

FACILITY NAME: Harris Nuclear Plant

Section 9

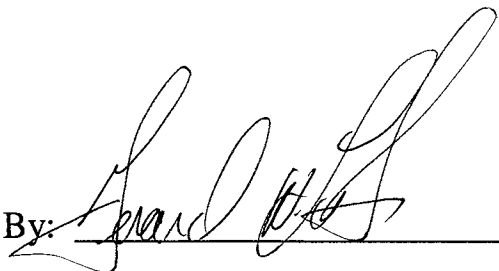
REPORT NUMBER: 05000400/2009-302


FINAL SRO WRITTEN EXAM

CONTENTS:

- Final SRO Written Exam (25 'as given' questions with changes made during administration annotated)
- Reference Handouts Provided To Applicants
- Answer Key

Location of Electronic Files:

Submitted By: 

Verified By: 

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

Applicant Information

| | |
|---------------------------|---|
| Name: | |
| Date: December 16, 2009 | Facility/Unit: Shearon Harris 2009-302 |
| Region: I / II / III / IV | Reactor Type: W / CE / BW / GE |
| Start Time: | Finish Time: |

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

Applicant Certification

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

Applicant's Signature

| Results | | |
|--------------------------------------|-----------------------|---------|
| RO/SRO-Only/Total Examination Values | _____ / _____ / _____ | Points |
| Applicant's Scores | _____ / _____ / _____ | Points |
| Applicant's Grade | _____ / _____ / _____ | Percent |

1. Given the following plant conditions:

- Offsite Power has been lost
- The crew is performing EPP-004, Reactor Trip Response

Which ONE of the following temperature indications would the operators use to control and stabilize temperature between 555°F and 559°F AND why?

A. Tavg

To ensure adequate RCS heat removal is occurring

B. Tavg

To check for natural circulation established

C. Tcold

To ensure adequate RCS heat removal is occurring

D. Tcold

To check for natural circulation established

2. Given the following plant conditions:

- A Loss of Offsite Power occurred resulting in a Reactor Trip
- ONE PRZ PORV is partially OPEN
- PRZ pressure is 1785 psig
- PRT pressure is 45 psig
- Core Exit Thermocouple temperature is 625°F
- 'A' CSIP is under clearance
- 'B' CSIP tripped on overcurrent

Which ONE of the following identifies (1) the temperature indicated on the PRZ PORV Tailpipe Temperature Indicator, TI-463 AND (2) the expected PRZ level trend?

- A. (1) 274°F
(2) rising
- B. (1) 274°F
(2) lowering
- C. (1) 293°F
(2) lowering
- D. (1) 293°F
(2) rising

3. Given the following plant conditions:

- A Reactor Trip and Safety Injection have occurred
- EPP-009, Post LOCA Cooldown and Depressurization, is in progress
- PI-455.1, PRZ pressure, is reading 1835 psig
- PI-456, PRZ pressure, is reading 1865 psig
- PI-457, PRZ pressure, is reading 1885 psig
- The highest Core Exit Thermocouple is reading 560°F
- The highest RCS Hot Leg Temperature is reading 550°F
- ERFIS is unavailable

Which ONE of the following choices correctly completes the statement below?

Subcooling is monitored to (1) AND the current value of subcooling is (2).

- A. (1) ensure SI reinitiation if required
(2) 65°F
- B. (1) prevent voiding during depressurization
(2) 79°F
- C. (1) ensure SI reinitiation if required
(2) 79°F
- D. (1) prevent voiding during depressurization
(2) 65°F

4. Given the following plant conditions:

- A Large Break LOCA has occurred
- Foldouts A and B apply
- The crew is checking "RHR System - Capable of Cold Leg Recirculation" IAW PATH-1

The following conditions exist:

- The 'A' RHR pump tripped on overcurrent
- The 'B' train RHR containment sump suction valves, 1SI-301 and 1SI-311, are without power due to the respective MCC being de-energized
- ALB-04-2-2, REFUELING WATER STORAGE TANK LOW LEVEL has alarmed
- The Containment sump pumps failed to isolate automatically resulting in overflow of the Waste Holdup Tank and elevated WPB radiation levels

Which ONE of the following identifies the correct procedure action?

- A. Remain in PATH-1
- B. GO to EPP-010, Transfer to Cold Leg Recirculation
- C. GO to EPP-012, Loss of Emergency Coolant Recirculation
- D. GO to EPP-013, LOCA Outside Containment

5. Given the following plant conditions:
- The plant is operating at 45% power
 - RCP 'C' #1 seal leakoff is 9 gpm and rising

Which ONE of the following describes the correct sequence of actions that operators will perform IAW AOP-018, Reactor Coolant Pump Abnormal Conditions?

- A. Trip the Reactor, secure RCP 'C' and then implement PATH-1
- B. Trip the Reactor, implement PATH-1, secure RCP 'C' as time permits
- C. Secure RCP 'C', shut 1CS-437, RCP 'C' #1 Seal Water Return and initiate a plant shutdown IAW GP-006, Normal Plant Shutdown from Power Operation to Hot Standby
- D. Initiate a plant shutdown IAW GP-006, Normal Plant Shutdown from Power Operation to Hot Standby, secure RCP 'C' and shut 1CS-437, RCP 'C' #1 Seal Water Return

6. Given the following plant conditions:

- The plant is operating at 100% power
- A leak has occurred in the reference leg of Pressurizer Level Transmitter LT-459
- The leak size is insufficient to affect CNMT parameters
- PRZ Level Controller Selector switch is in the 459/461 position

Which ONE of the following identifies (1) the level trend that will be displayed on Pressurizer Level Indicator LI-459 AND (2) the initial impact on Pressurizer Level Control?

- A. (1) Rising
 - (2) NO impact because LI-461 is controlling
- B. (1) Rising
 - (2) FCV-122 throttles CLOSED and actual level lowers
- C. (1) Lowering
 - (2) Letdown isolates and actual level rises
- D. (1) Lowering
 - (2) FCV-122 throttles OPEN and actual level rises

7. Given the following plant conditions:

- The plant is in Mode 5
- 'A' and 'B' RCPs are in service
- Both trains of RHR are in service for shutdown cooling
- Both ESW Headers are being supplied by NSW
- CCW is aligned to support RHR Operations
- 1CC-99 and 1CC-128, Non-Essential Header Supply and Return to 'A' Header, are SHUT

The following occur:

- A large leak from CCW develops
- CCW Surge Tank level lowers to 38% on LI-670A1 SA and 3% on LI-676A1 SB

Which ONE of the following identifies the location of the leak and the action required by AOP-014, Loss of Component Cooling Water?

| <u>Leak Location</u> | <u>Action Required</u> |
|----------------------|---|
| A. 'B' RHR HX | ONLY the 'B' CCW Pump must be stopped |
| B. 'B' CCW HX | ONLY the 'B' CCW Pump must be stopped |
| C. 'B' CCW HX | The 'A' and 'B' CCW Pumps must be stopped |
| D. 'B' RHR HX | The 'A' and 'B' CCW Pumps must be stopped |

8. Given the following plant conditions:

- The plant tripped from 100% power due to PRZ PORV 1RC-116 failing open
- During the transient the following events occurred:
 - 1MS-58, 'A' SG PORV failed open resulting in PRZ Level lowering to 19%
 - The 'B' RCP tripped due to an electrical fault

The following conditions currently exist:

- 1MS-58 is isolated and the overcooling terminated
- The block valve for 1RC-116 is closed
- Core Exit Thermocouples are 557°F
- PRZ pressure is 2135 psig
- PRZ level is 28%
- PRZ Liquid Space temperature is 610°F

Which ONE of the following describes the response of RCS pressure over the next five minutes AND the reason for the response?

RCS pressure will....

- A. rise because spray flow has been reduced with the trip of 'B' RCP
- B. rise because PRZ heaters are raising PZR temperature
- C. lower because all heaters remain de-energized until manually reset
- D. lower because subcooled liquid insurged into the PZR

9. Given the following plant conditions:

- The plant is operating at 7% power
- The crew is implementing AOP-010, Feedwater Malfunction

Current 'A' SG levels are:

- LI-474 is 26%
- LI-475 is 22%
- LI-476 is 23%

Which ONE of the following choices identifies (1) the annunciator(s) that are expected for this condition AND (2) the required crew actions?

- A. (1) SG A NR LVL/SP HI/LO DEV (ONLY)
(2) Continue in AOP-010 and restore SG levels
- B. (1) SG A NR LVL/SP HI/LO DEV and REACTOR TRIP STEAM GEN-A LOW-LOW-LEVEL
(2) Trip the Reactor and enter PATH-1
- C. (1) SG A NR LVL/SP HI/LO DEV (ONLY)
(2) Trip the Reactor and enter PATH-1
- D. (1) SG A NR LVL/SP HI/LO DEV and REACTOR TRIP STEAM GEN-A LOW-LOW-LEVEL
(2) Continue in AOP-010 and restore SG levels

10. Given the following plant conditions:

- The plant was operating at 100% power
- A LOCA has occurred
- The crew is performing the actions of EPP-009, Post LOCA Cooldown and Depressurization

The following plant conditions exist:

- AFW flow to the SGs has been secured to maintain current level
- Charging Flow is 150 gpm
- Pressurizer level is 8% and lowering
- RCS subcooling is 23°F and lowering
- The BOP reports that 'C' SG level is increasing steadily

Which ONE of the following identifies the required action AND procedure transition?

- A. Manually align flow through the BIT AND GO TO PATH-1, Entry Point C
- B. Manually align flow through the BIT AND GO TO PATH-2, Entry Point J
- C. Actuate Safety Injection AND GO TO PATH-2, Entry Point J.
- D. Actuate Safety Injection AND GO TO PATH-1, Entry Point C

11. Given the following plant conditions:

- The plant is in Mode 3
- GP-007, Normal Plant Cooldown Mode 3 to Mode 5, is in progress
- RCS temperature is 495°F
- RCS pressure is 1900 psig
- All SG pressures are 630 psig
- All actions required by GP-007 for present plant conditions have been completed

A Steam Line Break occurs inside Containment and the following conditions exist:

- Containment is 2.7 psig and increasing
- 'A' SG pressure has decreased to 440 psig in the last 30 seconds

Which ONE of the following identifies the ESFAS signals that have automatically initiated with these conditions?

- A. Safety Injection and Main Steam Isolation ONLY
- B. Safety Injection and AFW Isolation ONLY
- C. Main Steam Isolation and AFW Isolation ONLY
- D. Safety Injection, Main Steam Isolation, and AFW Isolation

12. Given the following plant conditions:

- A Reactor Trip occurred due to a Loss of Offsite Power
- The 'A' EDG failed to start
- The crew is performing actions of EPP-004, Reactor Trip Response
- RCS temperature lowered to 552°F but is trending to 557°F

Which ONE of the following identifies (1) the required SG PORV controller setpoint to maintain 557°F IAW EPP-004 AND (2) the SG PORV(s) available to control RCS temperature?

- A. (1) 84%
(2) 'B' ONLY
- B. (1) 84%
(2) 'B' AND 'C'
- C. (1) 85%
(2) 'B' AND 'C'
- D. (1) 85%
(2) 'B' ONLY

13. Given the following plant conditions:

- The plant is in Mode 6
- Core Alterations are in progress
- Source Range (SR) N32 is providing audible count rate in the MCR and CNMT
- Nuclear Flux Monitoring System (NFMS) N60 is being substituted for SR N31

Which ONE of the following identifies a condition that would require suspension of Core Alterations?

- A. RWST level lowers to 23%
- B. Instrument Bus IDP-1B-SII de-energizes
- C. Count rate increases by a factor of two on SR N32 ONLY
- D. Engineering determined that the 'B' EDG fuel oil transfer pump is inoperable

14. The plant is at 100% power when a loss of DC Bus 1A-SA occurs.

Which ONE of the following choices regarding the 'A' EDG correctly completes the statement below?

The Governor and Generator Excitation circuits will be (1) and the EDG Output breaker (2) be closed from the MCB.

- A. (1) de-energized
(2) can
- B. (1) de-energized
(2) can NOT
- C. (1) energized
(2) can
- D. (1) energized
(2) can NOT

15. Given the following plant conditions:

- The plant is operating at 100% power
- 'B' Train Safety Equipment is in service
- Both ESW Pumps are running to support surveillance testing

The following indications and annunciators are observed:

- ALB-02-4-5, SERV WTR LEAKAGE
- ALB-02-5-5, SERV WTR HEADER A HIGH/LOW FLOW
- ALB-02-6-1, SERV WTR SUPPLY HEADER A LOW PRESS
- CNMT Sump level is increasing on ERFIS

The crew enters AOP-022, Loss of Service Water and secures the 'A' ESW Pump.

Which ONE of the following actions IAW AOP-022, identifies (1) the possible location of the rupture AND (2) the isolation requirement(s) for the affected component(s)?

- A. (1) CNMT Fan Coil Units
 - (2) Shut 1SW-231, NNS CNMT Fan CLRS Inlet Isol, AND 1SW-242, NNS CNMT Fan CLRS Outlet Isol
- B. (1) CNMT Fan Coil Units
 - (2) Shut 1SW-231, NNS CNMT Fan CLRS Inlet Isol, AND 1SW-276, Headers A&B Return to Normal Service Water
- C. (1) CNMT Fan Coolers
 - (2) Shut ONLY AH-2/3 ESW Supply and Return Valves
- D. (1) CNMT Fan Coolers
 - (2) Shut AH-1/2/3/4 ESW Supply and Return Valves

16. Given the following plant conditions:

- The plant is in Mode 5
- The RCS is in solid plant operations
- The 'A' Train of RHR is in service
- The air line to HCV-142.1 (1CS-28), RHR Letdown has been sheared during a maintenance activity

Which ONE of the following choices completes the statement below?

When air is lost to HCV-142.1, RCS pressure will (1) AND IAW AOP-019, Malfunction of RCS Pressure Control, the crew must FIRST (2).

- A. (1) rise
(2) STOP the running Charging Pump
- B. (1) rise
(2) OPEN 1CS-38 (PCV-145), Letdown Pressure Control Valve
- C. (1) lower
(2) STOP the running Charging Pump
- D. (1) lower
(2) CLOSE 1CS-38 (PCV-145), Letdown Pressure Control Valve

17. Given the following plant conditions:

- A Reactor Trip and Safety Injection have occurred from 100% power
- The crew has transitioned to EPP-013, LOCA Outside Containment
- 1RH-1 and 1RH-2, RCS Loop A to RHR Pump A-SA, BOTH indicate partially OPEN

Which ONE of the following identifies (1) the action required to allow shutting 1RH-1 and 1RH-2 from the MCB AND (2) the parameter used in EPP-013 to determine if this action has isolated the break?

- A. (1) the control power switch must be turned ON
(2) RCS pressure increasing
- B. (1) the control power switch must be turned ON
(2) Pressurizer level increasing
- C. (1) the breakers for 1RH-1 and 1RH-2 must be CLOSED
(2) Pressurizer level increasing
- D. (1) the breakers for 1RH-1 and 1RH-2 must be CLOSED
(2) RCS pressure increasing

18. Given the following plant conditions:

- The plant was operating at 100% power
- 'A' MDAFW pump is out of service
- A manual Reactor Trip was initiated due to a loss of both MFPs
- The TDAFP AFW pump tripped after starting
- AFW flow control valves are full open
- Containment pressure is 3.5 psig

Which ONE of the following sets of conditions would indicate that an entry into FRP-H.1, Response to Loss of Secondary Heat Sink is required?

A. Total AFW flow is 190 KPPH

All SG NR levels at 38%

B. Total AFW flow is 220 KPPH

'A' and 'B' SGs NR Levels are at 24%, 'C' SG NR level is at 42%

C. Total AFW flow is 190 KPPH

'A' and 'B' SGs NR Levels are at 24%, 'C' SG NR level is at 42%

D. Total AFW flow is 220 KPPH

All SG NR levels at 38%

19. Given the following plant conditions :

- The plant is operating at 90% power for the last 24 hours
- The RCS Tref computer input to rod control has failed high

Which ONE of the following identifies the INITIAL effects of the above conditions?

| | <u>Reactor Power</u> | <u>OTΔT setpoint</u> |
|----|----------------------|----------------------|
| A. | decreases | decreases |
| B. | decreases | increases |
| C. | increases | decreases |
| D. | increases | increases |

20. Given the following plant conditions:

- The plant was operating at 90% power
- One rod has dropped into the core
- Axial Flux Difference (AFD) is outside the limits specified in curve F-16-2
- QPTR is determined to be 1.10

IAW Technical Specifications, which ONE of the following identifies (1) the power reduction required to be completed within 30 minutes AND (2) the reason for the action?

- A. (1) Reduce power to less than 50% of RTP
(2) Ensure minimum Shutdown Margin is maintained
- B. (1) Reduce power to less than 50% of RTP
(2) Ensure minimum Departure from Nucleate Boiling Ratio is maintained
- C. (1) Reduce power to less than 70% of RTP
(2) Ensure minimum Departure from Nucleate Boiling Ratio is maintained
- D. (1) Reduce power to less than 70% of RTP
(2) Ensure minimum Shutdown Margin is maintained

21. Given the following conditions:

- The plant is operating at 100% power after completing a ramp to full power
- The RO reports that the DRPI indication for rod H14 indicates 196 steps and the group step counters indicate 218 steps
- The CRS has directed you to determine if there is a greater than 10°F difference between thermocouples adjacent to the misaligned rod and the average of the symmetric thermocouples.

For rod H14, one of it's ADJACENT thermocouples is (1). For this thermocouple, the SYMMETRIC thermocouple(s) to be used is/are (2).

(Reference provided)

- A. (1) G15
(2) G01, R07
- B. (1) H13
(2) C08, N08, H03
- C. (1) G15
(2) E14, E12, E08, E10
- D. (1) H13
(2) C12, H11, F11, F13, F09

22. Given the following plant conditions:

- The outdoor air temperature is 28°F
- The Reactor has tripped and 3 control rods are stuck at 218 steps
- The BAT temperature is 53°F
- The RWST temperature is 48°F

Emergency Boration should be implemented using which ONE of the following source(s) available to perform the Emergency Boration?

- A. BOTH the BAT and RWST
- B. ONLY the BAT
- C. ONLY the RWST
- D. NEITHER the BAT or the RWST

23. Given the following plant conditions:

- The Reactor has been operating at 100 percent power for 30 days
- Chemistry reports that RCS activity is 1.5 microcuries per gram DOSE EQUIVALENT I-131

WHICH ONE of the following actions IAW AOP-032, High RCS Activity, will be utilized to reduce RCS activity?

- A. Venting the Volume Control Tank (VCT) to the Waste Gas System.
- B. Placing cation demineralizer in service.
- C. Maximizing letdown through both mixed-bed demineralizers.
- D. Reducing letdown to minimum and establish an RCS pH between 6.5 and 7.5 by chemical addition.

24. Given the following plant conditions:

- A LOCA has occurred
- RCS pressure is 1100 psig and stable
- Containment pressure rose to 2.6 psig and is currently 2.1 psig and stable
- The crew is performing actions contained in EPP-009, Post LOCA Cooldown and Depressurization

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

Perform the cooldown using. . .

- A. S/G PORVs at less than 100°F per hour.
- B. S/G PORVs at the maximum achievable rate.
- C. Condenser steam dumps at less than 100°F per hour.
- D. Condenser steam dumps at maximum achievable rate.

25. Given the following plant conditions:

- FRP-C.2, Response to Degraded Core Cooling is in progress due to an ORANGE condition on the Core Cooling CSFST
- RCPs 'A' and 'C' are running; RCP 'B' is secured
- Both CSIPs are tripped
- The crew is about to fully depressurize all SGs to atmospheric pressure

Which ONE of the following describes the appropriate actions for RCP operation from this point forward in FRP-C.2?

- A. RCPs are stopped to reduce heat input into the RCS
- B. RCPs are stopped because number 1 seal differential pressure will be lost
- C. RCPs are left running to provide core cooling until ECCS flow is established
- D. RCPs are left running in order to sweep voids from the Reactor Vessel Head during RCS depressurization

26. Given the following plant conditions:

- Safety Injection has inadvertently actuated on both trains
- All systems operated as designed
- The operating crew is implementing EPP-008, SI TERMINATION
- The CRS has directed that SI be reset

Which ONE of the following describes the effect of operating only ONE of the two SI reset switches at this step instead of both switches?

Bypass – Permissive Light Panel
light 4-1, SI ACTUATE

Bypass – Permissive Light Panel light 5-1,
SI RESET – AUTO SI BLOCKED

- A. would blink due to only one train of SSPS having an SI signal
- B. would extinguish due to neither train of SSPS having an SI signal
- C. would blink due to only one train of SSPS having an SI signal
- D. would extinguish due to neither train of SSPS having an SI signal

- would blink due to only one train of SSPS having SI reset
- would blink due to only one train of SSPS having SI reset
- would light due to both trains of SSPS having auto SI blocked
- would light due to both trains of SSPS having auto SI blocked

27. The plant was operating at 100% power when a LOCA resulted in a high radiation condition inside containment
- All 4 Containment Ventilation Isolation radiation monitors are in high (RED) alarm
 - Both Containment High Range Post-LOCA Radiation Monitors are in high (RED) alarm

Which ONE of the following identifies components that received an automatic STOP signal?

- A. AH-82 Normal Purge Supply Fans ONLY
- B. S-1 Airborne Radioactivity Removal Units ONLY
- C. BOTH AH-82 fans AND S-1 units
- D. NEITHER AH-82 fans OR S-1 units

28. Which ONE of the following identifies the power supplies for the Component Cooling Water Pumps?

1A

1B

A. 6.9 kV Bus 1A-SA

6.9 kV Bus 1B-SB

B. 6.9kV Aux Bus 1A

6.9 kV Aux Bus 1B

C. 480V Aux Bus 1A2-SA

480V Aux Bus 1B2-SB

D. 480V Aux Bus 1A3-SA

480V Aux Bus 1B3-SB

29. The plant is operating at 100% power when LT-115, VCT Level, fails LOW.
- All actions of AOP-003 are completed waiting for maintenance to complete work

Which ONE of the following describes how VCT level will be maintained IAW AOP-003, Malfunction of Reactor Makeup Control?

- (1) When level decreases to 20%, (1) .
(2) When level increases to 70%, (2) .

- A. (1) automatic makeup will begin raising level

 (2) 1CS-120 (LCV-112A), Letdown VCT/Hold Up Tank, will begin diverting letdown to the Hold Up Tank
- B. (1) the operator must start a manual makeup to raise VCT level

 (2) 1CS-120 (LCV-112A), Letdown VCT/Hold Up Tank, will begin diverting letdown to the Hold Up Tank
- C. (1) automatic makeup will begin raising level

 (2) the operator must align 1CS-120 (LCV-112A), Letdown VCT/Hold Up Tank, to the Hold Up Tank
- D. (1) the operator must start a manual makeup to raise VCT level

 (2) the operator must align 1CS-120 (LCV-112A), Letdown VCT/Hold Up Tank, to the Hold Up Tank

30. Given the following plant conditions:

- The plant is in Mode 6 with refueling in progress
- A clearance order has been issued requiring de-energization of 1CS-214, CSIP Mini-Flow Isolation.

Which ONE of the following describes the MCC that the clearance will be applied to AND the location of this MCC?

| | <u>MCC</u> | <u>Location</u> |
|----|------------|-----------------|
| A. | 1A35-SA | RAB 236 |
| B. | 1B35-SB | RAB 236 |
| C. | 1A35-SA | RAB 261 |
| D. | 1B35-SB | RAB 261 |

31. Given the following plant conditions:

- The plant is in Mode 4
- RHR Train 'A' is in service
- 1RH-20, RHR Heat Exchanger Bypass valve is in automatic with the setpoint at 55%
- 1RH-30, RHR Heat Exchanger Outlet valve demand position is set at 30%
- The RO reduces the setpoint of 1RH-20 to 50%

Which ONE of the following describes the RHR system parameter changes from the initial steady state condition to final steady state condition?

| | <u>TR-604 (RHR HX A Out Temp)</u> | <u>FI-605A (RHR HX A HDR Flow)</u> |
|----|-----------------------------------|------------------------------------|
| A. | Higher | Lower |
| B. | Higher | Higher |
| C. | Lower | Higher |
| D. | Lower | Lower |

32. Given the following plant conditions:

- The plant is being cooled down to 135°F for maintenance which will NOT require the RCS to be opened.
- The crew is in the process of placing the first RHR train in service for RCS cooling.
- Current boron concentrations are as follows:
 - RHR (train to be placed in service) boron 1121 ppm
 - Required Shutdown Margin boron 1338 ppm
 - Pressurizer boron 1387 ppm
 - RCS boron 1446 ppm
 - Cold Shutdown boron 1682 ppm

Before the RHR train can be placed in service for RCS cooling, RHR boron concentration must be increased by a MINIMUM of ...

- A. 217 ppm
- B. 266 ppm
- C. 325 ppm
- D. 561 ppm

33. Given the following plant conditions:

- A Large Break LOCA occurred 2 hours ago
- EPP-010 Transfer to Cold Leg Recirculation has been completed
- The 'A' CSIP has just tripped

Which ONE of the following correctly identifies the flow rates AFTER the 'A' CSIP trip occurs?

The flow rate through FI-940, Alternate Header Flow will (1) and flow rate through FI-943, Normal Header Flow will (2).

- A. (1) remain at zero flow
(2) decrease to approximately half the previous value
- B. (1) decrease to approximately half the previous value
(2) remain at zero flow
- C. (1) decrease to zero
(2) remain constant
- D. (1) remain constant
(2) decrease to zero

34. Given the following plant conditions:

- A Pressurizer steam space LOCA has occurred
- PRT pressure is currently 28 psig and increasing
- PRT level is 72% and increasing

IF the present conditions continue, (1) when will the PRT high level alarm first occur AND (2) IAW OP-100, Reactor Coolant System, in order to prevent the PRT from going water solid, where will the operator transfer the PRT to?

- A. (1) 78%
(2) the Reactor Coolant Drain Tank
- B. (1) 83%
(2) the Recycle Hold Up Tank
- C. (1) 78%
(2) the Recycle Hold Up Tank
- D. (1) 83%
(2) the Reactor Coolant Drain Tank

35. The plant is operating at 100% power

- ALB-005-6-1, CCW SURGE TANK HIGH-LOW LEVEL just actuated
- The RO confirms level at 40%, lowering slowly

Which ONE of the following automatic actions must be verified IAW ALB-005-6-1?

- A. CCW Drain Tank Transfer Pump has tripped
- B. Holdup Tank Transfer Pump has tripped
- C. CCW Makeup valve, DW-15, has opened
- D. GFFD and Primary Sample Panel have isolated

36. Given the following plant conditions:

- The plant is in Mode 3
- OST-1117, Pressurizer PORV Operability Quarterly Interval Modes 3 - 6 is in progress
- One minute after opening 1RC-118, PRZ PORV PCV-445A SA, the following annunciator is received:

ALB-009-8-1, PRESSURIZER RELIEF TANK HIGH-LOW LEVEL PRESS OR TEMP

- The RO determines the annunciator is caused by high temperature in the PRT
- Attempts to close 1RC-118 are unsuccessful

Assuming no operator actions, which ONE of the following correctly completes the statement below?

On decreasing PRZ pressure, the Group 'C' heaters will FIRST receive a "full on" signal when pressure reduces to (1) AND when PRT pressure is \geq (2) the PRT rupture discs will rupture.

- A. (1) 2220 psig
(2) 50 psig
- B. (1) 2210 psig
(2) 100 psig
- C. (1) 2210 psig
(2) 50 psig
- D. (1) 2220 psig
(2) 100 psig

37. The plant is operating at 100% power when the following occurs:
- PRZ Pressure Channel (PT-445) fails high

Which ONE of the following describes the response of the PRZ Pressure Control System?

- A. ONE PRZ PORV will OPEN and remain OPEN until P-11, PRZ High Pressure actuates
- B. TWO PRZ PORVs will OPEN and remain OPEN until P-11, PRZ High Pressure actuates
- C. TWO PRZ PORVs will OPEN AND remain OPEN until Safety Injection actuates
- D. ONE PRZ PORV will OPEN AND remain OPEN until Safety Injection actuates

38. Given the following plant conditions:

- The plant is operating at 8% power
- Intermediate Range (IR) N35 is inoperable
- N35 Level Trip Switch is in BYPASS IAW OWP-RP-21

The following occur:

- The power supply for N35 is operating erratically
- N35 Instrument Power fuses blow
- Two minutes later N35 Control Power fuses blow

Which ONE of the following identifies the expected result of these conditions?

- A. The Reactor Trip Breakers OPENED when N35 Instrument Power fuses blew
- B. The Reactor Trip Breakers OPENED when N35 Control Power fuses blew
- C. With N35 in BYPASS, the Reactor Trip Breakers will remain CLOSED
- D. With N35 BLOCKED in SSPS, the Reactor Trip Breakers will remain CLOSED

39. A loss of Instrument Buses _____ and _____ will result in the loss of A and B Train ESFAS functions driven by slave relays for that train.

A. SII SIII

B. SI SIII

C. SII SIV

D. SI SIV

40. The plant is operating at 100% power
- Instrument Bus SIII, is de-energized and actions are being taken in accordance with AOP-024, Loss of Uninterruptible Power Supply
 - PT-953, Containment Pressure Channel IV, then fails high

Which ONE of the following describes the effect on the Safety Injection (SI) AND Containment Spray Actuation Signal (CSAS) systems?

| | <u>SI</u> | <u>CSAS</u> |
|----|--------------|--------------|
| A. | Not actuated | Not actuated |
| B. | Actuated | Not actuated |
| C. | Not actuated | Actuated |
| D. | Actuated | Actuated |

41. Given the following plant conditions:

- The plant experiences a Reactor Trip and SI concurrent with a LOSP
- During the performance of PATH-1 Guide Attachment 6, the BOP notes the following alignment for Containment Fan Coolers:
 - 'A' Train - one fan per unit running in fast speed
 - 'B' Train - one fan per unit running in slow speed

Based on these conditions, the BOP should. . .

- A. shift the two 'A' Train fans from fast to slow speed.
- B. shift the two 'B' Train fans from slow to fast speed.
- C. start two additional 'A' Train fans in fast speed and secure the 'B' Train fans.
- D. start two additional 'B' Train fans in slow speed and secure the 'A' Train fans.

42. Given the following plant conditions:

- The plant was operating at 100% power when a LOCA occurred
- The crew is currently in EPP-012, Loss of Emergency Coolant Recirculation
- Containment Spray Pump 'A' tripped when Containment Spray actuated
- Containment pressure is 12 psig and rising
- RWST level is 32% and lowering

Based on current plant conditions, which ONE of the following identifies the MINIMUM number of Containment Fan Coolers required to be in operation IAW EPP-012?

- A. 0
- B. 2
- C. 3
- D. 4

43. Given the following plant conditions:

- A Reactor Trip and Safety Injection have occurred
- Steam Generator parameters have decreased to the following values:

| SG | NR LEVEL | PRESSURE |
|----|----------|----------|
| A | 32% | 870 psig |
| B | 12% | 420 psig |
| C | 34% | 830 psig |

- NO operator actions have been taken.

Which ONE of the following is the expected position of (1) 1AF-143 STM TURB AUX FW B ISOLATION AND (2) 1MS-70, 'B' SG to AFW Turbine?

- A. (1) OPEN
(2) OPEN
- B. (1) OPEN
(2) CLOSED
- C. (1) CLOSED
(2) OPEN
- D. (1) CLOSED
(2) CLOSED

44. Given the following plant conditions:

- The plant is operating at 9% power
- The Main Turbine is at 1800 RPM with the plant preparing for synch to the grid
- The 'A' Main Feedwater Regulating Valve fails open

Which ONE of the following identifies the 'A' SG level at which a Feedwater Isolation Signal will be generated AND the effect on the plant?

| | <u>'A' SG Level</u> | <u>Plant Effect</u> |
|----|---------------------|-------------------------------|
| A. | 73% | Reactor Trip AND Turbine Trip |
| B. | 73% | Turbine Trip ONLY |
| C. | 78% | Reactor Trip AND Turbine Trip |
| D. | 78% | Turbine Trip ONLY |

45. Given the following plant conditions:

- The plant was operating at 100% power when a Reactor Trip occurred
- The 'B' Reactor Trip Breaker failed to OPEN

Which ONE of the following choices correctly completes the statement below?

As RCS temperature lowers to 557°F, a P-4 (Reactor Trip) with Low TAVG signal will be generated for Train(s) (1) AND the (2) will close.

- A. (1) 'A' AND 'B'
 (2) MFRVs AND the MFWIVs
- B. (1) 'A' ONLY
 (2) MFRVs AND the MFWIVs
- C. (1) 'A' ONLY
 (2) MFRVs ONLY
- D. (1) 'A' AND 'B'
 (2) MFRVs ONLY

46. Given the following plant conditions:

- The plant was operating at 100% power when a loss of both MFW pumps occurred
- The crew implemented PATH-1
- Both Motor Driven AFW pumps are tripped
- A loss of DP-1B-SB occurred after entry into EPP-004, Reactor Trip Response

Which ONE of the following would be the MINIMUM action required IAW EPP-004 in order to establish the required feedwater flow to the SGs using the TDAFW pump?

Start the TDAFW pump (1) AND establish control of the TDAFW FCVs (2).

- A. (1) locally
(2) locally
- B. (1) locally
(2) at the MCB
- C. (1) at the MCB
(2) locally
- D. (1) at the MCB
(2) at the MCB

47. Given the following plant conditions:

- A loss of Instrument Bus Inverter SI has occurred
- The crew is performing action contained in AOP-024, Loss of Uninterruptible Power Supply
- Transfer of Bus SI to the alternate supply is required in accordance with OP-156.02, AC Electrical Distribution

Which ONE of the following describes how improper sequencing of the Instrument Bus is prevented for this transfer?

- A. The inverter will not allow transfer to the alternate supply if it is out of synch with the normal supply
- B. The transfer requires a kirk key to be used to ensure the primary supply is not paralleled with the alternate supply.
- C. The normal and alternate supply breakers are electrically interlocked so that only one may be closed at a time
- D. The transfer control switch is a 'break before make' contactor that will not allow two power sources to simultaneously supply the bus

48. The plant is operating at 100% power
- Irradiated fuel is being shuffled in the Fuel Handling Building
 - Maintenance needs to be performed on the following breakers
 - BKR 101, START-UP TRANSFORMER A TO AUXILIARY BUS 1D
 - BKR 102, UNIT AUX TRANSFORMER A TO AUXILIARY BUS 1D
 - The breakers will be worked on one at a time
 - The maintenance activity will require removing the breakers from their respective cubicles and will require 16 hours to complete each activity

Which ONE of the following choices completes the statement below?

Technical Specification entry will be required when maintenance begins on breaker (1) AND will require performance of (2).

- A. (1) 101
- (2) OST-1023, OFF SITE POWER AVAILABILITY VERIFICATION WEEKLY INTERVAL MODES 1, 2, 3, 4, 5, 6, within 1 hour
- B. (1) 101
- (2) OST-1024, ON-SITE POWER DISTRIBUTION VERIFICATION WEEKLY INTERVAL MODES 1 - 6 within 1 hour
- C. (1) 102
- (2) OST-1023, OFF SITE POWER AVAILABILITY VERIFICATION WEEKLY INTERVAL MODES 1, 2, 3, 4, 5, 6, within 1 hour
- D. (1) 102
- (2) OST-1024, ON-SITE POWER DISTRIBUTION VERIFICATION WEEKLY INTERVAL MODES 1 - 6 within 1 hour

49. Given the following plant conditions:
- Plant is shutdown with a cooldown is in progress
 - RCS temperature is 195°F

For the current plant conditions, the Technical Specification for DC electrical sources requires that (1) 125 volt emergency battery bank(s) be operable AND (2) associated full capacity battery charger(s) shall be operable.

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

50. Given the following plant conditions:

- With the plant operating at 100% power, a loss of power to 6.9kV bus 1A-SA occurred
- EDG 1A-SA has been started but the output breaker has not been closed
- Annunciator ALB-015-4-4 125VDC EMER BUS A TROUBLE is lit
- The ERFIS point for Emer Bus DP-1ASA voltage indicates 128 volts and is decreasing

In order to restore bus voltage to normal, 480V bus (1) must be energized and DC bus DP-1A-SA voltage will indicate normal (2).

A. (1) 1A1

(2) as soon as the charger is placed in service

B. (1) 1A1

(2) ONLY after the battery has been adequately recharged

C. (1) 1A3-SA

(2) as soon as the charger is placed in service

D. (1) 1A3-SA

(2) ONLY after the battery has been adequately recharged

51. Given the following plant conditions:

- The plant is operating at 100% power
- 'A' EDG has been just been secured after running IAW OP-155, Diesel Generator Emergency Power System
- 'A' EDG Fuel Oil Storage Tank indicates 102,500 gallons
- 'A' EDG Fuel Oil Day Tank indicated level is 47.8% and rising
- Specific gravity of the fuel oil in 'A' Fuel Oil Day Tank is 0.862

- 'B' EDG is now running IAW OP-155
- 'B' EDG Fuel Oil Storage Tank indicates 104,300 gallons
- 'B' EDG Fuel Oil Day Tank indicated level is 47.1% and lowering
- Specific gravity of the fuel oil in 'B' Fuel Oil Day Tank is 0.884

Which ONE of the following is the CURRENT status of the Emergency Diesel Generators IAW Tech Specs?

(Reference provided)

| | <u>'A' EDG</u> | <u>'B' EDG</u> |
|----|----------------|----------------|
| A. | OPERABLE | OPERABLE |
| B. | OPERABLE | INOPERABLE |
| C. | INOPERABLE | OPERABLE |
| D. | INOPERABLE | INOPERABLE |

52. The Treated Laundry and Hot Shower Tank Pump Discharge radiation monitor uses a (1) detector because of the detector's ability to detect (2) radiation.

- | | <u>(1)</u> | <u>(2)</u> |
|----|---------------|------------|
| A. | Scintillation | beta |
| B. | Scintillation | gamma |
| C. | G-M Tube | beta |
| D. | G-M Tube | gamma |

53. Given the following plant conditions:

- The plant was in Mode 4 when a Loss of Off-site power occurred
- The 'A' EDG failed to start
- The 'B' NSW pump is tagged out for maintenance

Which ONE of the following choices correctly completes the statement below?

ESW is providing flow to CCW Heat Exchanger(s) (1) with ESW return header flow aligned to the (2).

- A. (1) 'B' ONLY
(2) Auxiliary Reservoir
- B. (1) 'B' ONLY
(2) Cooling Tower Basin
- C. (1) 'A' AND 'B'
(2) Auxiliary Reservoir
- D. (1) 'A' AND 'B'
(2) Cooling Tower Basin

54. Given the following plant conditions:

- The plant is operating at 100% power
- A loss of Instrument Air is in progress
- At 1015, the crew implemented AOP-017, Loss of Instrument Air
- Instrument Air pressure continues to lower as follows:

| <u>Time</u> | <u>IA Pressure</u> |
|-------------|--------------------|
| 1020 | 83 psig |
| 1030 | 75 psig |
| 1050 | 58 psig |
| 1110 | 34 psig |

Which ONE of the following identifies the FIRST time at which tripping the Reactor is required IAW AOP-017?

- A. 1020
- B. 1030
- C. 1050
- D. 1110

55. Which ONE of the following describes the automatic operation of Containment Normal Purge Damper, CP-D6-1, Fan Suction Damper to AH-82-1A?

CP-D6-1 modulates to maintain _____.

- A. flow at a programmed setpoint.
- B. differential pressure at a programmed setpoint.
- C. flow at a setpoint established using a 10 turn potentiometer.
- D. differential pressure at a setpoint established using a 10 turn potentiometer.

56. Which ONE of the following identifies the power supplies to the 'A' and 'B' Rod Drive Motor Generator (MG) sets?

| | <u>'A' MG set</u> | <u>'B' MG set</u> |
|----|-------------------|-------------------|
| A. | 1D2 | 1E2 |
| B. | 1E2 | 1D2 |
| C. | 1D3 | 1E3 |
| D. | 1E3 | 1D3 |

57. Given the following plant conditions:

- The plant is operating at 90% power
- Automatic PRZ level control failed and PRZ level control is now in MANUAL
- PRZ level is stable at 50%

Which ONE of the following choices correctly completes the statements below?

Based on these conditions PRZ level should be returned to (1).

Per the FSAR the basis for this level is to (2) following a Reactor trip.

- A. (1) 56.5%
(2) ensure PRZ heaters remain covered
- B. (1) 56.5%
(2) prevent letdown isolation
- C. (1) 54%
(2) ensure PRZ heaters remain covered
- D. (1) 54%
(2) prevent letdown isolation

58. Given the following plant conditions:

- At 1000

An automatic Reactor Trip occurred

Multiple rod bottom lights are NOT lit

- At 1005

Power Range channels indicate 3% power

Intermediate Range SUR channels are at 0 DPM and stable

Which ONE of the following choices correctly completes the statement below?

The current condition of the Reactor IAW FRP-S.1 is (1) AND the preferred source of water IAW with AOP-002, Emergency Boration is from the (2).

A. (1) subcritical

(2) RWST

B. (1) subcritical

(2) BAT

C. (1) critical

(2) RWST

D. (1) critical

(2) BAT

59. Given the following plant conditions:

- The plant was operating at 100% power when the Reactor Tripped
- IR NI-35 did not respond as expected due to a total loss of compensating voltage
- IR NI-36 responded normally

Which ONE of the following describes Source Range instrument response to these conditions?

- A. BOTH SR NIs will automatically energize
- B. ONLY SR channel NI-31 will automatically energize
- C. ONLY SR channel NI-32 will automatically energize
- D. NEITHER SR NI will automatically energize

60. Given the following plant conditions:

- The plant is operating at 90% power
- PT-446 fails low and AOP-001, Malfunction of Rod Control and Indication System, immediate actions are completed
- TURBINE FIRST STAGE PRESSURE CONTROL SELECTOR switch is taken to the CHAN 447 position

Which ONE of the following identifies (1) the status of the C-5, Low Power Block of Automatic Rod Withdrawal light on the Bypass Permissive Light Panel AND (2) how automatic outward rod motion would be affected if Rod Control was placed in AUTO?

- A. (1) illuminated
(2) blocked
- B. (1) illuminated
(2) unaffected
- C. (1) extinguished
(2) unaffected
- D. (1) extinguished
(2) blocked

61. Given the following plant conditions:

- An electrical fire in the MCR has resulted in the evacuation of the MCR to the ACP
- You have been directed to monitor in core thermocouple temperatures from outside the MCR per AOP-004, Remote Shutdown

Which ONE of the following identifies the location of the Inadequate Core Cooling Monitor local microprocessor panel AND the method of obtaining readings at the panel?

- A. PIC Room C-17/19 RAB 286' using CRT monitor and keyboard.
- B. PIC Room C-17/19 RAB 286' using thumbwheels set to specific points identified by a legend.
- C. PIC Room RAB 305' using CRT monitor and keyboard.
- D. PIC Room RAB 305' using thumbwheels set to specific points identified by a legend.

62. Given the following plant conditions:

- A LOCA has occurred
- Current containment conditions are as follows:
 - Containment Pressure is 3.5 psig
 - Containment temperature is 120°F
 - Hydrogen concentration is 2.0%
- Containment temperature prior to the LOCA was 90°F

IAW OP-125, Post Accident Hydrogen System, which ONE of the following identifies

(1) the power setting for the "B" Hydrogen Recombiner

AND

(2) the hydrogen concentration maximum limit for Hydrogen Recombiner operation?

(Reference provided)

- A. (1) 46.3 KW
(2) 3.0%
- B. (1) 46.3 KW
(2) 4.0%
- C. (1) 48.3 KW
(2) 4.0%
- D. (1) 48.3 KW
(2) 3.0%

63. What is the initial impact of the 'B' Steam Generator MSIV closing when the plant is operating at 30% power on the following parameters?

| <u>'A' SG Steam Flow</u> | <u>'B' SG Level</u> |
|--------------------------|---------------------|
| A. rises | rises |
| B. rises | lowers |
| C. stays the same | rises |
| D. stays the same | lowers |

64. Given the following plant conditions:

- A plant shutdown and cooldown to Cold Shutdown is in progress
- Tavg is 551°F and stabilizing
- The BOP identifies the Steam Dumps have closed
- Both steam dump interlock selector switches are taken to BYPASS and then back to ON
- The Bypass Permissive light "Low-Low Tavg Steam Dump Block (P-12) Bypassed" light is ON
- The 'B' train P-12 did NOT bypass

Which ONE of the following choices identifies how Steam Dumps will operate during these conditions?

- A. ONLY three condenser Steam Dump valves can still be opened
- B. All six condenser Steam Dump valves can be opened
- C. All six condenser and all six atmospheric Steam Dump valves can be opened
- D. None of the Steam Dumps can be opened

65. The plant is operating at 75% power when the 'B' Condensate Pump trips.

Which ONE of the following identifies the expected response of the Condensate Booster Pumps (CBP) and Main Feedwater Pumps (MFPs)?

- A. ONLY 'B' CBP will trip
- B. ONLY 'B' MFP will trip
- C. 'B' CBP and 'B' MFP will trip
- D. No CBPs or MFPs will tip

66. Given the following plant conditions:

- A Reactor Trip and Safety Injection have occurred from 100% power
- The crew is performing PATH-1
- Containment pressure is 3.1 psig
- 'A' SG NR level is increasing in an uncontrolled manner

Which ONE of the following identifies (1) the required 'A' SG NR level to isolate AFW to the 'A' SG AND (2) which Auxiliary Feedwater valves PATH-1 would direct to be shut FIRST?

- A. (1) 25% NR level
(2) 1AF-55 and 1AF-137, Aux FW 'A' Isolations
- B. (1) 25% NR level
(2) 1AF-49 and 1AF-129, Aux FW 'A' Flow Control Valves
- C. (1) 40% NR level
(2) 1AF-49 and 1AF-129, Aux FW 'A' Flow Control Valves
- D. (1) 40% NR level
(2) 1AF-55 and 1AF-137, Aux FW 'A' Isolations

67. The plant is operating at 100% power.

Which ONE of the following will result in annunciators being communicated using Transient Annunciator Response without further direction from the CRS/SM IAW OPS-NGGC-1000, Fleet Conduct of Operations?

- A. Power Range N-43 failing high
- B. 'A' SG Channel 1 Level Indication failing low
- C. Pressurizer LT-459 failing low with PZR Level Selector in 459/460
- D. 'A' EDG tripping during the performance of OP-155, Diesel Generator Emergency Power System

68. With the plant operating in Mode 1, which ONE of the following requires INDEPENDENT verification instead of CONCURRENT verification?
- A. Installing a jumper in PIC-02 for a surveillance test
 - B. Lifting leads in Rod Control Power Cabinet 1BD for troubleshooting
 - C. Removal of control power fuses for a clearance on RHR pump 1B-SB
 - D. Performance of PIC portions of OWP-RP due to the failure of PRZ PT-455

69. What Technical Specification OPERATIONAL MODE is the plant in with RCS temperature being maintained at 375°F AND how many CSIPs are required to be operable?

The plant is in Mode (a) AND there must be at least (b) CSIP(s) operable.

A. (a) 3

(b) 1

B. (a) 4

(b) 1

C. (a) 4

(b) 2

D. (a) 3

(b) 2

70. Given the following plant conditions:

- REM-01SW-3500A, SW from WPB to Circ Water radiation monitor is in alarm
- Chemistry sample verifies high activity in the piping monitored by REM-01SW-3500A

Which ONE of the following describes the impact on the release in progress AND the action required IAW AOP-005, Radiation Monitoring System?

A. The release will be automatically terminated

Start the standby train of ESW and place the running train of ESW in standby

B. The release will be automatically terminated

Direct the Radwaste Operator to isolate WPB equipment

C. The release will NOT be automatically terminated

Start the standby train of ESW and place the running train of ESW in standby

D. The release will NOT be automatically terminated

Direct the Radwaste Operator to isolate WPB equipment

71. Given the following plant conditions:

- Fuel handling operations are in progress
- Several Fuel Handling Building (FHB) area radiation monitors on both trains show increasing radiation levels
- ONE 'A' train channel has reached its high alarm setpoint

Based on these plant conditions, the FHB Operating Floor Supply Fans (AH-56, AH-57, AH-58, AH-59) will be (1) AND FHB Emergency Exhaust Fan E-13 will be (2).

- A. (1) running
(2) secured
- B. (1) running
(2) running
- C. (1) secured
(2) running
- D. (1) secured
(2) secured

72. With the plant at power, as a member of Operations, which ONE of the following tasks would require utilization of a Special RWP in order for you to complete the activity?
- A. Entry into a High Radiation Area to evaluate boric acid deposits
 - B. Entry into a Locked High Radiation Area to hang a clearance
 - C. Entry into Containment to inspect for RCS leakage on CNMT Level 221
 - D. Entry into an area with loose surface contamination at 2500 dpm/100cm² to perform a valve line-up

73. During a plant startup with power at 8%, which ONE of the following conditions requires entry into PATH-1?
- A. Pressurizer Level exceeds 92%
 - B. One Reactor Coolant Pump trips
 - C. Pressurizer Pressure exceeds 2385 psig
 - D. All turbine governor and throttle valves close

74. FRP-H.1, "Response to Loss of Secondary Heat Sink," is in progress in response to a RED Heat Sink condition.

The crew is progressing through FRP-H.1 when critical safety function status tree conditions are reported as follows:

- Subcriticality: Orange
- Core Cooling: Green
- Heat Sink: Yellow
- Integrity: Green
- Containment: Red
- Inventory: Yellow

Which ONE of the following describes the actions the crew should take in response to the conditions given above?

- A. Complete FRP-H.1, then transition to FRP-J.1.
- B. Complete FRP-H.1, then transition to FRP-S.1.
- C. Immediately exit FRP-H.1 and transition to FRP-S.1.
- D. Immediately exit FRP-H.1 and transition to FRP-J.1.

75. Given the following plant conditions:

- A startup is in progress with Reactor power at 7%
- The Main Turbine is at 1800 RPM
- The 'A' and 'B' CW pumps have just tripped
- Condenser Zone 1 pressure is 4.5 inches Hg absolute
- Condenser Zone 2 pressure is 5.1 inches Hg absolute

Based on current plant conditions, the crew should implement (1) and (2) .

- A. (1) AOP-012, Partial Loss of Condenser Vacuum
 (2) Manually trip the turbine
- B. (1) AOP-012, Partial Loss of Condenser Vacuum
 (2) Verify automatic turbine trip
- C. (1) AOP-006, Turbine Generator Trouble
 (2) Manually trip the turbine
- D. (1) AOP-006, Turbine Generator Trouble
 (2) Verify automatic turbine trip

76. Given the following plant conditions:

- The plant was operating at 100% power with 'A' Safety Train Equipment in service
- A fault occurred on Unit Aux Transformer 'A'
- The bus transfer for 6.9KV Aux Bus 'A' and 'D' failed to occur
- The 'A' EDG failed to start
- The crew is performing EPP-004, Reactor Trip Response, and AOP-025, Loss of One Emergency AC Bus (6.9KV) or One Emergency DC Bus (125V)

It has been three minutes since the plant has tripped and the following annunciators are locked in:

- ALB-05-8-2, CCW Pump B Disch Header Low Press
- ALB-08-2-1, RCP Seal Water Injection Low Flow

Which ONE of the following identifies THE PRIORITY that the condition which caused these annunciators will be addressed IAW AOP-025 AND whether the annunciator is EXPECTED or NOT EXPECTED for the plant conditions?

- | | | |
|----|--|--------------------------|
| A. | 1. CCW Pump B Disch Header Low Press 2. RCP Seal Water Injection Low Flow | Expected NOT Expected |
| B. | 1. CCW Pump B Disch Header Low Press 2. RCP Seal Water Injection Low Flow | NOT Expected Expected |
| C. | 1. RCP Seal Water Injection Low Flow 2. CCW Pump B Disch Header Low Press | Expected NOT Expected |
| D. | 1. RCP Seal Water Injection Low Flow 2. CCW Pump B Disch Header Low Press | NOT Expected Expected |

77. Given the following plant conditions:

- A Reactor Trip and Safety Injection have occurred due to a Small Break LOCA
- The crew has transitioned to EPP-009, Post LOCA Cooldown and Depressurization

The following conditions currently exist:

- CNMT Pressure is 7.8 psig and increasing
- RCS Subcooling is 53°F and increasing
- Pressurizer level is 12% and increasing
- 'A' Train CNMT Phase A will NOT reset
- Nitrogen has been established to CNMT

Which ONE of the following identifies the action that will be taken to depressurize the RCS AND the MINIMUM Pressurizer level required to secure the depressurization in accordance with EPP-009?

| <u>Action Taken to Depressurize the RCS</u> | <u>Required Pressurizer Level</u> |
|---|-----------------------------------|
| A. Open Normal Spray Valves | 26% |
| B. Open ONE Pressurizer PORV | 26% |
| C. Open Normal Spray Valves | 41% |
| D. Open ONE Pressurizer PORV | 41% |

78. Given the following plant conditions:

- A Reactor Trip and Safety Injection have occurred
- All MSIVs failed to close
- The crew has transitioned to EPP-015, Uncontrolled Depressurization of All Steam Generators from EPP-014, Faulted Steam Generator Isolation
- The RO has just secured one CSIP as part of Safety Injection termination when the BOP reports that 'A' MSIV has been closed

The following parameters are observed:

- RCS pressure is 1525 psig and increasing
- Cold Leg temperatures are 472°F and lowering
- 'A' SG pressure is 510 psig and lowering
- 'B' SG pressure is 515 psig and increasing
- 'C' SG pressure is 535 psig and lowering

Which ONE of the following identifies the location of the fault AND the action required?

| | <u>Steam Line Fault Location</u> | <u>Action Required</u> |
|----|----------------------------------|--|
| A. | 'A' | Immediately transition to EPP-014 and isolate 'A' SG |
| B. | 'A' | Remain in EPP-015 and terminate Safety Injection |
| C. | 'C' | Immediately transition to EPP-014 and isolate 'C' SG |
| D. | 'C' | Remain in EPP-015 and terminate Safety Injection |

79. Given the following plant conditions:

- The plant was operating at 89% power
- The 'B' Main Feed Pump tripped
- The Turbine runback to 59% has completed one minute ago
- Control rod speed has decreased to 8 spm and control rods are no longer inserting in automatic
- The BANK LOW-LOW INSERTION alarm (ALB-13-8-3) has been received
- The operators are implementing AOP-010, Feedwater Malfunctions
- Tavg is currently 6°F above Tref

IAW AOP-010, Feedwater Malfunctions, which ONE of the following choices correctly completes the statement below?

Place rod control in manual and...

- A. adjust Turbine load or Boron concentration to equalize Tavg with Tref.
- B. insert control rods to match Tavg with Tref (within 2°F).
- C. withdraw the control rods to clear the BANK LOW-LOW INSERTION alarm.
- D. emergency borate then withdraw control rods until the BANK LOW-LOW INSERTION alarm clears.

80. Given the following plant conditions:

- The crew is performing EPP-001, Loss of AC Power to 1A-SA and 1B-SB Buses
- CNMT pressure is 1.3 psig and increasing
- RCS pressure is 1875 psig and lowering
- Pressurizer level is 18% and lowering
- Core Exit Thermocouples are 567°F and stable
- Cold Leg temperatures are 535°F and stable
- ALL SG pressures are 940 psig and stable
- ALL SG NR levels are 29% and lowering

Under present plant conditions, natural circulation (1) occurring.

IAW EPP-001, after the RCS cooldown is completed, SG pressure will be maintained between 180 psig to 230 psig in order to (2).

A. (1) IS

(2) prevent injection of accumulator nitrogen into the RCS

B. (1) IS NOT

(2) prevent a pressurized thermal shock condition on the vessel belt line weld

C. (1) IS

(1) prevent a pressurized thermal shock condition on the vessel belt line weld

D. (1) IS NOT

(2) prevent injection of accumulator nitrogen into the RCS

81. Given the following plant conditions:

- The plant is in Mode 3
- Instrument Bus IDP-1A-SI was de-energized due to a fault on the bus

Which ONE of the following identifies the Technical Specification required action for the de-energized Instrument Bus?

Re-energize the Instrument Bus within ____ (1) ____ or be in COLD SHUTDOWN within the following ____ (2) ____.

- A. (1) 2 hours
(2) 30 hours
- B. (1) 2 hours
(2) 36 hours
- C. (1) 24 hours
(2) 30 hours
- D. (1) 24 hours
(2) 36 hours

82. Given the following plant conditions:

- The plant is operating at 2% power in accordance with GP-004, Reactor Startup (Mode 3 to Mode 2)
- Both Intermediate Range Nuclear Instruments (NIs) have been declared inoperable IAW Technical Specifications and AP-617, Reportability Determination and Notification, which ONE of the following choices completes the below statement?

Restore at least one Intermediate Range to an OPERABLE status within (1) OR initiate a reactor shutdown and notify the NRC of the shutdown initiation within the next (2).

- A. (1) 1 hour
(2) 4 hours
- B. (1) 1 hour
(2) 24 hours
- C. (1) 2 hours
(2) 24 hours
- D. (1) 2 hours
(2) 4 hours

83. Given the following plant conditions:

- The plant is operating at 100% power
- RM-01CR-3561CSA, Containment Ventilation Isolation (CVI) Radiation Monitor failed 3 days ago and OWP-RM-02 has been implemented
- The BOP is performing the Technical Specification required channel check on the remaining operable CVI Radiation Monitors

Which ONE of the following identifies the normal indication for CVI Radiation Monitors and the Technical Specification required action if another CVI Radiation Monitor fails its channel check?

| <u>Normal Indication</u> | <u>Required Action</u> |
|-----------------------------|--|
| A. 110 mRem/hour | CLOSE the CNMT Purge Makeup and Exhaust Isolation Valves |
| B. 110 mRem/hour | Restore ONE monitor within 7 days or submit a Special Report |
| C. $4.8E^{-06}$ μ Ci/ml | Restore ONE monitor within 7 days or submit a Special Report |
| D. $4.8E^{-06}$ μ Ci/ml | CLOSE the CNMT Purge Makeup and Exhaust Isolation Valves |

84. Given the following plant conditions:

- The crew is performing EPP-006, Natural Circulation Cooldown with Steam Void in Vessel with RVLIS
- The CRS has directed the RO to place LTOPS in service prior to further cooldown

IAW EPP-006, (1) is the lowest allowed RCS Temperature prior to placing LTOPS in service. The capacity of LTOPS protects the RCS in the condition that a MAXIMUM of (2) is/are operating and injecting into a solid RCS.

- A. (1) 351°F
(2) ONE CSIP
- B. (1) 351°F
(2) TWO CSIPs
- C. (1) 326°F
(2) TWO CSIPs
- D. (1) 326°F
(2) ONE CSIP

85. Given the following plant conditions:
- The plant is operating at 100% power

The following occur at 1142:

- Offsite Power is lost
- The 'A' EDG fails to start
- The 'B' Sequencer does not reach Load Block 9
- An inadvertent Phase A is received
- 1ED-94, CNMT Sump Isolation fails to shut
- ALB-08 4-3, RCP-B SEAL #1 LEAKOFF HIGH LOW FLOW and ALB-08 4-4, RCP-B SEAL #2 LEAKOFF HIGH FLOW are received
- The RO reports the following with stable Pressurizer level:
 - Charging flow is 35gpm
 - 'A' RCP Seal Injection flow is 9 gpm
 - 'B' RCP Seal Injection flow is 11 gpm
 - 'C' RCP Seal Injection flow is 9 gpm

The time is now 1159

Which ONE of the following is the classification for this event in accordance with PEP-110, Emergency Classification?

(References Provided)

- A. Alert 2-1-2
- B. Site Area Emergency 2-1-3
- C. Alert 5-1-2
- D. Site Area Emergency 5-1-3

86. Given the following plant conditions:

- The Main Control Room has been evacuated due to toxic gas
- AOP-004, Remote Shutdown, is in progress
- RCS temperature is 330°F
- 'A' CCW Pump is under clearance
- 'B' CCW Pump is in service
- 'B' Train RHR was placed in service for shutdown cooling but has tripped
- The crew is preparing to place 'A' Train RHR in service
- 1CC-167, CCW From RHR HX B-SB, is OPEN
- 1CC-147, CCW From RHR HX A-SA, is CLOSED

Which ONE of the following identifies the required sequence for the actions to align CCW to the 'A' RHR HX AND the resultant operational effect of this sequence?

A. CLOSE 1CC-167 then OPEN 1CC-147

This sequence prevents damage to the 'B' CCW pump

B. CLOSE 1CC-167 then OPEN 1CC-147

This sequence minimizes pressure transients on relief valves in the CCW system

C. OPEN 1CC-147 then CLOSE 1CC-167

This sequence prevents damage to the 'B' CCW pump

D. OPEN 1CC-147 then CLOSE 1CC-167

This sequence minimizes pressure transients on relief valves in the CCW system

87. Given the following plant conditions:

- On Dec.15, at 0600, a plant shutdown, for refueling, was initiated from 100% power
- The Reactor was shutdown at 2000 on the same day
- The plant is in Mode 6
- Both RHR trains are in service
- CCW heat exchanger outlet temperatures are currently:
 CCW HX A OUTLET TEMP 99.3°F
 CCW HX B OUTLET TEMP 101.7°F

Which ONE of the following indicates the MINIMUM number of hours after shutdown before fuel movement in the Reactor Vessel may begin in accordance with PLP-114, Relocated Technical Specifications and Design Basis Requirements?

(Reference provided)

- A. 120
- B. 144
- C. 175
- D. 209

88. Given the following plant conditions:

- The Reactor was tripped on simultaneous trip of BOTH Main Feedwater Pumps
- All AFW was subsequently lost
- The crew entered FRP-H.1, Response to Loss of Secondary Heat Sink
- RCS Bleed and Feed is in progress
- Core Exit Thermocouples are at an average of 595°F and increasing
- Main Feedwater Pump 'A' has just been re-started
- All Steam Generators Wide Range levels are 0%

Which ONE of the following identifies (1) the requirement for feed flow and (2) the SG inventory required prior to exit from FRP-H.1?

- A. (1) feed ONE SG at the maximum rate
(2) ONE SG WR level increasing
- B. (1) feed ONE SG at the maximum rate
(2) ONE SG NR level greater than 25%
- C. (1) feed ONE SG at the lowest controllable rate
(2) ONE SG NR level greater than 25%
- D. (1) feed ONE SG at the lowest controllable rate
(2) ONE SG WR level increasing

89. Given the following plant conditions:

- The plant is operating at 100% power
- The 'B' EDG is under clearance for scheduled maintenance
- At 1135, the Outside Operator reports that BOTH Starting Air Compressors for the 'A' EDG have just failed and the pressure in BOTH Starting Air Receivers is 210 psig and lowering
- At 1210, the Outside Operator reports that the Low Pressure Starting Air annunciator has been received and pressure in BOTH Starting Air Receivers for the 'A' EDG is 189 psig and lowering

Which ONE of the following identifies the time AND Technical Specifications requirement for the above conditions?

- A. By 1235, action must be initiated to place the plant in Hot Standby within the next 6 hours
- B. By 1335, one EDG must be restored or be in Hot Standby within the next 6 hours
- C. By 1310, action must be initiated to place the plant in Hot Standby within the next 6 hours
- D. By 1410, one EDG must be restored or be in Hot Standby within the next 6 hours

90. Given the following plant conditions:

- The plant is operating at 100% power
- SFPs 'A', 'B', and 'C' are ALL interconnected through the canals
- Fuel movement is occurring in the Fuel Handling Building
- Chemistry reports that the SFP boron concentration is 995 ppm

Pool boron concentration is maintained within limits to ensure Keff in the pools is maintained less than or equal to (1).

With the above conditions, Technical Specifications requires immediately suspending movement of (2).

- A. (1) 0.95
(2) fuel assemblies and loads over the pools
- B. (1) 0.95
(2) fuel assemblies ONLY
- C. (1) 0.99
(2) fuel assemblies and loads over the pools
- D. (1) 0.99
(2) fuel assemblies ONLY

91. Given the following plant condition:

- The Outdoor Tank Area Drain Transfer Pump Monitor (REM-01MD-3530) has been declared inoperable
- The tank area must be pumped out with the monitor inoperable

IAW the ODCM, which ONE of the following choices completes the statement below?

Releases may continue from this pathway provided that (1) . If the monitor is not restored to operable status within (2) the next Radioactive Effluent Release Report will include an explanation of why the monitor was not restored in a timely manner.

- A. (1) once per 12 hours grab samples are analyzed for radioactivity at a LLD
(2) 7 days
- B. (1) once per 12 hours grab samples are analyzed for radioactivity at a LLD
(2) 30 days
- C. (1) samples, release rate calcs, and the valve line-up are Independently Verified
(2) 7 days
- D. (1) samples, release rate calcs, and the valve line-up are Independently Verified
(2) 30 days

92. Given the following plant conditions:

- The crew is lining up to vent the PRT in accordance with OP-100, Reactor Coolant System section 8.2
- 1RC-141 and 1RC-144, N2 TO PRT valves have been opened

The following occur:

- An inadvertent Phase A Isolation Signal is received
- 1RC-141 remained open and could not be closed

Which ONE of the following choices completes the statements below?

The controls for the N2 TO PRT valves are located on (1).

Tech Specs require that 1RC-144 must be verified (2).

- A. (1) AEP-1
(2) shut AND fuses removed for 1RC-144
- B. (1) AEP-1
(2) shut ONLY
- C. (1) MCB
(2) shut ONLY
- D. (1) MCB
(2) shut AND fuses removed for 1RC-144

93. Given the following plant conditions:

- The Plant is in Mode 6
- Refueling Cavity Level is at 23' 6"
- 'A' train of RHR is in service for Shutdown Cooling
- 'B' RHR Pump is under clearance for scheduled maintenance

IAW Technical Specifications, the MINIMUM RHR flowrate for the above conditions is (1) AND the purpose of one RHR Pump being in operation is to ensure that sufficient cooling capacity is available to maintain the RCS below (2) ?

- A. (1) 2500 gpm
(2) 200°F
- B. (1) 2500 gpm
(2) 140°F
- C. (1) 900 gpm
(2) 200°F
- D. (1) 900 gpm
(2) 140°F

94. Given the following plant conditions:

- The Plant is in Mode 6
- GP-009, Refueling Cavity Fill, Refueling and Drain of the Refueling Cavity, is in progress
- 'A' RHR pump is in service to provide core cooling during refueling operations
- 'B' RHR pump is operable and in standby

The Refueling Team has requested that the 'A' RHR pump be secured temporarily

IAW Technical Specifications for the above conditions, which ONE of the following completes the statement below?

The operating RHR loop may be secured for a maximum of up to 1 hour per (1) to perform Core alterations in the vicinity of the Reactor Vessel (2) .

- A. (1) 2 hour period
(2) cold legs
- B. (1) 4 hour period
(2) cold legs
- C. (1) 2 hour period
(2) hot legs
- D. (1) 4 hour period
(2) hot legs

95. While performing OST-1026, Reactor Coolant System Leakage Evaluation, Computer Calculation, Daily Interval, Modes 1-2-3-4, unidentified leakage exceeded the control chart 3 sigma point. The STA has prepared a Troubleshooting Control Form which was evaluated to be 'High Risk'.

What is the MINIMUM level of approval required outside the Max/Safe/Gen time frame?

- A. Troubleshooting Lead
- B. Control Room Supervisor
- C. Shift Manager
- D. Plant General Manager

96. Given the following plant conditions:

- An RCS heatup is in progress
- RCS Tavg is 342°F
- 1A-SA Emergency Diesel Generator is declared INOPERABLE

Which ONE of the following identifies the current OPERATIONAL MODE AND the Technical Specification applicability regarding Mode changes?

The Unit is in (1) . Ascension to a higher Mode (2) be performed.

- A. (1) Mode 3
(2) may
- B. (1) Mode 3
(2) may NOT
- C. (1) Mode 4
(2) may
- D. (1) Mode 4
(2) may NOT

97. The MAXIMUM dose allowed for life saving missions during a declared emergency is (1) REM TEDE and the LOWEST level of authority that can authorize this dose is the (2) .
- A. (1) 10
(2) Site Emergency Coordinator
 - B. (1) 10
(2) Radiological Control Director
 - C. (1) 25
(2) Radiological Control Director
 - D. (1) 25
(2) Site Emergency Coordinator

98. Given the following plant conditions:

- The plant was operating at 100% power with the 1B-SB EDG out of service
- A Loss of Offsite Power occurred
- The 1A-SA EDG failed to start
- The crew entered EPP-001, Loss of AC Power to 1A-SA and 1B-SB Buses

The following occurs:

- The TDAFW Pump trips on overspeed
- All SG NR levels are 18%
- All Core Exit Temperatures are increasing

Which ONE of the following describes (1) the required procedure action AND (2) the MINIMUM Core Exit Thermocouple temperature that requires transition to SACRG-001, Severe Accident Control Room Guideline Initial Response?

- A. (1) Remain in EPP-001, Loss of AC Power to 1A-SA and 1B-SB Buses
(2) 1201°F
- B. (1) Transition to FRP-H.1, Reponse to Loss of Secondary Heat Sink
(2) 1201°F
- C. (1) Remain in EPP-001, Loss of AC Power to 1A-SA and 1B-SB Buses
(2) 731°F
- D. (1) Transition to FRP-H.1, Reponse to Loss of Secondary Heat Sink
(2) 731°F

99. Given the following plant conditions:

- A Tube Rupture occurred on the 'A' SG
- Offsite power was lost
- The crew completed PATH-2 and transitioned to EPP-017, Post-SGTR Cooldown Using Backfill

The following plant conditions presently exist:

- 6.9 KV Aux Buses 'A' and 'C' have been reenergized
- The crew is preparing to restart an RCP

Which ONE of the following identifies the RCP to be started and the reason for selecting this RCP IAW EPP-017?

A. 'A' RCP

To minimize any challenges to the core reactivity

B. 'A' RCP

To minimize any challenges to the Reactor vessel integrity

C. 'C' RCP

To minimize any challenges to the core reactivity

D. 'C' RCP

To minimize any challenges to the Reactor vessel integrity

100. Given the following plant conditions:

- A Loss of Offsite Power has occurred
- The crew transitioned to EPP-004, Reactor Trip Response
- The MSIVs are closed
- During the event, the 'A' SG level increased to 98% but is presently 83%

Which ONE of the following pressures on 'A' SG would meet the YELLOW path condition for FRP-H.2, Response to Steam Generator Overpressure, AND which SG PORV(s) would be used to mitigate the SG over pressurization?

| | <u>'A' SG Pressure</u> | <u>SG PORV(s)</u> |
|----|------------------------|-------------------|
| A. | 1170 psig | ALL |
| B. | 1170 psig | 'B' and 'C' ONLY |
| C. | 1230 psig | ALL |
| D. | 1230 psig | 'B' and 'C' ONLY |

You have completed the test!

References provide to applicants for the 2009-302 NRC written exam:

RO test:

Question # 2 Steam Tables

Question # 3 Steam Tables

Question # 21 AOP-001 Attachment 2 pages 41-43 (Rev. 34)

Question # 51 Curve D-X-20 (Rev. 1)

Question # 62 OP-125 Attachment 6 page 51 (Rev. 22)

SRO test:

Question # 85 EAL Flow path sides 1 and 2, EP-EAL pages 25, 28, 44, and 46 (Rev. 7)

Question # 87 PLP-114 page 8 (Rev. 21)

ANSWER KEY REPORT
for 2009B NRC SRO Rev Final Test Form: 0

Answers

| # | ID | Points | Type | 0 |
|----|-----------------|--------|------|---|
| 1 | 2009B NRC RO 1 | 1.00 | MCS | C |
| 2 | 2009B NRC RO 2 | 1.00 | MCS | D |
| 3 | 2009B NRC RO 3 | 1.00 | MCS | A |
| 4 | 2009B NRC RO 4 | 1.00 | MCS | C |
| 5 | 2009B NRC RO 5 | 1.00 | MCS | C |
| 6 | 2009B NRC RO 6 | 1.00 | MCS | B |
| 7 | 2009B NRC RO 7 | 1.00 | MCS | B |
| 8 | 2009B NRC RO 8 | 1.00 | MCS | D |
| 9 | 2009B NRC RO 9 | 1.00 | MCS | B |
| 10 | 2009B NRC RO 10 | 1.00 | MCS | B |
| 11 | 2009B NRC RO 11 | 1.00 | MCS | C |
| 12 | 2009B NRC RO 12 | 1.00 | MCS | B |
| 13 | 2009B NRC RO 13 | 1.00 | MCS | B |
| 14 | 2009B NRC RO 14 | 1.00 | MCS | B |
| 15 | 2009B NRC RO 15 | 1.00 | MCS | C |
| 16 | 2009B NRC RO 16 | 1.00 | MCS | A |
| 17 | 2009B NRC RO 17 | 1.00 | MCS | D |
| 18 | 2009B NRC RO 18 | 1.00 | MCS | A |
| 19 | 2009B NRC RO 19 | 1.00 | MCS | C |
| 20 | 2009B NRC RO 20 | 1.00 | MCS | B |
| 21 | 2009B NRC RO 21 | 1.00 | MCS | B |
| 22 | 2009B NRC RO 22 | 1.00 | MCS | C |
| 23 | 2009B NRC RO 23 | 1.00 | MCS | B |
| 24 | 2009B NRC RO 24 | 1.00 | MCS | C |
| 25 | 2009B NRC RO 25 | 1.00 | MCS | B |
| 26 | 2009B NRC RO 26 | 1.00 | MCS | A |
| 27 | 2009B NRC RO 27 | 1.00 | MCS | A |
| 28 | 2009B NRC RO 28 | 1.00 | MCS | A |
| 29 | 2009B NRC RO 29 | 1.00 | MCS | B |
| 30 | 2009B NRC RO 30 | 1.00 | MCS | C |
| 31 | 2009B NRC RO 31 | 1.00 | MCS | D |
| 32 | 2009B NRC RO 32 | 1.00 | MCS | A |
| 33 | 2009B NRC RO 33 | 1.00 | MCS | C |
| 34 | 2009B NRC RO 34 | 1.00 | MCS | B |
| 35 | 2009B NRC RO 35 | 1.00 | MCS | D |
| 36 | 2009B NRC RO 36 | 1.00 | MCS | D |
| 37 | 2009B NRC RO 37 | 1.00 | MCS | B |
| 38 | 2009B NRC RO 38 | 1.00 | MCS | B |
| 39 | 2009B NRC RO 39 | 1.00 | MCS | D |
| 40 | 2009B NRC RO 40 | 1.00 | MCS | B |
| 41 | 2009B NRC RO 41 | 1.00 | MCS | A |
| 42 | 2009B NRC RO 42 | 1.00 | MCS | B |
| 43 | 2009B NRC RO 43 | 1.00 | MCS | D |
| 44 | 2009B NRC RO 44 | 1.00 | MCS | D |
| 45 | 2009B NRC RO 45 | 1.00 | MCS | C |
| 46 | 2009B NRC RO 46 | 1.00 | MCS | B |
| 47 | 2009B NRC RO 47 | 1.00 | MCS | B |

ANSWER KEY REPORT
for 2009B NRC SRO Rev Final Test Form: 0

Answers

| # | ID | Points | Type | 0 |
|----|------------------|--------|------|---|
| 48 | 2009B NRC RO 48 | 1.00 | MCS | A |
| 49 | 2009B NRC RO 49 | 1.00 | MCS | A |
| 50 | 2009B NRC RO 50 | 1.00 | MCS | C |
| 51 | 2009B NRC RO 51 | 1.00 | MCS | B |
| 52 | 2009B NRC RO 52 | 1.00 | MCS | B |
| 53 | 2009B NRC RO 53 | 1.00 | MCS | A |
| 54 | 2009B NRC RO 54 | 1.00 | MCS | C |
| 55 | 2009B NRC RO 55 | 1.00 | MCS | D |
| 56 | 2009B NRC RO 56 | 1.00 | MCS | A |
| 57 | 2009B NRC RO 57 | 1.00 | MCS | A |
| 58 | 2009B NRC RO 58 | 1.00 | MCS | D |
| 59 | 2009B NRC RO 59 | 1.00 | MCS | D |
| 60 | 2009B NRC RO 60 | 1.00 | MCS | C |
| 61 | 2009B NRC RO 61 | 1.00 | MCS | B |
| 62 | 2009B NRC RO 62 | 1.00 | MCS | C |
| 63 | 2009B NRC RO 63 | 1.00 | MCS | B |
| 64 | 2009B NRC RO 64 | 1.00 | MCS | D |
| 65 | 2009B NRC RO 65 | 1.00 | MCS | C |
| 66 | 2009B NRC RO 66 | 1.00 | MCS | D |
| 67 | 2009B NRC RO 67 | 1.00 | MCS | A |
| 68 | 2009B NRC RO 68 | 1.00 | MCS | C |
| 69 | 2009B NRC RO 69 | 1.00 | MCS | D |
| 70 | 2009B NRC RO 70 | 1.00 | MCS | D |
| 71 | 2009B NRC RO 71 | 1.00 | MCS | D |
| 72 | 2009B NRC RO 72 | 1.00 | MCS | C |
| 73 | 2009B NRC RO 73 | 1.00 | MCS | C |
| 74 | 2009B NRC RO 74 | 1.00 | MCS | A |
| 75 | 2009B NRC RO 75 | 1.00 | MCS | A |
| 76 | 2009B NRC SRO 1 | 1.00 | MCS | C |
| 77 | 2009B NRC SRO 2 | 1.00 | MCS | D |
| 78 | 2009B NRC SRO 3 | 1.00 | MCS | B |
| 79 | 2009B NRC SRO 4 | 1.00 | MCS | B |
| 80 | 2009B NRC SRO 5 | 1.00 | MCS | A |
| 81 | 2009B NRC SRO 6 | 1.00 | MCS | A |
| 82 | 2009B NRC SRO 7 | 1.00 | MCS | A |
| 83 | 2009B NRC SRO 8 | 1.00 | MCS | A |
| 84 | 2009B NRC SRO 9 | 1.00 | MCS | D |
| 85 | 2009B NRC SRO 10 | 1.00 | MCS | A |
| 86 | 2009B NRC SRO 11 | 1.00 | MCS | A |
| 87 | 2009B NRC SRO 12 | 1.00 | MCS | D |
| 88 | 2009B NRC SRO 13 | 1.00 | MCS | B |
| 89 | 2009B NRC SRO 14 | 1.00 | MCS | D |
| 90 | 2009B NRC SRO 15 | 1.00 | MCS | B |
| 91 | 2009B NRC SRO 16 | 1.00 | MCS | B |
| 92 | 2009B NRC SRO 17 | 1.00 | MCS | D |
| 93 | 2009B NRC SRO 18 | 1.00 | MCS | B |
| 94 | 2009B NRC SRO 19 | 1.00 | MCS | C |

ANSWER KEY REPORT
for 2009B NRC SRO Rev Final Test Form: 0

Answers

| # | ID | Points | Type | 0 |
|-------------------------------|------------------|---------------|------|---|
| 95 | 2009B NRC SRO 20 | 1.00 | MCS | C |
| 96 | 2009B NRC SRO 21 | 1.00 | MCS | D |
| 97 | 2009B NRC SRO 22 | 1.00 | MCS | D |
| 98 | 2009B NRC SRO 23 | 1.00 | MCS | A |
| 99 | 2009B NRC SRO 24 | 1.00 | MCS | C |
| 100 | 2009B NRC SRO 25 | 1.00 | MCS | D |
| SECTION 1 (100 items) | | 100.00 | | |