Control Malfunctions," which ONE of the following identifies...

- (1) the immediate action step(s) required for the failure of the pressure controller  
and
  - (2) how the immediate actions steps are identified in AOP-I.04?
- A. (1) Check normal spray valves closed.  
(2) The step number is circled.
- B. (1) Check normal spray valves closed.  
(2) By a note preceding the step.
- C. (1) Check normal spray valves and pressurizer PORVs closed.  
(2) The step number is circled..
- D. (1) Check normal spray valves and pressurizer PORVs closed.  
(2) By a note preceding the step.

74. Consider the following two cases:

- #1 - Unit 1 experiences a Reactor trip in conjunction with a loss of all Component Cooling Water (CCS).
- #2 - Unit 1 experiences a Reactor trip in conjunction with an Appendix R fire.

Which ONE of the following identifies how the Emergency Operating Procedures (EOP's) and the Abnormal Operating Procedures (AOP's) would be prioritized to respond to these events?

- A. E-0, "Reactor Trip or Safety Injection," would have priority over the applicable AOP in both cases.
- B. The applicable AOP would have priority over E-0, "Reactor Trip or Safety Injection," in both cases.
- C. The AOP for loss of CCS would have priority over E-0, "Reactor Trip or Safety Injection" but the AOP for the Appendix R fire would NOT have priority over E-0.
- D. The AOP for the Appendix R fire would have priority over E-0, "Reactor Trip or Safety Injection" but the AOP for the loss of CCS would NOT have priority over E-0.

75. Given the following:

- A Site Area Emergency has been declared on Unit 1.
- The operating crew is responding in accordance with the emergency instructions.

(1) Which of the following describes the initial location the AUOs will report to?

and

(2) When the emergency centers are staffed and activated, who will conduct the brief of the operations teams dispatched from the OSC?

<u>Location</u>	<u>Briefed by the...</u>
A. 2 AUOs report to the MCR Remainder report to the OSC	OSC Operations Advisor
B. 2 AUOs report to the MCR Remainder report to the OSC	Control Room Operator
C. 2 AUOs report to the OSC Remainder report to the MCR	OSC Operations Advisor
D. 2 AUOs report to the OSC Remainder report to the MCR	Control Room Operator

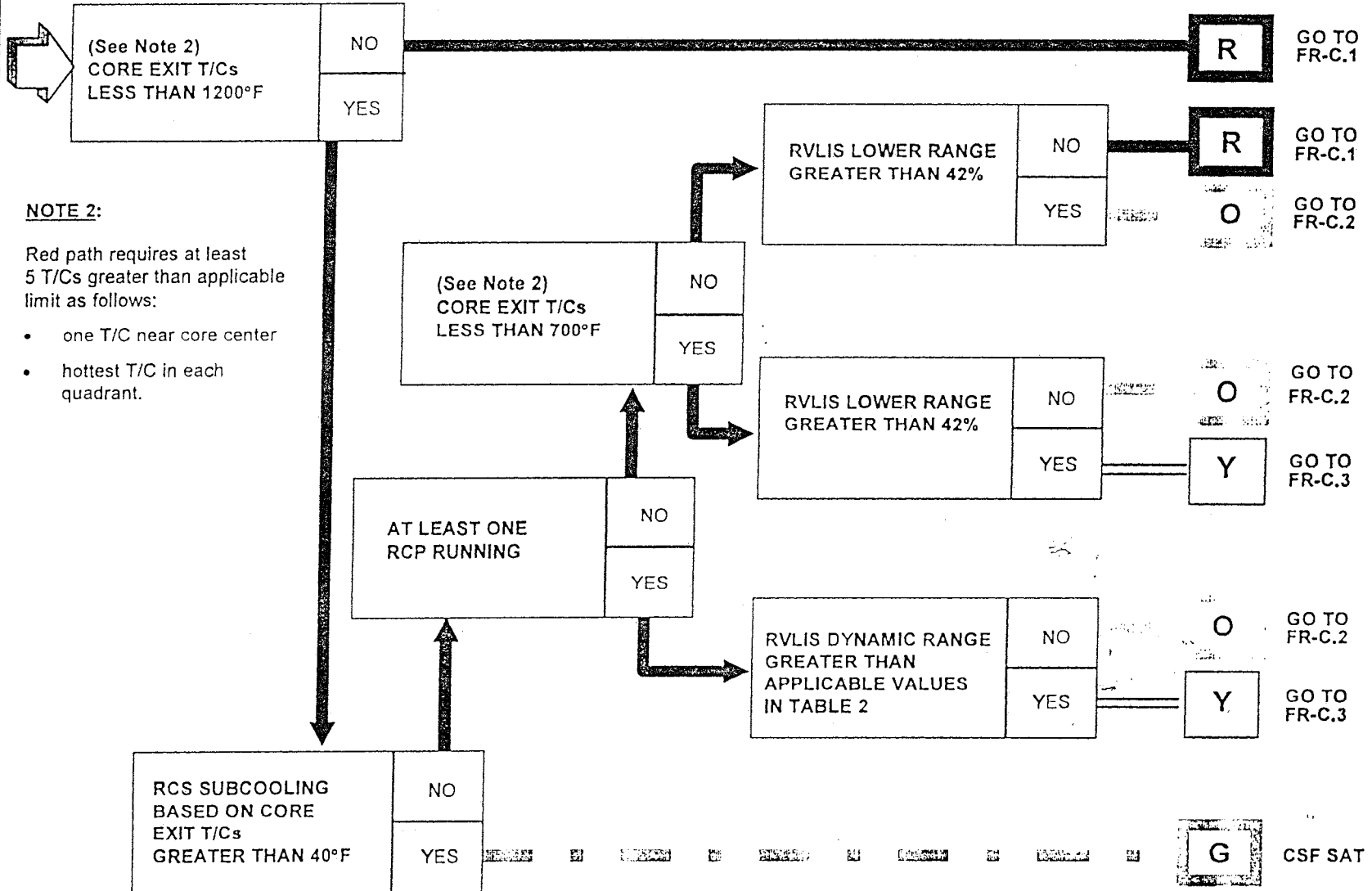
**Sequoyah 2009 Retake  
NRC Examination  
RO Reference Package**

- 1. Steam Tables**
- 2. 2-FR-0.2, Unit 2 Status Trees, Core Cooling F-0.2, pages 4 and 5**
- 3. Mollier diagram**

# CORE COOLING

F-0.2

SQN  
2-FR-0  
Rev. 1



CORE COOLING

F-0.2

Table 2

SQN  
2-FR-0  
Rev. 1

NOTE: RVLIS indication greater than values listed below indicates average system void fraction less than 50%.

RUNNING RCP CONFIGURATIONS	RVLIS DYNAMIC RANGE	
	LI-68-367 (%)	LI-68-370 (%)
Loop 1	16	10
Loop 2	10	10
Loop 3	10	16
Loop 4	10	10
Loops 1 and 2	23	15
Loops 1 and 3	23	23
Loops 1 and 4	23	15
Loops 2 and 3	15	23
Loops 2 and 4	15	15
Loops 3 and 4	15	23
Loops 1, 2, and 3	30	30
Loops 1, 2, and 4	30	24
Loops 1, 3, and 4	30	30
Loops 2, 3, and 4	24	30
ALL RCPs RUNNING	44	44



**ANSWER KEY REPORT**  
 for Post Atlanta RO 2009 Retake Exam Test Form: 0 *RO Exam as Administer*

Answers

#	ID	0
1	007 EK2.03 1	C
2	009 EK1.02 2	B
3	011 EK2.02 3	B
4	015 AK2.10 4	D
5	022 AG 2.1.31 5	A
6	026 AA2.02 6	D
7	029 EG2.2.22 7	B
8	038 EA1.13 8	C
9	040 AA1.09 9	B
10	054 AK1.02 10	A
11	055 EK3.02 11	A
12	056 AA1.11 12	B
13	057 AK3.01 13	A
14	058 AK1.01 14	B
15	062 AK3.01 15	D
16	065 AA2.05 16	D
17	077 G 2.2.39 17	C
18	W/E11 EA2.1 18	B
19	003 AK3.06 19	D
20	032 AK1.01 20	C
21	059 AK2.01 21	A
22	068 AG 2.1.27 22	C
23	076 AA1.04 23	A
24	W/E03 EK3.4 24	C
25	W/E07 EA2.1 25	B
26	W/E10 EK2.1 26	C
27	W/E16 EA1.3 27	A
28	003 A3.03 28	A
29	004 A1.12 29	D
30	004 A2.25 30	D
31	005 K1.13 31	C
32	006 K5.06 32	C
33	007 A2.01 33	A
34	007 A4.09 34	C
35	008 K3.01 35	D
36	010 G2.4.30 36	D
37	012 K6.03 37	D
38	013 K5.02 38	C
39	022 K3.02 39	C
40	025 A4.02 40	D
41	025 G 2.2.42 41	B
42	026 K2.01 42	B
43	026 K3.02 43	A
44	039 A1.03 44	D
45	059 K4.02 45	A
46	061 A3.03 46	C

**ANSWER KEY REPORT**  
for Post Atlanta RO 2009 Retake Exam Test Form: 0

Answers

#	ID	0
47	061 K6.02 47	B
48	062 K2.01 48	A
49	063 A4.02 49	B
50	064 K4.03 50	A
51	073 A2.01 51	A
52	076 K3.02 52	D
53	076 K4.03 53	C
54	078 G2.2.38 54	C
55	103 K1.03 55	B
56	011 A1.03 56	C
57	015 K2.01 57	D
58	028 K3.01 58	A
59	029 G 2.1.31 59	C
60	033 K4.01 60	D
61	034 K6.02 61	D
62	041 K5.05 62	B
63	071 A2.02 63	D
64	079 A4.01 64	A
65	086 A3.03 65	A
66	G 2.1.41 66	B
67	G 2.1.42 67	D
68	G 2.2.23 68	B
69	G 2.2.44 69	A
70	G 2.3.11 70	B
71	G 2.3.5 71	A
72	G 2.3.7 72	C
73	G 2.4.11 73	B
74	G 2.4.16 74	D
75	G 2.4.37 75	C