INITIAL SUBMITTAL OF THE WRITTEN EXAMINATION

FOR THE PALISADES EXAMINATION - DECEMBER 2001

RO ONLY

26 WRITTEN QUESTIONS

RO 1

Which of the following conditions will automatically de-energize ALL pressurizer proportional heaters?

a. Pressurizer level of 30% and lowering.

b. Pressurizer level deviation of +3%.

c. Safety Injection Actuation Signal.

d. Loss of Instrument AC Bus Y-01.

Answer: a

RO 2

Given the following conditions:

- The plant is operating at 48% power.
- A regulating rod drops to the bottom of the core.
- The reactor does NOT trip.

Which of the following actions should be taken?

a. Withdraw Control Rods as necessary to restore Tave within 3°F of Tref.

b. Dilute as necessary to restore Tave.

c. Adjust Turbine load as necessary to restore Tave within 3°F of Tref.

d. Manually trip the Reactor.

Answer: c

RO 3

The Reactor Operator notes the following parameters and trends:

- Reactor power is stable at 90%.
- Primary Coolant System (PCS) hot and cold leg temperatures are stable at normal values.
- Pressurizer pressure is 2005 psia and lowering.
- Pressurizer level is 59% and rising.
- Containment pressure is 0.2 psig and rising slowly.
- Charging Pump P-55A speed is lowering.
- Charging Pumps P-55B and P-55C are in automatic and NOT running.
- One (1) letdown orifice is in service.

A leak in which ONE of the following locations inside containment would result in these conditions?

a. Pressurizer steam space

b. PCS cold leg

c. Reactor vessel head

d. Main steam line

Answer: a

RO 4

Given the following conditions:

- A small break LOCA has occurred.
- EOP-4.0, Loss of Coolant Accident Recovery, is being performed.
- Containment pressure is 11 psig.
- Average qualified CET temperature is 505°F and rising slowly.
- Pressurizer pressure is 1010 psia and stable.
- Corrected pressurizer level is 24% and rising slowly.
- Corrected SG level is 63% and stable.
- RVLMS indicates 128" above the bottom of the fuel alignment plate.

The CRS has requested a report of whether Safety Injection can be throttled. You should report that there is a problem with ....

a. PCS subcooling

b. Pressurizer level

c. SG level

d. Reactor vessel level

Answer: b

RO 5

The ATWS Pressure Switch Alarm (PSA) relays protect the Primary Coolant System (PCS) from overpressure due to a loss of load that does not cause a direct reactor trip. Upon receiving a high PCS pressure signal, the ATWS PSA relays:

a. De-energize the RPS matrix relays and send an open signal to pressurizer PORV 1043B.

b. De-energize the RPS matrix relays and pressurizer spray valves.

c. Open CRD clutch power supply breakers and send an open signal to pressurizer PORV 1043B.

d. Open CRD clutch power supply breakers and pressurizer spray valves.

Answer: c

RO 6

Given the following conditions:

- The plant was at full power when a loss of all offsite power occurred.
- A SIAS actuated.
- Offsite power has NOT been restored.
- All other equipment functioned as designed.

For these conditions, which ONE of the following equipment design features is true?

a. The VCT outlet valve must be manually closed.

b. Charging Pump P-55B starts if low charging flow is sensed.

c. Boric Acid Gravity Feed Valves do not open.

d. Only Boric Acid Pump P-56A will start.

Answer: b

RO 7

Control rod insertion limits are power-level dependent. The reason for this is because as power level rises ....

a. control rod worth reduces.

b. Doppler coefficient lowers.

c. power defect rises.

d. MTC rises.

Answer: c

RO 8

The Plant is on Shutdown Cooling. You have been directed to start Primary Coolant Pump P-50B during plant startup. When starting the AC Lift Oil Pump associated with P-50B you note that the WHITE light labeled "PUMP START OIL PERMISSIVE" just above the handswitch for P-50B does NOT illuminate. Which ONE of the following actions should be taken?
(Assume all bulbs are good.)

a. Start P-50B without delay, since the indication is normal.

b. Start the DC Lift Oil pump to see if WHITE light will come on.

c. Notify Maintenance to prime the Oil Lift Pumps.

d. Wait at least two minutes and then attempt to start P-50B.

Answer: b

RO 9

Which of the following sets of Pressurizer pressures will result in a Safety Injection, assuming NO blocks are enabled and NO actions have been taken?

	PIA-0102ALL	PIA-0102BLL	PIA-0102CLL	PIA-0102DLL
a.	1595 psia	1610 psia	1609 psia	1615 psia
b.	1621 psia	1609 psia	1609 psia	1603 psia
c.	1602 psia	1615 psia	1598 psia	FAILED HIGH
d.	FAILED HIGH	1611 psia	1611 psia	1602 psia

Answer: c

RO 10

Given the following conditions:

- The plant is in MODE 6.
- The NCO is operating the Refueling Machine and has just grappled Control Rod #12.
- Rod 12 is to be transferred immediately to the Spent Fuel Pool.

Which ONE of the following conditions WOULD allow the NCO to continue and complete removal of the rod from the core?

a. Only one (1) Source Range NI becomes inoperable.

b. The Control Room Popper malfunctions and is inaudible.

c. Only one (1) Wide Range NI becomes inoperable.

d. The Spent Fuel Pool low level alarm annunciates.

Answer: c

RO 11

Given the following conditions:

- Plant is at End of Core life (EOC) conditions
- Power has been lowered to accommodate AFW pump testing.
- Group 4 rods are at 120"
- A xenon oscillation is in progress
- ASI is at +0.01 and approaching the upper dampening limit

What effect would the Xenon oscillation have on the Power Range NI detectors, AND what actions would dampen the Xenon oscillation?

a. The indicated value on the Lower (A) AND the Upper (B) detectors would vary as power production moved in the core. Borating and withdrawing control rods would dampen the oscillation.

b. The indicated value on the Lower (A) AND the Upper (B) detectors would vary as power production moved in the core. Diluting and withdrawing control rods would dampen the oscillation.

c. The Power Range NI detectors would not detect a Xenon oscillation at the End of Core life. Borating and withdrawing control rods would dampen the oscillation.

d. The Power Range NI detectors would not detect a Xenon oscillation at the End of Core life. Borating and inserting control rods would dampen the oscillation.

Answer: a

RO 12

Which ONE of the following describes the interrelationship between the Condensate System and the Main Feedwater System?

The Condensate System ...

a. allows subcooled preheating of main condensate and provides cooling for the Main Feed Pump gland seal condenser.

b. provides a suction boost to the Heater Drain Pumps to prevent low suction on the Main Feed Pumps.

c. allows subcooled preheating of main condensate and provides cooling for the Main Feed Pump seals.

d. provides cooling AND seal water for the Main Feed Pump turbine seals.

Answer: c

RO 13

During plant operation, if "A" Steam Generator level reaches approximately 85%, the Steam Generator high level override will actuate. This feature automatically closes the feedwater regulating valve supplying the steam generator to ...

a. anticipate a turbine trip and prevent overcooling the PCS.

b. prevent steam line damage from water weight in the steam lines.

c. minimize moisture carryover and prevent possible damage to the Main Turbine.

d. prevent operation of the Main Feed Pumps in a runout condition.

Answer: c

RO 14

Observing RIA-0833 on the back of panel C-11, you note the following indication on the Bargraph Display:

ONLY an AMBER bar is lit.

This indication means that the dose rate through the monitor is ...

a. out of monitor range.

b. approaching the WARNING setpoint.

c. expected and below any alarm setpoint.

d. between the WARNING and HIGH setpoint.

Answer: d

RO 15

Prior to performing a Waste Gas batch release, the Waste Gas Monitor, RIA-1113, is purged to ...

a. lower its activity to background levels.

b. remove potentially explosive hydrogen.

c. reset the high radiation alarm setpoint.

d. test the high radiation alarm.

Answer: a

RO 16

Which of the following radiation monitors will TRIP the associated area supply fan upon receipt of a VALID high radiation condition?

a. RIA-5712, Fuel Handling Area Ventilation Monitor

b. RIA-2327, High Range Noble Gas Monitor

c. RIA-2302, Radwaste Control Area

d. RIA-5706, Controlled Lab Corridor

Answer: a

RO 17

Given the following plant conditions:

- The plant was at full power when a loss of offsite power occurred.

During the performance of EOP-1.0 which ONE of the resulting conditions would require closing the Main Steam Isolation Valves ?

a. All PCPs have tripped.

b. Tave greater than 542°F.

c. Both Cooling Tower pumps have tripped.

d. Both Main Feed Pumps have tripped.

Answer: c

RO 18

Given the following conditions:

- A reactor startup is being performed.
- Core Matrix Shutdown Rod lights all have the RED and BLUE lights lit.
- Regulating Group 1 Rods are currently at 100"
- The Rod Control Mode Select is in MANUAL SEQUENTIAL (MS).
- When Regulating Group 1 Rods are at 130", MANUAL INDIVIDUAL (MI) is selected to withdraw them to 131".

As Group 1 Rods are withdrawn from 100" to 131", which of the following describes the response of the Core Matrix lights for the Regulating Group 1 and Regulating Group 2 rods?

a. Group 1 lights will go from WHITE to AMBER to RED.
   Group 2 lights will remain WHITE.

b. Group 1 lights will go from WHITE to AMBER to RED.
   Group 2 lights will go from WHITE to AMBER.

c. Group 1 lights will go from WHITE to RED to AMBER.
   Group 2 lights will remain WHITE.

d. Group 1 lights will go from WHITE to RED to AMBER.
   Group 2 lights will go from WHITE to AMBER.

Answer: a

RO 19

Refer to the below drawing of Primary Coolant Pump seal pressure drops and the following conditions:

- Pressurizer pressure is 2060 psia.
- Controlled Bleed Off flow is 5.6 gpm.

Which of the following Primary Coolant Pump seal stages have failed?

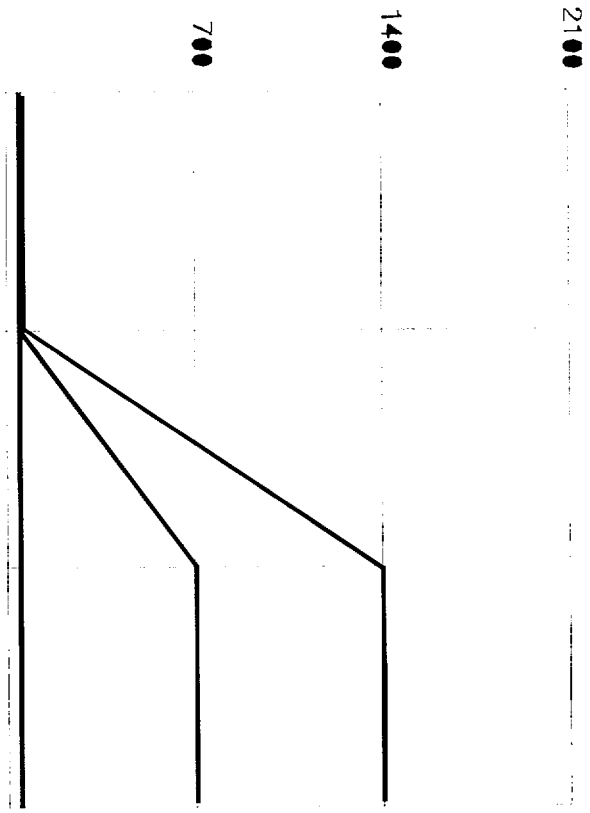
a. 1st (lower) and 2nd (middle)

b. 1st (lower) and 4th (vapor)

c. 2nd (middle) and 3rd (upper)

d. 3rd (upper) and 4th (vapor)

Answer: c



RO 20

Which one of the following combinations describes which system pressure is sensed by CV-1212 (Service Air to Instrument Air cross-connect) AND the action this valve takes on LOWERING system pressure?

	SYSTEM PRESSURE SENSED	CV-1212 RESPONSE
a.	Instrument Air	CLOSES
b.	Instrument Air	OPENS
c.	Service Air	CLOSES
d.	Service Air	OPENS

Answer: a

RO 21

Given the following conditions:

- The plant is on Shutdown Cooling using LPSI Pump P-67B.
- A loss of ALL offsite power has occurred.
- Diesel Generator (DG) 1-1 has started and the Normal Shutdown Sequencer has actuated and loaded the associated bus.

Which of the following describes the operation of LPSI Pump P-67B?

a. P-67B should have restarted as soon as DG 1-1 output breaker closed.

b. P-67B should have restarted 13 seconds after DG 1-1 output breaker closed.

c. P-67B is NOT running. It will restart automatically when NSD Sequencer is reset.

d. P-67B is NOT running. Manual restarting of the pump would be necessary.

Answer: d

RO 22

Given the following conditions:

- The plant is in the process of cooling down. LTOP is armed.
- Pressurizer heaters cause a pressure rise to 700 psia and a PORV opens.
- Quench tank pressure is 5 psig.

Temperature immediately downstream of the PORV will be approximately ...

a. 160 °F

b. 230 °F

c. 320 °F

d. 500 °F

Answer: c

RO 23

Given the following plant conditions:

- The plant was at full power when the Reactor tripped.
- Atmospheric Dump Valve (ADV) controller, HIC-0780A, is in AUTO.
- Turbine Bypass Valve (TBV) controller, PIC-0511, is in AUTO.

Which one of the following describes the effect of a loss of instrument air system pressure on the operation of the TBV and ADVs at this point?

a. Both the TBV and ADVs will close.

b. TBV will close; ADVs will continue to respond to controller demand.

c. TBV and ADVs will continue to respond to controller demand.

d. TBV will continue to respond to controller demand; ADVs will close.

Answer: b

RO 24

After latching the Main Turbine, which indication would you expect to see on the DEH (Digital Electro-Hydraulic) CRT screen?

a. Main Stop Valves OPEN.

b. Main Governor Valves OPEN.

c. Reheat Stop Valves CLOSED.

d. Reheat Intercept Valves CLOSED.

Answer: a

RO 25

Given the following conditions:

- The plant is at full power.
- A fire drill is in progress in the area next to T-939 (Demineralized Water Storage Tank) and is being attended by all Auxiliary Operators.
- The following alarm annunciates:

  EK-1111, "INSTRUMENT AIR DRYER TROUBLE"

- The NCO immediately checks Instrument Air System pressure on PIA-1210 on Panel C-13 and notes it is at 92 psig and slowly lowering.
- The NCO quickly leaves the Control Room and monitors the local M-2 air dryer panel and notes that ONLY the Switching Failure light is ON.

Which local action should the NCO perform?

a. manually swap drying towers.

b. open MV-CA677 (Air Dryer Bypass).

c. open breaker 52-315 (M-2 power).

d. open upstream filter blowdown valves.

Answer: b

RO 26

Given the following parameter values:

INDICATION	VALUE
Average Qualified CETs	582°F
Loop 1 Th (TE-0112HC)	576°F
Loop 1 Th (TE-0112HD)	578°F
Loop 1A Tc (TE-0112CC)	536°F
Loop 1B Tc (TE-0112CD)	538°F
PZR Pressure (PT-0105A)	2060 psia

If you select Subcooling Margin Monitor SMM-0114 to PRESS, the indication will read ...

a. 713 psia

b. 754 psia

c. 945 psia

d. 1113 psia

Answer: b

Palisades Nuclear Plant

Provided References Index for Initial License Exam

December 2001

RO

- SOP-30, Att. 1
- Operator Aid 136
- ONP-17, Att. 1
- Tech Spec page 3.9.1-1
- Tech Spec page 3.9.2-1
- ONP-23.2, pages 2-5, Att. 1, Att. 2
- EOP Supplement 38
- SOP-38, Att. 4
- M-208, sh. 1A, 1B (FS-0885)
- M-205, sh. 2, lower left area
- Technical Data Book, Fig. 1.9
- EOP Supplement 1

SRO ONLY

26 WRITTEN QUESTIONS

SRO 1

Given the following conditions:

- The Dropped Rod annunciator has alarmed.
- Rod Position Deviation annunciators have alarmed.

Which ONE of the following conditions does **NOT** require the reactor to be tripped for this dropped rod condition?

a. With reactor power at 90%, all ASI indications begin cycling from the positive to the negative limit and back on a 5 minute cycle.

b. With reactor power at 80%, the Power Density screens of Thermal Margin Monitor (TMM) indicate "TRIP".

c. With reactor at 70%, the Lower Electrical lights for rods 16 AND 31 are energized.

d. With reactor low power physics testing in progress, the Lower Electrical Limit light for rod 16 is energized.

Answer: b

SRO 2

The plant is in MODE 1.

All of the following Control Rod problems require action per Technical Specifications 3.1, "Reactivity Control Systems", **EXCEPT**...

a. Rod 45 (Part-Length Group) is 124" withdrawn and cannot be moved.

b. Rod 3 (Shutdown Group A) is at 131" and is trippable, but cannot be moved.

c. The PIP function for Rod 21 (Reg Group 1) has been declared to be inaccurate.

d. The seal leak-off temperature for Rod 40 (Reg Group 4) indicates 280°F.

Answer: d

SRO 3

Given the following conditions:

- The plant was at 48% power when a Large Break LOCA inside containment occurred.
- As the Control Room Supervisor you are implementing EOP-4.0 "Loss of Coolant Accident Recovery".
- The Shift Engineer reports that "A" S/G shows indications of a primary to secondary leak.
- After directing your crew to confirm the report, a primary to secondary leak on "A" S/G is confirmed by the crew.

Which ONE of the following procedural actions should be taken?

a. Go to EOP-9.0, "Functional Recovery Procedure" and direct actions per the procedure to address all safety functions.

b. Complete appropriate actions in EOP-4.0; exit EOP-4.0 and transition to EOP-5.0, "Steam Generator Tube Rupture Recovery".

c. Continue actions in EOP-4.0 and concurrently perform the actions as prescribed by EOP-5.0.

d. Go to EOP-5.0 section for isolating "A" S/G, isolate the "A" S/G, and then transition to EOP-9.0 to address remaining safety functions.

Answer: a

SRO 4

Following a loss of all off-site power, which one of the following Primary Coolant Pump P-50D conditions would adversely affect Natural Circulation flow?

a. Failure of the vapor seal.

b. Primary Coolant Pump rotor seizure.

c. Anti-reverse rotation pawls do not engage properly.

d. Bus 1B Station Power breaker does NOT open following coastdown.

Answer: b

SRO 5

The Containment High Pressure (CHP) RPS trip setpoint has been exceeded due to an Excess Steam Demand Event inside containment, and an Anticipated Transient Without Scram (ATWS) has occurred. Contingency actions to insert control rods were NOT successful.

Which of the following describes Reactivity Control requirements for this ATWS condition, and which procedure should be entered after completion of EOP-1.0?

a. Emergency Boration is sufficient to satisfy Reactivity Control requirements; proceed to EOP-6.0.

b. Emergency Boration is NOT sufficient to satisfy Reactivity Control requirements; proceed to EOP-9.0.

c. Safety Injection is NOT sufficient to satisfy Reactivity Control requirements; proceed to EOP-6.0.

d. Safety Injection is sufficient to satisfy Reactivity Control requirements; proceed to EOP-9.0.

Answer: b

SRO 6

While operating at 100% power, a main steam line break occurs downstream of the Main Steam Isolation valves (MSIV). During the performance of EOP-1.0, the following conditions are noted:

- 'A' SG MSIV fails to close.
- Switchyard "R" bus is deenergized.
- Pressurizer pressure is 790 psia and lowering slowly.
- Primary Coolant System (PCS) temperature is 410°F and lowering slowly.
- 'A' SG pressure is 250 psia and lowering rapidly.
- 'B' SG pressure is 700 psia and lowering slowly.

Assuming all other components function properly, which of the following would cause the most concern?

a. Containment Isolation due to containment overpressure.
Maintenance of Vital Auxiliaries due to loss of instrument air.

b. Reactivity Control due to positive reactivity from cooldown.
Inventory Control due to the loss of PCS mass resulting from the excessive cooldown.

c. Reactivity Control due to positive reactivity from cooldown.
PCS Heat Removal due to potential loss of heat sink when 'A' SG completes blowdown.

d. Containment Isolation due to containment overpressure.
Inventory Control due to the loss of PCS mass resulting from the excessive cooldown.

Answer: c

SRO 7

A catastrophic failure of the Utility Water Storage Tank T-91 occurs such that a large volume of radiologically contaminated water is suddenly released. NO planned radwaste release is in progress.

Which pair of radiation monitors would be useful to aid in diagnosing that the release has occurred?

a. RIA-1323, Circulating Water Discharge Monitor AND RIA-0833, Service Water Monitor.

b. RIA-1323, Circulating Water Discharge Monitor AND RIA-5211, Turbine Bldg Sump Disch.

c. RIA-5211, Turbine Bldg Sump Disch AND RIA-0833, Service Water Monitor.

d. RIA-5704, Evaporator Control Panel Area AND RIA-0833, Service Water Monitor

Answer: b

SRO 8

Given the following conditions:

- The Reactor had tripped 10 minutes ago from 96% power.
- SV AND/OR PORV OPEN alarm actuated
- Pressurizer level indicates 100%.
- Pressurizer pressure is 1200 psia and **SLOWLY** rising.
- Charging flow is 132 gpm.
- Quench Tank High Pressure alarm actuated.
- No primary coolant pumps are running.

Which of the following identifies the reason primary system pressure is rising?

a. The Primary Coolant System (PCS) is in a water solid condition.

b. A reactor vessel upper head bubble is forming.

c. Safety injection flow now matches mass lost out the break.

d. The safety valve has reseated and injection flow is refilling the PCS.

Answer: d

SRO 9

Which ONE of the following reflects expected results of a Containment High Pressure (CHP) on CCW cooled components during a Small Break LOCA?

a. Failure of Charging Pump P-55A fluid drive.

b. Overcooling of Primary Coolant Pump seals.

c. Spent Fuel Pool excess cooling.

d. PCP bearing temperatures elevated.

Answer: d

SRO 10

With the plant at full power, the following alarms annunciate:

- EK-0753 PRESSURIZER PRESSURE OFF-NORMAL HI-LO
- EK-0754 PRESSURIZER PRESSURE OFF-NORMAL HI-LO

The output signal for the in-service Pressurizer Pressure controller is 80% and STEADY. Pressurizer pressure is at 1990 psia and slowly lowering. Both Pressurizer Spray valves RED and GREEN lights are ON. No operator actions have been taken.

As the Control Room Supervisor, you should take which ONE of the following sequences of actions?

a.
- Direct tripping of the Reactor.
- Direct tripping ALL PCPs.
- Go to EOP-1.0, "Standard Post Trip Actions".

b.
- Go to ONP-18, "Pressurizer Pressure Control Malfunctions" .
- Direct the NCO to manually LOWER Pressurizer Pressure controller output to restore. Pressurizer pressure.

c.
- Direct tripping of the reactor.
- Direct tripping of PCPs P-50B and P-50C.
- Go to EOP-1.0, "Standard Post Trip Actions" .

d.
- Go to ONP-18, "Pressurizer Pressure Control Malfunctions".
- Direct the NCO to manually RAISE Pressurizer Pressure controller output to restore Pressurizer pressure.

Answer: b

SRO 11

Given the following conditions:

- A loss of all feedwater has occurred.
- EOP-9.0, Functional Recovery Procedure, has been entered
- HR-3, PCS and Core Heat Removal Via Once-Through-Cooling, is being implemented.

To verify proper implementation you would check ...

a. all available LPSI pumps running with all LPSI injection valves open, both PZR PORV block valves open, and both PZR PORVs in automatic.

b. all available HPSI pumps and Charging Pumps running with all HPSI injection valves open, both PZR PORV block valves open, and both PZR PORVs in automatic.

c. all available LPSI pumps running with all LPSI injection valves open, both PZR PORV block valves open, and both PZR PORVs open.

d. all available HPSI pumps and Charging Pumps running with all HPSI injection valves open, both PZR PORV block valves open, and both PZR PORVs open.

Answer: d

SRO 12

The reactor is being refueled when an irradiated fuel assembly becomes stuck approximately two feet above the core support assembly. In the process of trying to free the stuck assembly, it drops into the core. Which IMMEDIATE action would you direct to be performed?

a. Have affected areas evacuated.

b. Verify containment access doors are closed.

c. Verify containment isolation has occurred.

d. Place Control Room HVAC units in Emergency mode.

Answer: a

SRO 13

Given the following conditions:

- The plant is at 75% power steady state.
- Total uncorrected Primary Coolant System (PCS) leakage has been confirmed to be 11.3 gpm.

Other data available:

- 1.6 gpm - leakage into the Quench Tank
- 1.1 gpm - leakage into the Primary System Drain Tank
- 1.9 gpm - leakage past check valves from PCS to SI system
- 1.8 gpm - CRDM leakoff rate
- 2.7 gpm - charging pump leakage
- 0.2 gpm - leakage into the 'A' S/G

Which ONE of the following identifies the PCS leakage that requires the plant to be shutdown per Technical Specifications?

a. Unidentified leakage.

b. Identified leakage.

c. Pressure boundary leakage.

d. Primary to secondary leakage.

Answer: a

SRO 14

What is the BASIS for the requirement to ensure that the temperature in the steam generators is less than or equal to the temperature in the Primary Coolant System (PCS) cold leg PRIOR to directing initial starts of Primary Coolant Pumps?

a. Ensures an available heat sink for the PCS when securing shutdown cooling.

b. Ensures that heat energy addition to the PCS from the steam generators does not occur.

c. To limit the thermal stresses experienced by the steam generator tubes.

d. Prevents a rapid depressurization of the steam generators due to a cooldown.

Answer: b

SRO 15

The plant is operating at full power when the following alarm annunciates:

EK-0924, "Group 1 Pwr Dependent Insertion Limit"

Group 1 PPDIL alarm is clear and has NOT annunciated. The rod matrix and C-02 LEDs indicate all rods in Group 1 fully withdrawn and the PPC shows no rods in Group 1 below PDIL. Which of the following has caused this alarm?

a. PIP and SPI indications for Group 1 rods disagree by more than two inches.

b. The SPI G2 VX Computer in C-06-3 SPI Cabinet has failed.

c. Loop 2 delta T input to the PIP has experienced a failure.

d. Loop 1 delta T input to the SPI has experienced a failure.

Answer: c

SRO 16

Refer to the Table below.

For which ONE of the following conditions would this table be useful in providing guidance for actions that would help stabilize the plant?

a. Dropped Rod

b. Continuous Rod Withdrawal

c. Xenon Oscillations

d. Inadvertent Dilution

Answer: c

PARAMETER BEING CHANGED	CAUSE	CORE POWER WILL BE PUSHED TOWARDS	ASI WILL BECOME
PCS Temperature (with negative MTC)	Power Reduction	Top Half of Core	More negative or less positive
	Power Escalation	Bottom	More positive or less negative
Rod Position (ARO to Midpoint)	Withdrawal	Top	More negative or less positive
	Insertion	Bottom	More positive or less negative
PCS Boron	Boration	Top	More negative or less positive
	Dilution	Bottom	More positive or less negative

SRO 17

Given the following conditions:

- The plant was at 75% power when ONE main feed pump tripped.
- Power is being reduced rapidly.
- A S/G level is 35% and starting to trend upward.
- B S/G level is 37% and starting to trend upward.
- A S/G feed flow is 3.4 E6 lbm/hr
- B S/G feed flow is 3.4 E6 lbm/hr
- A S/G steam flow is 3.3 E6 lbm/hr
- B S/G steam flow is 3.3 E6 lbm/hr

What is the appropriate course of action for the above conditions?

a. Ensure reactor is tripped, since this should have already occurred automatically.

b. Stop the power reduction and stabilize steam generator levels at current levels to avoid adding excessive positive reactivity.

c. Stop the power reduction and return levels slowly to programmed levels to avoid adding excessive positive reactivity.

d. Continue the power reduction until steam generator levels are back to programmed levels to avoid a low level trip.

Answer: c

SRO 18

The Safety Functions Status Checks for EOP-8.0, "Loss of Offsite Power/Forced Circulation Recovery" require that CETs be at least 25°F subcooled.

What is the BASIS for this requirement?

a. To remove more heat from the fuel.

b. To minimize the occurrence of steam voiding.

c. To reduce the possibility of inadvertent criticality.

d. To prevent thermal shocking of PCS piping.

Answer: b

SRO 19

ONP-17, Loss of Shutdown Cooling, Attachment 4, Alternate PCS/Core Heat Removal Method (PCS Integrity Not Established), prohibits the use of Containment Spray Pumps for shutdown cooling UNLESS:

- The PCS is vented by the equivalent of removing the Pressurizer manway.

This requirement ensures that ...

a. Containment Spray Pump suction piping is not overpressurized.

b. insoluble gases do not collect in the Containment Spray Pump.

c. Containment Spray Pump cavitation does not occur.

d. adequate flow rates exist for core cooling.

Answer: a

SRO 20

The plant is in a normal cooldown and preparing for a refueling outage. A misoperation of the Atmospheric Dump Valves causes the cooldown rate to exceed Technical Specification limits.

Which of the following actions is required and what is the BASIS for the required action?

a. Restore cooldown rate to Tech. Spec. limits within 30 minutes to provide adequate margin from brittle failure of the Reactor vessel.

b. Restore cooldown rate to Tech. Spec. limits within 1 hour to provide adequate margin from ductile failure of the Reactor vessel.

c. Stop any further cooldown for 6 hours to allow temperature stabilization throughout the vessel wall.

d. Stop any further cooldown for 12 hours to allow temperature stabilization throughout the vessel wall.

Answer: a

SRO 21

Given the following conditions:

- The plant is at 38% power with a power escalation in progress.
- P-1A Main Feedwater Pump is in service.
- Plant Air Compressors C-2A and C-2C are in service.

The Reactor NCO is monitoring panels and reports that C-2C has TRIPPED. He also reports that Instrument Air System pressure is LOWERING. The NCO then performs the following actions:

- NCO manually starts C-2B.
- NCO reports Instrument Air System pressure CONTINUES to lower.

If these are the ONLY actions performed by the NCO, which additional action should you direct to be performed?

a. Take manual action to close CV-1212 (Service Air Header Isolation Valve) to isolate the air header leak.

b. Immediately dispatch an operator to determine the cause of C-2C air compressor trip.

c. Commence a power reduction per GOP-8, " Power Reduction and Plant Shutdown to MODE 2 or MODE 3 $\geq$525°F".

d. Ensure FWP Bldg. air system available and OPEN CV-1221 (Air from Feedwater Purity).

Answer: d

SRO 22

Due to problems with a Cooling Tower Pump, turbine load has been reduced from 100% to 53%.

In addition to notifying the Electric Sourcing and Trading Trader, the Duty and Call Superintendent, and the Plant General Manager, which of the following must be subsequently notified of the derate within one hour?

a. NRC Resident Inspector

b. NRC Operations Center

c. Site Vice President

d. Public Affairs Director

Answer: c

SRO 23

There are 4 qualified core exit thermocouples (CETs) in each quadrant of the core. Which ONE of the following lists the number of qualified CETs in each core quadrant required to be operable per Technical Specifications?

a. 1

b. 2

c. 3

d. 4

Answer: d

SRO 24

Given the following plant conditions:

- Plant is in MODE 2 with reactor power at 4%.
- P-66B (HPSI) is declared inoperable at 0800 on Tuesday.
- Four (4) hours later at 1200, P-67A (LPSI) is also declared inoperable.
- P-66B is repaired and declared operable on Friday at 0700.

What is the LATEST time which P-67A must be declared operable?

a. 0800 on Friday

b. 1200 on Friday

c. 0800 on the following Tuesday

d. 1200 on the following Tuesday

Answer: d

SRO 25

A task is to be performed in the RCA in a room where the general area radiation levels are 3 Rem/hr. The task is estimated to require 35 minutes for completion. Which of the following are the minimum briefings required?

a. An Informal ALARA Pre-Job Briefing AND a High Radiation Area Briefing.

b. A Formal ALARA Pre-Job Briefing AND a High Radiation Area Briefing.

c. A Formal ALARA Pre-Job Briefing only.

d. A High Radiation Area Briefing only.

Answer: b

SRO 26

Given the following plant conditions:

- The plant has been on Shutdown Cooling in MODE 5 for 5 days.
- Primary Coolant System (PCS) temperature is 140°F.
- PCS pressure is 80 psia.
- P-55B is the only charging pump operating.

Which of the following sets of plant indications would be used to verify the validity of the following alarm annunciation?

- EK-1157, LO PRESS SI PUMPS P-67A & P-67B TRIP

	PCS Temperature	Letdown Flow
a.	lowers	lowers slightly
b.	rises	rises slightly
c.	rises	remains constant
d.	lowers	remains constant

Answer: b

Palisades Nuclear Plant

Provided References Index for Initial License Exam

December 2001

SRO

- SOP-30, Att. 1
- Operator Aid 136
- ONP-17, Att. 1
- Tech Spec page 3.9.1-1
- Tech Spec page 3.9.2-1
- ONP-23.2, pages 2-5, Att. 1, Att. 2
- EOP Supplement 38
- SOP-38, Att. 4
- M-208, sh. 1A, 1B (FS-0885)
- M-205, sh. 2, lower left area
- Technical Data Book, Fig. 1.9
- ARP-5, window 24
- Tech Spec 1.3, LCO 3.5.2

COMMON

74 WRITTEN QUESTIONS

COMMON 1

Given the following conditions:

- A plant startup is in progress.
- Main Turbine speed is at 1800 RPM.
- Both Main Generator output breakers are OPEN.
- Reactor power is at approximately 5%.
- The NCO starts withdrawing Group 4 control rods to raise Tave and to establish Turbine Bypass Valve opening per SOP-8, "Main Turbine and Generating Systems".

If Group 4 rods CONTINUE to withdraw after the NCO releases the "Raise-Lower" rod control (joystick), which ONE of the following actions should be used to mitigate this event?

a. Place "Rod Control Group Select" switch from position "4" to "OFF".

b. Commence Emergency Boration using the pumped feed method.

c. Ensure the Reactor trips automatically on Variable High Power Trip.

d. Place "Rod Control Mode Select switch from "MS" to "EM OFF".

Answer: d

COMMON 2

The plant is at 27% power and in the process of raising power to 100%. The NCO is withdrawing control rods when the following alarms annunciate:

- EK-0911, "ROD POSITION 4 INCHES DEVIATION"
- EK-0912, "ROD POSITION 8 INCHES DEVIATION"

The NCO verifies rod positions for Group 4 control rods and notes the following:

Rod No.	Position
38	43.2"
39	43.0"
40	43.4"
41	35.1"

Which ONE of the following describes the restrictions on any further movement of Group 4 rods AND the adverse condition that is prevented?

Rod movement of Group 4 rods shall be limited to within ...

a. 4 inches of Rod 41 position to prevent excessive power peaking.

b. 8 inches of Rod 41 position to prevent excessive power peaking.

c. 4 inches of Rod 41 position to prevent inadequate Shutdown Margin.

d. 8 inches of Rod 41 position to prevent inadequate Shutdown Margin.

Answer: b

COMMON 3

Given the following plant conditions:

- The plant was at full power when a Large Break LOCA occurred.
- ALL off-site power was lost.
- Both D/Gs started and loaded per design.

For the given conditions, which one of the following actions will enhance heat removal for reflux boiling?

a. Raising S/G levels from 30% to 55%.

b. Raising S/G pressures by 100 psi.

c. Reducing S/G levels from 55% to 30%.

d. Reducing the output of the ADVs controller.

Answer: a

COMMON 4

A reactor trip and loss of offsite power have occurred. Natural circulation has been established. If the rate of steaming were RAISED, how would natural circulation flow be affected?

Natural Circulation flow would ...

a. REDUCE due to the reduction in subcooling.

b. RISE due to the reduction in decay heat rate.

c. RISE due to the higher thermal gradient.

d. REDUCE due to the higher density of the cold leg.

Answer: c

COMMON 5

There are specific directions in EOP-4.0, "Loss of Coolant Accident Recovery" that allow commencing a cooldown of the Primary Coolant System (PCS) PRIOR to verifying Shutdown Margin requirements provided ...

a. ALL four (4) Primary Coolant Pumps are operating.

b. at least two (2) Primary Coolant Pumps are operating.

c. emergency boration is in progress.

d. ALL control rods are fully inserted.

Answer: c

Special NOTE: Make this the first question on the exam.

COMMON 6

Following a loss of Component Cooling Water while operating on Shutdown Cooling, explicit instructions are given to stop Charging Pump P-55A, if running. No instructions are given regarding the operation of P-55B and P-55C. (Assume NO Primary Coolant Pumps in service.)

Why is P-55A specifically mentioned?

a. P-55A is the only Charging Pump permitted to be operated while on Shutdown Cooling.

b. P-55B and P-55C have NO interface with Component Cooling Water.

c. P-55B or P-55C operation will NOT result in overfilling the pressurizer when PCP bleedoff is isolated.

d. P-55A fluid drive is cooled by Component Cooling Water and has a high temperature trip.

Answer: d

COMMON 7

The plant is operating at power and the following conditions exist:

- Reactor power = 56%
- Primary Coolant System (PCS) pressure = 2060 psia
- Tave = 547°F
- S/G levels = 67%
- Turbine load = 440 MW
- Steam pressure = 795 psia
- Containment pressure = 0.2 psi

Five minutes later, the plant conditions are as follows:

- Reactor power = 58% and continuing to rise.
- PCS pressure = 2051 psia and continuing to lower.
- Tave = 542°F and continuing to lower.
- S/G levels = 69% and continuing to rise.
- Turbine power = 440 MW and steady.
- Steam pressure = 775 psia and continuing to lower.
- Containment pressure = approximately 1.8 psig and continuing to rise.

Based on the indications listed above what is the most likely event in progress?

a. PCS leak inside containment.

b. Feed line break inside containment.

c. Steam line break inside containment.

d. Steam line break outside containment.

Answer: c

COMMON 8

Given the following plant conditions:

- A steam line break has occurred on 'A' SG inside containment.
- The crew is responding in accordance with EOP-6.0, Excess Steam Demand Event.
- The MSIVs have been closed.
- All Primary Coolant Pumps are stopped.

Which of the following is the most effective means of minimizing the overcooling AND Pressurized Thermal Shock (PTS) concerns in the Primary Coolant System?

a. Maintain 'B' SG within 50 psid above 'A' SG until 'A' SG reaches < - 125%, then control the steaming and feeding rate of 'B' SG.

b. Maintain 'B' SG within 50 psid above 'A' SG until 'A' loop T-colds stabilize, then control the steaming and feeding rate of 'B' SG.

c. Delay steaming 'B' SG until 'A' SG reaches < - 125%, then control the steaming and feeding rate of 'B' SG.

d. Delay steaming 'B' SG until 'A' loop T-colds stabilize, then control the steaming and feeding rate of 'B' SG.

Answer: b

COMMON 9

On lowering Main Condenser vacuum, the Turbine Bypass Valve is prohibited from opening in order to ...

a. maintain adequate vacuum to keep the turbine on line.

b. protect the condenser from an overpressure condition.

c. maintain adequate vacuum to keep the Main Feed Pumps on line.

d. minimize the use of turbine exhaust hood spray.

Answer: b

COMMON 10

During a Station Blackout, the ALLOWABLE discharge rate for each Station Battery becomes the LOWEST after what period of time?.

a. 4 hours

b. 2 hours

c. 30 minutes

d. 10 minutes

Answer: c

COMMON 11

With the Y-50 ABT Bypass Handle in the "Emergency" position, what will happen upon a Loss of Bus 1D?

a. The Instrument AC Bus (Y-01) will automatically receive power via the Bypass Regulator.

b. The Instrument AC Bus (Y-01) will automatically swap back to the normal source.

c. The Y-50 ABT will not reposition and the Instrument AC Bus (Y-01) will de-energize.

d. The Y-50 ABT will not reposition and the Instrument AC Bus (Y-01) will remain energized.

Answer: c

(Refer to attached drawing of Y-50 ABT.)

COMMON 12

Given the following conditions:

- The plant is operating at 100% power.
- Service Water Pump P-7A is tagged out for maintenance.
- P-7B is in service with running amps = 80 amps.
- P-7C is in service with running amps = 83 amps.
- All systems are functioning normally for plant conditions.

A problem develops with the Service Water System. The NCO then notes the following indications:

- P-7B Service Water Pump amps indicates 86 amps.
- P-7C Service Water Pump amps indicates 93 amps.

NO operator actions have been taken.

Referring to attached Operator Aid OA-136 (Service Water System), which one of the following is the likely cause of the above

a. A pipe break between P-7C discharge and CV-0844.

b. A loss of instrument air to CV-0844.

c. A loss of instrument air to CV-1359.

d. A partially plugged basket strainer at P-7C discharge.

Answer: a

COMMON 13

During the course of a major fire in the plant, the Shift Supervisor has ordered the Control Room evacuated.

- Actions are being taken outside the Control Room in accordance with ONP-25.2, Alternate Safe Shutdown Procedure.
- Neither Bus 1C or 1D is capable of being energized.
- The SS has ordered Auxiliary Feed Water Pump P-8B started per EOP Supplement 19, Alternate Auxiliary Feedwater Methods.
- SG 'A' level is stable at 25% with no feed flow.
- SG 'B' level is stable at 28% with no feed flow.

At what rate should the SGs be fed AND what is the basis for this rate?

	FEED RATE	**BASIS**
a.	Maximum available	Concerns with potentially limited feedwater supply
b.	Maximum available	Concerns with ensuring adequate PCS subcooling
c.	Gradually	Concerns with pressurizer insurges and outsurges
d.	Gradually	Concerns with thermal stresses on the SG tube bundle

Answer: c

COMMON 14

Given the following conditions:

- At full power a fire occurs which requires manually tripping the Reactor and evacuating the Control Room.
- Alternate Safe Shutdown Panels C150/C150A are to be placed in service.

No one on the operating crew remembers the position that the AVG TEMP DISPLAY SELECT SWITCH was left in prior to evacuation. Which ONE of the following would be an indication that the switch had been left in the "LOOP 2" position?

a. When Panels C-150/C-150A are placed in service, Steam Generator pressures are noted to remain STABLE by observing Steam Generator pressure indicators on Panel C-150A.

b. An operator stationed at Panel C-33 observes that Steam Generator pressures remain STABLE when Panels C-150/C-150A are placed in service.

c. When Panels C-150/C-150A are placed in service, Steam Generator pressures are noted to be LOWERING by observing Steam Generator pressure indicators on Panel C-150A.

d. An operator stationed at Panel C-33 observes that Steam Generator pressures begin LOWERING when Panels C-150/C-150A are placed in service.

Answer: a

COMMON 15

Given the following conditions:

- Plant is in MODE 4 with Primary Coolant System (PCS) temperature at 250°F.
- PCS boron concentration is being raised.

Which of the following could be performed without violating Containment Integrity requirements?

a. A Maintenance repair worker removes a blind flange on a length of Containment penetration piping.

b. Entering through outer Containment airlock door to repair the inoperable inner Containment airlock door.

c. Manually opening an inoperable automatic Containment isolation valve to pump Primary System Drain Tank.

d. Removing all but four bolts on the Containment equipment hatch.

Answer: b

COMMON 16

Which ONE of the following is the LEAST reliable Control Room indication of pressurizer PORV position?

a. PORV position indicating RED and GREEN lights

b. Quench Tank parameters

c. An acoustic monitor

d. Tail pipe temperature

Answer: b

COMMON 17

Which ONE of the following would be a symptom of a fuel cladding failure?
(Assume NO other off-normal conditions.)

a. S/G Blowdown Hi Radiation alarm

b. CCW Hi radiation alarm

c. Stack Gas Hi radiation alarm

d. Service Water Hi radiation alarm

Answer: c

COMMON 18

Given the following:

- The plant is operating at full power for 38 days when a faulty Main Generator protection relay causes a Main Generator trip.
- ALL other equipment functions as designed.

During the performance of EOP-1.0, "Standard Post-Trip Actions," if the NCO-Turbine does NOT manually ramp down the speed of the Main Feed Pumps to MINIMUM speed, which ONE of the following would be a consequence?

a. Main Feed pump turbine damage due to steam generator water carryover.

b. Primary Coolant System (PCS) overcooling transient due to steam generator overfeeding.

c. MSIVs will automatically close, resulting in loss of PCS heat removal capability.

d. Reactor return to criticality due to negative moderator temperature coefficient.

Answer: b

COMMON 19

Given the following:

The plant is at 100% power
CVCS charging and letdown are being secured for approximately 1 hour to perform maintenance.
Tave is maintained constant

Assuming NO additional operator action, which ONE of the following trends will be noted during this period?

	PZR Level	**VCT Level**
a.	LOWERS	RISES
b.	STABLE	LOWERS
c.	LOWERS	STABLE
d.	STABLE	RISES

Answer: a

COMMON 20

Given the following conditions:

- The plant shut down on November 2.
- Today is November 23 and the plant is in MODE 6.
- LPSI Pump P-67A is in service.
- Reactor Vessel head has been removed.
- Primary Coolant System (PCS) has been drained to the level of the vessel flange (624' 6")
- PCS temperature is 95°F

If P-67A trips, how long will it take for the PCS temperature to rise to 200°F?

a. 40 minutes

b. 50 minutes

c. 60 minutes

d. 70 minutes

Answer: c

COMMON 21

Source/Wide Range NI - 1/3A must be taken out of service.

Prior to removing NI - 1/3A from service, which of the following conditions regarding the High SUR Trip RPS channels would be acceptable per procedures? (Assume all other Technical Specification requirements are met.)

	RPS 'A'	**'RPS 'B'**	**RPS 'C'**	**RPS 'D'**
a.	NORMAL	BYPASS	NORMAL	TRIP
b.	BYPASS	NORMAL	TRIP	NORMAL
c.	TRIP	NORMAL	NORMAL	BYPASS
d.	NORMAL	TRIP	BYPASS	NORMAL

Answer: b

COMMON 22

During refueling operations both Source Range NIs become inoperable. The Required Action is to perform a Surveillance Requirement (SR) once per 12 hours. How is this SR satisfied?

a. if Emergency Boration is in progress.

b. hand calculation using EM-04-08.

c. determined by chemical analysis.

d. verifying no dilution operations.

Answer: c

COMMON 23

Given the following conditions:

- Operators are responding to a Steam Generator Tube Leak in accordance with ONP-23.2, implemented 15 minutes ago.
- Reactor power is stable at 99.6%; a power reduction has NOT been initiated.
- PZR level is stable at programmed value.
- RIA-0707 , Steam Generator Blowdown Monitor is in alarm.
- RIA-0631, Condenser Off-gas Monitor indication has rise from an initial value of 5.00E+02 CPM to 5.00E+03 CPM and is stable.
- Air ejector flowrate is 4 CFM.
- Total PCS Xenon 133 is 50μCi/kg and stable as indicated by latest Chemistry sample.

What action is required?

a. Maintain power level and wait for confirmations of a tube leak.

b. Per management discretion, shutdown per GOP-8 at a rate determined by the SS.

c. Shutdown at 30% per hour per GOP-8.

d. Trip the reactor and followup with EOP-5.0.

Answer: c

COMMON 24

The plant was at 99.8% power when a Steam Generator Tube Rupture developed.

- The reactor was tripped and EOP-1.0, "Standard Post-Trip Actions" is completed.
- EOP-5.0, "Steam Generator Tube Rupture Recovery" is in progress.
- It has been determined that the affected S/G must be cooled down by draining it to the Primary Coolant System (PCS) via backflow.
- The operators are to determine if the resulting PCS dilution from the backflow will cause final PCS boron concentration to be less than the Required Shutdown Boron concentration.

Given these plant conditions:

- Required PCS Shutdown Boron concentration = 428 ppm
- Current level in the affected S/G = 90%
- Desired level in the affected S/G = 50%

What is the MINIMUM PCS boron concentration that must be present PRIOR TO draining the steam generator to ensure the Required Shutdown Boron concentration is maintained?

a. 951 ppm

b. 570 ppm

c. 535 ppm

d. 428 ppm

Answer: c

COMMON 25

During a loss of feedwater event, which ONE of the following describes the reason for the Immediate Action to manually RAISE feed pump speed using the individual feed pump speed controller?

a. The speed will rise faster with the individual feed pump speed controller than with the combined speed controller.

b. The speed will rise more slowly with the individual feed pump speed controller than with the combined speed controller.

c. The combined speed controller will not raise the speed of the remaining pump if one is tripped.

d. The feed pump speed will rise too rapidly if the combined feed pump speed controller is used.

Answer: a

COMMON 26

Given the following conditions:

- The plant is in MODE 3.
- Primary Coolant System (PCS) temperature is 450°F.
- Pressurizer pressure is 1200 psia.
- Charging Pump P-55A is operating.
- Charging Pumps P-55B and P-55C are in AUTO.
- Letdown flow is 40 gpm.
- Pressurizer level is at program level.
- VCT level is normal.

A loss of DC Bus D11-1 occurs and the following conditions are noted:

- Pressurizer level remains constant.
- Charging Pump operation remains the same.
- VCT level is lowering.
- Letdown flow indicates 0 gpm.
- Quench tank level is rising.

Which of the following actions should be taken and why?

a. Close Letdown Stop Valve (CV-2003, CV-2004, CV-2005) to maintain containment integrity.

b. Close Letdown Stop Valve (CV-2003, CV-2004, CV-2005) to isolate loss of inventory via RV-2006.

c. Close CV-2009 to maintain containment integrity.

d. Close CV-2009 to isolate loss of inventory via RV-2006.

Answer: b

COMMON 27

Given the attached figure of the Gaseous Effluent Monitor RGEM, RE-2325 (RGEM Iodine Monitor), RE-2326 (RGEM Noble Gas Monitor) and RE-2327 (RGEM Noble Gas Monitor - high range) and the following conditions:

- The controls on both the RGEM unit and on C-11A are aligned properly.
- The Range Selector switch is in NORMAL.
- The Grab Sample Selector switch in OFF.

Which of the following will have automatically occurred once an ALERT and subsequent HIGH ALARM condition has been sensed by RE-2326?

a. RE-2326 sends trip signal to in-service Main Exhaust Fan (V-6A or B).

b. RE-2326 initiates a Containment Isolation Signal.

c. RE-2327 will be placed in service, and a grab sample WILL have been drawn.

d. RE-2327 will be placed in service; NO grab sample will have been drawn.

Answer: c

COMMON 28

Radiological Services personnel are responding to a Control Room HVAC ` (RIA-1818A/1818B) alarm. Which ONE of the following describes the requirement for evacuation of the affected area?

a. Area must be evacuated immediately and until the alarm is proven to be spurious.

b. Area is evacuated after a gamma survey is performed that confirms alarm validity.

c. For a valid alarm, the area is evacuated ONLY after consultation involving the Shift Supervisor and Duty HP person.

d. For a valid alarm, the area does NOT have to be evacuated if an airborne survey has been performed in the last 30 days.

Answer: c

COMMON 29

The plant is at 100% power and the following alarms have annunciated:

- EK-1101, "CONTAINMENT INSTR AIR LO PRESS"
- EK-1102, "INSTRUMENT AIR LO PRESS"
- EK-1103, "SERVICE AIR LO PRESS"

You have entered the appropriate procedure and verified auto actions. Instrument air pressure reads 42 psig. Which ONE of the following conditions is the MOST significant in determining if the Reactor should be manually tripped?

a. Any of the plant deluge or sprinkler systems are operating.

b. CV-2083 closes and PCP Controlled Bleedoff to the VCT is lost.

c. CV-1359 (Non-Critical Service Water Isolation) starts closing.

d. Service Air has isolated.

Answer: c

COMMON 30

The plant is operating at full power with the following Pressurizer Level Control configuration:

- HS 1/LIC-0101, Heater Control Selector, is in the "A and B" position
- LIC-0101A is the IN SERVICE controller, selected for CASCADE mode
- LIC-0101B is in MANUAL, with its output set for 50%
- Charging Pump P-55A is operating, with P-55B and P-55C in AUTO
- All orifice block valves are in AUTO
- Backup Heaters are in MANUAL
- Pressurizer level is at program level

WITH NO OPERATOR ACTION, what is the effect of the diaphragm rupturing on LT-0101A?

a. P-55A will lower to minimum speed, P-55B and P-55C will NOT be running, all orifice block valves will be open, and backup heaters will remain ON.

b. P-55A will raise to maximum speed, P-55B and P-55C will be running, all orifice block valves will be closed, and backup heaters will remain ON.

c. P-55A will raise to maximum speed, P-55B and P-55C will be running, only #1 orifice block valve will be open, and backup heaters will trip OFF.

d. P-55A will lower to minimum speed, P-55B and P-55C will NOT be running, only #1 orifice block valve will be open, and backup heaters will trip OFF.

Answer: a

COMMON 31

During a refueling outage several control rod drive packages were electrically disconnected and have subsequently been reconnected. Verification that the cable reconnections were made to the correct drive packages must be performed. Which ONE of the following methods of verification is NOT acceptable?

a. An electrician takes an amp reading on the power cable to the motor that has been selected for operation. If adequate amps are indicated, proper connection is confirmed.

b. An electrician disconnects the power cable to the selected motor. The Control Room then attempts to move the rod; movement of any control rod indicates improper connection.

c. An operator with a CRDM location map goes out on the Reactor head, and places hand on package to be tested. Operator should feel clutch pickup and vibration when rod is moved.

d. Control Room attempts to move the rod. As long as the SPI stalks are still connected, proper connection can be confirmed by verifying agreement between PIP and SPI indication.

Answer: a

COMMON 32

Given the following conditions:

- Reactor at 100% power.
- Channel "A" RPS bistables trip.
- Channel "A" PZR Level Control in service.
- "A" TMM channel is deenergized.
- NI-05 is deenergized.
- Charging flow raises to 133 gpm.
- Letdown flow reduces to 0 gpm.
- Pressurizer Spray valves close.

Which ONE of the following events has occurred?

a. Loss of Y-10.

b. Loss of Y-20.

c. Loss of Y-30.

d. Loss of Y-40.

Answer: a

COMMON 33

Given the following conditions:

- Reactor power is 8%.
- While performing a 50 gallon dilution, the operator mistakenly enters a value of 500 gallons on FIC-0210A, Primary Makeup Water Controller.
- Several minutes later, while the dilution is still occurring, the operator notes the error.
- Reactor power is rising.
- Primary Coolant System (PCS) temperatures are rising.

Which actions should be immediately performed?

Close CV-2165, Primary Makeup Water Control, and ...

a. trip the Reactor.

b. trip the Primary Makeup Water Pumps.

c. commence emergency boration.

d. stabilize power using control rods.

Answer: d

COMMON 34

Given the following conditions:

- Preferred AC Bus Y-30 is being supplied by the Bypass Regulator.
- Following a seismic event, Vital Instrument Bus Y-01 de-energizes and isolates.
- Due to a loss of coolant accident, pressurizer pressure is at 1610 psia and lowering.

What is the effect of these events on the actuation capability of SIAS?

a. Right Channel SIAS will automatically actuate.
Left Channel SIAS must be actuated by depressing PB1-1, INJECTION INITIATE, push button on C-13.

b. Right Channel SIAS will automatically actuate.
Left Channel SIAS equipment must be manually started.

c. Right Channel SIAS must be actuated by depressing PB1-2, INJECTION INITIATE, push button on C-13.
Left Channel SIAS will automatically actuate.

d. Right Channel SIAS equipment must be manually started.
Left Channel SIAS will automatically actuate.

Answer: b

COMMON 35

When the top two (2) feet of the Reactor Core becomes uncovered ...

a. CETs will indicate that saturated conditions exist.

b. CETs will indicate that superheated conditions exist.

c. incore NI readings will indicate abnormally low.

d. excore NI readings will indicate abnormally low.

Answer: b

COMMON 36

Given the following conditions:

- While operating at 100% power, a loss of offsite power occurs.
- A transition has been made from EOP-1.0 to EOP-8.0, Loss of Offsite Power/Forced Circulation Recovery.

Assuming adequate subcooling exists and loop temperatures are lowering, which ONE of the following sets of parameters would indicate that Natural Circulation has been established?

	T-COLD	T-HOT	CET AVG
a.	534° F	555° F	568° F
b.	520° F	528° F	555° F
c.	510° F	555° F	565° F
d.	535° F	552°F	570° F

Answer: a

COMMON 37

Refer to the attached drawing.
If Service Water Flow Switch FS-0885 reaches its trip setting, this would be an indication of which one of the following?

a. One of the Shield Cooling Heat Exchangers (tube side) has a leak.

b. Recirculation Actuation Signal (RAS) has occurred after a large break LOCA inside containment.

c. A Main Steam Line Break has occurred inside containment.

d. At least one of the Containment Air Coolers has a leak in its Service Water cooling tubes.

Answer: d

COMMON 38

Given the following conditions:

- A LOCA has occurred inside Containment.
- A Recirculation Actuation Signal (RAS) has been received.
- 2400 V Bus 1C is de-energized and isolated due to a fault.
- HPSI Pump P-66A is operating.
- The operators are aligning for recirculation in accordance with EOP-4.0, Loss of Coolant Accident Recovery.

Which of the following alignments would provide the MAXIMUM permissible spray flow and subcooling flow?

a. ONE Containment Spray Valve open
ONE HPSI Subcooling Valve open

b. ONE Containment Spray Valve open
BOTH HPSI Subcooling Valves open

c. BOTH Containment Spray Valves open
ONE HPSI Subcooling Valve open

d. BOTH Containment Spray Valves open
BOTH HPSI Subcooling Valves open

Answer: a

COMMON 39

The plant is operating at 100% power when Condensate Pumps P-2A and P-2B trip. As a result, both Main Feedwater Pumps trip. Which of the following describes why the Main Feedwater Pumps tripped?

a. Reduction in MFW pump suction pressure.

b. Interlock with condensate pump breakers.

c. Overspeed of MFW pump turbines.

d. Excessive vibration of MFW pumps.

Answer: a

COMMON 40

Refer to the attached drawing and locate the component labeled "ST-0523".

For which ONE of the following events would a malfunctioning (stuck closed) ST-0523 be of the MOST concern?

a. Steam Generator Tube Rupture

b. Small Break LOCA

c. Loss of Forced Circulation

d. Station Blackout

Answer: d

COMMON 41

Given the following plant conditions:

- The plant is at full power.
- P-8A Aux Feedwater (AFW) Pump is out of service.
- "A" Steam Generator level lowers to 20% on all four safety channels.

Based on the above plant conditions, which of the following describes the operation of P-8C Aux Feedwater Pump and associated AFW flow controllers? (Assume no operator action.)

	Flow Controller Mode	**AFW Flow to EACH S/G**
a.	AUTO	100 GPM
b.	CASCADE	165 GPM
c.	AUTO	165 GPM
d.	CASCADE	100 GPM

Answer: b

COMMON 42

A loss of which ONE of the following DC panels will result in the majority of the Control Room alarm panels losing power?

a. D11-1

b. D11-2

c. D21-1

d. D21-2

Answer: d

COMMON 43

Given the following:

- A liquid radwaste batch is being released.
- The following alarm then annunciates:

  EK-1365, "PROCESS LIQ MONITORING HIGH RADIATION"

- The NCO verifies RIA-1049 in alarm.

Which ONE of the following automatic actions will occur?

a. Sends a CLOSE signal to both CV-1049 (3" discharge isolation valve) and CV-1051 (1" discharge isolation valve).

b. Starts P-76A Canal Sample Pump so determination can be made for manual termination of the batch by closing MV-CRW172 (Discharge to Lake).

c. Trips the in-service Main Exhaust Fan (V-6A/V-6B) and associated dampers.

d. Trips V-10 (Radwaste Area Supply Fan) and associated dampers.

Answer: a

COMMON 44

Which ONE of the following describes the effect of a Waste Gas Decay Tank (WGDT) pressure rising to 135 psig?

a. A rupture disc will relieve pressure to containment.

b. A rupture disc will relieve pressure to the Waste Gas Surge Tank.

c. A relief valve will relieve pressure to containment.

d. A relief valve will relieve pressure to the Waste Gas Surge Tank.

Answer: d

COMMON 45

Refer to the drawing of the control switch for Control Room HVAC Condensing Unit VC-10.

What is the function of the "OVRD-CHP/CHR" position?

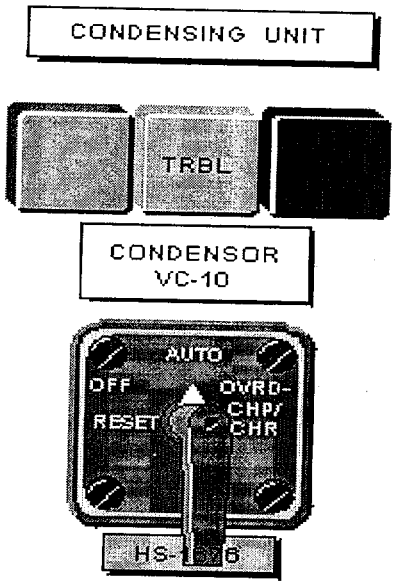
a. Allows VC-10 to automatically start on a CHP or CHR signal.

b. Overrides a CHP or CHR signal and allows VC-10 to run.

c. Overrides load shed circuitry so that VC-10 can be manually started.

d. Allows VC-10 to be manually started only if Air Handler V-95 is running.

Answer: b



COMMON 46

Which ONE of the following Safety Injection Tanks (SIT) is capable of delivering its required volume (by design) of borated water to the Primary Coolant System (PCS) for a large break LOCA?

	SIT	LEVEL (narrow range)	PRESSURE
a.	T-82A	80%	202 psig
b.	T-82B	20%	195 psig
c.	T-82C	60%	224 psig
d.	T-82D	40%	181 psig

Answer: c

COMMON 47

Given the following plant conditions:

- Steady state operation at 100% power
- Primary Coolant System (PCS) pressure is 2061 psia
- The PZR pressure selected controller set point is inadvertently changed to 2240 psia (step change)
- Pressurizer pressure control is in automatic

Which ONE of the following will be the IMMEDIATE response of the system?

a. Pressurizer spray valves open.

b. Pressurizer spray valves close.

c. Proportional heaters go to minimum output.

d. Backup heaters deenergize.

Answer: b

COMMON 48

The plant is operating at full power with the following indications:

- P-55B - in manual control
- P-55C - in auto control
- Charging flow - 40 gpm
- Letdown flow - 40 gpm
- Pressurizer level cycling between 57% to 55% approximately every 30 minutes

Which ONE of the following conditions would account for the above indications?

a. Anti Pump breaker lockout of P-55C has not been reset.

b. Backpressure CV PIC-0202 improperly calibrated.

c. Charging Pump P-55A is out of service.

d. Backup PZR level control signal malfunction.

Answer: c

COMMON 49

Given the following indications:

- Delta T power indicates 43.3%.
- Nuclear power (NI) indicates 41.8%

Which ONE of the following are the new Variable High Power Pre-trip and Trip setpoints when the VHPT RESET button is depressed on Panel C-02?

	VHPT Pre-trip	**VHP Trip**
a.	55.3%	56.8%
b.	54.8%	56.8%
c.	56.3%	58.3%
d.	56.8%	58.3%

Answer: d

COMMON 50

Which of the following is the power supply breaker for the Containment Iodine Removal Fans?

a. 52-131

b. 52-211

c. 52-945

d. 52-1208

Answer: c

COMMON 51

When performing a depressurization of Containment, the operator is directed to make an entry in the Control Room Logbook when the Containment Purge Exhaust Isolation Valves (CV-1805 / 1806 / 1807 / 1808) are opened and closed.

The reason for recording this information is to ...

a. supply data for EM-09-10, Palisades ILRT/LLRT Program.

b. track the length of time entry has been made into TS 3.6.3, Containment Isolation Valves.

c. determine the amount of radioactivity released from Containment.

d. ensure that the valves are open for no more than one hour.

Answer: c

COMMON 52

Given the following conditions:

- The plant is operating at 100% power.
- Annunciator EK-1309, SPENT FUEL POOL LO LEVEL, goes into alarm.
- An Auxiliary Operator confirms that the level of the pool has appeared to drop approximately 2" since last checked, but CANNOT determine where the water has gone.
- Spent Fuel Pool temperature is stable.
- Spent Fuel Pool boron concentration is 1810 ppm.

Makeup to the Spent Fuel Pool should be provided from the ...

a. Safety Injection Refueling Water Tank.

b. Fire Water System.

c. Utility Water Storage Tank.

d. Primary Makeup Water Tank.

Answer: a

COMMON 53

What is the result of placing in service ("cutting in") the containment refueling area radiation monitors (RIA-2316 and RIA-2317)?

a. Lowers the trip setpoints of the four containment high radiation monitors to 25R/hr.

b. Modifies the actuation logic for CHR on the containment high radiation monitors to 1/4.

c. Allows either refueling area radiation monitor to cause containment isolation on a high alarm.

d. Allows a containment isolation signal to change the Spent Fuel Pool ventilation flowpath.

Answer: c

COMMON 54

What effect (if any) does a Small Break LOCA have on the Steam Generators (S/G) AND what actions will help mitigate the event?

a. Due to changing containment conditions, some decalibration of S/G level indications may occur. S/G levels should be maintained between 60% and 70%.

b. The Steam Generators are not affected , since adequate Primary Coolant System (PCS) heat removal occurs through the pipe break.

c. Nitrogen gas from the Safety Injection Tanks would cause the S/G tubes to become gas bound. S/G pressures should be maintained high in the control band to avoid this condition.

d. Void formation in the S/G U-tubes may occur if there are no Primary Coolant Pumps operating. S/G pressures should be maintained HIGHER than PCS pressure to avoid this condition.

Answer: a

COMMON 55

Given the following conditions:

- A reactor trip has occurred from 100% power.
- Tave is currently 536 °F and lowering.
- Main steam pressure is 930 psia and lowering.
- The Turbine Bypass Valve (TBV) and Atmospheric Dump Valves (ADVs) have responded properly.

What is the expected positions of the TBV and ADVs under these conditions?

	TBV	**ADVs**
a.	Full Open	Modulating
b.	Full Open	Full Open
c.	Modulating	Full Open
d.	Modulating	Modulating

Answer: a

COMMON 56

Given the following conditions:

- The plant is at full power
- The crew notes that Main Condenser vacuum has lowered slightly.
- No alarms are annunciating.
- ONP-14, "Loss of Condenser Vacuum" is consulted for guidance.
- It is believed that the Steam Jet Air Ejectors are malfunctioning.

Which additional indications would be observed as a result of rising air in-leakage into the Main Condenser?

a. Lowering Off-Gas count rate.

b. Rising condensate depression.

c. Lowering condenser hotwell level.

d. Rising pressure in Gland Seal steam header.

Answer: a

COMMON 57

When stopping a diesel generator, load is first reduced to approximately 50 kW before the output breaker is opened. What is the basis for this load limitation?

a. D/G trip circuit is energized below 25 kW.

b. generator may motor if load is any LOWER.

c. engine may overspeed if load is any HIGHER.

d. breaker has a manual interlock above 75 kW.

Answer: b

COMMON 58

The solenoid valve on D/G 1-1 belly tank fill line has failed in the closed position, and the D/G is running. Per ONP-20, the fuel oil level in the belly tank can still be controlled by ...

a. throttling the valve upstream of the solenoid valve.

b. installing a red rubber hose from the day tank directly to the belly tank.

c. manual readjustment of the level setpoint in order to force the solenoid valve open.

d. throttling the solenoid valve manual bypass valve.

Answer: d

COMMON 59

You have just received a "COMPONENT COOLING WATER MONITOR" RIA-0915 alarm. What automatic action is initiated by this condition?

a. Isolates the Regenerative Heat Exchanger from the CCW system.

b. Starts the standby CCW pump to raise flow in the system.

c. Automatic fill to the CCW surge tank is automatically terminated.

d. CCW Surge Tank Vent CV-0915 shifts to the vent gas collection header.

Answer: d

COMMON 60

Given the following conditions:

- A loss of offsite power has occurred.
- EOP-8.0, Loss of Offsite Power/Forced Circulation, is being performed.
- DG 1-1 is running and supplying 2400 V Bus 1C.
- DG 1-2 has tripped on overspeed and CANNOT be started.
- Service Water Pump P-7B has been tagged out for several hours for oil replacement.
- DG 1-1 Jacket Water Temperature is 185°F and rising.
- DG 1-1 Lube Oil Temperature is 180°F and rising.

Which of the following actions should be taken?

a. Trip DG 1-1 Overspeed Trip locally and continue in EOP-8.0.

b. Continue to operate DG 1-1 and attempt restoration of SW Pump P-7B.

c. Open DG 1-1 output breaker and transition to EOP-3.0, Station Blackout Recovery.

d. Trip DG 1-1 Overspeed Trip locally and transition to EOP-3.0, Station Blackout Recovery.

Answer: d

COMMON 61

The purpose of the fusible link on a fire door is to ...

a. allow opening and closing of the fire door without setting off the sprinklers.

b. hold the fire door closed under normal conditions, but allow door to be opened during a fire.

c. hold the fire door open under normal conditions, but allow door to close when the link melts.

d. ensure the fire door remains open for personnel escape during a fire in the area.

Answer: c

COMMON 62

Given the following conditions:

- P-7A and P-7C Service Water Pumps are operating
- P-7B is in Standby

Which ONE of the following conditions would result in P-7B automatically starting?

a. 'A' Service Water pump discharge pressure lowers to 35 psig; then stabilizes at 38 psig.

b. "B" Critical Service Water header pressure lowers to 35 psig; then stabilizes at 41 psig.

c. Non-Critical Service Water header pressure lowers to 35 psig; then stabilizes at 41 psig.

d. "A" Critical Service Water header pressure lowers to 41 psig; then stabilizes at 45 psig.

Answer: a

COMMON 63

What is the MAXIMUM Primary Coolant System (PCS) pressure allowed per Technical Specification Safety Limit for PCS pressure for the plant in MODE 4?

a. 2235 psia

b. 2375 psia

c. 2650 psia

d. 2750 psia

Answer: d

COMMON 64

Given the following conditions:

- The Primary Coolant System (PCS) is being heated up with Primary Coolant Pumps P-50A and P-50C in service.
- All required checklists have been completed.
- PCS cold leg temperatures are 222°F.
- Pressurizer water temperature is 250°F.
- All pressurizer heaters are energized.
- PCS heatup rate is 25°F/hour.

Which of the following actions should be taken?

a. Slow the PCS heatup until the pressurizer is at least 50°F above PCS temperature.

b. Slow the Pressurizer heatup until the PCS is within 25°F of the Pressurizer temperature.

c. Secure the PCS heatup and notify the Shift Supervisor of the PCS heatup rate violation.

d. Continue heatups, maintaining PCS temperature between 25°F and 50°F below Pressurizer temperature.

Answer: a

COMMON 74

A tornado has been visually sighted approaching the site.

Which of the following actions should be taken regarding the Diesel Generators?

a. DG 1-1 should be paralleled to off-site power in PARALLEL mode. DG 1-2 should be running unloaded in UNIT mode.

b. Both DGs should be paralleled to off-site power in PARALLEL mode.

c. Both DGs should be running unloaded in UNIT mode.

d. DG 1-1 should be running unloaded in UNIT mode. DG 1-2 should be paralleled to off-site power in PARALLEL mode.

Answer: c

COMMON 73

A Main Steam Line Break outside of containment and upstream of the MSIV for "A" S/G has occurred and the "A" S/G has blown dry. An Auxiliary Operator has been directed to perform the actions outside the Control Room necessary for isolation of **"A" S/G**.

If the Auxiliary Operator mistakenly isolates **"B" S/G**, what effect will this action have on the Control Room's ability to mitigate this event?

a. No effect due to the crosstie line between "A" and "B" main steam lines.

b. No effect since the Control Room can use the Turbine Bypass Valve for PCS Heat Removal.

c. The Control Room has lost the ability to control PCS temperature using the ADVs.

d. The Control Room can no longer control PCS pressure.

Answer: c

COMMON 72

Following a plant transient, EOP-9.0, "Functional Recovery Procedure" is entered. The following Safety Functions are determined to be JEOPARDIZED:

- Heat Removal (HR)
- Containment Atmosphere (CA)
- Pressure Control (PC)
- Inventory Control (IC)

All other Safety Functions are satisfied. The crew should first address ...

a. Heat Removal (HR)

b. Containment Atmosphere (CA)

c. Pressure Control (PC)

d. Inventory Control (IC)

Answer d

COMMON 71

Why is it preferable to use the turbine bypass valve (TBV) instead of the atmosphere dump valves to maintain or cool down the plant with a tube leak/rupture in progress?

a. Minimizes the release of radioactivity.

b. Conserves condensate inventory.

c. Minimizes PCS shrinkage due to excess cooldown.

d. Permits finer control over PCS temperature and pressure.

Answer: a

COMMON 70

A point source in the auxiliary building is reading 500 mrem/hr at distance of two (2) feet. Two options exist to complete rework on a valve near this radiation source.

Option 1: Operator X can perform the assignment in thirty (30) minutes working at a distance of four (4) feet from the point source.

Option 2: Operators Y and Z, who have been trained in the use of a special extension tool can perform the same task in seventy-five (75) minutes at a distance of eight (8) feet from the point source.

Which of the following options is preferable and consistent with the ALARA program?

a. Option 1 since X' s exposure is 31.25 mrem.

b. Option 1 since X' s exposure is 62.50 mrem.

c. Option 2 since the exposure per person is 39.06 mrem.

d. Option 2 since the exposure per person is 78.12 mrem.

Answer: b

COMMON 69

An operator in the RCA exits via the SIRW roof to the Turbine Deck.

What are the normal contamination monitoring requirements when using this exit?

a. Perform a hand and foot frisk AND proceed to Access Control to use the PCM-1B.

b. Don shoe covers and gloves AND proceed to Access Control to use the PCM-1B.

c. A frisk is NOT required, but proceed to Access Control to use the PCM-1B.

d. Perform a whole body frisk when exiting and notify Health Physics technician.

Answer: a

COMMON 68

Given the following conditions:

- A RESTORE TO SERVICE Switching and Tagging Order (STO) has been issued.
- The AO performing the STO reports that two (2) of the tags are inside a contaminated area.

Which of the following methods is prescribed by AP-4.10, Personnel Protective Tagging, to ensure that the correct tags have been removed?

a. A second AO shall enter the contaminated area and verify tag removed from component.

b. The tags shall be bagged and cleared out of the RCA for verification.

c. The AO should read each removed tag verbatim to the NCO over the telephone.

d. A Radiation Service Technician should enter the contaminated area and verify the tag removal.

Answer: c

COMMON 67

Given the following conditions:

- A reactor startup is being performed.
- The Estimated Critical Position calls for Group 4 rods to be at 30 inches at criticality.
- Criticality is actually achieved with Group 3 rods at 6 inches.

Which of the following actions is required?

a. Maintain current rod position and commence emergency boration.

b. Insert all regulating rods to the lower electrical limit and commence emergency boration.

c. Trip the reactor and commence emergency boration.

d. Withdraw regulating rods to the Estimated Critical Position while borating the PCS.

Answer: b

COMMON 66

Which of the following evolutions would be considered a "Core Alteration" by Technical Specifications?

a. Removing the Upper Guide Structure from the Reactor Vessel.

b. Removing the incore detectors from the Reactor vessel.

c. Transferring a control rod between the Reactor vessel and Spent Fuel Pool.

d. Uncoupling all control rods in Shutdown Rod Group "B".

Answer: c

COMMON 65

Given the following conditions:

- The plant is being heated up and is currently at 510°F.
- An attempt to cycle PRV-1043B, Pressurizer Power Operated Relief, has just been performed.
- The PORV indicates that it FAILED to close.

The crew must ...

a. cooldown the plant to less than 200°F.

b. cooldown the plant to between 200°F and 430°F.

c. close the associated block valve within one (1) hour.

d. ensure associated LTOP channel in DEFEAT within one hour.

Answer c