**U.S. Nuclear Regulatory Commission**

**Site-Specific SRO Written Examination-FINAL**

| Applicant Information | | | |
|---|---|---|---|
| Name: | | | |
| Date: | | Facility/Unit: | Turkey Point Units 3/4 |
| Region: | II | Reactor Type: | Westinghouse |
| 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 overal, 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 Score | ____ / ____ / ____ Points |
| Applicant's Grade | ____ / ____ / ____ Percent |

QUESTION 1

Plant conditions:

- Unit 3 has just tripped from 35% power.
- Steam Generator Narrow Range Levels are as follows:
  - 3A = 5%
  - 3B = 6%
  - 3C = 7%
- AFW is NOT running and CANNOT be started.
- The crew is addressing the Steam Generator Levels in 3-EOP-ES-0.1, Reactor Trip Response.

Which ONE of the following describes actions required regarding the operation of the Main Feedwater System?

Establish greater than 400 gpm total feed flow to the Steam Generators and maintain this flow rate until...

A. the next procedural check of Steam Generator levels in 3-EOP-ES-0.1; THEN
Establish feed flow to maintain all Steam Generator Levels between 21-50% NR.

B. at least one Steam Generator level is greater than 7% NR; THEN
Establish feed flow to maintain all Steam Generator Levels between 21-50% NR.

C. the next procedural check of Steam Generator levels in 3-EOP-ES-0.1; THEN
Establish feed flow to maintain all Steam Generator Levels at a MINIMUM of 7% NR.

D. at least one Steam Generator level is greater than 7% NR; THEN
Establish feed flow to maintain all Steam Generator Levels at a MINIMUM of 7% NR.

QUESTION 2

Plant conditions:

- Unit 4 tripped from 100% power.
- A LOCA is in progress.
- The crew is performing 4-EOP-E-1, Loss of Reactor or Secondary Coolant.
- RCS pressure is 1500 psig and STABLE.
- All equipment is operating as designed.

Which ONE of the following identifies the indications seen if the LOCA occurred in the pressurizer level instrument reference leg during the first 15 minutes after the event?

A. Pressurizer level trending up or off-scale high;
QSPDS RVLMS indication has remained constant.

B. Pressurizer level trending up or off-scale high;
QSPDS RVLMS indication is slowly lowering.

C. Pressurizer level off-scale low;
QSPDS RVLMS indication has remained constant.

D. Pressurizer level off-scale low;
QSPDS RVLMS indication is slowly lowering.

QUESTION 3

Plant conditions:

- Unit 3 has tripped.
- Subsequently, a LOCA has developed.
- The Containment sump level is rising.

Which ONE of the following is a likely source of the RCS leak?

A. RCP Thermal Barrier

B. CVCS Regenerative Heat Exchanger

C. Downstream of MOV-3-744A, RHR Discharge to Cold Leg Isolation Valve

D. Upstream of MOV-3-843A, SI to Cold Leg Isolation Valve

QUESTION 4

What is the PRIMARY method of decay heat removal for large break LOCA's?

A. The condensation of reflux boiling in the S/Gs

B. Heat transfer between the RCS and the S/Gs due to natural circulation flow

C. The injection of water from the ECCS and leakage of steam/water out the break

D. Convection Cooling from the Reactor Vessel to the water in the Containment sumps.

QUESTION 5

Plant Conditions:

- Unit 3 tripped from 100% power following trip of RCP 3A.
- The crew is performing actions of 3-EOP-ES-0.1, Reactor Trip Response.

Which one of the following DESCRIBES the RCS Loop flow low setpoint and PREDICTED Post Trip Steam Generator pressure relationship(s) five (5) minutes following the reactor trip?

A. 90.0%
Unit 3 A, B and C S/G pressure(s) will be equal.

B. 90.0%
Unit 3 B and C S/G pressures will be greater than A S/G pressure.

C. 88.8%
Unit 3 A, B and C S/G pressure(s) will be equal.

D. 88.8%
Unit 3 B and C S/G pressures will be greater than A S/G pressure.

QUESTION 6

Plant conditions:

- Unit 3 is operating at 100% power.
- A loss of all charging flow occurs and attempts to start a charging pump are unsuccessful.
- The crew has entered 3-ONOP-047.1, Loss of Charging Flow in Modes 1 through 4.

Which ONE of the following identifies actions required in accordance with 3-ONOP-47.1?

A. CLOSE Letdown Orifice Isolation Valves, CV-3-200A, B, C; if charging flow cannot be restored, trip the reactor and enter 3-EOP-E-0, Reactor Trip or Safety Injection.

B. CLOSE Letdown Orifice Isolation Valves, CV-3-200A, B, C; if charging flow cannot be restored, perform a controlled plant shutdown using 3-GOP-103, Power Operation to Hot Standby.

C. CLOSE MOV-3-381, RCP Seal Water Return and Excess Letdown Isolation Valve; if charging flow cannot be restored, trip the reactor and enter 3-EOP-E-0, Reactor Trip or Safety Injection.

D. CLOSE MOV-3-381, RCP Seal Water Return and Excess Letdown Isolation Valve; if charging flow cannot be restored, perform a controlled plant shutdown using 3-GOP-103, Power Operation to Hot Standby.

QUESTION 7

Plant conditions:

- Unit 3 is in Mode 4.
- RHR Train 3A is in service.
- OMS is in service.

Subsequently:

- RCS Pressure rising.
- A PZR PORV opens before operators can determine the cause of the pressure increase.
- The operator observed RCS pressure peaked at 540 psig and is now lowering.

Which ONE of the following identifies the status of RHR Loop Inlet Isolation Valves MOV-3-750 and MOV-3-751, AND the reason for this condition?

MOV-3-750 and MOV-3-751 are .....

A. fully OPEN because the PZR PORV actuation has terminated the transient in progress.

B. fully OPEN to ensure an adequate pressure relief path exists through letdown.

C. CLOSED or Closing to prevent overpressurization of the RHR System piping.

D. CLOSED or Closing to prevent RHR cooling from causing a PTS condition.

QUESTION 8

Plant Conditions:

- Unit 3 is in Mode 3.
- Tavg at its no-load value.
- Reactor Coolant Pump 3C is operating with 3A and 3B are secured.

Which ONE of the following would be most effective at lowering PZR pressure?

A. Spray Valve PCV-3-455A Open
Spray Valve PCV-3-455B Open

B. Spray Valve PCV-3-455A Open
Spray Valve PCV-3-455B Closed

C. Spray Valve PCV-3-455A Closed
Spray Valve PCV-3-455B Open

D. Spray Valve PCV-3-455A Closed
Spray Valve PCV-3-455B Closed
Auxiliary Spray CV-3-311 Open

QUESTION 9

Which ONE of the following describes how the AMSAC (ATWS Mitigating System Actuation Circuit) trips the reactor?

A. Energizes both Control Rod MG set input breaker trip coils.

B. Energizes both Control Rod MG set output breaker trip coils.

C. Energizes the Shunt Trip Coils on both Reactor Trip Breakers and Bypass Breakers.

D. Deenergizes the Undervoltage Trip Coils on the Reactor Trip Breakers and Bypass Breakers.

QUESTION 10

Plant conditions:

- A Steam Generator Tube Rupture has occurred on 3C S/G.
- RCS cooldown and depressurization is complete.
- Preparations are made to transition to 3-EOP-ES-3.1, Post SGTR Cooldown using Backfill.
- Pressurizer Level is 38%.
- All RCPs are OFF, and unavailable to start.
- RCS Subcooling is 43°F.
- 3A Charging Pump is running.
- Letdown is 45 gpm.
- 3C S/G Narrow Range Level is 79% and slowly rising.

Which ONE of the following identifies the required action and the reason for that action in accordance with 3-EOP-E-3, Steam Generator Tube Rupture?

OPEN...

A. one Pressurizer PORV to refill the PZR.

B. one Pressurizer PORV to minimize RCS leakage.

C. CV-3-311, Auxiliary Spray Isolation Valve to refill the PZR.

D. CV-3-311, Auxiliary Spray Isolation Valve to minimize RCS leakage.

QUESTION 11

Plant conditions:

- A large Main Steam Line Break has occurred on Unit 3.
- RCS temperature has stabilized to the right of the Limit A Curve associated with the INTEGRITY Critical Safety Function.

Which ONE of the following identifies the parameter that is monitored when evaluating the INTEGRITY Critical Safety Function, AND highest challenge level to the INTEGRITY Critical Safety Function under the current plant conditions?

A. RCS Wide Range Tcold;
Extreme challenge – Red Path.

B. RCS Wide Range Tcold;
Severe challenge – Orange Path.

C. Core Exit Thermocouples;
Extreme challenge – Red Path.

D. Core Exit Thermocouples;
Severe challenge – Orange Path.

QUESTION 12

Which ONE of the following is the primary reason for stopping all RCPs in 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink?

A. To preserve the RCPs for long term core cooling after the mitigation strategies of 3-EOP-FR-H.1 have been successful.

B. To reduce the heat added from the RCPs, thereby delaying the need for bleed and feed and gaining time to establish a means of supplying FW to a S/G.

C. To prevent the heat added by the RCPs from adversely affecting indications used to determine whether or not RCS bleed and feed will be required.

D. Anticipatory response to prevent cavitation damage to RCPs due to a loss of RCS subcooling.

QUESTION 13

Plant conditions:

- 3A 4KV Bus is de-energized.
- The 3A Emergency Diesel Generator will not start.

Which ONE of the following is the FIRST source of power identified by 3-ONOP-004.2, Loss of 3A 4KV Bus, to be used to attempt to re-energize the bus?

A. 3C Bus

B. SBO Tie Line

C. Unit 3 Startup Transformer

D. Unit 4 Startup Transformer

QUESTION 14

Plant conditions:

- Unit 3 has lost 120 Volt Vital Instrument Panel 3P07.
- VCT Level Indicator LI-3-112 indicates 25%.
- VCT Level indicator LI-3-115 indicates 0%.
- Annunciator A 4/6, VCT HI/LO LEVEL, is in alarm.

Which ONE of the following describes the effect on VCT auto makeup and charging pump suction alignment?

VCT auto makeup.....

A. initiates and charging pump suction automatically swaps to the RWST.

B. initiates and charging pump suction remains aligned to the VCT.

C. is disabled and charging pump suction remains aligned to the VCT.

D. is disabled and charging pump suction automatically swaps to the RWST.

QUESTION 15

Plant conditions:

- Unit 3 is operating at 100% power.
- An operator has been dispatched to isolate CCW/ICW strainers due to suspected fouling.
- While isolating BS-3-1402, 3A ICW/CCW Basket Strainer, ICW flow to all 3 CCW heat exchangers is determined to be less than the minimum required in accordance with 3-NOP-019, Intake Cooling Water System.

In accordance with 3-NOP-019, which ONE of the following identifies (1) the minimum ICW flow to each CCW heat exchanger, and (2) the amount of time allowed at less than minimum required flow prior to entering T.S. 3.0.3?

A. (1) 3500 GPM
(2) One hundred twenty (120) minutes

B. (1) 3500 GPM
(2) Five (5) minutes

C. (1) 8000 GPM
(2) One hundred twenty (120) minutes

D. (1) 8000 GPM
(2) Five (5) minutes

QUESTION 16

Plant conditions:

- Both units are operating at 100% power.
- Unit 3 Instrument Air pressure drops to 75 psig as indicated on PI-3-144A (VPA).
- The crew enters 0-ONOP-013, Loss of Instrument Air.
- The crew determines that an Auxiliary Building Header rupture has occurred and closes 3-40-339, Auxiliary Building Header Isolation Valve.
- Unit 3 Instrument Air pressure stabilizes.

Which ONE of the following identifies whether or not a reactor trip is required, and the reason for the action taken?

A. Reactor trip is required; Instrument Air Header pressure is below reactor trip criteria.

B. Reactor trip is not required; Instrument Air Header pressure is stable and components have not repositioned.

C. Reactor trip is required; failure of critical components in the Auxiliary Building has the potential to place the unit in a more severe transient.

D. Reactor trip is not required; Instrument Air pressure is stable and air operated components in the Auxiliary Building may be operated manually

QUESTION 17

Unit 3 was initially at 100% power and has experienced the following events:

- The crew has responded to a LOCA into the Auxiliary Building using 3-EOP-ECA-1.2, LOCA Outside Containment.
- The reported leakage was from the RHR Heat Exchanger Room and was stopped by closing RHR Cold Leg Injection Valve 3-MOV-744A and 3-MOV-744B.
- RCS pressure is now rising.

Which ONE of the following describes the RCS decay heat removal methodology which will be in place when the crew exits 3-EOP-ECA-1.2?

A. RHR normal cooling lineup.

B. RHR alternate cooling lineup.

C. AFW supplying steam generators, dumping steam.

D. RCS Cooldown using PZR PORV's with one train of ECCS injecting.

QUESTION 18

Plant conditions:

- A Steam Line Break outside Containment resulted in a Reactor Trip and Safety Injection on Unit 3.
- ALL Auxiliary Feedwater Pumps are TRIPPED.
- All Main Steam Isolation valves are closed.
- The operating crew has implemented 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink.
- Restoration attempts are in progress to initiate AFW flow.
- RCS Pressure is 2255 psig and slowly rising.
- All RCPs are TRIPPED.
- Wide Range S/G levels are:
    - 3A-45%
    - 3B-46%
    - 3C-44%.

Based on plant conditions, which ONE of the following identifies the NEXT mitigation strategy to be used in 3-EOP-FR-H.1 to restore AFW flow?

Establish...

A. Main Feedwater flow not to exceed 100 gpm per SG

B. Main Feedwater Flow at maximum rate to restore heat sink.

C. Standby Feedwater Flow not to exceed 100 gpm per SG.

D. Standby Feedwater Flow at maximum rate to restore heat sink

QUESTION 19

Following a refueling outage Unit 3 is at 3% power during a plant startup prior to entering MODE 1.

ONE Control Group C rod drops to the bottom of the core.

Tave indicates the following

- Loop 3A - 541.3°F
- Loop 3B - 541.6°F
- Loop 3C - 540.5°F

Which ONE of the following identifies whether RCS temperature is above or below the minimum temperature for criticality, reason for required action?

A. BELOW minimum temperature for criticality. Restore Tave within 15 minutes or be in Hot Standby within the following 15 minutes to ensure Moderator Temperature Coefficient is within the analyzed range for accident analysis.

B. BELOW minimum temperature for criticality. Restore Tave within 15 minutes or be in Hot Standby within the following 15 minutes to ensure adequate SDM with the most reactive control rod fully withdrawn.

C. ABOVE minimum temperature for criticality. Stabilize Tave in accordance with 3-ONOP-28.3, Dropped RCC, to ensure Moderator Temperature Coefficient is within the analyzed range for accident analysis.

D. ABOVE minimum temperature for criticality. Stabilize Tave in accordance with 3-ONOP-28.3, Dropped RCC, to ensure adequate SDM with the most reactive control rod fully withdrawn.

QUESTION 20

Plant conditions:

- Unit 3 Reactor power is 80%.
- Bank D Group 2 Control Rod H8 is 20 steps lower than the rest of its bank.
- The Shift Manager has directed the crew to realign Rod H8.
- Annunciator B 9/4, ROD CONTROL URGENT FAILURE, alarms when the rod realignment begins.

Which ONE of the following identifies which lift coil disconnect switches were disconnected, AND the source of the B 9/4 alarm?

A. All Bank D switches except Rod H-8 were disconnected;
Group 1 is the source of the B 9/4 alarm.

B. Only Bank D Group 2 switches except Rod H-8 were disconnected;
Group 1 is the source of the B 9/4 alarm.

C. All Bank D switches except Rod H-8 were disconnected;
Group 2 is the source of the B 9/4 alarm.

D. Only Bank D Group 2 switches except Rod H-8 were disconnected;
Group 2 is the source of the B 9/4 alarm.

QUESTION 21

The Unit 3 RO is Emergency Borating in accordance with 3-ONOP-046.1, Emergency Boration.

- The 3A Charging Pump is running.
- Emergency Boration valve, MOV-3-350, is OPEN.
- Emergency Borate Flow indicator, FI-3-110, displays 45 gpm flow.
- Charging Flow indicator, FI-3-122A indicates 30 gpm.

Which ONE of the following identifies the action needed, if any, to establish emergency boration flow per 3-ONOP-046.1?

A. NO additional action is needed. Flow indication is adequate.

B. Must raise boration flow as indicated on FI-3-110 by >15 gpm ONLY.

C. Must raise charging flow as indicated on FI-3-122A by >15 gpm ONLY.

D. BOTH Charging and Emergency Boration flows must be raised by >15 gpm.

QUESTION 22

Plant conditions:

- A reactor startup is in progress.
- The crew is verifying proper overlap and preparing to block Source Range High Flux Trips.
- IR channel N-35 indicates 3 X 10-11 amps and slowly rising
- IR channel N-36 indicates 8 X 10-11 amps and slowly rising
- The reactor then trips.

Which ONE of the following conditions caused the reactor trip?

A. SR Channel N-31 Pulse Height Discrimination was lost, causing the SR High Flux Trip Bistable to trip.

B. SR Channel N-31 High Voltage power supply was lost, causing the SR High Flux Trip Bistable to trip.

C. IR Channel N-36 being undercompensated caused the trip prior to P-6 being satisfied.

D. IR Channel N-35 being overcompensated caused the trip prior to P-6 being satisfied.

QUESTION 23

Plant conditions:

- Unit 3 plant startup is in progress in accordance with 3-GOP-301, Hot Standby to Power Operation.
- Both Intermediate Range Channels are reading $8x10^{-11}$ amps.

Subsequently:

- Intermediate Range Channel N36 fails LOW.
- The crew enters 3-ONOP-059.7, Intermediate Range Nuclear Instrumentation Malfunction.

Which ONE of the following identifies the required action per 3-ONOP-059.7, AND the reason for this action?

A. Maintain power below the P-6 setpoint on N35;
Both Intermediate Range channels are required to be OPERABLE under the current plant conditions.

B. Power may be raised to any value below the P-10 setpoint;
Only ONE Intermediate Range Channel is required to be OPERABLE below P-10.

C. Power may be raised to any value below the P-10 setpoint;
Two Intermediate range channels are required to be OPERABLE to meet accident analysis assumptions at power levels above P-10.

D. Maintain power below the P-6 setpoint on N35;
Both Intermediate Range channels are required to be OPERABLE to de-energize the Source Range detectors.

QUESTION 24

Plant conditions:

- Unit 3 is in Mode 5.
- Unit 4 is at 100% power.
- 3A1 Circulating Water Pump is running.
- There is an on-going unplanned Monitor Tank liquid radioactive release in progress.
- R-18, Liquid Waste Effluent Radiation Monitor, alarmed but RCV-018 remains OPEN.

Which ONE of the following identifies the:

(1) detector type for R-18
(2) the MAJOR contributor to the type of activity contained in an accidental release of the Monitor Tank

A. (1) Scintillation
(2) Beta-Gamma

B. (1) Scintillation
(2) Alpha-Neutron

C. (1) Geiger Mueller Tube
(2) Beta-Gamma

D. (1) Geiger-Mueller Tube
(2) Alpha-Neutron

QUESTION 25

Fuel shuffle is being performed in the Unit 3 Spent Fuel Pool.

Spent Fuel Pool Area monitor, RI-3-1407B, alarm is received in the Control Room.

Which ONE of the following identifies the indication available to the operators in the spent fuel pool that the monitor is in alarm?

A. Red LED on the local monitor and a horn

B. Red flashing light on the local monitor and a horn

C. Horn ONLY

D. Red flashing light ONLY

QUESTION 26

Which ONE of the following identifies a system checked for leakage into Containment by FR-Z.2, Response to Containment Flooding, AND the basis for limiting leakage from these systems into containment?

CCW and...

A. CVCS;
To protect systems needed for recovery.

B. CVCS;
To protect the Containment barrier.

C. Primary Makeup Water;
To protect the Containment barrier.

D. Primary Makeup Water;
To protect systems needed for recovery.

QUESTION 27

Plant conditions:

- Unit 3 has experienced a LOCA and a Loss of Offsite Power.
- The crew is energizing 3A back-up Pressurizer Heaters in accordance with step 3 of 3-EOP-ES-1.2, Post-LOCA Cooldown and Depressurization.
- 3A Emergency Diesel Generator loading is 2275 KW

Which ONE of the following identifies the MAXIMUM number of individual heater breakers that can be loaded onto the 3A EDG without exceeding STEADY STATE load limits?

**Reference Provided**

A. 2 breakers

B. 4 breakers

C. 6 breakers

D. 8 breakers

QUESTION 28

Which ONE of the following describes a function of the flywheel on the RCP's?

A. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining DNBR within acceptable limits during certain loss of flow events.

B. Minimizes acceleration on pump start to minimize the effects of core lift when the first RCP is started during an RCS heatup from Cold Shutdown.

C. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining hot channel factors at an acceptable level during certain loss of RCS flow events.

D. Maintains constant RCP speed, minimizing the potential for spurious RCS low flow reactor trips and maintaining hot channel factors at an acceptable level during power operation.

QUESTION 29

Unit 3 is operating at 100% power.

Which ONE of the following evolutions, by itself, will RAISE Shutdown Margin?

A. Placing a new Mixed Bed Demineralizer in service prior to rinsing.

B. Adjusting CCW flow through the NRHX such that Letdown temperature is lowered by 10°F.

C. Raising the setting of the boric acid totalizer from 20 to 50 gallons during an automatic blended makeup to the VCT.

D. Lowering the flow setting of the primary water flow controller (HIC-3-114) during an automatic blended makeup to the VCT from 70 to 60 gpm.

QUESTION 30

Plant conditions:

- A Unit 4 cooldown is in progress in accordance 4-GOP-305, Hot Standby to Cold Shutdown.
- RHR Pump 4B tripped.
- The operating crew implemented 4-ONOP-050, Loss of RHR.
- HCV-4-758, RHR Heat Exchanger Outlet Flow, was closed from the Control Room and failed to reopen.
- RCS temperature is 190°F and rising.
- RCS pressure is 150 psig and rising.

In accordance with 4-ONOP-050, which ONE of the following is the required method that will initially re-establish cooling to the RCS?

A. Place RHR Pump 4A in service.

B. Establish Steam Generator Blowdown.

C. Establish a Secondary Heat Sink and dump steam to the Condenser.

D. Establish a Secondary Heat Sink and dump steam to the atmosphere.

QUESTION 31

Plant conditions:

- A 250 gpm LOCA has occurred on Unit 3.
- The crew is performing actions of 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization.
- Pressurizer level is 78% and stable.
- RCS Pressure is stable at 1400 psig.
- ONE Charging pump is running.
- 3B RCP is running.
- Both RHR Pumps are OFF.
- The US determines that the first High Head SI pump can be stopped.

When the High Head SI Pump is stopped, which ONE of the following describes the expected Pressurizer pressure response within the next 5-10 minutes? (Assume no additional operator actions)

A. PZR pressure will remain at its current value until all High Head SI flow is stopped, then lower until saturation conditions are reached.

B. PZR pressure will remain at its current value for several minutes, then slowly lower as High Head SI flow equalizes with break flow.

C. PZR pressure will immediately drop until RCS saturation conditions are reached, and then it will stabilize.

D. PZR pressure will immediately drop until High Head SI flow equalizes with break flow, then it will stabilize.

QUESTION 32

Given the following:

- A post-trip transient results in PCV-3-455C discharging to the PRT.
- PRT temperature, level and pressure start to rise.
- During this insurge, PRT Pressure Indicator, PI-3-472 rises to a maximum reading of 70 psig.

Subsequently:

- DCS indicates Containment pressure is rising slowly from 0.3 to 0.7 psig.
- DCS indicates Containment temperature is rising slowly from 100°F to 118°F.
- The Reactor Operators observes PRT conditions as follows:
  - TI-3-471, PRT temperature is stable at 212°F.
  - LI-3-470, PRT level is 50% and slowly rising.
  - PI-3-472, PRT pressure is 2 psig and slowly lowering.

Which ONE of the following describes how the PRT Rupture Disks performed during this event?

A. The PRT Rupture Disks have operated (i.e. Blown out) at design pressure.

B. The PRT Rupture Disks have operated (i.e. Blown out) at a lower than design pressure.

C. The Rupture Disks have operated (i.e. Blown out) at a higher than design pressure.

D. The Rupture Disks have remained intact, the PRT indications are inaccurate due an higher temperature environment.

QUESTION 33

Plant conditions:

- Unit 4 is operating at 100% power.
- The crew is attempting to reduce PRT liquid temperature in accordance with 4-NOP-041.03, Pressurizer Relief Tank.
- The crew has opened the following two valves in order to raise PRT level:
  - CV-4-519A, PRIMARY WATER CONTAINMENT ISOL VLV
  - CV-4-519B, PRT PRIMARY MAKE UP

Subsequently, a Safety Injection signal actuates.

In accordance with 4-NOP-041.03, which ONE of the following identifies the required action, if any, regarding the Primary Water Valves that have been opened?

A. No action is needed, both valves have automatically closed.

B. The operator must manually close CV-4-519B, PRT PRIMARY MAKE UP, ONLY.

C. The operator must manually close CV-4-519A, PRIMARY WATER CONTAINMENT ISOL VLV, ONLY.

D. The operator must manually close CV-4-519B, PRT PRIMARY MAKE UP and CV-4-519A, PRIMARY WATER CONTAINMENT ISOL VLV.

QUESTION 34

Plant conditions:

- Unit 3 is operating at 100% power.
- Three CCW Heat Exchangers are in service.

In accordance with 3-NOP-019, Intake Cooling Water System, under normal conditions which ONE of the following identifies the maximum allowable ICW flowrate to each CCW Heat Exchanger, AND the reason for this limit?

A. 10,000 gpm;
Prevent runout of the ICW pump.

B. 10,000 gpm;
Minimize long-term tube-side erosion.

C. 12,850 gpm;
Prevent runout of the ICW pump.

D. 12,850 gpm;
Minimize long-term tube-side erosion.

QUESTION 35

Plant conditions:

- Unit 4 is in the process of a plant heatup.
- RCS pressure is 1835 psig.
- A Pressurizer Code Safety Valve is leaking by.
- PRT pressure is 6 psig.

Which ONE of the following correctly completes the statement below?

The Safety Valve tailpipe temperature on VPA will indicate approximately ____(1)____. With no operator action, the Safety Valve tailpipe temperature indication ____(2)____ to determine which Safety Valve is leaking by.

A. (1) 230°F
(2) can be used

B. (1) 230°F
(2) can NOT be used

C. (1) 400°F
(2) can be used

D. (1) 400°F
(2) can NOT be used

QUESTION 36

Plant conditions:

- Unit 3 is operating at 100% power.
- ALL Pressurizer pressure controls are in AUTO.
- PT-3-445, Pressurizer Pressure Transmitter, fails HIGH.

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

A. ONLY PZR PORV PCV-3-455C will open. The open PORV will automatically close when pressurizer pressure drops to 2000 psig.

B. ONLY PZR PORV PCV-3-456 will open. The open PORV will automatically close when pressurizer pressure drops to 2000 psig.

C. PZR Spray valves open, PZR PORV PCV-3-455C opens; Reactor trip on low pressurizer pressure.

D. PZR Spray valves open, PZR PORV PCV-3-456 opens; Reactor trip on low pressurizer pressure.

QUESTION 37

Unit 3 is at 100% power when the following occurs:

- Multiple annunciators simultaneously alarm.
- The bottom two rows of Reactor Protection Logic Status Lights on 3C05 on VPB go DARK.

Which ONE of the following identifies the bus that has been lost?

A. 3P06

B. 3P07

C. 3P08

D. 3P09

QUESTION 38

Plant conditions:

- Both units are operating at 100% power.
- A spurious Safety Injection Signal occurs on Unit 4.
- The crew enters 4-EOP-E-0, Reactor Trip or Safety Injection.

Subsequently:

- An undervoltage condition occurs on 3A 4KV Bus.
- SI on Unit 4 has NOT been reset.

Which ONE of the following identifies how the 3A HHSI Pump Breaker will respond and the reason for this response?

A. The breaker will remain closed so that when the EDG re-powers the 3A 4KV Bus SI flow will be restored as soon as possible.

B. The breaker will trip open and re-close after a time delay so that the 3A EDG is not overloaded when it re-powers the 3A 4KV Bus.

C. The breaker will trip open and not re-close until closed by the operator so that the operator can control the loading of the 3A EDG when it re-powers the 3A 4KV Bus.

D. The breaker will trip open and can only be manually re-closed if the SI signal on Unit 4 has been actuated for 60 seconds.

QUESTION 39

Plant conditions:

- Unit 3 is in Mode 3 performing a plant cooldown in accordance with 3-GOP-305, Hot Standby to Cold Shutdown.
- The low pressurizer pressure, steamline high differential pressure and the high steam flow Safety Injection signals have been blocked.

Due to a minor transient the following plant parameters are observed:

| | |
|---|---|
| Pressurizer pressure PT-455 | 2015 |
| Pressurizer pressure PT-456 | 2005 |
| Pressurizer pressure PT-457 | 1995 |
| Channel I Tavg | 540°F |
| Channel II Tavg | 542°F |
| Channel III Tavg | 544°F |

Which ONE of the following identifies the status of the following three Safety Injection Signals?

| | **Low Pressurizer Pressure** | **Steamline High ΔP** | **High Steam Flow** |
|---|---|---|---|
| A. | Active | Active | Active |
| B. | Active | Active | Blocked |
| C. | Blocked | Blocked | Active |
| D. | Blocked | Blocked | Blocked |

QUESTION 40

Plant conditions:

- Both units are operating at 100% power.
- A LOCA occurs on Unit 3 resulting in a Safety Injection actuation.

Which ONE of the following describes which Emergency Containment Coolers will automatically start as a result of the Safety Injection?

A. ONLY 3A and 3B

B. ONLY 3A and 3C

C. ONLY 3B and 3C

D. 3A, 3B, and 3C

QUESTION 41

Plant conditions:

- A LOCA is occurring on Unit 3.
- Containment pressure is 5.5 psig and rising.
- All equipment is functioning as designed.

Which ONE of the following identifies the operation of the Containment Spray system as containment pressure rises throughout the event, and once actuation has occurred, the operation of Containment Spray as containment pressure is lowering?

Containment Spray pumps will automatically start...

A. directly on a Containment Pressure HI-HI signal; Both Containment Spray pumps will be stopped as soon as Containment Pressure is below 20 psig.

B. directly on a Containment Pressure HI-HI signal; Containment Spray flow will be reduced to one train running after transitioning from E-1, Loss of Reactor or Secondary Coolant.

C. on a Sequencer signal if a Containment Pressure HI-HI signal is present; Both Containment Spray pumps will be stopped as soon as Containment Pressure is below 20 psig.

D. on a Sequencer signal if a Containment Pressure HI-HI signal is present; Containment Spray flow will be reduced to one train running after transitioning from E-1, Loss of Reactor or Secondary Coolant.

QUESTION 42

Plant conditions:

- Unit 3 is at 100% power.
- Both trains of the Unit 3 Containment Spray System are determined to be inoperable.

If the condition cannot be corrected, which ONE of the following describes the MAXIMUM amount of time for the Unit to be in HOT STANDBY?

A. 1 hour

B. 6 hours

C. 7 hours

D. 12 hours

QUESTION 43

Plant Conditions:

- The plant is performing 3-OSP-206.2, Quarterly In Service Valve Testing for the MSIV bypass valves.
- Main Steam Stop 3C Bypass Valve MOV-3-1402 is currently open.

Subsequently, the following events occur on Unit 3:

- Automatic Reactor Trip
- Automatic Start of All Safeguards Equipment
- Automatic Actuation of Containment Spray and Phase B

Which of the following describes how the Main Steam System will respond?

The ___(1)___ will close based on a ___(2)___Containment Pressure Signal.

A. MSIVs ONLY
HI ONLY

B. MSIVs AND Bypass Valve MOV-3-1402
HI ONLY

C. MSIVs ONLY
HI and HI-HI

D. MSIVs AND Bypass Valve MOV-3-1402
HI and HI-HI

QUESTION 44

Unit 3 plant conditions:

- Unit 3 automatically tripped from 100% power due to a high water level in the 3B S/G.
- RCS Tave is 547°F and stable

Which ONE of the following completes the statement below?

The high level in the S/G will cause the ____ (1) ____ to trip and the Main Feedwater Regulating valves to ___(2)___close.

A. (1) Turbine ONLY
(2) Fast

B. (1) Turbine AND Steam Generator Feed Pumps
(2) Fast

C. (1) Turbine ONLY
(2) Slow

D. (1) Turbine AND Steam Generator Feed Pumps
(2) Slow

QUESTION 45

Plant conditions:

- Unit 3 is operating at 100% power.
- The A AFW Pump is OOS.
- AFW has been realigned to maintain 2 trains OPERABLE.

Subsequently:

- A transient results in a plant trip and automatic actuation of the AFW System.
- All AFW System flowrates indicate normal except Train 2 to C Steam Generator which indicates 50 gpm.
- The crew suspects leakage in the AFW System.

Which ONE of the following identifies the location in which the ANPO will be initially directed to look for leaks in the AFW System based on the current system alignment?

The ANPO will be directed to look for leaks...

A. Downstream of the Train 2 AFW Flow Control Valve to the C Steam Generator.

B. Between the B AFW Pump and the Train 2 AFW Flow Control Valve to the C Steam Generator, ONLY.

C. Between the C AFW Pump and the Train 2 AFW Flow Control Valve to the C Steam Generator, ONLY.

D. Between the B and C AFW Pumps and the Train 2 AFW Flow Control Valve to the C Steam Generator.

QUESTION 46

Plant conditions:

- Both Units are operating at 100% power.

Subsequently:

- Systems Operations notifies the station that electrical grid voltage oscillations are expected to occur and affect the station.
- Switchyard voltage is expected to swing between 228 and 238KV starting within the next 15 minutes, and lasting for about 45 minutes.
- Current Switchyard voltage has dropped to 229 KV.
- The crew enters 0-ONOP-004.6, Degraded Switchyard Voltage.

Which ONE of the following identifies the action required?

A. IMMEDIATELY Trip both Units.

B. Start all 4 EDGs in preparation to parallel to their respective busses due to a potential loss of Switchyard voltage.

C. Both Units will be shut down as required by Technical Specifications if degraded conditions are NOT corrected within 8 hours.

D. Declare BOTH Startup Transformers inoperable AND enter Technical Specification 3.8.1.1 Actions for Unit(s) in Mode 1 – 4.

QUESTION 47

Which ONE of the following identifies the DC loads that are affected with a loss of 4D01?

A. EDG 4A, CV-4-2816 AFW Train 1 Feed Flow Control Valve

B. EDG 4A, FCV-4-113B Blender to Charging Pump Suction

C. EDG 4B, CV-4-2831 AFW Train 2 Feed Flow Control Valve

D. EDG 4B, FCV-4-113B Blender to Charging Pump Suction

QUESTION 48

Plant conditions:

- Unit 3 is operating at 100% power.
- A LOOP occurs with a simultaneous loss of 125 VDC Bus 3D01.
- 3-EOP-E-0, Reactor Trip or Safety Injection is in progress.
- 4KV bus 3A is de-energized.

Which ONE of the following identifies the status of the 3A EDG?

A. 3A EDG did NOT auto-start, but can be manually started from the Control Room.

B. 3A EDG did NOT auto-start and cannot be manually started from the Control Room.

C. 3A EDG auto-started but 3A EDG output breaker did NOT close.

D. 3A EDG auto-started and 3A EDG has no output voltage.

QUESTION 49

Plant conditions:

- Both units are at 100% power.
- The ANPO reports the following parameters:

| Component | Parameter |
|---|---|
| 4A Fuel Oil Storage Tank Level | 33,600 gallons |
| 4B Fuel Oil Storage Tank level | 36,100 gallons |
| 4A EDG Fuel Oil Day Tank level | 270 gallons |
| 4B EDG Fuel Oil Day Tank level | 250 gallons |

Which ONE of the following identifies the operability of the Unit 4 Emergency Diesel Generators (EDG)?

A. Both the 4A and 4B EDGs are INOPERABLE

B. Both the 4A and 4B EDGs are OPERABLE

C. The 4A EDG is INOPERABLE due to Fuel Oil Storage Tank Level

D. The 4B EDG is INOPERABLE due to Fuel Oil Day Tank level

QUESTION 50

Plant conditions:

- The unit was tripped from 100% 2 days ago due to a spurious Rx Trip Signal.
- A plant startup is in progress at Unit 3 in accordance with 3-GOP-301, Hot Standby to Power Operation.
- Power is at 28%, stabilized for a Chemistry Hold.

Subsequently:

- Annunciator H1/6, PRMS CHANNEL FAILURE, alarms.
- R-3-20, Reactor Coolant Letdown Monitor, amber **FAIL** light is lit.
- The detector for R-3-20, Reactor Coolant Letdown Monitor, is failed downscale.

Which ONE of the following identifies the impact, if any, that this failure will have on plant operations, AND the procedure that must be entered?

A. Power ascension may NOT continue until chemistry samples verify Dose Equivalent Iodine is below Technical Specification limits;
3-ONOP-067, Radioactive Effluent Release.

B. Power ascension may NOT continue until chemistry samples verify Dose Equivalent Iodine is below Technical Specification limits;
3-ONOP-41.4, Excessive Reactor Coolant System Activity.

C. There are no restrictions on power ascension;
3-ONOP-067, Radioactive Effluent Release.

D. There are no restrictions on power ascension;
3-ONOP-41.4, Excessive Reactor Coolant System Activity.

QUESTION 51

Plant conditions:

- Unit 4 is operating at 100% power with 4A and 4B ICW pumps running. 4C ICW pump is OOS for a shaft replacement. The following occurs:
    - The 4A ICW Pump has tripped.
    - The crew entered 4-ONOP-019, INTAKE COOLING WATER MALFUNCTION.
    - Total ICW flow is 20,500 gpm after the 4A ICW pump stops.

Which ONE of the following identifies the action required?

The crew will throttle 4-50-401, TPCW HX Outlet Combined ICW Isolation Valve _____(1)_____ while maintaining TPCW HX outlet temperature < 110°F.

If attempts are unsuccessful to restore ICW system parameters the crew will _____(2)_____.

(Consider each portion of the Question independently)

A. (1) shut
(2) reduce Unit Load.

B. (1) shut
(2) place an additional TPCW Heat Exchanger in service.

C. (1) open
(2) reduce Unit Load.

D. (1) open
(2) place an additional TPCW Heat Exchanger in service.

QUESTION 52

The following conditions exist:

- 3A RHR Pump is running providing shutdown cooling
- RCS Temperature is 325 °F
- RHR Flow is 2700 gpm
- MOV-3-749A/B are OPEN
- CCW Pressure is 135 psig
- 3B and 3C ICW Pumps are running

Alarm H3/5 RHR PUMP/HX DISCHARGE HI/LO TEMP is LIT

Which one of the following lists the appropriate procedure(s) the crew will REFER TO _____ to correct this condition?

A. 3-ONOP-030, Component Cooling Water Malfunction.

B. 3-ONOP-019, Intake Cooling Water Malfunction.

C. 3-OP-050, Residual Heat Removal System.

D. 3-ONOP-050, Loss of RHR.

QUESTION 53

Which ONE of the following identifies the power supply to the 3CM Instrument Air Compressor?

A. Load Center 3A

B. Load Center 3C

C. Load Center 3E

D. Load Center 3G

QUESTION 54

Plant conditions:

- Unit 3 is in MODE 6.
- Core reload is in progress.
- RHR Pumps 3A and 3B are running.

Which ONE of the following, by itself, would require suspension of the refueling of the reactor?

A. Residual Heat Removal Pump 3B has tripped and will not restart.

B. Refueling cavity water level was found to be 56 feet, 11 inches.

C. The containment personnel air lock inner and outer doors were damaged during the movement of equipment and will not close

D. The latest Chemistry sample results of the Refueling Canal indicate that boron concentration is 2320 ppm.

QUESTION 55

With Unit 4 operating at 100% power, a LOCA occurs which results in the automatic actuation of Phase A and Phase B Containment Isolation Signals.

Which ONE of the following identifies the impact that this will have on the Reactor Coolant Pump seal cooling, AND identifies an action that must be taken within 4-EOP-E-0 with respect to the RCPs?

A. Thermal Barrier CCW flow has been isolated, ONLY;
Check all RCP seal return temperatures are less than 235°F, reset SI, establish Seal injection, then RCPs may remain running.

B. Thermal Barrier CCW flow has been isolated, ONLY;
The RCPs must be stopped.

C. Both seal injection flowpath AND thermal barrier cooling have been isolated;
The RCPs must be stopped.

D. Both seal injection flowpath AND thermal barrier cooling have been isolated;
Check all RCP seal return temperatures are less than 235°F, reset SI, establish Seal injection, then RCPs may remain running.

QUESTION 56

Plant conditions:

- Unit 4 is operating at 100% power.
- Annunciator RPIS POWER TROUBLE (F 4/6) alarms.
- An operator is sent to determine RPI Inverter voltage.
- RPI Inverter Voltage is reported as 105 VDC.

The RPI inverter voltage will be checked in the ____(1)____. In accordance with the Alarm Response Procedure the RPI positions on console must be checked by ____(2)____.

A. (1) MCC Room
(2) performing a flux map with 0-OSP-059.14, Rod Position Indication (RPI) Verification

B. (1) MCC Room
(2) comparing them against the Acceptance Criteria contained in 4-OSP-201.1, RO Daily Logs

C. (1) MG Set Room
(2) comparing them against the Acceptance Criteria contained in 4-OSP-201.1, RO Daily Logs

D. (1) MG Set Room
(2) performing a flux map with 0-OSP-059.14, Rod Position Indication (RPI) Verification

QUESTION 57

Plant conditions:

- Load Center 3H is energized from Load Center 3C
- 3C Charging Pump is running.
- Feeder breaker from Load Center 3D to Load Center 3H (30402) had previously tripped on overcurrent.
- Bkr 30402 is repaired.
- Bkr 30402 is then closed.

Which ONE of the following is correct?
LC 3H will...

A. remain energized from Load Center 3C.

B. automatically return to Load Center 3D.

C. automatically return to Load Center 3D when the sequencer reloads the bus.

D. remain energized from Load Center 3C until 3C Charging Pump is stopped.

QUESTION 58

With the unit at 100% power, which ONE of the following will generate a B9/3 "Shutdown Rod Off Top/Deviation" alarm?

The position of any....

A. shutdown bank rod below 218 steps while control bank "B" is above 35 steps.

B. shutdown bank rod misaligned from a shutdown bank rod in a different bank by more than 12 steps.

C. control bank rod misaligned from the group step counter by more than 24 steps moving.

D. control bank rod misaligned from the group step counter by more than 12 steps stationary.

QUESTION 59

Which ONE of the following correctly completes the statements below?

According to 4-EOP-F-0, Critical Safety Function Status Trees, a Core Exit Thermocouple reading of ____(1)____ is the minimum temperature to indicate the onset of zirc water reaction and a potential fuel melt situation. The operator, if monitoring the Critical Safety Function Status Trees manually, will determine that this temperature exists by observing ____(2)____.

A. (1) 700°F
(2) at least five of the hottest Core Exit Thermocouples

B. (1) 700°F
(2) the average of the five hottest Core Exit Thermocouples

C. (1) 1200°F
(2) the average of the five hottest Core Exit Thermocouples

D. (1) 1200°F
(2) at least five of the hottest Core Exit Thermocouples

QUESTION 60

Given the following:

- Unit 3 is in Mode 6.
- A Core offload is in progress.
- The Containment Equipment Hatch and Personnel hatch are closed.
- Containment Purge is operating with Purge Supply and Exhaust fans running.
- A fuse blows for POV-3-2601, Containment Purge Supply Isolation.

Which ONE of the following identifies the concern due to this condition?

A. Spent Fuel Pool Level rises.

B. Containment Pressure lowers.

C. Containment Purge Exhaust Fan trips.

D. Containment Purge Supply Fan trips.

QUESTION 61

Plant conditions:

- Unit 4 is cooling down in accordance with 4-GOP-305, Hot Standby to Cold Shutdown.
- Cooldown is proceeding with Steam Dumps to the Condenser.
- Tave is 400°F.
- The Steam Dump Mode Select Switch is in MANUAL.
- Hagan Output is 40%.

Which ONE of the following identifies the mode of operation of the Steam Dump to Condenser Hagan Station, AND how many steam dump valves will indicate open?

The Hagan controller is in ___(1)___.

___(2)___ steam dump valves indicate open.

A. (1) AUTO
(2) Three

B. (1) AUTO
(2) Two

C. (1) MANUAL
(2) Three

D. (1) MANUAL
(2) Two

QUESTION 62

Plant conditions:

- Unit 3 is at 100% power, all systems in normal alignments.
- A turbine runback occurs.
- The unit is stabilized at 82% power.
- Annunciator B 8/2, ROD BANK A/B/C/D EXTRA LO LIMIT is in alarm.
- Control Bank D indicates 130 steps.

Which ONE of the following correctly completes the statement below?

The technical specification LCO for Rod Insertion Limits ____(1)____ exceeded. The operator must immediately stop driving rods and ____(2)____.

A. (1) is
(2) commence emergency boration IAW 3-ONOP-46.1, Emergency Boration.

B. (1) is
(2) borate ≥ 16 gpm IAW 0-OP-046, CVCS - Boron Concentration Control.

C. (1) is NOT
(2) borate in 50 gallon increments IAW 0-OP-046, CVCS - Boron Concentration Control.

D. (1) is NOT
(2) borate ≥ 16 gpm IAW 3-OP-46, CVCS - Boron Concentration Control.

DELETED.

QUESTION 63

Which ONE of the following describes the purpose and operation of CV-3-2011, Low Pressure Heater Bypass Valve?

Automatically bypasses LP heaters on low feedwater pump suction pressure setpoint of...

A. 250 psig; automatically closes when feedwater suction pressure is restored.

B. 250 psig; must be manually closed when feedwater suction pressure is restored.

C. 220 psig; automatically closes when feedwater suction pressure is restored.

D. 220 psig; must be manually closed when feedwater suction pressure is restored.

QUESTION 64

Which ONE of the following states how the Control Room Ventilation System will respond to a high radiation alarm on Control Room Ventilation System Radiation Monitors, RAD-6642 or RAD-6643?

A. Containment Ventilation Isolation will actuate.

B. Ventilation Inlet Dampers D-1A and D-1B will close.

C. Kitchen and Lavatory Fans V-56 and V-28 will Auto-start.

D. Emergency Air Supply Fans SF-1A and SF-1B will Auto-start.

QUESTION 65

Plant conditions:

- Unit 3 is mode 5.
- Unit 4 is operating at 8% power during a downpower due to the inability to maintain all Intake Screens clean.

Subsequently, the Shift Manager has evaluated the effectiveness of the Intake Screens and decides that they cannot be maintained clean enough to support the Intake Cooling Water and Circulating Water Systems at Unit 4.

In accordance with 4-ONOP-011, Screenwash System/Intake Malfunction, which ONE of the following describes the action that should be taken at Unit 4, AND states the reason for this action?

A. Trip the Turbine ONLY, and stop all four Circulating Water Pumps; Maintain operability of the ICW System.

B. Trip the Reactor and Turbine, and stop all four Circulating Water Pumps; Maintain operability of the ICW System.

C. Trip the Turbine ONLY, and stop all four Circulating Water Pumps; Prevent a loss of Main Condenser vacuum.

D. Trip the Reactor and Turbine, and stop all four Circulating Water Pumps; Prevent a loss of Main Condenser vacuum.

QUESTION 66

Plant conditions:

- Unit 3 is operating at 100% power.
- A Steam Generator Tube Leak is in progress on the 3A Steam Generator.
- The crew is implementing 3-ONOP-071.2, Steam Generator Tube Leakage.
- The crew is preparing to conduct a load reduction.

Which ONE of the following correctly completes the statement below?

Prior to initiating a load reduction a plant-wide announcement must be made stating that "All personnel must stand clear of the ____(1)____ and ____(2)____."

A. (1) SJAE piping
(2) Blowdown piping

B. (1) SJAE piping
(2) AFW Steam Supply lines

C. (1) Main Steam lines
(2) Blowdown piping

D. (1) Main Steam lines
(2) AFW Steam Supply lines

QUESTION 67

In accordance with 0-ADM-211, Emergency and Off-Normal Operating Procedure Usage, which ONE of the following identifies a procedure that when entered from 3-EOP-E-0, Reactor Trip or Safety Injection requires that a crew brief be conducted?

A. 3-EOP-ECA-0.0, Loss of All AC

B. 3-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS

C. 3-EOP-E-3 , Steam Generator Tube Rupture

D. 3-EOP-E-2, Faulted Steam Generator Isolation

QUESTION 68

During hydrostatic testing of the RCS in Mode 5, RCS pressure is increased to a point exceeding the RCS Pressure Safety Limit.

Which ONE of the following states the RCS Pressure Safety limit setpoint, and the MAXIMUM time allowed in accordance with Technical Specifications to reduce RCS pressure below the safety limit?

A. 2735 PSIG; 5 minutes

B. 2735 PSIG; 30 minutes

C. 2750 PSIG; 5 minutes

D. 2750 PSIG; 30 minutes

QUESTION 69

Plant conditions:

- Unit 3 is at 100% power.
- An RCS leak has developed.
- RCS pressure is degrading to a reactor trip setpoint.

Which ONE of the following describes reactor trip instrumentation designed to protect against a small break LOCA (SBLOCA) and the core power distribution limit it protects?

A. OT Delta T;
DNBR protection

B. OT Delta T;
Enthalpy Rise Hot Channel Factor protection

C. OP Delta T;
DNBR protection

D. OP Delta T;
Enthalpy Rise Hot Channel Factor protection

QUESTION 70

There is a full core flux map in progress. A containment entry to the 58' of Containment is required to backseat a MS Steam Flow Detector Isolation valve due to packing leakage.

Which ONE of the following describes the conditions (if any) necessary to enter containment in accordance with 0-ADM-009, CONTAINMENT ENTRIES WHEN CONTAINMENT INTEGRITY IS ESTABLISHED?

A. Containment Entry is allowed after flux mapping is complete, the In-Core detectors are fully inserted into their storage location and RP has signed onto the ECO.

B. Containment will be posted as a locked high rad area when core flux mapping is in progress, entry into containment is allowed ONLY with an RP escort.

C. The In-Core detector area in containment is posted as a locked high radiation area when core flux mapping is in progress and entry into containment is allowed.

D. Containment will be posted as a high rad area when core flux mapping is in progress, entry into containment is allowed.

QUESTION 71

Plant conditions:

- A Steam Generator Tube Rupture has occurred on 3B SG.
- The crew has performed all actions of 3-EOP-E-3, Steam Generator Tube Rupture, up to the step to commence depressurization of the RCS.
- All equipment is functioning as designed.

Which ONE of the following describes the status of 3B SG Steam Dump to Atmospheric Valve, and the reason for the status?

A. CLOSED with controller in Manual; prevent radioactive release to atmosphere.

B. CLOSED with controller in Manual; reduce break flow into the ruptured S/G by minimizing D/P across the tubes.

C. Set at 1060 psig with controller in AUTO; prevent uncontrolled radioactive release due to SG safety valve lifting.

D. Set at 1060 psig with controller in AUTO; reduce break flow into the ruptured S/G by minimizing D/P across the tubes.

QUESTION 72

0-ADM-600, 'Radiation Protection Manual' directly requires a Specific RWP for which of the following activities?

A. Security Rounds

B. Operator Rounds

C. New Fuel Receipt

D. Spent Fuel Pool Mapping

QUESTION 73

Plant conditions:

- The crew is performing a cooldown in 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization.
- RCS pressure is 1500 psig and stable.
- RCS subcooling is 25°F and increasing slowly.
- Containment pressure is 2.5 psig and rising slowly.
- MOV-3-749A CCW TO RHR HX "A" could not be opened.
- Both RHR pumps have been stopped.

Subsequently:

- The LOCA increases in size.
- RCS pressure equalizes with containment pressure, which reaches 27 psig.

Which ONE of the following describes RHR pump operation based on the above conditions?

A. Manually start 3A and 3B RHR pumps.

B. Start 3B RHR only; 3A RHR is not needed under the present plant conditions.

C. Start 3B RHR ONLY; since cooling is not available to RHR Heat Exchanger 3A.

D. 3A and 3B RHR pumps will auto start when the SI signal is received due to the High Containment Pressure.

QUESTION 74

An Alert was declared.

In accordance with the Turkey Point Emergency Plan, which ONE of the following is the emergency action level threshold that was met for this event?

Events are in process or have occurred which...

A. involve actual or likely major failures of plant functions needed for protection of the public

B. involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity

C. involve an actual or potential substantial degradation of the level of safety of the plant

D. indicate a potential degradation of the level of safety of the plant

QUESTION 75

Plant conditions:

- An emergency event is in progress which requires activation of the Emergency Response Organization.
- A Site Area Emergency has been declared.
- Emergency Response Facilities have been declared operational.

Which ONE of the following identifies the location that you will direct the Off-Shift SNPOs to report?

A. Control Room

B. Operations Support Center

C. Technical Support Center

D. Site Assembly Area

QUESTION 76

Plant conditions:

- Unit 3 is operating at 100% power.
- The crew has entered 3-ONOP-041.1, Reactor Coolant Pump Off Normal, due to problems with 3B RCP seal package.
- 3B seal leak-off flow is approximately 6.4 GPM.
- Thermal Barrier D/P is lowering slowly.
- Seal Inlet and Outlet temperatures are rising slowly.

Which ONE of the following describes the procedural action required for this condition?

A. Initiate a plant shutdown per 3-GOP-103, Plant Operation to Hot Standby, to have the RCP secured within the next 8 hours.

B. Monitor 3B RCP using Enclosure 1, Number 1 seal leakoff, and refer to NOP-3-041.01B, 3B Reactor Coolant Pump Operations, prior to determining if reactor trip is required.

C. Trip the reactor, perform immediate actions, trip 3B RCP, close associated spray valve (PCV-3-455B), and isolate seal return. No additional actions of 3-ONOP-041.1 will be performed while in 3-EOP-E-0.

D. Trip the reactor, perform immediate actions, trip 3B RCP, close associated spray valve (PCV-3-455B) and continue with 3-ONOP-041.1 in parallel with 3-EOP-E-0 until directed to transition.

QUESTION 77

Plant conditions:

- 3-ONOP-041.8 SHUTDOWN LOCA [MODE 5 OR 6] is in progress.
- All attempts to restore charging flow are unsuccessful.
- The Unit Supervisor directs cycling MOV-3-872, ALTERNATE LOW HEAD SI open and closed to restore RCS inventory by RWST Gravity Feed.

Which one of the following identifies:

(1) In accordance with BD-ONOP-041.8, what is the basis for this recovery method?

(2) The predicted amount of inventory added with each cycle of MOV-3-872?

A. (1) Restores RCS level to allow restart of the RHR pumps.
(2) 500 gallons

B. (1) Restores RCS level to allow restart of the RHR pumps.
(2) 1500 gallons

C. (1) To maintain the RCS subcooled with enough time to establish containment closure.
(2) 1500 gallons

D. (1) To maintain the RCS subcooled with enough time to establish containment closure.
(2) 500 gallons

QUESTION 78

Plant conditions:

- Unit 4 is operating at 100% power.
- The following is observed:
  - Annunciator A 9/4, PZR LO LEVEL/HEATER OFF/LTDN SECURED, is received.
  - Letdown flow is 0 GPM.
  - All Pressurizer Heaters are OFF.
  - Pressurizer Level indicates 57% on all LI-4-459A, LI-4-460, and LI-4-461.
  - Pressurizer pressure is 2230 psig and lowering slowly.

Subsequently:

- The crew has entered 4-ONOP-041.6, Pressurizer Level Control Malfunction.
- I&C reports that the 4-459CX relay has failed and repairs will take 12 hours.

Which ONE of the following describes the correct action for the restoration of Pressurizer Heaters, AND identifies whether or not a plant shutdown is required?

A. Use the button on relay 4-459CX to operate pressurizer heaters;
Plant shutdown is required.

B. Place the Channel Select Pressurizer Level Control Switch to position III to remove LT-4-459 from the pressurizer level control circuit;
Plant shutdown is required.

C. Use the button on relay 4-459CX to operate pressurizer heaters;
Plant shutdown is NOT required.

D. Place the Channel Select Pressurizer Level Control Switch to position III to remove LT-4-459 from the pressurizer level control circuit;
Plant shutdown is NOT required.

QUESTION 79

Plant conditions:

- Unit 3 at 100% power.
- Breaker 3AA02 , 4kV Bus 3A Feed From U3 Aux Xfmr, trips open

Following a transition to 3-EOP-ES-0.1, Reactor Trip Response, the following parameters are observed:

- 3A SG level 45% narrow range and stable. AFW flow has been throttled to approximately 50 GPM.
- 3B SG level off-scale low narrow range. AFW flow is approximately 300 gpm.
- 3C SG level 40% narrow range and rising. AFW flow is isolated.
- RCS pressure is 1720 psig and lowering.
- PZR level is off-scale low.
- SG pressures are all approximately 1000 psig and stable.

Which ONE of the following identifies the affected Steam Generator and the Emergency Action Level?

A. 3A Steam Generator Tube Rupture requiring an UNUSUAL EVENT to be declared.

B. 3C Steam Generator Tube Rupture requiring an UNUSUAL EVENT to be declared.

C. 3A Steam Generator Tube Rupture requiring an ALERT to be declared.

D. 3C Steam Generator Tube Rupture requiring an ALERT to be declared.

QUESTION 80

Plant conditions:

- Unit 3 is operating at 100% power.
- Unit 4 has tripped from 100% power.
- The following indications are observed in the control room
    - The left half of all alarming annunciators on Unit 4 are DARK
    - Annunciator G4/1 ANNUNCIATOR POWER FAILURE is LIT
    - MOV-4-1403 STM TO AFW PUMPS position indicating lights are DARK
    - B AFW Trip and Throttle Valve position indicating lights are DARK
- The crew has completed 4-EOP-E-0, Reactor Trip or Safety Injection, and has now stabilized the plant using 4-EOP-ES-0.1, Reactor Trip Response.

Which ONE of the following (1) identifies the applicable procedure for this event and (2) identifies the MINIMUM Tech Spec required ACTION?

A. (1) 4-ONOP-003.5, Loss of DC Busses 4D23 and 4D23A (4A) to verify that CVCS Blender valves, FCV-4-113B and FCV-4-114A are closed
(2) Place Unit 4 in Cold Shutdown within the following 12 hours.

B. (1) 4-ONOP-003.4, Loss of DC Bus 4D01 and 4D01A (4B) to verify Inverter 4B is being supplied by CVT 4Y02A
(2) Place Unit 4 in Cold Shutdown within the following 12 hours.

C. (1) 4-ONOP-003.5, Loss of DC Busses 4D23 and 4D23A (4A) to verify that CVCS Blender valves, FCV-4-113B and FCV-4-114A are closed
(2) Place Unit 4 in Cold Shutdown within the following 30 hours.

D. (1) 4-ONOP-003.4, Loss of DC Bus 4D01 and 4D01A (4B) to verify Inverter 4B is being supplied by CVT 4Y02A
(2) Place Unit 4 in Cold Shutdown within the following 30 hours.

QUESTION 81

Plant conditions:

- Unit 4 is operating at 25% power.
- TPCW/ICW Isolation Valves, POV-4-4882 and 4883 have failed CLOSED.
- The crew has entered 4-ONOP-019, Intake Cooling Malfunction.
- POV-4-4882 has been opened manually using the local handwheel.
- POV-4-4883 will NOT open.

Which ONE of the following identifies the status of TPCW cooling, and identifies the technical specification implications of this event, if any?

A. TPCW Cooling has been restored; Declare the 4A ICW header inoperable ONLY, enter the action statement for LCO 3.7.3, Intake Cooling Water System, and restore the inoperable header within 72 hours.

B. TPCW Cooling has been restored; Declare the 4A ICW header AND 4A train of Safety Injection Automatic Actuation Logic inoperable and enter action for LCO 3.3.2, Engineered Safety Feature Actuation System, and restore the inoperable train within 12 hours.

C. TPCW Cooling has NOT been restored; Declare the 4A ICW header AND 4A train of Safety Injection Automatic Actuation Logic inoperable and enter action for LCO 3.3.2, Engineered Safety Feature Actuation System, and restore the inoperable train within 12 hours.

D. TPCW Cooling has NOT been restored; Declare the 4A ICW header inoperable, enter the action statement for LCO 3.7.3, Intake Cooling Water System, and restore the inoperable header within 72 hours.

QUESTION 82

Plant conditions:

- Unit 3 is at 97% power and stable.
- A dropped rod has occurred.
- The crew has entered 3-ONOP-028.3, Dropped RCC.
- The current QPTR has been calculated to be 1.04 using the Excore NIS Current readings.
- Power has been reduced in accordance with Technical Specifications.

Which ONE of the following identifies where QPTR is monitored in the control room, and the basis for the action required?

A. DCS;
Reinstate the margin for uncertainty for $F^N_{\Delta H}$, Nuclear Enthalpy Rise Hot Channel Factor.

B. DCS;
Reinstate the margin for uncertainty for $F_Q^{(Z)}$, Heat Flux Hot Channel Factor.

C. QSPDS;
Reinstate the margin for uncertainty for $F^N_{\Delta H}$, Nuclear Enthalpy Rise Hot Channel Factor.

D. QSPDS;
Reinstate the margin for uncertainty for $F_Q^{(Z)}$, Heat Flux Hot Channel Factor.

QUESTION 83

Plant conditions:

- Unit 3 is operating at 100% power.
- Pzr Level instrument LT-460 is failed HIGH and has been removed from service.

Which ONE of the following events will subsequently result in the need for the Shift Manager to notify the NRC Operations Center, AND identifies the time frame within which this notification must be made?

A. A turbine runback to 85% occurs;
1 Hour

B. A turbine runback to 85% occurs;
4 Hours

C. Pressurizer Level Channel LT-461 fails LOW;
4 Hours

D. Pressurizer Level Channel LT-461 fails LOW;
1 Hour

QUESTION 84

Plant conditions:

- Unit 3 is operating at 100% power.
- The crew has entered 3-ONOP-071.2, Steam Generator Tube Leakage.
- The SJAE SPING reading is 1.5E-4 µCi/cc and STABLE.
- The R-15 reading is 750 cpm and STABLE.
- The Turbine Operator reports that the Air Ejector In-Leakage is 5.5 SCFM.
- Chemistry reports that the tube leakage is in the 3C Steam Generator.
- The crew is evaluating actions of Attachment 1 of 3-ONOP-071.2, Guidelines For Continued Plant Operation With Primary-To-Secondary Leakage.

In accordance with Attachment 3 of 3-ONOP-071.2, Steam Generator Tube Leakage, in addition to increased monitoring and notification of HP; which ONE of the following identifies the Action Level and plant response?

**REFERENCE PROVIDED**

| | Action Level | Plant Response |
|---|---|---|
| A. | 1 | Continue plant operation |
| B. | 2 | Be in Mode 3 in ≤ 24 hours<br>Monitor rate of increase in leak rate |
| C. | 3A | Reduce power to ≤ 50% within 1 hour<br>Be in Mode 3 in the next 2 hours |
| D. | 3B | Be in Mode 3 within 3 hours |

QUESTION 85

Plant conditions:

- Both Units are operating at 100% power.
- A liquid radioactive waste release is in progress.
- The following Control Room indications are received:
    - H1/6, PRMS CHANNEL FAILURE annunciator is received
    - R-18 WARNING ALARM LIGHT – OFF.
    - R-18 Fail indicator is ON and its display is failed low.

Which ONE of the following describes the action required by 3-ONOP-067, Radioactive Effluent Release, AND what actions must be met to restart the release without performing maintenance on the monitor?

A. Release must be manually stopped;
At least two independent samples are analyzed in accordance with the ODCM surveillance requirements, and at least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve line-up prior to initiating the release.

B. Release must be manually stopped;
At least two independent samples are analyzed in accordance with the ODCM surveillance requirements prior to the release, and grab samples are taken during the release at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours.

C. Release is automatically stopped;
At least two independent samples are analyzed in accordance with the ODCM surveillance requirements prior to the release, and grab samples are taken during the release at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours.

D. Release is automatically stopped;
At least two independent samples are analyzed in accordance with the ODCM surveillance requirements, and at least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve line-up prior to initiating the release.

QUESTION 86

Plant conditions:

- Unit 3 is in Mode 5.
- The A Train of RHR is in service.
- RCS Temperature is 190°F.
- RCS pressure is 210 psig.
- The B Train of RHR is removed from service for motor replacement of the 3B RHR Pump.
- The secondary sides of the Steam Generators are at 50% NR.

Subsequently, the following annunciators are received:

- H6/2, RHR HX HI/LO FLOW
- H6/3, RHR PP A/B Motor Overload

Attempts to restart 3A RHR Pump have failed.

RCS temperature has risen approximately 6°F in 5 minutes.

Which ONE of the following identifies the action required in accordance with 3-ONOP-050, Loss of RHR?

Isolate Containment and...

A. start an RCP; feed the associated SG using AFW.

B. start an RCP; feed the associated SG using Standby Feedwater..

C. open SG atmospheric dump valves; feed the associated SG using AFW

D. open SG atmospheric dump valves; feed the associated SG using Standby Feedwater

QUESTION 87

Plant conditions:

- Unit 3 is in MODE 4.
- 3-OSP-030.1 data has been collected for 3A CCW Pump.
- The pump Inboard Horizontal Vibration and Outboard Vertical Vibration were discovered to be in the ALERT range.

Which ONE of the following identifies the 3A CCW PUMP operability based on the current plant conditions and the action required?

3A CCW Pump is ...

A. OPERABLE and no additional actions are required.

B. OPERABLE and subsequent testing will be performed at double the normal frequency.

C. inoperable and TS 3.7.2 is required to be entered.

D. inoperable and will be tracked in the Equipment Out of Service Book ONLY for a MODE 3 hold.

QUESTION 88

Plant conditions:

- Unit 3 is operating at 100% power.
- Annunciator C5/1, SG A STEAM > FEED HI, alarms.
- 3A Steam Generator Steam Flow is normal.
- I&C reports that Bistable BS-3-478A-2 has failed and its associated Bistable light on VPB is LIT, S/G A STM-FW FLO DEV FC478A2 and further troubleshooting is necessary.
- The crew has entered 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels.

Which ONE of the following describes the action required by 3-ONOP-049.1, and the basis for the action?

A. Place ONLY the failed Bistable in the tripped position; Maintains coincidence logic to ensure safety analysis assumptions are met.

B. Place the failed Bistable and all other Bistables associated with the SG feed channel in the tripped position; Maintains coincidence logic to ensure safety analysis assumptions are met.

C. Place ONLY the failed Bistable in the tripped position; Ensures overall system functional capability is maintained comparable to design standards.

D. Place the failed Bistable and all other Bistables associated with the SG feed channel in the tripped position; Ensures overall system functional capability is maintained comparable to design standards.

QUESTION 89

Plant conditions:

- Unit 3 tripped from 100% power due to a Large Break LOCA.
- The crew is performing 3-EOP-ES-1.3, Transfer to Cold Leg Recirculation
- Containment Pressure is 4 psig and STABLE.
- Containment Temperature is 227 °F.
- All Containment Spray Pumps (CSP) were secured in STEP 17, Prepare for Cold Leg Recirc.
- The following Control Room annunciators are LIT:
    - H5/1, CNTMT HI-HI/HI PRESS
    - H6/6, RWST LO-LO LEVEL
    - H7/5, CSP A/B COOLING WATER LO FLOW

The crew is performing Step 20, Check If Containment Spray Required.

Which one of the following identifies the proper prioritization of Containment Spray Pump operation based upon plant conditions?

A. ALL Containment Spray Pumps will remain SECURED with H7/5 locked in.

B. ALL Containment Spray Pumps will remain SECURED with H6/6 locked in.

C. START one Containment Spray Pump.
CSP starting is permitted with annunciator H7/5 locked in.

D. START BOTH Containment Spray Pumps.
CSP starting is permitted with annunciator H6/6 locked in.

QUESTION 90

Plant conditions:

- Unit 4 is operating at 100% power.
- The 4B Inverter fails.
- 4P08 is currently de-energized.

Which ONE of the following correctly completes the statements below?

4P08 must be re-energized within ____(1)____ hours. If 4P08 can be re-energized from the B Spare, this time period can be maintained ____(2)____.

A. (1) 2
(2) for a total of 24 hours ONLY from event initiation

B. (1) 2
(2) indefinitely

C. (1) 8
(2) for a total of 24 hours ONLY from event initiation

D. (1) 8
(2) indefinitely

QUESTION 91

Plant conditions:

- Unit 4 is in Mode 6.
- Core alterations are in progress.

Subsequently:

- A spent fuel assembly has been dropped and is lying horizontally on the top of the core basket.
- The Control Room has been informed and 4-ONOP-033.3, Accidents Involving New or Spent Fuel, is being implemented.

Which ONE of the following correctly completes the statement below in accordance with 4-ONOP-033.3?

____(1)____ must evacuate Containment, and access control will be a responsibility of the ____(2)____.

A. (1) Non-essential personnel ONLY
(2) RP Shift Supervisor

B. (1) All personnel
(2) RP Shift Supervisor

C. (1) Non-essential personnel ONLY
(2) Refueling SRO

D. (1) All personnel
(2) Refueling SRO

QUESTION 92

Plant conditions:

- Both units are operating at 100% power.
- It is necessary to release Waste Gas Decay Tank F.
- Plant Vent Gas Monitor, R-14, is OPERABLE.
- Plant Vent SPING, RAD-6304 is de-energized for corrective maintenance.

In accordance with 0-NOP-061.014F, Waste Gas Disposal System Controlled Release of Gas Decay Tank F, which ONE of the following identifies the MINIMUM action required to perform the release?

**REFERENCE PROVIDED**

A. Estimate total stack flow rate at least once every 4 hours, ONLY.

B. Install auxiliary equipment AND estimate total stack flow rate at least once every 4 hours.

C. Take grab samples at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours.

D. At least two independent samples are analyzed in accordance with the ODCM surveillance requirements, and at least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve line-up prior to initiating the release.

QUESTION 93

Plant conditions:

- Unit 3 is in MODE 1.
- A loss of instrument air is in progress.
- All Instrument Air Compressors are operating.
- The Unit 3 Turbine Building Operator (TO) reports that the instrument air particulate filters are clogged.

Which ONE of the following identifies the actions that are required in accordance with 0-ONOP-013, Loss of Instrument Air?

The SM/US must ...

A. notify System Operations to enable the NERC load shedding contingency software; then direct the TO to open IAS-3-012 and IAS-4-012, Instrument Air cross connect valves.

B. notify System Operations to enable the NERC load shedding contingency software; then direct the TO to align Service Air to Instrument Air via 40-215, Instrument Air Isolation Valve from Service Air.

C. apply the requirements of 10CFR50.54(x) and (y); then direct the TO to open IAS-3-012 and IAS-4-012, Instrument Air cross connect valves.

D. apply the requirements of 10CFR50.54(x) and (y); then direct the TO to align Service Air to Instrument Air via 40-215, Instrument Air Isolation Valve from Service Air.

QUESTION 94

Plant conditions:

- The plant is operating in Mode 2.
- It is currently mid-shift at 0300.
- The intended plant startup has been delayed for several days.

Which ONE of the following identifies the requirement for reactivity management at low power operations in accordance with 0-ADM-200, Conduct of Operations?

A. Operations Manager must approve extended low power operation; approval must be recorded in the reactor operator narrative log.

B. Operations Manager must approve extended low power operation; approval must be documented in an AR.

C. Shift Manager may approve extended low power operation; approval must be recorded in the reactor operator narrative log.

D. Shift Manager may approve extended low power operation; approval must be documented in an AR.

QUESTION 95

Which ONE of the following is the responsibility of the Unit Supervisor with STA Responsibility in regard to Temporary Modifications in accordance with 0-ADM-503, Temporary Modification?

A. Process extensions to Temporary Modification expiration dates.

B. Determine whether a 10CFR50.59 applicability screening is required prior to installation of the Temporary Modification.

C. Maintain the Temporary Modification Log Index (Form F213) in the Temporary Modification File.

D. Conduct a daily surveillance of temporary modifications to verify that redlined PODs are accurately identified and maintained.

QUESTION 96

Plant conditions:

- Unit 3 is operating at 25% power.
- Unit 4 is in a plant heatup.
- Unit 4 RCS Tavg is 342°F.

Subsequently, the 4A High Head Safety Injection Pump and associated flow path are declared inoperable.

Which ONE of the following identifies the Unit 4 Operational Mode, AND the requirements needed to enter the next highest Operational Mode?

A. Mode 3;
Mode 2 can be only entered when the 4A HHSI Pump is restored to OPERABLE status within 30 days.

B. Mode 3;
Mode 2 can be entered as long as the HHSI flowpath is restored to OPERABLE prior to Tave exceeding 380°F.

C. Mode 4;
Mode 3 can only be entered when the 4A HHSI Pump is restored to OPERABLE status within 30 days.

D. Mode 4;
Mode 3 can be entered as long as the HHSI flowpath is restored to OPERABLE prior to Tave exceeding 380°F.

QUESTION 97

Which ONE of the following correctly completes the statements below?

The ____(1)____ is responsible for authorizing emergency exposures that exceed 10CFR20 limits. The emergency exposure limit for workers performing actions that would rescue persons from a life-threatening situation is ____(2)____ REM.

A. (1) Emergency Coordinator (EC)
(2) 10

B. (1) Rad Protection Manager
(2) 10

C. (1) Emergency Coordinator (EC)
(2) 25

D. (1) Rad Protection Manager
(2) 25

QUESTION 98

Plant conditions:

- Unit 3 is in the process of Reactor Vessel Head disassembly for Refueling activities.
- Area Radiation Monitor (ARMS) RD-1402B, 58' Elevation, local indication has a failed meter.

In accordance with 3-OP-038.1, Preparation for Refueling Activities, which ONE of the following identifies the action necessary to allow the Refueling Supervisor to resume core alterations?

A. RP survey of the 58' elevation hourly.

B. Dedicated operator to constantly monitor Control Room (ARMS) RD-1402B.

C. Local indication for (ARMS) R-2 replaced with portable monitor with alarm.

D. Control Room functions for (ARMS) R-2 verified operable hourly.

QUESTION 99

Plant conditions:

- Both Units were operating at 100% power.
- The crew implements 0-ONOP-105, Control Room Evacuation.
- The RO is performing Attachment 14 and preparing to initiate RCS Boration.
- The following is the time line of events:

| | |
|---|---|
| 0800 | The Unit Supervisor initiates entry into 0-ONOP-105, Control Room Evacuation. |
| 0802 | The immediate actions of 0-ONOP-105 are complete, and all personnel have left the Control Room. |
| 0817 | Attachment 14 is complete and the SM informs the TSC that control of Shutdown Systems is ESTABLISHED. |

Which ONE of the following correctly completes the statement below?

The Boration to Cold Shutdown for Unit 3 is performed by ____(1)____. The Shift Manager must declare a(n) ____(2)____ for this event.

**REFERENCE PROVIDED**

A. (1) borating for 136 minutes from Boric Acid Storage Tanks with 3B Charging pump in local speed control at 12 psig.
(2) Alert

B. (1) locally aligning charging pump suction to the RWST until sample determines that Cold Shutdown boron concentration has been reached.
(2) Alert

C. (1) locally aligning charging pump suction to the RWST until sample determines that Cold Shutdown boron concentration has been reached.
(2) Site Area Emergency

D. (1) borating for 136 minutes from Boric Acid Storage Tanks with 3B Charging pump in local speed control at 12 psig.
(2) Site Area Emergency

QUESTION 100

Given the following:

- A General Emergency has been declared at Unit 3.
- The EOF and TSC are not yet operational.

Which ONE of the following identifies (1) two Emergency Coordinator responsibilities that can be delegated to another individual, AND (2) the individual who has the responsibility to declare PARs once the TSC ONLY is declared operational?

A. (1) The decision to issue Potassium Iodide (KI) and the decision to notify federal, state and local agencies;
(2)The Shift Manager.

B. (1) The decision to issue Potassium Iodide (KI) and the decision to notify federal, state and local agencies;
(2) The Emergency Coordinator in the TSC.

C. (1) The decision to evacuate site personnel and the decision to waive emergency response training requirements;
(2) The Emergency Coordinator in the TSC.

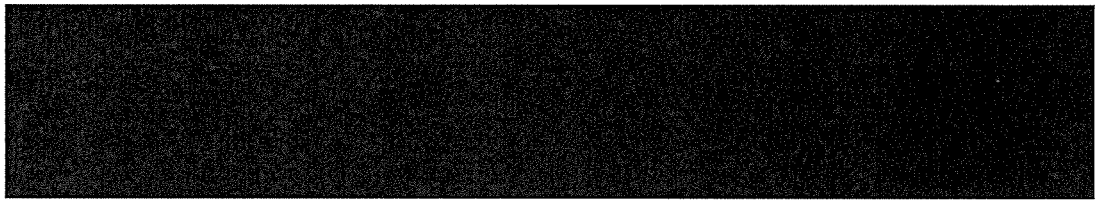
D. (1) The decision to evacuate site personnel and the decision to waive emergency response training requirements;
(2) The Shift Manager.

**ATTACHMENT 2**
(Page 1 of 1)

**UNIT 3 COMPONENT KW LOAD RATING CHART**

**NOTES**

- *One Computer Room chiller is required to be restarted within 60 minutes of a loss of offsite power in order to maintain operability of DCS and QSPDS.*
- *Battery charger load is dependent on the status of its parallel charger (i.e., in service or de-energized).*



**ESSENTIAL LOADS**

| COMPONENT | KW | COMPONENT | KW |
|---|---|---|---|
| CCW PUMP | 380 | BATTERY CHARGER 3B1 | 20/39 |
| HIGH-HEAD SI PUMP | 302 | BATTERY CHARGER 4A2 | 20/39 |
| INTAKE COOLING WATER PUMP | 265 | EMERGENCY LIGHTING | 18 |
| RHR PUMP | 222 | INSTRUMENT AIR DRYER | 18 |
| CONTAINMENT SPRAY PUMP | 212 | DG AUXILIARY EQUIPMENT | 17 |
| ED FIRE PUMP (P39) | 203 | SWITCHGEAR/LC 3A A/C AHU | 17 |
| NORMAL CONTAINMENT COOLER | 77 | SWITCHGEAR/LC 3B A/C AHU | 17 |
| CRDM COOLER FAN | 48 | DG AIR COMPRESSOR | 13 |
| COMPUTER ROOM CHILLER | 43 | EDG RM LIGHTING PANEL 3X87 | 11 |
| AUXILIARY BLDG EXHAUST FAN | 33 | AUXILIARY BLDG SUPPLY FAN | 9 |
| BATTERY ROOM A/C | 30 | H2 ANALYZER HEAT TRACE | 8 |
| BATTERY CHARGER 3A1 | 29/56 | CABLE SPREADING ROOM A/C | 5 |
| BATTERY CHARGER 4B2 | 29/56 | DG VENT FAN | 5 |
| CONTROL ROOM A/C COMPR | 27 | PAGE SYSTEM | 5 |
| SWITCHGEAR/LC 3A A/C CHILLER | 26 | CONTROL ROOM FILTER FAN | 3 |
| SWITCHGEAR/LC 3B A/C CHILLER | 26 | COMPUTER ROOM AIR UNIT | 3 |
| ELECTRICAL EQUIP RM A/C | 25 | SWITCHGEAR 3D SUPPLY FAN | 2 |
| EMERGENCY CNTMT COOLER | 23 | DG FUEL OIL TRANSFER PUMP | 1 |
| | | H2 ANALYZER PUMP | 1 |

**NON-ESSENTIAL LOADS**

| COMPONENT | KW | COMPONENT | KW |
|---|---|---|---|
| TPCW PUMP | 299 | AIR SIDE SEAL OIL PUMP | 21 |
| CHARGING PUMP | 114 | BORIC ACID TRANSFER PUMP | 13 |
| SPENT FUEL PIT PUMP | 82 | BEARING LIFT OIL PUMP | 13 |
| PRESSURIZER HEATER (EACH) | 50 | OIL VAPOR EXTRACTOR | 7 |
| TURNING GEAR DRIVE | 41 | HYDROGEN SIDE SEAL OIL PUMP | 3 |
| TURNING GEAR LUBE OIL PUMP | 33 | | |

**FINAL PAGE**

## 3.0 RADIOACTIVE GASEOUS EFFLUENT

**CONTROL 3.1** Radioactive Gaseous Effluent Monitoring Instrumentation, Operability / Functionality and Alarm/Trip Setpoints, (Cont'd)

TABLE 3.1-1

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

| INSTRUMENT | MINIMUM CHANNELS OPERABLE / FUNCTIONAL | APPLICABILITY | ACTION |
|---|---|---|---|
| 1. GAS DECAY TANK SYSTEM | | | |
| a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (Plant Vent Monitor) | 1 | * | 3.1.1 |
| b. Effluent System Flow Rate Measuring Device | 1 | * | 3.1.2 |
| 2. Condenser Air Ejector Vent System | | | |
| a. Noble Gas Activity Monitor (SPING or PRMS) | 1 | # | 3.1.3 |
| b. Iodine Sampler | 1 | ## | 3.1.6 |
| c. Particulate Sampler | 1 | ## | 3.1.6 |
| d. Effluent System Flow Rate Measuring Device | 1 | ## | 3.1.2 |
| e. Sampler Flow Rate Measuring Device | 1 | ## | 3.1.5 |

## 3.0 RADIOACTIVE GASEOUS EFFLUENT

**CONTROL 3.1:** Radioactive Gaseous Effluent Monitoring Instrumentation; Operability / Functionality and Alarm / Trip Setpoints, (Cont'd)

TABLE 3.1-1 (Cont'd)
RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

| INSTRUMENT | MINIMUM CHANNELS OPERABLE / FUNCTIONAL | APPLICABILITY | ACTION |
|---|---|---|---|
| 3. Plant Vent System (Include Unit 4's Spent Fuel Pool) | | | |
| a. Noble Gas Activity Monitor (SPING or PRMS) | 1 | * | 3.1.3 |
| b. Iodine Sampler | 1 | * | 3.1.4 |
| c. Particulate Sampler | 1 | * | 3.1.4 |
| d. Effluent System Flow Rate Measuring Device | 1 | * | 3.1.2 |
| e. Sampler Flow Rate Measuring Device | 1 | * | 3.1.5 |
| 4. Unit 3 Spent Fuel Pit Building Vent | | | |
| a. Noble Gas Activity Monitor | 1 | * | 3.1.3 |
| b. Iodine Sampler | 1 | * | 3.1.4 |
| c. Particulate Sampler | 1 | * | 3.1.4 |
| d. Sampler Flow Rate Measuring Device | 1 | * | 3.1.5 |

## 3.0 RADIOACTIVE GASEOUS EFFLUENT

**CONTROL 3.1:** Radioactive Gaseous Effluent Monitoring Instrumentation; Operability / Functionality and Alarm / Trip Setpoints (Cont'd)

TABLE 3.1-1 (Cont'd)
TABLE NOTATION

* At all times.
\# Applies during Mode 1, 2, 3, and 4.
## Applies during Mode 1, 2, 3, and 4 when primary to secondary leakage is detected.

ACTION 3.1.1 - With the number of channels FUNCTIONAL less than required by the Minimum Channels FUNCTIONAL requirement, the contents of the tank(s) may be released to the environment provided that prior to initiating the release:

a. At least two independent samples of the tank's contents are analyzed, **and**

b. At least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve lineup;

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 3.1.2 - With the number of channels FUNCTIONAL less than required by the Minimum Channels FUNCTIONAL requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours.

ACTION 3.1.3 - With the number of channels OPERABLE / FUNCTIONAL less than required by the Minimum Channels OPERABLE / FUNCTIONAL requirement, effluent releases via this pathway may continue provided grab samples are taken at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours. These monitors may have Technical Specification requirements and action statements.

ACTION 3.1.4 With the number of channels FUNCTIONAL less than required by the Minimum Channels FUNCTIONAL requirement, effluent releases via the affected pathway may continue provided continuous sample collection with auxiliary equipment as required by Table 3.2-1 is installed within 4 hours of the channel being declared non-functional, and analyzed at least weekly.

## 3.0 RADIOACTIVE GASEOUS EFFLUENT

**CONTROL 3.1:** Radioactive Gaseous Effluent Monitoring Instrumentation; Operability / Functionality and Alarm / Trip Setpoints (Cont'd)

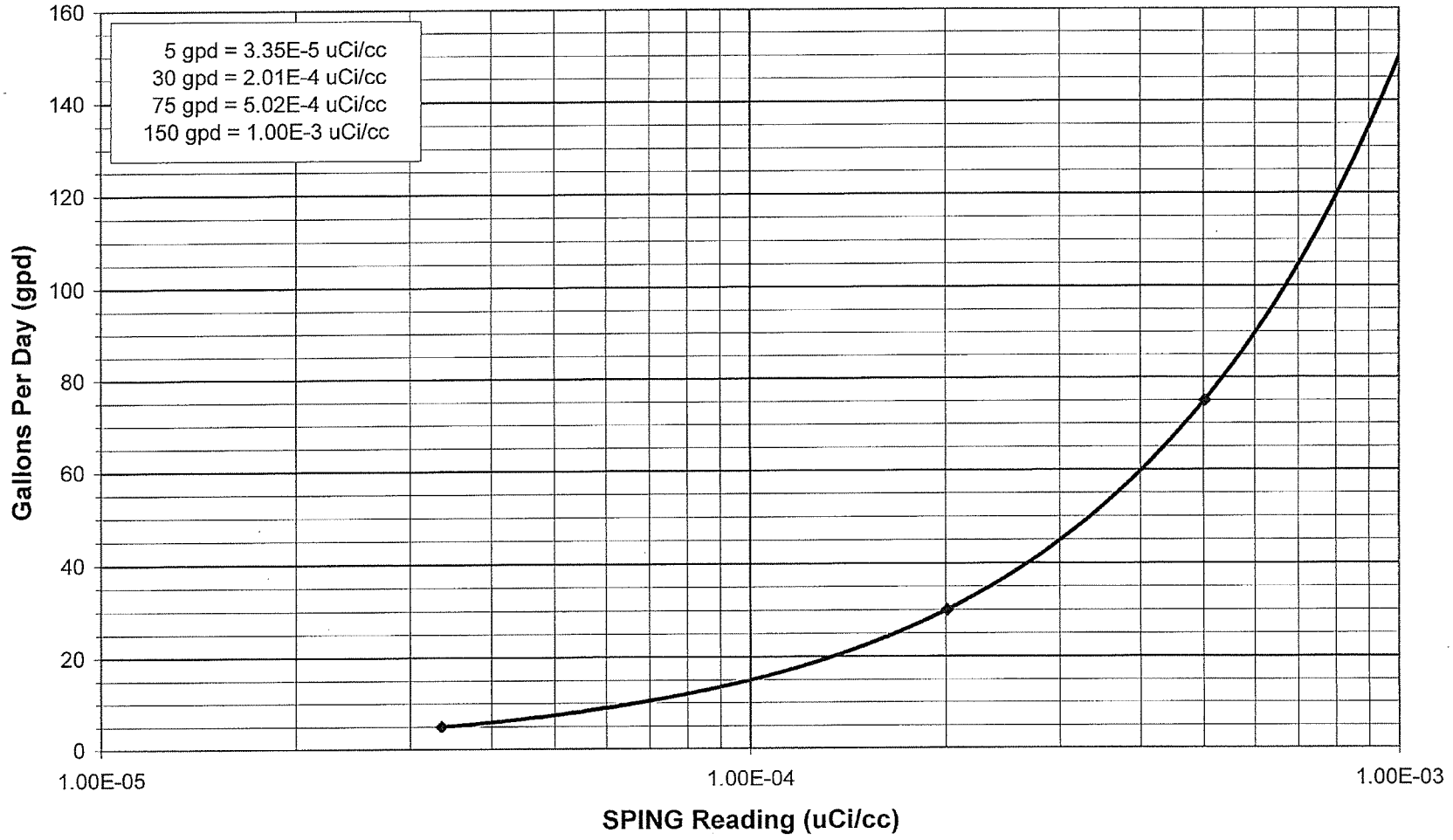
TABLE 3.1-1 (Cont'd)
TABLE NOTATION

ACTION 3.1.5 With the number of channels FUNCTIONAL less than required by the Minimum Channels FUNCTIONAL requirement, effluent releases via the affected pathway may continue provided auxiliary equipment is installed, AND the sample flow rate is verified at least once per 4 hours.

ACTION 3.1.6 Continuous collection of iodine and particulate in the Condenser Air Ejector is not required. If Primary to Secondary leakage is detected, effluent releases via the affected pathway may continue provided that the iodine and particulate curies released are determined using the methodology of Reference 3.

# Unit 3

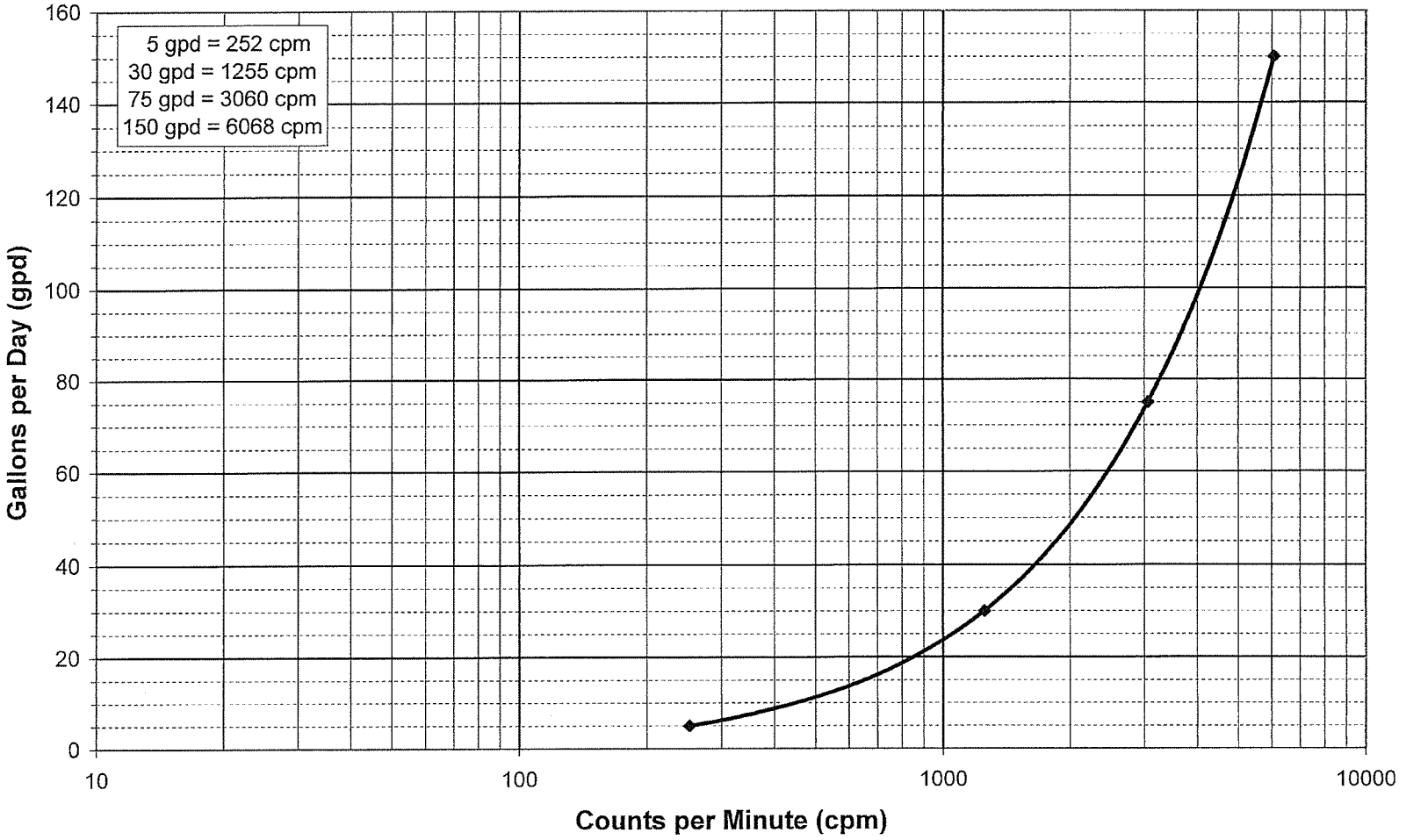
## SJAE SPING Primary to Secondary Leak Rate Graph




Curve assumes 1 scfm air in leakage. To adjust for measurable air in leakage values:
**(Leak Rate gpd)(Air in Leakage scfm)**

Ref: 0-NCAP-104

# Unit 3
## R-15 Primary to Secondary Leak Rate Graph




Curve assumes 1 scfm air in leakage. To adjust for measurable air in leakage value:
**(Leak Rate gpd)(Air in Leakage SCFM)**

Ref: 0-NCAP-104

**SRO Reference**

Attachment 1 –F-668 Rev 6 to EPIP-20101 Turkey Point EAL Classification Tables – Hot Condtions.

PTN 2013 NRC Examination
SRO Answer Key-FINAL

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. | B | 26. | D | 51. | A | 76. | C |
| 2. | A | 27. | B | 52. | D | 77. | A |
| 3. | C | 28. | A | 53. | C | 78. | A |
| 4. | C | 29. | D | 54. | C | 79. | D |
| 5. | B | 30. | D | 55. | B | 80. | D |
| 6. | A | 31. | D | 56. | C | 81. | A |
| 7. | C | 32. | B | 57. | A | 82. | B |
| 8. | ~~D~~ B | 33. | B | 58. | A | 83. | C |
| 9. | B | 34. | B | 59. | D | 84. | B |
| 10. | D | 35. | A | 60. | B | 85. | A |
| 11. | B | 36. | B | 61. | D | 86. | D |
| 12. | B | 37. | C | ~~62.~~ | ~~B~~ DELETED | 87. | B |
| 13. | C | 38. | B | 63. | B | 88. | B |
| 14. | B | 39. | B | 64. | B | 89. | C |
| 15. | B | 40. | B | 65. | B | 90. | B |
| 16. | C | 41. | D | 66. | A | 91. | B |
| 17. | C | 42. | C | 67. | D | 92. | A |
| 18. | B | 43. | D | 68. | A | 93. | A |
| 19. | A | 44. | B | 69. | A | 94. | A |
| 20. | A | 45. | B | 70. | A | 95. | C |
| 21. | D | 46. | D | 71. | C | 96. | D |
| 22. | A | 47. | C | 72. | D | 97. | C |
| 23. | A | 48. | B | 73. | A | 98. | C |
| 24. | A | 49. | C | 74. | C | 99. | D |
| 25. | B | 50. | C | 75. | B | 100. | C |

Key change
Based on Post exam comments submitted by Licensee.

3/27/2013