

Question #: 001
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000007EK2.1

Question:
Given the following conditions:

- A reactor trip from full power occurs
- Auxiliary Feedwater Actuation, AFAS, actuates as designed
- P-8A, AFW Pump, is in service
- Plant recovery is in progress in accordance with EOP-2.0, "Reactor Trip Recovery"
- AFW is aligned for normal operation in accordance with SOP-12, "Feedwater System"
- AFAS has NOT been reset

What will be the plant response if Auxiliary Feedwater Pump, P-8A, trips?

- a. AFW Pump, P-8C, will immediately start.
- b. AFW Pump, P-8B, will immediately start.
- c. AFW Pump, P-8C, will start in approximately 30 seconds.
- d. AFW Pump, P-8B, will start in approximately 30 seconds.

ANSWER

c.

REFERENCE

E-17 Sh 21, 21A

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that P-8C does not have a time delay from when low flow is sensed.
- b. Plausible if the student believes that P-8B is next to start in the logic for AFW with no time delay.
- c. CORRECT
- d. Plausible if the student believes that P-8B is next to start in the logic for AFW.

Question #: 002
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000008K304

Question:

A manual reactor trip has occurred due to a PZR vapor space LOCA event. The Reactor Operator notes the following during the performance of EOP-1.0, "Standard Post Trip Actions":

- Pressurizer Pressure is 1250 psia and lowering slowly
- PCS Temperature is 524°F

The Reactor Operator trips P-50A and P-50D, Primary Coolant Pumps. Which one of the following describes the reason for this action?

- a. Prevents pump operation when PCS pressure is below the 25°F sub-cooling curve of EOP Supplement 1.
- b. Prevents pump operation when PCS pressure is below the minimum pressure limit of EOP Supplement 1.
- c. Minimizes PCS inventory loss while maintaining diametrically opposed PCPs in service for core heat removal.
- d. Minimizes PCS inventory loss while still maintaining PCS pressure control via Pressurizer spray valves.

ANSWER

d.

REFERENCE

EOP-1.0 Basis, page 21

EOP Supplement 1

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student does not fully understand the reason for trip 2-leave 2 strategy
- b. Plausible if the student misinterprets EOP Supplement 1 and believes PCS pressure is < min. for PCP operation
- c. Plausible if the student believes the reason for 2 PCPs is to remove core heat
- d. CORRECT

Question #: 003
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000009A104

Question:

Following a manual reactor trip due to a small break LOCA, the following conditions are noted during EOP-1.0, "Standard Post Trip Actions."

- Pressurizer Level Controller, LIC-0101B is in service
- Pressurizer level has slowly lowered to 34% on LIC-0101B
- Pressurizer Pressure is 1750 psia
- Charging and Letdown systems are aligned for normal operation in accordance with SOP-2A, "Chemical and Volume Control System"

Which one of the following lists the response of the Chemical Volume Control System (CVCS) components due to this event?

	P-55B Status	P-55C Status	Orifice Stop Valves Open
a.	OFF	OFF	1
b.	ON	ON	1
c.	ON	ON	0
d.	OFF	OFF	0

ANSWER

c.

REFERENCE

ARP-4, window 63/64

SOP-2A, attachment 2

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that B and C charging pumps are started by SIS signal only and does not correctly apply PZR level low trip to CV-2003 (orifice stop) closing
- b. Plausible if the student correct applies PLCS operation to B and C charging pumps but does not correctly apply PZR level low trip to CV-2003 (orifice stop) closing
- c. CORRECT
- d. Plausible if the student believes that B and C charging pumps are started by SIS signal only and student correctly applies PZR level low trip to CV-2003 (orifice stop) closing

Question #: 004
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000015/17A208

Question:

With the plant operating at 35% power, a loss of Component Cooling Water event occurs. Alarm EK-0908, "PRI COOLANT PUMP P-50B HI TEMP OVERLOAD" is annunciating. Which one of the following conditions requires a manual reactor trip?

- a. Thrust Bearing temperature indicates 191°F.
- b. Controlled Bleedoff temperature indicates 178°F.
- c. Pump Motor Stator Temperature indicates 135°C.
- d. Lower Seal temperature indicates 177°F.

ANSWER

a.

REFERENCE

ONP-6.2 section 4.3, ARP-5 window 8

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible if the student believes that PCP trip criteria require a trip for this condition.
- c. Plausible because the alarm setpoint is 140°F but this alarm does not require the pump be tripped.
- d. Plausible if the student believes that PCP trip criteria require a trip for this condition

Question #: 005
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000022 2.2.44

Question:

The Plant is operating at 50% power when ALL charging flow is lost. The following conditions exist:

- PZR level was at program level when letdown was immediately isolated
- PZR level is lowering at a rate of 1% every fifteen (15) minutes (after letdown was isolated)

Assuming charging and letdown systems are NOT restored, approximately how long can PZR heater operation be maintained?

- a. 120 minutes
- b. 205 minutes
- c. 315 minutes
- d. 360 minutes

ANSWER

b.

REFERENCE

SOP-1A, attachment 10; ONP-18, 4.2.1

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if low level cutout of 42% is used, this number is the minimum program level
- b. CORRECT -PZR level at 50% power is ~49.5%. PZR Heater cutout is 36%, leaving 13.5% level until heaters are off. PZR level lowering 1% every 15 minutes - $13.5 \times 15 = 203$ minutes
- c. Plausible if program level of 57% is used which is program for 100% power
- d. Plausible and symmetrical

Question #: 006
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000025K101

Question:
Given the following plant conditions:

- PCS cooldown is in progress with a 20°F/Hour cooldown rate
- Shutdown Cooling is in service
- A Loss of ALL Instrument Air occurs

Which one of the following describes the Shutdown Cooling System response to the loss of Instrument Air? Shutdown Cooling...

- a. flow is lost.
- b. heat removal is lost.
- c. flow is degraded.
- d. heat removal is maximum.

ANSWER

b.

REFERENCE

ONP-7.1, section 4.1, M-204 sheet 1

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that the SDC HX inlet/outlet and bypass valves fail closed
- b. CORRECT
- c. Plausible if the student believes that the SDC HX bypass valve does not fail open on loss of air
- d. Plausible if the student believes that the HX inlet fails open and the bypass fails closed

Question #: 007
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000026K302

Question:

CV-0945 and CV-0946, CCW Heat Exchanger Inlet Valves, receive an open signal during emergency conditions. What condition generates the open signal and what is the reason for this signal?

- a. Safety Injection Signal (SIS). Ensures 100% cooling is available post accident.
- b. Recirculation Actuation Signal (RAS). Ensures 100% cooling is available post accident.
- c. Safety Injection Signal (SIS). Maintains minimum flow for CCW pumps.
- d. Recirculation Actuation Signal (RAS). Maintains minimum flow for CCW pumps.

ANSWER

b.

REFERENCE

DBD 1.01, 3.2.3.3; M-209, sheet 3

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that these valves isolate on a SIS signal
- b. CORRECT
- c. Plausible if the student believes that these valves isolate on a SIS signal
- d. Plausible if the student believes that both valves must be open to provide minimum flow requirements in the case that all 3 CCW pumps start

Question #: 008
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000027K303

Question:
Given the following:

- Annunciator EK-0744 "PRESSURIZER SAFETY VALVE RV-1039 DISCH HI TEMP" is alarming
- ONP-23.1, "Primary Coolant Leak", is entered
- The CRS directs a manual reactor trip due to PCS leak rate trip criteria being exceeded
- Following the actions of EOP-1.0, "Standard Post Trip Actions," EOP-4.0, "Loss of Coolant Accident Recovery," is entered
- PCS pressure is 1895 psia and lowering slowly

The Control Room Supervisor directs the Reactor Operator to lower PCS pressure to a band of 1690 -1790 psia in accordance with EOP-4.0. Which one of the following describes the reason for this action?

This pressure band is....

- a. sufficiently above the Safety Injection Actuation setpoint yet is well below the Pressurizer Code Safety Valve setpoint.
- b. high enough to maintain at least 50°F PCS subcooling yet is well below the Pressurizer Code Safety Valve setpoint.
- c. high enough to maintain at least 50°F PCS subcooling yet is low enough to maximize the amount of time until Quench Tank, T-73, rupture disc actuates.
- d. sufficiently above the Safety Injection Actuation setpoint yet is low enough to maximize the amount of time until Quench Tank, T-73, rupture disc actuates.

ANSWER

a.

REFERENCE

EOP-4.0 Basis, step 10.f

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible as subcooling is a concern during a PZR Safety Valve leak
- c. Plausible as subcooling and quench tank rupture disc actuating are concerns during a PZR Safety Valve leak
- d. Plausible as quench tank rupture disc actuating is a concern during a PZR Safety Valve leak

Question #: 009
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000029A112

Question:
With the plant at 100% power the following occurs:

- The Main Turbine trips due to a low vacuum condition, but the reactor does NOT trip
- The Reactor Operator attempts to trip the reactor using the pushbutton on panel C-02 but is unsuccessful
- The Turbine NCO successfully trips the reactor using the pushbutton on panel C-06

Based on the above conditions, which one of the following describes the status of Reactor Trip Breakers, 42-1RPS/42-2RPS and EK-0972, Reactor Trip Alarm Red Tile Annunciator?

- a. 42-1RPS and 42-2RPS are CLOSED. EK-0972 is OFF.
- b. 42-1RPS and 42-2RPS are CLOSED. EK-0972 is LIT.
- c. 42-1RPS and 42-2RPS are TRIPPED. EK-0972 is OFF.
- d. 42-1RPS and 42-2RPS are TRIPPED. EK-0972 is LIT.

ANSWER

d.

REFERENCE

ARP-5, window 72; Drawing M1Q-114

NEW

HIGH

DISTRACTOR ANALYSIS

- a. The student misapplies the method of trip from C-06 and believes that the Reactor trip alarm may not annunciate if C-06 method is used.
- b. The student correctly applies that the Reactor trip alarm is lit but misapplies the method of reactor trip from C-06.
- c. The student correctly applies the method of reactor trip from C-06 and believes that the Reactor trip alarm may not annunciate if C-06 method is used.
- d. CORRECT

Question #: 010
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000038A203

Question:

During implementation of EOP-5.0, "Steam Generator Tube Rupture Recovery," which one of the following CANNOT be used to determine the most affected Steam Generator?

- a. Steam Generator level change when not feeding.
- b. Steam Generator sample analysis results.
- c. Feed Regulating Valves position (prior to trip).
- d. Steam Generator Blowdown Valves position.

ANSWER

d.

REFERENCE

EOP-5.0, step 21

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible -listed in EOP-5.0, step 21
- b. Plausible -listed in EOP-5.0, step 21
- c. Plausible -feed flow mismatch between S/Gs listed in EOP-5.0, step 21
- d. CORRECT -If S/G blowdown radiation monitor alarms, all blowdown valves isolate

Question #: 011
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000040 2.4.2

Question:
Given the following:

- The plant is in MODE 1 at full power
- A steam line break occurs OUTSIDE the Containment Building UPSTREAM of CV-0510,

"A" Steam Generator Main Steam Isolation Valve (MSIV)

- "A" S/G Pressure indicates 475 psia
- "B" S/G Pressure indicates 850 psia

Which one of the following describes the expected response of the MSIVs and Feed Regulating Valves (FRVs) to this event?

- a. BOTH "A" and "B" S/G MSIVs close.
BOTH "A" and "B" S/G FRVs close.
- b. BOTH "A" and "B" S/G MSIVs close.
ONLY "A" S/G FRV closes.
- c. ONLY "A" S/G MSIV closes.
BOTH "A" and "B" S/G FRVs close.
- d. ONLY "A" S/G MSIV closes.
ONLY "A" S/G FRV closes.

ANSWER

b.

REFERENCE

M-207, sheet 1; EOP Supplement 6

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that all valves close similar to a CHP event.
- b. CORRECT -S/G pressure is a diagnostic indication in determining entry into EOP-6.0, ESDE.
- c. Plausible if the student misapplies the concept that only the "A" FRV closes.
- d. Plausible if the student believes that the goal of a MSIS on low S/G pressure is to isolate only the affected S/G.

Question #: 012
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000054 EK1.3

Question:
Given the following:

- Plant power is 76%
- MFPs, P-1A and P-1B are in service

Based on the above conditions, which one of the following requires an immediate reactor trip and entry into EOP-1.0, "Standard Post Trip Actions?" Consider each choice separately.

- a. EK-0160, "FDWTR PUMPS LO SUCTION," alarms with MFP suction pressure indicating 280 psig.
- b. EK-0143, "FW PUMP P1A TURBINE K7A TRIP," alarms with associated Trip & Throttle Valves indicating closed.
- c. EK-0960, "STEAM GEN E-50A LO LEVEL," alarms with 'A' S/G level indicating 47% and lowering.
- d. EK-0961, "STEAM GEN E-50A HI LEVEL," alarms with 'A' S/G level indicating 58% and lowering.

ANSWER

d.

REFERENCE

ONP-3, 3.2 and 4.1

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible but ONP-3 does not direct tripping reactor unless both MFPs trip as a result.
- b. Plausible because if power were > 80%, ONP-3 directs the reactor to be tripped.
- c. Plausible however, ONP-3 directs restoring level by manual control of FRVs and MFPs.
- d. CORRECT -This indicates a failure of the high level override circuitry.

Question #: 013
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000056K101

Question:
Given the following plant conditions:

- A reactor trip has occurred
- 4160 Volt Buses 1A and 1B are de-energized
- EOP-1.0, "Standard Post Trip Actions" has been completed
- EOP-8.0, "Loss of Offsite Power/Forced Circulation Recovery," has been implemented

Which one of the following would indicate that natural circulation has NOT been established?

- a. Loop hot leg and cold leg temperatures are constant.
- b. Average CET temperature indicates 20°F PCS subcooling.
- c. Average CET temperature is 43°above loop cold leg temperatures.
- d. Loop hot leg temperatures are 10°F less than average CET temperature.

ANSWER

b.

REFERENCE

EOP-8.0, step 19

MODIFIED

HIGH

DISTRACTOR ANALYSIS

- a. Hot leg temps are constant and lowering
- b. CORRECT -If CET indicates less than 25°subcooled
- c. CET - T_C is less than 50°F
- d. Hot leg temps are within 15°of average CET temp

Question #: 014
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000057K301

Question:
Give the following conditions:

- The plant is in MODE 2
- Charging Pump P-55A is operating
- Charging Pumps P-55B and P-55C are in AUTO
- Letdown is in service
- A loss of Instrument AC Bus Y01 occurs

ONP-24.5, "Loss of Instrument AC Bus Y01" directs the operators to isolate PCP bleedoff from the Volume Control Tank (VCT) and realign it to the Primary System Drain Tank. Which one of the following describes the reason for this action?

- a. Minimizes the likelihood of gas intrusion in to the PCP seals.
- b. Minimizes the amount of pressure reduction in the VCT.
- c. Prevents a complete draining of the VCT.
- d. Prevents overfilling of the VCT.

ANSWER

d.

REFERENCE

ONP-24.5, section 2.0 and note prior to 4.4

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible because the student misapplies the DIRECTION of inventory/energy exchange between VCT and PCP bleedoff.
- b. Plausible because the student misapplies the DIRECTION of inventory/energy exchange between VCT and PCP bleedoff.
- c. Plausible because the student misapplies the interface between VCT and PCP seal bleedoff.
- d. CORRECT

Question #: 015
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000058A101

Question:

The following alarm is received in the control room:

EK-0548 "125V DC BUS UNDERVOLTAGE/TROUBLE"

The cause of the alarm is determined to be 125V DC Bus D-20 tie breaker, 72-20, tripping and de-energizing DC Bus D-20L. Which one of the following actions will restore power to D-20L?

- a. Place Battery Charger #2 in service from MCC-2.
- b. Place Battery Charger #4 in service from MCC-2.
- c. Place Battery Charger #2 in service from MCC-1.
- d. Place Battery Charger #4 in service from MCC-1.

ANSWER

d.

REFERENCE

ONP-2.3, attachment 1

ARP-3, window 48

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that charger #2 supplies D-20L, it actually supplies D-20R
- b. Plausible if the student believes that charger #4 is powered from MCC-2, it is actually supplied by MCC-1
- c. Plausible if the student believes that charger #2 supplies D-20L and it receives power from MCC-1
- d. CORRECT

Question #: 016
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000062A202

Question:
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 motor amps indicating 80 amps
- P-7C is in service with motor amps indicating 83 amps

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

- EK-1163, "CRITICAL SERV WATER HEADER "B" LO PRESSURE" is annunciating
- "B" Critical SW Header Pressure indicates 40 psig
- P-7B motor amps indicate 86 amps
- P-7C motor amps indicate 93 amps

NO operator actions have been taken. Which one of the following accounts for the above conditions?

- a. A break on the discharge pipe of P-7C, Service Water Pump.
- b. A loss of instrument air to CV-0844, Critical SW Header B Isolation.
- c. A loss of instrument air to CV-1318, P-7A SW Pump Cross Tie.
- d. A plugged discharge basket strainer for P-7B and P-7C.

ANSWER

a.

REFERENCE

M-213, M-208, sheet 1A

BANK

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible if the student believes that this alarm switch is located downstream of CV-0844
- c. Plausible if the student believes that if this valve fails closed, Critical Header 'B' pressure will be low
- d. Plausible if the student believes that motor amps will rise for a plugged discharge strainer

Question #: 017
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000065 2.1.7

Question:

A loss of instrument air has resulted in a plant trip from 100% power. All equipment operates as designed under loss of air conditions. The correct method for maintaining the PCS heat removal function from the Control Room following the reactor trip is to use the:

- a. Atmospheric Dump Valves to control PCS temperature and AFW Pump, P-8C, for Aux Feedwater to the S/Gs.
- b. Turbine Bypass Valve to control PCS temperature and AFW Pump, P-8A, for Aux Feedwater to the S/Gs.
- c. Atmospheric Dump Valves to control PCS temperature and AFW Pump, P-8A, for Aux Feedwater to the S/Gs.
- d. Turbine Bypass Valve to control PCS temperature and AFW Pump, P-8C, for Aux Feedwater to the S/Gs.

ANSWER

c.

REFERENCE

ONP-7.1, Attachment 1 and Attachment 2

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible however, P-8C control valves fail open on loss of instrument air
- b. Plausible, however, the TBV fails closed on loss of instrument air
- c. CORRECT -ADV and P-8A control valves have nitrogen backup
- d. Plausible, however, P -8C control valves fail open and TBV fails closed on loss of instrument air

Question #: 018
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000077K103

Question:
Given the following initial conditions:

- Plant power is 100%
- Main Generator Load is 823 MW
- Main Generator Reactive load is zero (0) MVARs

A voltage disturbance occurs on the grid which causes Main Generator Reactive load to change to 300 MVARs IN. This is a concern because the Main Generator is now (1) which can cause (2) .

- a. (1) UNDER-excited
(2) High Stator end iron temperatures
- b. (1) OVER-excited
(2) High Stator end iron temperatures
- c. (1) UNDER-excited
(2) Rotor pole slippage
- d. (1) OVER-excited
(2) Rotor pole slippage

ANSWER

a.

REFERENCE

ARP-2, window 6; SOP-8, attachment 1, 4.3

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT -Under-excitation causes circulating currents (eddy currents) in the laminations of the Generator Stator frame which lead to high end iron temperatures.
- b. MVARs IN is under excited, student misapplies this concept.
- c. Student believes that if the rotor field is weak, pole slippage can occur, this applies only in motors.
- d. Student misapplies concepts in both B and C above.

Question #: 019
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000028 2.1.31

Question:
Given the following conditions:

- The plant is operating at 100% power
- Pressurizer Level Controller, LIC-0101B, is in service in the CASCADE mode
- Pressurizer Level Transmitter, LT-0101B, diaphragm ruptures, equalizing pressure across the diaphragm

Indicated Pressurizer level will _____ (1) _____ and the Pressurizer level control system will respond by _____ (2) _____.

- a. (1) rise
(2) opening CV-2004 and 2005, Letdown Stop Valves
- b. (1) lower
(2) raising speed of P-55A, Charging pump
- c. (1) rise
(2) securing P-55A, Charging pump
- d. (1) lower
(2) closing CV-2003, Letdown Stop Valve

ANSWER

a.

REFERENCE

SOP-2A, attachment 2

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible if the student believes that the LT is a dry reference leg
- c. Plausible but P-55A is not secured by the PLCS, only driven to minimum speed
- d. Plausible if the student believes that the LT is a dry reference leg

Question #: 020
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000036K101

Question:
The following conditions exist:

- The plant is in MODE 6
- The control room crew notices Reactor Cavity water level lowering on the refueling camera
- ONP-23.3, "Loss of Refueling Water Accident," is entered

ONP-23.3 requires the Containment to be evacuated if an alarm is received on either Fuel Handling Area Monitor, RIA-2316/2317 (set @ 80mr/hour). Which one of the following annunciators would indicate that radiation level exceeded 80mr/hr at the 649' level of Containment?

- a. EK-1101, "CONTAINMENT INSTR AIR LO PRESS"
- b. EK-0201, "CONT GAMMA RIA-2321 HIGH"
- c. EK-1363, "CONTAINMENT HI RADIATION"
- d. EK-1126, "CIS INITIATED"

ANSWER

d.

REFERENCE

ONP-23.3, 4.6; E-17, sheet 7

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student thinks that a containment hi rad signal closes CV-1211 on a hi rad condition.
- b. Plausible but the containment high range monitors do not feed this alarm.
- c. Plausible but this alarm is actuated by rad monitors @ 10R/hour.
- d. CORRECT

Question #: 021
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000037A207

Question:

Which one of the following lists is inclusive of all Radiation Monitors that will all indicate an upward trend during a Steam Generator Tube Leak event?

- a. RIA-0631, Condenser Off-Gas Monitor, ONLY.
- b. RIA-0631, Condenser Off-Gas Monitor, AND Stack Gas Effluent Monitor (RGEM).
- c. RIA-0631, Condenser Off-Gas Monitor, AND RIA-1809, Radwaste Ventilation Monitor.
- d. RIA-0631, Condenser Off-Gas Monitor, AND RIA-1809, Radwaste Ventilation Monitor, AND Stack Gas Effluent Monitors (RGEM).

ANSWER

b.

REFERENCE

ONP-23.2; M-206, sheet 1C; M-218, sheet 2

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student does not know that the flow path for air ejector exhaust into the stack is sampled by the RGEM
- b. CORRECT
- c. Plausible if the student believes that the flow path for air ejector exhaust taps in to the radwaste ventilation system (V-14A/B) and student does not know that the flow path for air ejector exhaust into the stack is sampled by the RGEM
- d. Plausible if the student believes that the flow path for air ejector exhaust taps in to the radwaste ventilation system (V-14A/B)

Question #: 022
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000061K302

Question:

The following conditions exist:

- The plant is in MODE 6
- Alarm EK-1366, "PLANT AREA MONITORING HI RADIATION," has alarmed due to RIA-2313, SFP Criticality Monitor

The Alarm Response Procedure for EK-1366, ARP-8, directs you to place HS-1893, Fuel Handling Fan and Damper Emergency Trip switch, to the EMERGENCY TRIP position. Which one of the following describes the resultant equipment actuation and the reason for this action?

- a. Trips V-69, Fuel Handling Area Supply Fan, AND V-70A/B, Fuel Handling Area Exhaust Fans. Isolates a direct path for radioactive release to the environment.
- b. Trips V-69, Fuel Handling Area Supply Fan, ONLY. Maintains a negative pressure in the SFP while minimizing exhaust flow rate.
- c. Trips V-69, Fuel Handling Area Supply Fan, AND V-70A/B, Fuel Handling Area Exhaust Fans. Ensures NO air is supplied to or removed from the SFP area.
- d. Trips V-69, Fuel Handling Area Supply Fan, ONLY. Ensures contamination is not spread throughout the SFP Area by the supply fan.

ANSWER

a.

REFERENCE

ARP-8, window 66; M-658, sheet 1

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible as this is what occurs if RIA-5712, process monitor, alarms
- c. Plausible but the fuel handling exhaust fans, V-8A/B will still be in service.
- d. Plausible as this is what occurs if RIA-5712, process monitor, alarms

Question #: 023
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000067A106

Question:

Upon receiving notification of a fire in the plant and after making the initial announcement of the fire location, the fire alarm shall be sounded for a minimum of:

- a. 60 seconds
- b. 45 seconds
- c. 30 seconds
- d. 15 seconds

ANSWER

d.

REFERENCE

FPIP-2, 5.2.1

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible time
- b. Plausible time
- c. Plausible time
- d. CORRECT

Question #: 024
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000068A204

Question:
Given the following:

- The Reactor was tripped and the control room evacuated due to a fire in the CRHVAC system
- ONP-25.2, "Alternate Safe Shutdown Procedure," has been implemented
- EOP-1.0, "Standard Post Trip Actions," have been completed

When verifying PCS/Core heat removal safety function, which one of the following locations does ONP-25.2 direct Steam Generator pressure be determined?

- a. Turbine Front Standard.
- b. Redundant Safety Injection Panel, C-33.
- c. Auxiliary Hot Shutdown panel, C-150A.
- d. Auxiliary Feedwater Pump Room.

ANSWER

c.

REFERENCE

ONP-25.2, step 40

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible because the student may believe that S/G pressure can be obtained by using main steam header pressure
- b. Plausible because the student may know that S/G pressure indication is available outside the control room, they may not know which panel.
- c. CORRECT
- d. Plausible because the student may believe that S/G pressure can be obtained from AFW pump discharge pressure

Question #: 025
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 000069 2.4.9

Question:

In various places throughout the Emergency Operating Procedures, the term "degraded containment" is used. What is the definition of this term and its significance to the operating crew?

- a. Containment integrity has been lost. The operating crew must now consider this safety function as jeopardized, and initiate immediate actions to restore containment integrity.
- b. Containment radiation monitors are indicating > 10R/hour. The operating crew must ensure CHR has initiated.
- c. Containment pressure has exceeded 3.0 psig AND temperature has exceeded 175°F. The operating crew may resume use of the non-degraded containment operating curves once BOTH containment parameters have returned to normal.
- d. Containment pressure has exceeded 3.0 psig OR temperature has exceeded 175°F. Use of degraded containment operating curves must continue throughout the remainder of the EOP, even if containment parameters have returned to normal.

ANSWER

d.

REFERENCE

EOP Supp 1, page 4; EOP Supplement 1 Basis, page 4

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that degraded containment refers to containment safety function as being jeopardized.
- b. Plausible if the student believes that degraded containment refers to radiation levels above CHR setpoint.
- c. Plausible if the student believes that normal curves can be used when degraded containment conditions no longer are present.
- d. CORRECT

Question #: 026
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: W/E08 AK1.2

Question:
Given the following:

- A Main Steam Line Break has occurred UPSTREAM of the 'B' S/G MSIV
- All AFW flow to 'B' S/G is isolated
- Main Steam Line Isolation has automatically actuated

Which one of the following is the basis for establishing a steaming path from 'A' Steam Generator prior to dryout of the 'B' Steam Generator?

To prevent ...

- a. A void formation in the Reactor Vessel upper head region.
- b. A rapid rise in core exit temperatures causing a loss of natural circulation.
- c. A rapid rise in TC of the unaffected loop which would result in a loss of natural circulation.
- d. A rapid pressurization of the PCS and subsequent pressurized thermal shock.

ANSWER

d.

REFERENCE

EOP-6.0, Basis, step 16

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Void formation is an undesirable condition, but the concern does not apply here.
- b. Valid distractor since loss of natural circulation is a concern, but does not apply for given conditions.
- c. Valid distractor since loss of natural circulation is a concern, but does not apply for given conditions.
- d. CORRECT

Question #: 027
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: CE/A16 AK2.1

Question:
Given the following:

- The plant is at 100% power
- CCW Surge Tank level is 50% and stable
- Then, a leak occurs in the Primary Coolant Pump Seal Cooler

Due to this leak, the following alarm annunciates:

EK-1365, "PROCESS LIQ MONITORING HI RADIATION"

Which one of the following describes the expected indication for CCW Surge Tank Vent, CV-0915, and CCW Surge Tank Makeup Valve, CV-0918?

- a. CV-0915 lined up to the Vent Gas Collection Header (VGCH).
CV-0918 closed.
- b. CV-0915 lined up to the Vent Gas Collection Header (VGCH).
CV-0918 open.
- c. CV-0915 lined up to the Waste Gas Surge Tank.
CV-0918 closed.
- d. CV-0915 lined up to the Waste Gas Surge Tank.
CV-0918 open.

ANSWER

a.

REFERENCE

ARP-8, window 65 and attachment 3, page 3

BANK

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible if the student believes that the CCW Surge tank will lower causing the makeup valve to open
- c. Plausible if the student believes that the surge tank vent can alternately be aligned to the waste gas surge tank
- d. Plausible combination of b and c

Question #: 028
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 003K103

Question:

Given the attached drawing of PR-0140B, PCP P-50D, seal pressure recorder, which one of the following seal stages have failed?

- a. 1st stage only
- b. 2nd stage only
- c. 1st and 2nd stage only
- d. 2nd and 3rd stage only

ANSWER

b.

REFERENCE

ARP-5, Attachment 1, page 2

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that when the 1st stage fails, the reading equalizes with 2nd stage
- b. CORRECT
- c. Plausible if the student believes that when 1st and 2nd stages fail, they equalize.
- d. Plausible if the student believes that 1st stage reading is on left and 2nd and 3rd stages equalize.

Question #: 029
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 003K201

Question:
Given the following plant conditions:

- The plant is at full power
- A severe thunderstorm is in progress
- An undetermined transient causes the following to occur:
 - Plant trip
 - An overcurrent fault condition on Startup Transformer 1-3 causes 'R' Bus to clear

Assuming NO additional malfunctions and all other equipment functions as designed, which, if any, Primary Coolant Pumps will be operating?

- a. ALL Primary Coolant Pumps.
- b. ONLY P-50A and P-50C.
- c. ONLY P-50B and P-50D.
- d. NO Primary Coolant Pumps.

ANSWER

d.

REFERENCE

E-1, sheet 1; E-17, sheet 9

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that A and B bus will fast transfer to S/U XFMR 1-1
- b. Plausible if the student believes that S/U XFMR will stay energized, however 'R' bus will trip
- c. Plausible if the student misapplies power supplies for PCPs and believes that S/U XFMR 1-1 will stay energized
- d. CORRECT

Question #: 030
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 004K304

Question:

Which statement describes the consequence of a high Volume Control Tank (VCT) pressure with Primary Coolant Pump Controlled Bleed-Off (CBO) in service during a plant startup?

- a. Excessive operator dose because the VCT must be manually vented locally to prevent PCP seal damage.
- b. Potential PCP seal failure due to reverse CBO flow if VCT pressure is greater than PCS pressure.
- c. Potential PCP seal failure due to excessive CBO flow if RV-2082, PCP CBO Relief Valve, lifts.
- d. Auto isolation of Controlled Bleed-Off (CBO) due to closure of CV-2099, PCP CBO Cont. Isolation, on high VCT pressure.

ANSWER

b.

REFERENCE

SOP-1C note prior to 7.1.2.m

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible because the pressure regulator for gas to the VCT is located in a high dose area
- b. CORRECT
- c. Plausible because RV-2082 is located on the CBO line to the VCT but the piping is only 3/4"
- d. Plausible if the student believes that the function of this valve is to isolate the VCT on high pressure

Question #: 031
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 005K603

Question:
Given the following conditions:

- The plant is in MODE 5
- Shutdown Cooling System is in service
- PCS temperature is 175°F
- The control room crew notices PCS temperature RISING

Which one of the following (1) accounts for the PCS temperature rise AND (2) lists the maximum allowable heatup rate?

- a. (1) CV-3025, SDC Heat Exchanger Outlet, failed open.
(2) 40°F/Hour.
- b. (1) CV-3212, 'B' SDC Heat Exchanger Inlet, failed closed.
(2) 20°F/Hour.
- c. (1) CV-3006, SDC Heat Exchanger Bypass, failed open.
(2) 20°F/Hour.
- d. (1) CV-3006, SDC Heat Exchanger Bypass, failed open.
(2) 40°F/Hour.

ANSWER

d.

REFERENCE

M-204, sheet 1; Tech Spec 3.4.3

MODIFIED

HIGH

DISTRACTOR ANALYSIS

- a. Incorrect reason, CV-3025 failing open will cause PCS temperature to lower
- b. Possible reason, incorrect H/U rate limit
- c. Possible reason, incorrect H/U rate limit
- d. CORRECT

Question #: 032
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 006K508

Question:
Given the following:

- A large break LOCA has occurred
- SIRWT Level is 20%
- PCS pressure is 275 psia
- Safety injection has actuated and all equipment operates as designed

LPSI Pumps, P-67A and P-67B (1) currently injecting water into the PCS and will trip on a low SIRWT Level (RAS) of 2% (2).

- a. (1) are
(2) to prevent clogging the Containment Sump screens
- b. (1) are NOT
(2) to prevent clogging the Containment Sump screens
- c. (1) are
(2) because there is insufficient net positive suction head (NPSH) during RAS
- d. (1) are NOT
(2) because there is insufficient net positive suction head (NPSH) during RAS

ANSWER

d.

REFERENCE

DBD-2.01, 3.2 and 3.3.1.5.H

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Student misapplies the minimum shutoff head of LPSI and the reason for trip.
- b. Student applies the correct minimum shutoff head but misapplies the reason.
- c. Student misapplies the minimum shutoff head and correctly applies the reason for the trip.
- d. CORRECT -This question meets the intent of the K/A because the HPSI and LPSI pumps operate in parallel during SIS actuation, but have different shutoff heads, 1250 psia for HPSI, 200 psia for LPSI. Due to this, the LPSI pumps must be tripped on a RAS because of insufficient NPSH while the HPSI pumps have containment spray discharge aligned to their suction to satisfy NPSH requirements.

Question #: 033
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 007K502

Question:

With the plant in MODE 4 and Pressurizer steam bubble formation in progress in accordance with SOP-1C, "Primary Coolant System - Heatup," which one of the following methods are relied upon for PCS overpressure protection?

- a. LTOP in the "SDC" mode.
- b. LTOP in the "LTOP" mode.
- c. Shutdown Cooling Relief Valve, RV-3164.
- d. Pressurizer Code Safety Relief Valves.

ANSWER

b.

REFERENCE

SOP-1C, 7.1.4.h.2; SOP-3, 7.3.9.k

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that LTOP is still in the SDC mode in MODE 4 during PCS heatup.
- b. CORRECT -Shutdown cooling is secured and safety valves are not required to be operable in MODE 4
- c. Plausible if the student believes that SDC is still in operation.
- d. Plausible if the student believes that LTOP is not in service in MODE 4.

Question #: 034
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 007A101

Question:

With the plant in MODE 1 at 100% power the following occurs:

- EK-0733, QUENCH TANK HI-LO LEVEL, alarm annunciates
- EK-0732, QUENCH TANK HI PRESS, alarm annunciates
- Quench Tank level indicates 81% with pressure indicating 12 psig
- The control room crew has diagnosed that RV-1039, Pressurizer Relief Valve, is leaking
- ONP-23.1, "Primary Coolant Leak," has been entered

What action will the control room crew take to prevent RUD-0162, Quench Tank Rupture Disc, from actuating?

- a. Drain the Quench Tank to T-74, Primary System Drain Tank.
- b. Drain the Quench Tank to T-80, Equipment Drain Tank.
- c. Vent the Quench Tank to the Containment.
- d. Vent the Quench Tank to the Vent Gas Collection Header (VGCH).

ANSWER

a.

REFERENCE

ARP-4, window 32 and 33

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Correct action (drain) but to wrong place.
- c. The quench tank is vented to the Containment Vent Header, not the Containment Building.
- d. Wrong vent path.

Question #: 035
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 008A203

Question:

Given the following conditions with the plant in MODE 1 at full power:

- EK-1170 "COMPONENT CLG EX E-54A HI-LO TEMP," has annunciated
- CCW temperature is 89°F and rising slowly
- CCW Pump P-52A is in service
- CCW Pump discharge header pressure is 107 psig
- CV-0821 and CV-0822, CCW HX E-54A and E-54B Temp. Control Valves, are full open
- Lake Michigan water temperature is 81°F with all 3 SW pumps in service

Which one of the following describes the effect on the plant due to the above conditions and the appropriate crew response?

- a. CCW flow is inadequate for current plant conditions. Start P-52B or P-52C, CCW Pump, in accordance with SOP-16, "Component Cooling Water System."
- b. Service Water flow is inadequate for current plant conditions. Throttle open CV-0823 and 0826, CCW HX SW High Cap. Outlet Valves, via their local air regulators.
- c. Service Water flow is inadequate for current plant conditions. Make preparations to commence a normal plant shutdown to MODE 3 in accordance with LCO 3.0.3.
- d. CCW flow is inadequate for current plant conditions. Place CV-2023, Demineralizers T-51A/B & T-52 Bypass Valve, to the BYPASS position.

ANSWER

b.

REFERENCE

ARP-7, window 70

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that CCW flow is degraded, however with pump discharge pressure at 107 psig, this is not true
- b. CORRECT
- c. Plausible if the student believes that lake temperature is above the limit. The max lake temperature is 85°F (83.5 with instrument inaccuracies)
- d. Plausible if the student believes that bypassing the CVCS demineralizers is important for degraded CCW flow.

Question #: 036
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 010A302

Question:

During a power escalation a transient occurs which causes Pressurizer pressure to change to 2045 psia. Assuming all equipment is functioning properly, what are the expected indications for the in service Pressurizer Pressure Controller?

- a. Process Indication > Setpoint Indication
Output signal > 66%
- b. Process Indication < Setpoint Indication
Output signal > 66%
- c. Process Indication < Setpoint Indication
Output signal < 66%
- d. Process Indication > Setpoint Indication
Output signal < 66%

ANSWER

c.

REFERENCE

Operator Aid OA-116

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if student misapplies pressure and setpoint
- b. Plausible if student misapplies output signal and heaters/spray
- c. CORRECT
- d. Plausible if student misapplies pressure and setpoint

Question #: 037
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 010A402

Question:
The following plant conditions exist:

- The reactor has tripped from 100% power due to a Loss of all Offsite Power
- EDG 1-1 and 1-2 are running and loaded
- PCS pressure is 1975 psia and lowering
- PZR level is at program level

Which one of the following describes how power is restored to the PZR Heaters per ONP-18 "Pressurizer Pressure Control Malfunctions" for the above conditions?

- a. Restore Pressurizer Heaters by closing the Pressurizer Heater transformer feeder breakers from both Buses 1D and 1E.
- b. Restore Pressurizer Heaters by closing the Pressurizer Heater transformer feeder breaker from Bus 1D.
- c. Select Pressurizer Heater Control switches for heaters powered from Bus 1D to OFF then reclose Pressurizer Heater transformer feeder breaker from Bus 1D.
- d. Select Pressurizer Heater Control switches for heaters powered from Bus 1E to OFF then reclose Pressurizer Heater transformer feeder breaker from Bus 1E.

ANSWER

c.

REFERENCE

ONP-18, 4.2.1.c

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that power is available to bus 1E
- b. Plausible if the student does not know that heater switches must be off first
- c. CORRECT
- d. Plausible if the student believes that power is available to bus 1E

Question #: 038
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 012 2.2.37

Question:
With the plant operating in MODE 1 the following alarm annunciates:

EK-0543, "PREFERRED AC BUS NO. 1 TROUBLE"

Which one of the following describes the effect on the Reactor Protection System (RPS) reactor trip logic?

Trip logic is now ____ (1) ____ and after Channel 'A' RPS trips are bypassed will be ____ (2) ____.

- a. (1) one out of three
(2) two out of three
- b. (1) two out of three
(2) one out of three
- c. (1) one out of three
(2) one out of three
- d. (1) two out of three
(2) two out of three

ANSWER

a.

REFERENCE

ARP-3, window 43; ONP-24.1, 1.0; TS Basis 3.3.1

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT -A loss of Y30 will cause all 'C' channel RPS trips to trip. Only one other trip will cause a reactor trip
- b. Incorrect -Plausible alternative
- c. Incorrect -Plausible alternative
- d. Incorrect -Plausible alternative

Question #: 039
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 012K602

Question:

During normal full power operation, a Reactor Protection System (RPS) Logic Matrix Power Supply fails. How will this failure impact the RPS?

- a. RPS trip logic will be one out of three.
- b. The reactor will trip if another power supply associated with a different Logic Matrix fails.
- c. RPS trip logic will be two out of three.
- d. The reactor will trip if another power supply associated with the same Logic Matrix fails.

ANSWER

d.

REFERENCE

FSAR 7.2.7.8, Vendor Drawing M1Q 113/114

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that the failure causes one channel to be tripped, similar to loss of a preferred AC bus
- b. Plausible if the student misapplies the matrix logic, i.e., two matrices are required to be tripped to trip the reactor
- c. Plausible if the student believes that the failure causes a channel to be bypassed
- d. CORRECT

Question #: 040
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 013K201

Question:
Given the following with the plant operating in MODE 1:

- A fault occurs on Preferred AC Bus Y-40 which subsequently de-energizes Y-40
- The crew enters ONP-24.4, "Loss of Preferred AC Bus Y-40"
- Subsequently, the plant is manually tripped due to a Main Steam Line Break inside the Containment
- PCS pressure is 1720 psia
- Containment pressure is 5.3 psig

Due to these conditions, which one of the following describes the correct action(s), if any, to take?

- a. Push PB1-2 (Right) INJECTION INITIATE pushbutton to initiate Right Channel SIS ONLY.
- b. Open CV-3002, Spray Valve, and start, P-54A, Spray Pump ONLY
- c. Push PB1-2 (Right) INJECTION INITIATE pushbutton AND Open CV-3002, Spray Valve, AND start, P-54A, Spray Pump.
- d. No actions are necessary, Containment Spray and Safety Injection Actuation are not affected in this event.

ANSWER

c.

REFERENCE

ONP-24.4, step 4.1

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that spray valve and pump actuation are supplied by a different power supply
- b. Plausible if the student believes that SIS actuation is supplied by a different power supply
- c. CORRECT
- d. Plausible if the student believes Y-40 does not supply CHP or SIS actuation circuits

Question #: 041
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 022K301

Question:

Consider two separate excess steam demand events inside containment on the 'A' Steam Generator. During both events the leak size is the same. The only difference between the two events is that service water to containment is secured on the second event.

During the second event, Pressurizer level indication will be ___(1)___ and 'B' Steam Generator level indication will be ___(2)___ than the first event. (Assume 1 to 2 hours into each event)

- a. (1) Higher
(2) Lower
- b. (1) Higher
(2) Higher
- c. (1) Lower
(2) Higher
- d. (1) Lower
(2) Lower

ANSWER

b.

REFERENCE

EOP Supplement 9, 10, and 11

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible alternative
- b. CORRECT -Both of these level instruments have external wet reference legs that are exposed to containment conditions. The higher containment temperature caused by the lack of service water would raise the temperature in these reference legs and lower the waters density. This would cause them to indicate high.
- c. Plausible alternative
- d. Plausible alternative

Question #: 042
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 026K401

Question:

Consider a Loss of Coolant Accident event in which SIRWT Level has reached the setpoint for a Recirculation Actuation (RAS). In the event that West Safeguards Containment Sump Isolation Valve, CV-3030, does not open on a RAS, which one of the following will occur? Assume all other equipment is operable and functioning.

- a. ONLY CV-3070, HPSI Pump, P-66B, Subcooling Valve, will not open.
- b. CV-3070, HPSI Pump, P-66B, Subcooling Valve, will not open AND CV-3001, Containment Spray Valve, will close.
- c. ONLY CV-3001, Containment Spray Valve, will close.
- d. Operator action is required to close CV-3070, HPSI Pump, P-66B, Subcooling Valve, AND CV-3001, Containment Spray Valve.

ANSWER

b.

REFERENCE

M-204 sheet 1A; M-204 sheet 1; M-203 sheet 2; DBD-2.03

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that there is an interlock with CV-3030 for CV-3070 but not CV-3001
- b. CORRECT
- c. Plausible if the student believes that there is an interlock with CV-3030 for CV-3001 but not CV-3070
- d. Plausible if the student believes that the post RAS actions are necessary to correct the lineup

Question #: 043
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 039K505

Question:

The following plant conditions exist:

- A 75 gpm tube leak has occurred on the 'B' S/G
- A loss of offsite power occurred immediately following the reactor trip
- PCS pressure is 1900 psia
- PCS temperature is 535°F
- The CRS directs a cooldown be commenced per EOP-5.0, "Steam Generator Tube Rupture Recovery"

The preferred method of cooldown will be established using the (1). The most limiting component for the specified cooldown rate limit is the (2).

- a. (1) Turbine Bypass Valve
(2) Reactor Vessel
- b. (1) Turbine Bypass Valve
(2) Pressurizer
- c. (1) Atmospheric Dump Valves
(2) Reactor Vessel
- d. (1) Atmospheric Dump Valves
(2) Pressurizer

ANSWER

c.

REFERENCE

SOP-1B, section 4.4; SOP-1B section 7.1.1.e.5; EOP-5.0, step 32

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student does not recognize that the TBV is not available due to loss of all AC.
- b. Plausible if the student does not recognize that the TBV is not available due to loss of all AC.
- c. CORRECT, cooldown limit for reactor is 100°F/Hr, PZR is 200°F/Hr
- d. Plausible because there are several instances in procedures where it is required to record PZR and PCS ΔT if spray is used.

Question #: 044
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 059K418

Question:
Given the following conditions:

- A Reactor trip from 100% power has just occurred
- The Main Turbine tripped as designed
- Main Feed Pump speed control was in CASCADE at the time of the trip
- NO operator actions have been taken

As a result, both Steam Generator Water Level Control (SGWLC) controllers, LIC-0701 and LIC-0703, will (1)_____ and the Main Feed Pumps will _____(2)_____.

- a. (1) transfer to MANUAL
(2) ramp to minimum speed
- b. (1) transfer to MANUAL
(2) remain at full speed
- c. (1) remain in AUTO
(2) remain at full speed
- d. (1) remain in AUTO
(2) ramp to minimum speed

ANSWER

a.

REFERENCE

E-17, sheet 9

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible because operator action is required to manually ramp MFP speed to minimum to avoid overfeeding SG
- c. Plausible because operator action is required to manually close the FRVs and ramp MFP speed to minimum to avoid overfeeding SG
- d. Plausible because operator action is required to manually close the FRVs

Question #: 045
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 059A103

Question:

The plant is operating at full power. The control room crew is preparing to bypass Feedwater Heaters, E-3A and E-4A, due to a tube leak inside E-3A. What action is required to be taken prior to bypassing E-3A and E-4A and why?

- a. Lower plant power to $\leq 97\%$ due to prevent excessive extraction steam velocity in the next water heater.
- b. Lower plant power to $\leq 97\%$ to compensate for expected lower feedwater temperatures.
- c. Lower turbine load to ≤ 600 MWe to prevent excessive extraction steam velocity in the next highest pressure feedwater heater.
- d. Lower turbine load to ≤ 600 MWe due to expected higher turbine back pressure.

ANSWER

c.

REFERENCE

SOP-10, section 4.5

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible because this is the correct reason but wrong action.
- b. Plausible because this is the action for bypassing E-6A.
- c. CORRECT
- d. Plausible because this is the correct action but wrong reason.

Question #: 046
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 061A204

Question:
Given the following plant conditions:

- A Plant Startup is in progress in MODE 3
- Auxiliary Feedwater (AFW) Pump, P-8A, is in service
- EK-1108 "CONDENSATE STORAGE TANK T-2 HI-LO LEVEL" annunciates
- Moments later EK-1115 "CONDENSATE STORAGE TANK T-2 LO-LO LEVEL" annunciates
- Condensate Storage Tank, T-2, level indicates 7% and lowering

Which one of the following describes the impact on the plant due to this event and the appropriate action to take?

- a. AFW Pump damage due to suction vortexing in T-2. Ensure all AFW Pumps tripped and placed in MANUAL.
- b. AFW Pump damage due to suction vortexing in T-2. Continue P-8A operation while aligning Fire Water to P-8A/B suction.
- c. Buckling on the bottom plate of T-2. Ensure all AFW Pumps tripped and placed in MANUAL.
- d. Buckling on the bottom plate of T-2. Continue P-8A operation while aligning Fire Water to P-8A/B suction.

ANSWER

a.

REFERENCE

ARP-7, window 15

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Correct reason, however allowing P-8A to continue operating will cause damage. Align FPS would be a long term action.
- c. Plausible reason because this damage occurs to the SIRWT at 4% -student misapplies. Correct Action.
- d. Plausible for same reason as b and c.

Question #: 047
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 062A304

Question:

The "In Sync" light on the front panel of ED-08, Preferred AC Inverter #3, compares the frequency of _____(1)_____ to the frequency of _____(2)_____ to ensure they are synchronized.

- a. (1) the output of the inverter
(2) the input of the inverter
- b. (1) the output of the inverter
(2) the Bypass Source, Y01
- c. (1) Preferred AC Bus, Y30
(2) the Bypass Source, Y01
- d. (1) the output of the inverter
(2) Preferred AC Bus, Y30

ANSWER

b.

REFERENCE

SOP-30, 7.6.2.h; Vendor Drawing E-11B, sheet 16, 17

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible because the student misinterprets what "In Sync" means
- b. CORRECT
- c. Plausible because the student believes that, if the inverter is not operating, the green light should be on
- d. Plausible because the student thinks the light is on during normal operation

Question #: 048
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 063A403

Question:
EOP-3.0, "Station Blackout Recovery," directs operators to ensure all Primary Coolant Pump DC Lift Pumps secured after ____ (1) ____ minutes to prevent _____ (2) _____.

- a. (1) Ten
(2) Excessive DC Battery drain
- b. (1) Ten
(2) Excessive oil transfer from PCP motor lower to upper oil reservoir
- c. (1) Five
(2) Excessive DC Battery drain
- d. (1) Five
(2) Excessive oil transfer from PCP motor lower to upper oil reservoir

ANSWER

c.

REFERENCE

EOP-3.0, step 12 basis

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible time, correct time
- b. Plausible time, plausible reason as this has occurred for prolonged operation
- c. CORRECT
- d. Correct time, plausible reason

Question #: 049
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 063 2.1.30

Question:

Given a loss of all AC power with no Diesel Generator operating, you are directed to depress the Shunt Trip push button on panel D-11A. Where is this panel located and what will be the resultant effect?

- a. Bus 1C room. Isolates all loads from Station Battery #1 EXCEPT DC Panel D-11A.
- b. D/G 1-2 room. Isolates all loads from Station Battery #1 EXCEPT DC Panel D-11A.
- c. D/G 1-2 room. Isolates all loads from Station Battery #1 INCLUDING DC Panel D-11A.
- d. Bus 1C room. Isolates all loads from Station Battery #1 INCLUDING DC Panel D-11A.

ANSWER

a.

REFERENCE

ONP-2.3 step 11 and attachment 1

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible because the shunt trip push button for Station Battery #2 is in this location
- c. Plausible because the shunt trip push button for Station Battery #2 is in this location. Also because the push button is located on the panel is it plausible that D-11A could be lost.
- d. Plausible because the push button is located on the panel.

Question #: 050
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 064K101

Question:
Given the following plant conditions:

- The plant is operating at full power
- Emergency Diesel Generator 1-1 is supplying Bus 1C in parallel with Safeguards Transformer 1-1

Which one of the following describes the response if all off-site power is lost?

- a. Diesel Generator 1-1 will remain operating, output breaker 152-107 will trip and then reclose, the NSD sequencer will load Bus 1C.
- b. Diesel Generator 1-1 will trip then restart, output breaker 152-107 will trip and Bus 1C will be de-energized.
- c. Diesel Generator 1-1 will remain operating, output breaker 152-107 will trip and then reclose, the DBA sequencer will load Bus 1C.
- d. Diesel Generator 1-1 will remain running, output breaker 152-107 will trip and Bus 1C will be de-energized.

ANSWER

a.

REFERENCE

E-17, sheet 4, 9, 10, 13

BANK

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible because the student could reason that the EDG will trip on overspeed due to loss of load. However the EDG won't restart
- c. Plausible if the student misapplies the operation of the NSD and DBA sequencers
- d. Plausible if the student does not know that the NSD sequencer will energize

Question #: 051
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 073A401

Question:
Given the following conditions:

- T-101B, Waste Gas Decay Tank, release is in progress
- Annunciator EK-0207, "STACK EFF RAD C-169 HIGH" is received in the Control Room due to RIA-2326, Normal Range Noble Gas Monitor, in alarm

Which one of the following will occur?

- a. Main Exhaust Fans, V-6A/V-6B, automatically trip and their associated dampers close.
- b. RIA-2326, Normal Range Noble Gas Monitor, meter transfers from cpm to R/Hr.
- c. RGEM transfers from Normal (RIA-2326) to High Range (RIA-2327) Noble Gas Monitor.
- d. CWRT Vent Valves, CV-1064/1065, automatically close.

ANSWER

c.

REFERENCE

ARP-33, window 7

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible because this could stop the release
- b. Plausible because these radiation monitors have two scales
- c. CORRECT
- d. Plausible because this is a manual action of the ARP

Question #: 052
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 073K301

Question:

A Waste Gas Decay Tank batch release is planned, but the Waste Gas Monitor, RIA-1113, is INOPERABLE.

For this condition, ALL of the following are actions that will allow initiating the release EXCEPT:

- a. Setup local portable monitoring equipment at release point.
- b. Perform independent verification of the discharge flowpath lineup.
- c. Obtain an additional sample of the tank contents.
- d. Perform independent verification of the release rate calculations.

ANSWER

a.

REFERENCE

SOP-18A, 7.5.d

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. A valid alternative action.
- c. A valid alternative/compensatory action.
- d. A valid compensatory action.

Question #: 053
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 076K406

Question:

Which one of the following conditions will result in CV-1359, Non-Critical Service Water Isolation Valve, automatically closing? (Consider each condition separately)

- a. A steam line break results in Containment pressure rising to 3.6 psig.
- b. A fuel element failure results in Containment radiation rising to 12R/Hr.
- c. A Primary Coolant leak results in Pressurizer pressure lowering to 1550 psia.
- d. A Service Water leak results in SW Critical Header pressure lowering to 40 psig.

ANSWER

c.

REFERENCE

E-17, sheet 3, 4; M-213

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible because candidate misapplies setpoint for CHP, which is 4#.
- b. Plausible because candidate believes that a CHR will close valve, CHR does initiate a CIS.
- c. CORRECT
- d. Plausible because candidate believes that valve closes on low header pressure to supply critical loads. Standby pump starts on low header pressure of 40#.

Question #: 054
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 078K402

Question:

From full power, a Safety Injection occurs concurrent with a loss of Instrument Air. Instrument Air pressure indicates 10 psig and lowering. Several minutes later, it is noted that FWP Air Cross-tie Valve, CV-1221, indicating RED light is ON. The GREEN light is OFF. The handswitch remains selected to CLOSE.

Which one of the following accounts for the status of CV-1221?

- a. CV-1221 has opened automatically due to the Safety Injection Signal.
- b. CV-1221 received an open signal when Instrument Air header pressure lowered to 85 psig.
- c. Due to the loss of operating air to CV-1221 operator, the valve failed OPEN.
- d. The SIAS caused a shedding of Bus 1E, and a loss of control power to CV-1221, failing it OPEN.

ANSWER

c.

REFERENCE

ONP-2.3, Attachment 4, page 7; M-212, sh. 1

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student incorrectly believes SIS causes CV-1221 to open.
- b. Plausible if the student believes there is an interlock to automatically open CV-1221 on lowering instrument air pressure.
- c. CORRECT
- d. Plausible if the student believes that CV-1221 receives control power from bus 1E.

Question #: 055
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 103K105

Question:

Which one of the following describes interlock features on the Personnel Air Lock and Escape Air Lock doors which are designed to ensure Containment integrity?

- a. Personnel Air Lock doors cannot be opened at the same time as Escape Air Lock doors.
- b. Neither door can be opened after a Containment High Pressure (CHP) or Containment High Radiation (CHR) condition.
- c. An electrical device prevents the inner door from being opened at the same time as the outer door for the Personnel and Escape Air Locks.
- d. A mechanical device prevents the inner door from being opened at the same time as the outer door for the Personnel and Escape Air Locks.

ANSWER

d.

REFERENCE

FSAR 5.8.6.2.1

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Though this may sound like a desirable feature, these doors are on opposite sides of containment and there is NO interlock between them.
- b. Another desirable sounding feature, since there are a number of component auto operations affected by CHP/CHR; however, there is no such design feature.
- c. There is no such design feature.
- d. CORRECT -Per design, both doors are mechanically interlocked so that only one can be opened at a time to maintain containment integrity.

Question #: 056
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 001K301

Question:
Given the following:

- A reactor trip from 100% power occurs
- The control room crew observes that 4 full length control rods are indicating NOT fully inserted on the Core Matrix display
- The Reactor Operator attempts to emergency borate but VCT Isolation, MO-2087, will NOT close

Which one of the following actions will allow successful completion of emergency boration in accordance with SOP-2A, "Chemical and Volume Control System?"

- a. Open MO-2169 and MO-2170, Boric Acid Gravity Feed Valves.
- b. Start P-56A, Boric Acid Pump, and open MO-2140, Pumped Feed Valve.
- c. Open MO-3072, HPSI Train 2/Charging Cross Connect Valve.
- d. Open MO-2160, SIRWT to Charging Pump Isolation.

ANSWER

b.

REFERENCE

SOP-2A, attachment 14

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible because this is acceptable if MO-2087 is capable of closing
- b. CORRECT
- c. Plausible because this could inject boron if PCS pressure was low enough, however this is not acceptable per SOP-2A
- d. Plausible because this could inject boron, however this is not acceptable per SOP-2A

Question #: 057
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 002K402

Question:

The Reactor Vessel Level Monitoring System (RVLMS) lights indicate ALL GREEN lights OFF and ALL RED lights ON. This indicates that Reactor Vessel water level is approximately:

- a. at or above the Reactor Vessel flange.
- b. at or below the top of the fuel assemblies.
- c. at or below the center of the hot and cold legs.
- d. at or above the In-Core instrument flanges.

ANSWER

b.

REFERENCE

SOP-1A, 7.3.1.d; Tech Spec Bases 3.3.7

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible as this is a key level in determining reduced inventory conditions
- b. CORRECT
- c. Plausible as this is the minimum allowable level during reduced inventory conditions
- d. Plausible as this is where the RVLMS probes enter the reactor vessel closure head

Question #: 058
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 016K501

Question:

With the plant operating in MODE 1, Pressurizer Pressure Controller, PIC-0101A, loses power due to an internal fault within the controller. Assuming PIC-0101A is in service, which one of the following describes the immediate impact on the plant?

- a. RPS TM/LP Channel 'A' trips AND Pressurizer Proportional heaters receive full amps.
- b. Pressurizer Proportional heaters receive full amps AND Pressurizer Spray valves close.
- c. RPS TM/LP Channel 'A' trips AND Pressurizer Spray valves close.
- d. Pressurizer Proportional heaters receive full amps ONLY.

ANSWER

b.

REFERENCE

DBD-2.11, 3.2.3.1 and 3.3.1.4; M-201, sheet 2

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if student believes that PPCS controller sends a signal to RPS.
- b. CORRECT
- c. Plausible if student believes that PPCS controller sends a signal to RPS.
- d. Plausible if student misapplies the low signal and believes that heaters only receive full power.

Question #: 059
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 033A101

Question:

With the plant operating in MODE 1, the following alarm is received in the control room:

EK-1309, "SPENT FUEL POOL HI/LO LEVEL"

The control room crew determines the alarm is due to a LOW level condition in the Spent Fuel Pool (SFP) and is due to normal evaporative losses. The Control Room Supervisor directs SFP level be raised to 6" below the skimmers. Which one of the following describes (1) the source of water that will be used to refill the SFP under these conditions AND (2) the monitoring requirements during the fill operation?

- a. (1) T-90, Primary System Makeup Storage Tank.
(2) The Control Room SFP TV Monitor is acceptable to be used to monitor SFP level.
- b. (1) T-90, Primary System Makeup Storage Tank.
(2) An Operator must be stationed at the SFP in addition to monitoring the Control Room TV Monitor.
- c. (1) T-91, Utility Water Storage Tank.
(2) The Control Room SFP TV Monitor is acceptable to be used to monitor SFP level.
- d. (1) T-91, Utility Water Storage Tank.
(2) An Operator must be stationed at the SFP in addition to monitoring the Control Room TV Monitor.

ANSWER

a.

REFERENCE

ARP-8, window 9; SOP-27, attachment 2, 3.5

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible as this is the correct source but it is acceptable to use the control room TV monitor.
- c. Plausible as this is a source that could be used for decontamination activities.
- d. Plausible as this is a source but it is acceptable to use the control room TV monitor.

Question #: 060
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 035A202

Question:

The plant is operating in MODE 1 at full power when a turbine trip causes a reactor trip. During subsequent actions per EOP-1.0, "Standard Post Trip Actions," the Turbine NCO discovers that 'A' Main Feed Pump speed will NOT lower. Which one of the following describes the impact of this condition and the appropriate action?

- a. The Safety Injection Actuation setpoint may be reached due to PCS overcooling. Trip Main Feed Pump, P-1A.
- b. Inadequate Shutdown Margin may occur due to PCS overcooling. Trip Main Feed Pump, P-1A.
- c. The Safety Injection Actuation setpoint may be reached due to PCS overcooling. Trip Main Feed Pumps, P-1A AND P-1B.
- d. Inadequate Shutdown Margin may occur due to PCS overcooling. Trip Main Feed Pumps, P-1A AND P-1B.

ANSWER

a.

REFERENCE

EOP-1.0, step 3; EOP-1.0 basis, step 3

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Correct action but wrong implication. This does happen, however, it is not a concern due to meeting the reactivity control safety function.
- c. Correct implication but wrong action.
- d. Wrong implication and wrong action.

Question #: 061
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 041K603

Question:
Given the following conditions:

- The plant is in MODE 3 following a reactor trip from 100% power
- PCS temperature is being controlled with the Turbine Bypass Valve in AUTO
- The Atmospheric Steam Dumps are closed with Steam Dump Controller, HIC-0780A, in AUTO
- The Average Temperature Display Select Switch is in the LOOP 2 position

Which one of the following describes the effect of TAVE failing LOW from TYT-0200, Loop 2 TAVE Calculator, on the plant. (Assume NO operator action has been taken)

- a. The only means of PCS heat removal with the secondary plant is via the Main Steam Code Safety valves.
- b. The Turbine Bypass Valve fails closed and will NOT open until the Average Temperature Display Select Switch is placed in LOOP 1 position.
- c. The Turbine Bypass Valve fails closed and will NOT open. The ADVs will open on a quick open signal.
- d. The TBV will modulate open/closed to maintain Main Steam pressure at setpoint. The ADVs will NOT modulate open.

ANSWER

d.

REFERENCE

ONP-13, 4.2 NOTE; DBD-1.09, 3.2.2.2

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that TAVE signal feeds both TBV and ADVs.
- b. Plausible if the student believes that TAVE signal feeds only TBV.
- c. Plausible if the student believes that TAVE signal feeds only TBV and correctly identifies the response of the ADVs.
- d. CORRECT

Question #: 062
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 045A305

Question:
The following plant conditions exist:

- The plant is in MODE 1 at 100% power
- EHC Pump, P-19A, is selected to RUN and is operating
- EHC Pump, P-19B, is selected to AUTO and is off
- Control Room annunciator EK-0113, "EH SYSTEM LO-LO LEVEL TRIP" annunciates

Which one of the following describes the expected configuration of EHC Pumps, P-19A/B?

- a. Both EHC pumps operating.
- b. Both EHC pumps off.
- c. P-19A operating, P-19B off.
- d. P-19A off, P-19B operating.

ANSWER

c.

REFERENCE

ARP-1, window 13

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student misapplies the concept of low EHC level, i.e., pressure with tank level
- b. Plausible if the student believes that the pumps trip for protection due to low tank level
- c. CORRECT
- d. Plausible if the student believes that the system will swap pumps in the case of a leak in the operating pump

Question #: 063
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 055K106

Question:
Given the following conditions:

- The plant is at 100% power
- A Steam Generator tube leak has been diagnosed by the crew
- Preparations are being made to estimate the size of the tube leak per ONP 23.2
- The Off-Gas flow rate was reported at 3 scfm earlier in the shift
- Unknown to the crew, Off-Gas flow rate rises to 10 scfm

What would be the effect of using the LOWER Off Gas flow rate of 3 scfm to estimate the tube leak rate?

- a. No effect as long as Off-Gas Monitor, RIA-0631, reading is correct.
- b. The estimated leak rate will be lower than the actual leak rate.
- c. No effect because the PCS Activity value corrects for variations in Off Gas flow.
- d. The estimated leak rate will be higher than the actual leak rate.

ANSWER

b.

REFERENCE

ONP-23.2, attachment 1

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student misunderstands the purpose of the off-gas flow reading in determining tube leak rate
- b. CORRECT
- c. Plausible because Operations reports off-gas flow to chemistry daily.
- d. Plausible if the student misapplies the dilution effect of the off-gas flow.

Question #: 064
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 071 2.1.30

Question:

RIA-1113, Waste Gas Discharge Monitor, has alarmed to stop an Authorized Waste Gas Batch. Which one of the following actions must be performed OUTSIDE the control room before the batch can be re-started?

- a. Place HS-1113, Waste Gas Surge Tank Discharge control valve, to close then back to open.
- b. Push CV-1113, Waste Gas Surge Tank Discharge, HIGH RADIATION RESET pushbutton.
- c. Place HS-1123, Waste Gas Decay Tanks Discharge control valve, to close then back to open.
- d. Push CV-1123, Waste Gas Decay Tank Discharge, HIGH RADIATION RESET pushbutton.

ANSWER

d.

REFERENCE

SOP-18A, 7.5.u

MODIFIED

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible as this is a local control on radwaste panel C-40, however, this valve should already be closed. Student misapplies the flow path for a waste gas batch.
- b. Plausible as this is a local control on radwaste panel C-40, however, this will not re-open the valve
- c. Plausible as this is a local control on radwaste panel C-40, however this valve should be closed. Student misapplies the flow path for a waste gas batch.
- d. CORRECT

Question #: 065
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 086A402

Question:

All of the following Fire Alarms on Panel C-47B require IMMEDIATE sounding of the Fire Alarm and call out of the Fire Brigade EXCEPT:

- a. Charging Pump Areas.
- b. Corridor 106 on Elev. 590'.
- c. Remote Shutdown Panel & Stairwell.
- d. Injection & Spray Pumps.

ANSWER

d.

REFERENCE

ARP-7 window 48

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible area
- b. Plausible area
- c. Plausible area
- d. CORRECT

Question #: 066
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.1.25

Question:
Given the following conditions:

- The plant is at full power
- T-2, Condensate Storage Tank, temperature is 100°F
- T-81, Primary System Makeup Storage Tank, temperature is 80°F
- QO-21, "Inservice Test Procedure -Auxiliary Feedwater Pumps" is to be performed
- Auxiliary Feedwater flow will be initiated to BOTH Steam Generators at the programmed value for an Auxiliary Feedwater Actuation (AFAS)

Immediately prior to initiation of AFW flow, which one of the following is the MAXIMUM allowable Heat Balance power level?

- a. 99.5%
- b. 99.4%
- c. 99.3%
- d. 99.2%

ANSWER

c.

REFERENCE

SOP-12, attachment 16 (PROVIDE); QO-21, step 5.4.4

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible as this is the value for flow to one S/G (165 gpm)
- b. Plausible as this is symmetric
- c. CORRECT
- d. Plausible as this is the value if 80°F is used for AFW temp

Question #: 067
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.1.39

Question:

The Operational Decision Making Issue (ODMI) process would most likely be used for which one of the following conditions?

- a. Control Rod Drive seal leakage is steadily trending upwards and will reach a limit in 2 weeks.
- b. The Operations Department staffing level is below the fleet recommended standard.
- c. A Technical Specification Surveillance Test procedure cannot be performed as written.
- d. The control room crew is preparing to maneuver the plant from MODE 2 to MODE 1.

ANSWER

a.

REFERENCE

EN-OP-111

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible -people issue
- c. Plausible -procedure issue
- d. Plausible -process issue

Question #: 068
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.1.42

Question:

Preparations are being made to enter MODE 6.

Minimum PCS boron concentration must be at least (1) and sufficient to ensure that with all control rods withdrawn, the reactor remains shutdown by at least (2).

- a. (1) 1720 ppm
(2) 5.0%
- b. (1) 2500 ppm
(2) 5.0%
- c. (1) 2500 ppm
(2) 2.0%
- d. (1) 1720 ppm
(2) 2.0%

ANSWER

a.

REFERENCE

Tech Spec section 1.1

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Correct SD Margin, incorrect boron concentration -this is the upper boron concentration limit for the SIRWT
- c. Incorrect SD margin -plausible because this is the required SD margin when the PCS is full, incorrect boron concentration
- d. Correct boron, incorrect SD Margin

Question #: 069
 Exam Date: 20080711
 Facility Palisades
 Exam Level: B
 K/A: 2.2.23

Question:
 A Technical Specification LCO has the following requirements for conditions, actions and completion times:

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each inoperable valve

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	One or more Valves Inoperable	A.1	Restore valve to OPERABLE status	4 hours
B.	Required Action and associated Completion Time not met.	B.1	Be in MODE 3	6 hours
		B.2	Be in MODE 4	12 hours

Condition 'A' is entered at 0400 hours due to Valve "X" being inoperable. At 0600 hours, Valve "Y" becomes inoperable. At 0700 repairs are completed and Valve "X" is declared operable. Assuming Valve "Y" is NOT repaired, what is the LATEST time at which the plant must be in MODE 3?

- a. 1200
- b. 1400
- c. 1600
- d. 2200

ANSWER

c.

REFERENCE

TS 1.3 Example 1.3-5

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible because the student believes that the plant must be in MODE 3 six hours from the time valve Y is declared inoperable
- b. Plausible because the student applies the completion time as a single entry into condition A
- c. CORRECT -Separate condition entry is allowed for each valve

d. Plausible if the student uses the time to MODE 4

Question #: 070
 Exam Date: 20080711
 Facility Palisades
 Exam Level: B
 K/A: 2.2.40

Question:
 A Technical Specification LCO that is NOT met has the following Condition and Required Actions:

ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	LCO not met	A.1.1	Reduce . . .	
		<u>OR</u>		
		A.1.2	Verify . . .	
		<u>AND</u>		
		A.2.1	Align . . .	
		<u>OR</u>		
		A2.2.1	Perform . . .	
		<u>AND</u>		
		A.2.2.2	Verify	

Which one of the following sets of Required Actions correctly implements the Technical Specification?

- a. A.1.1 and A.1.2.
- b. A.1.2 and A.2.2.1.
- c. A.1.1 and A.2.1.
- d. A.2.2.1 and A.2.2.2.

ANSWER

c.

REFERENCE

Technical Specifications Section 1.2 -Logical Connectors

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible misapplication of logical connectors
- b. Plausible misapplication of logical connectors

- c. CORRECT
- d. Plausible misapplication of logical connectors

Question #: 071
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.3.5

Question:

Which one of the following lists the minimum Containment Air Cooler Fans required to be in service to support operability of Containment Gas Radiation Monitor, RIA-1817?

- a. None, RIA-1817 has a sample pump.
- b. One Containment Air Cooler Fan.
- c. Two Containment Air Cooler Fans.
- d. Three Containment Air Cooler Fans.

ANSWER

b.

REFERENCE

SOP-38, 4.0.d; SOP-5, 4.1.9

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible as this has a sample pump, but if no CACs are in operation there is no representative flow path
- b. CORRECT
- c. Plausible alternative
- d. Plausible alternative

Question #: 072
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.3.13

Question:

During a batch release of T-68B, Waste Gas Decay Tank, with V-6A, Main Exhaust Fan, tagged for maintenance, the in-service Main Exhaust Fan, V-6B, trips. Which one of the following actions is required in accordance with SOP-18A, "RADIOACTIVE WASTE SYSTEM - GASEOUS?"

- a. Depress the HIGH pushbutton on Waste Gas Discharge Radiation Monitor, RIA-1113.
- b. Secure Radwaste Area Ventilation fans, V-10 and V-14A/B.
- c. Lower Waste Gas Discharge Radiation Monitor, RIA-1113, trip setpoint.
- d. Ensure CV-1816 and CV-1817, Main Exhaust Fan discharge dampers, are closed.

ANSWER

c.

REFERENCE

SOP-18A, Step 7.5.f

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible but this simply displays the current HIGH alarm setpoint.
- b. Plausible if student believes WGDTs discharge into the exhaust plenum for V-14A/B.
- c. CORRECT
- d. Plausible as this is similar to an action to take in ARP-7 for High Main Exhaust Plenum pressure.

Question #: 073
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.4.20

Question:
EOP-7.0, "Loss of All Feedwater Recovery," contains the following guidance concerning restoration of feedwater to a dry Steam Generator. What is the reason for this guidance?

CAUTION

Limit feed flow to less than 300 gpm
for any S/G with level less than -84%

- a. Avoids a loss of PCS pressure control due to Pressurizer insurges and outsurges.
- b. Prevents a rapid PCS cooldown, avoiding a Pressurized Thermal Shock to the Rx vessel.
- c. Prevents uneven cooling of the PCS which may result in a localized reactivity excursion.
- d. Minimizes the probability of causing significant damage to the S/G tube bundle.

ANSWER

d.

REFERENCE

EOP-7.0, step 8

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible as this is a precaution in ONP-25.2 for fire in the plant and evacuation of control room
- b. Plausible as this could occur but is not the reason for the Caution
- c. Plausible as this will occur but is not a concern in this case
- d. CORRECT

Question #: 074
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.4.25

Question:

Which one of the following is the minimum complement of personnel that satisfies the requirement for the Fire Brigade in accordance with FPIP-3, "Plant Fire Brigade?"

- a. 2 Security Officers
2 Auxiliary Operators
1 Nuclear Control Operator
- b. 2 Security Officers
3 Auxiliary Operators
1 Radiation Protection Technician
- c. 2 Security Officers
2 Auxiliary Operators
2 Radiation Protection Technicians
- d. 1 Security Officer
3 Auxiliary Operators
2 Radiation Protection Technicians

ANSWER

b.

REFERENCE

FPIP-3, section 5.2; FPIP-4 attachment 8, 9.6.7.3

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Not enough Auxiliary Operators
- b. CORRECT
- c. Not enough Auxiliary Operators
- d. Not enough Security Personnel

Question #: 075
Exam Date: 20080711
Facility Palisades
Exam Level: B
K/A: 2.4.31

Question:

Which one of the following describes the minimum requirements for receiving an alarm in the control room that is unexpected (i.e., not part of a planned activity)?

- a. Announce the alarm ONLY if it is deemed critical by the ATC operator and reference the appropriate alarm response procedure EACH time the alarm comes in.
- b. Announce the alarm to the operating crew for each occurrence and reference the appropriate alarm response procedure EACH time the alarm comes in.
- c. Announce the alarm to the operating crew for each occurrence and reference the alarm response procedure the FIRST time the alarm comes in on each shift.
- d. Announce the alarm ONLY if it is deemed critical by the ATC operator and reference the alarm response procedure the FIRST time the alarm comes in on each shift.

ANSWER

c.

REFERENCE

EN-OP-115, 5.9

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible -similar to the requirements for annunciator response for EOP/ONP activities
- b. Plausible -similar to the requirements for repeat annunciators
- c. CORRECT
- d. Plausible combination of a and b

Question #: 076
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A: 000025 2.4.11

Question:

Given the following conditions during a Loss of Shutdown Cooling event in MODE 5:

- PCS Level is 620' 6"
- Average of Qualified CETs indicates 192°F and rising
- Containment air temperature is 110°F
- Y-30, Preferred AC Bus, is de-energized for maintenance

Based on the above conditions, which one of the following safety functions does NOT meet the acceptance criteria of ONP-17, Loss of Shutdown Cooling, Safety Function Status Checks?

- a. Maintenance of Vital Auxiliaries –Electric
- b. Containment Atmosphere
- c. PCS/Core Heat Removal
- d. PCS Inventory Control

ANSWER

c.

REFERENCE

ONP-17, Attachment 4

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible however only 3 of 4 preferred AC buses need to be energized to meet MVAE.
- b. Plausible however as long as Containment temperature is <125°F CA is met.
- c. CORRECT -This is an SRO only question because performing safety function status checks is an SRO only duty.
- d. Plausible as this is the reduced inventory PCS level, however, as long as level is > 618' 2.5" IC is met.

Question #: 077
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000029EA207

Question

Given the following conditions:

- The plant is at 100% power
- Preferred AC Bus Y-30 is de-energized due to a fault

Main Feed Pump, P-1A, trips causing 'B' Steam Generator water level to reach its RPS low level trip setpoint. The following indications are noted on RPS Clutch Power Supply Panel, C-06:

AC ON (white) DC ON (white) TRIP (red)
Clutch Power Supply #1/2 OFF OFF OFF
Clutch Power Supply #3/4 ON ON OFF

After noting the above indications, the Reactor Operator depresses the reactor trip pushbutton on panel C-02. Which one of the following describes the change in light status for the Clutch Power Supply red TRIP lights as a result of the RO depressing the reactor trip push button AND Emergency Plan entry requirements, if any?

- a. Clutch Power Supply #1/2 red TRIP light energizes ONLY. Emergency Plan entry is required.
- b. Clutch Power Supply #1/2 red TRIP light energizes ONLY. Emergency Plan entry is NOT required.
- c. Clutch Power Supply #3/4 red TRIP light energizes ONLY. Emergency Plan entry is required.
- d. Clutch Power Supply #3/4 red TRIP light energizes ONLY. Emergency Plan entry is NOT required.

ANSWER

c.

REFERENCE

EI-1, attachment 1; Drawing M1Q-114

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that the lights will not change status but also believes that the emergency plan is required to be entered for an automatic reactor trip.
- b. Plausible if the student believes that the RPS failed to trip and the manual failed to trip.
- c. CORRECT
- d. Plausible if the student believes that the manual trip will de-energize the trip light but that the RPS tripped the reactor.

Question #: 078
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000054 2.4.6

Question:

During a Loss of All Feedwater event with EOP-7.0, "Loss of All Feedwater Recovery," procedure implemented, which one of the following requires entry into EOP-9.0, "Functional Recovery Procedure"?

- a. Once-through PCS cooling has been initiated.
- b. 'A' Steam Generator level has reached -84%.
- c. Condensate Storage Tank, T-2, LO-LO level alarm is received.
- d. 'A' Steam Generator pressure is 920 psia.

ANSWER

a.

REFERENCE

EOP-7.0, step 19

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible, however both S/Gs would need to be < -84% for once through cooling to be initiated
- c. Plausible because would lead to a loss of all AFW pumps but condensate pumps can be used to feed S/Gs.
- d. Plausible because this could lead a student to believe that heat removal is being challenged

Question #: 079
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000055A204

Question:

With the plant operating in MODE 1, a reactor trip occurs due to a loss of off-site power. During the actions of EOP-1.0, "Standard Post Trip Actions," a fire develops in cable spreading causing ALL Preferred AC Buses to DE-ENERGIZE. Which one of the following describes the location for controlling the plant and the appropriate procedure to mitigate this event?

- a. Panel C-150/C-150A. EOP-3.0, "Station Blackout Recovery."
- b. Panel C-33. EOP-3.0, "Station Blackout Recovery."
- c. Panel C-150/C-150A. EOP-9.0, "Functional Recovery Procedure."
- d. Panel C-33. EOP-9.0, "Functional Recovery Procedure."

ANSWER

c.

REFERENCE

ONP-25.1, attachment 2

ONP-25.2, step 13

EOP-1.0 attachment 1

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible because the student may believe that EOP-3.0 is appropriate due to no preferred AC.
- b. Plausible because the student may believe that EOP-3.0 is appropriate due to no preferred AC. Panel C-33 indications are powered from preferred AC.
- c. CORRECT -EOP-9.0 is entered when diagnosis of an ORP is not apparent and safety functions are not met.
- d. Plausible but panel C-33 indications are powered from preferred AC.

Question #: 080
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000056 2.4.21

Question:

While the plant is in MODE 1, an automatic reactor trip occurs. The control room team has determined that EOP-9.0, "Functional Recovery Procedure," is the most appropriate procedure to implement based on existing plant conditions. Following assessment of resources in accordance with Resource Assessment Trees to determine safety function success paths, it is determined that "Maintenance of Vital Auxiliaries -Electric" (MVAE) is in jeopardy and "Pressure Control" (PC) is challenged. Which one of the following describes the order that operator actions should be prioritized based on the above conditions?

- a. 1. MVAE
2. PC
3. All other safety functions
- b. 1. PC
2. MVAE
3. All other safety functions
- c. Perform operator actions for Reactivity Control first, then all other safety functions.
- d. Perform operator actions for MVAE first, then all other safety functions.

ANSWER

a.

REFERENCE

EOP-9.0, step 13

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible if the student misapplies the concept and believes that challenged safety functions should be performed first.
- c. Plausible if the student believes that since RC is highest in importance that it should be performed first.
- d. Plausible if the student believes that the jeopardized safety function is performed first, followed by all others even though PC is challenged.

Question #: 081
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000062A203

Question:

Given the following conditions with the plant operating at full power:

- P-7B, SW Pump, is out of service for repairs
- P-7A and P-7C, SW Pumps, are in service
- Alarm EK-1163, "CRITICAL SERV WATER HEADER 'B' LO PRESSURE," annunciates.
- Alarm EK-1347, "CONTAINMENT AIR COOLERS SERV WATER LEAK," annunciates.
- The leak is located on the Containment Service Water supply header INSIDE Containment

After isolating the leak, 100% post accident cooling capability ___(1)___ satisfied for the Containment Cooling System and ___(2)___ satisfied for the Service Water System.

- a. (1) IS
(2) IS
- b. (1) IS
(2) IS NOT
- c. (1) IS NOT
(2) IS
- d. (1) IS NOT
(2) IS NOT

ANSWER

a.

REFERENCE

M-208, sheet 1B

Tech Spec 3.6.6 Basis

Tech Spec 3.7.8 basis

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible if the student believes that service water in containment is related to service water operability.
- c. Plausible if the student believes that at least one containment air cooler is required for post accident containment cooling capability.
- d. Plausible due to combination of b and c.

Question #: 082
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000001A205

Question:

With the plant in MODE 5 and Control Rod Testing in progress, EK-0972, "REACTOR TRIP," alarm annunciates and all full length control rods indicate on the bottom of the core. Which one of the following describes: (1) An indication that the Reactor trip was due to a continuous rod withdrawal event and; (2) The applicable Technical Specification Basis for the function?

- a. (1) EK-0601D, "ZERO POWER MODE BYPASS," alarm clears.
(2) The Zero Power MODE Bypass Removal function is required to be operable in MODE 5 so that the bypass is automatically removed by Source Range Nuclear Instruments if a continuous control rod bank withdrawal event occurs.
- b. (1) EK-0601D, "ZERO POWER MODE BYPASS," alarm clears.
(2) The Zero Power MODE Bypass Removal function is required to be operable in MODE 5 so that the bypass is automatically removed by Wide Range Nuclear Instruments if a continuous control rod bank withdrawal event occurs.
- c. (1) EK-0601A, "VARIABLE HIGH POWER LEVEL CHANNEL TRIP," alarm annunciates.
(2) The Variable High Power Trip is required to be operable in MODE 5 to provide reactor core protection against positive reactivity excursions any time a control rod is capable of being withdrawn.
- d. (1) EK-0602A, "HIGH POWER RATE CHANNEL TRIP," alarm annunciates.
(2) The High Power Rate Trip is required to be operable in MODE 5 to provide protection from transients such as a continuous control rod withdrawal event from low power levels any time a control rod is capable of being withdrawn.

ANSWER

b.

REFERENCE

ARP-21, window D1

Tech Spec 3.3.1 basis, page 3.3.1-16

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible because this is the correct indication but the ZPM bypass is removed by WR NIs at 10E-4%.
- b. CORRECT
- c. Plausible as this could occur if a continuous rod withdrawal event occurred but the ZPM bypass removal will trip the reactor @ 10E-4% power.
- d. Plausible but the high rate is bypassed < 10E-4% power and is NOT required to be operable in MODE 5.

Question #: 083
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000024 2.2.38

Question:

With the plant operating in MODE 1, it is determined that two (2) Safety Injection Tanks are INOPERABLE. Which one of the following describes the required action AND the basis for the action?

- a. Immediately restore operability of one Safety Injection Tank due to potential inadequate volume in the Containment Sump during the recirculation phase (RAS) of a LOCA.
- b. Immediately restore operability of one Safety Injection Tank because the plant is in a condition outside of the accident analysis.
- c. Within 1 hour initiate action to place the plant in MODE 3 due to potential inadequate volume in the Containment Sump during the recirculation phase (RAS) of a LOCA.
- d. Within 1 hour initiate action to place the plant in MODE 3 because the plant is in a condition outside of the accident analysis.

ANSWER

d.

REFERENCE

LCO 3.0.3

LCO 3.5.1.d

TS 3.5.1 basis page 7

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible but LCO 3.0.3 gives 1 hour to prepare to initiate action and one SIT is assumed to not make it to the PCS, if 2 are inoperable, there may be an issue with required volume of water in sump.
- b. Plausible but LCO 3.0.3 gives 1 hour to prepare to initiate action.
- c. Plausible for same reason as 'a'.
- d. CORRECT

Question #: 084
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000037A210

Question:

With the plant in MODE 1 at full power, a tube leak occurs on the 'A' Steam Generator. The Control Room Supervisor has instructed the Reactor Operator to perform a leak rate calculation in accordance with ONP-23.2, "Steam Generator Tube Leak."

Which one of the following describes: (1) the MAXIMUM leak rate that will NOT exceed technical specifications for Primary to Secondary leakage and (2) the accident, in addition to a Steam Generator Tube Rupture and Main Steam Line Break, that Primary to Secondary leakage is a factor in the amount of dose released to the public?

- a. (1) 0.075 gallons per minute.
(2) Control Rod Ejection.
- b. (1) 0.125 gallons per minute.
(2) Control Rod Ejection.
- c. (1) 0.075 gallons per minute.
(2) Loss of all Feedwater.
- d. (1) 0.125 gallons per minute.
(2) Loss of all Feedwater.

ANSWER

a.

REFERENCE

LCO 3.4.13

TS 3.4.13 basis page 2

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. CORRECT -the limit is 150 gallons per day which is equivalent to 0.104 gpm.
- b. Incorrect leak rate, correct accident.
- c. Correct leak rate, incorrect accident.
- d. Incorrect leak rate, incorrect accident.

Question #: 085
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 000068 2.4.30

Question:

Which one of the following requires a 1 HOUR report to the NRC in accordance with 10CFR50.72?

- a. A plant shutdown is initiated in accordance with LCO 3.0.3.
- b. The Reactor is automatically tripped by the Reactor Protection System.
- c. A confirmed violation of Fitness for Duty requirements has occurred.
- d. The Control Room is evacuated due to hazardous conditions.

ANSWER

d.

REFERENCE

EI-1, attachment 1

10CFR50.72(a)(3)

MODIFIED

HIGH

DISTRACTOR ANALYSIS

- a. Plausible but is a 4 hour report
- b. Plausible but is an 4 hour report
- c. Plausible but is a 24 hour report
- d. CORRECT -High Cog because control room evacuation is an Alert which is a 1 hour notification

Question #: 086
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 026A204

Question:
Given the following conditions:

- The Reactor was tripped due to a Loss of Coolant Accident AND a Loss of all Off-site Power
- EOP-1.0, "Standard Post Trip Actions," have been completed and EOP-4.0, "Loss of Coolant Accident Recovery," has been implemented
- Containment Spray Pump, P-54A, is out of service for maintenance
- Containment Pressure is 21 psig
- Safety Injection Refueling Water Tank, T-58, level is 1%
- The Pressurizer is empty
- Containment Spray Pump, P-54B, trips

Which one of the following describes the impact AND the appropriate procedure to mitigate this event?

- a. Inadequate Containment cooling. Transition to EOP-9.0 "FUNCTIONAL RECOVERY PROCEDURE."
- b. Runout of Containment Spray Pump, P-54C. Perform actions of EOP Supplement 42, "PRE AND POST RAS ACTIONS."
- c. Inadequate Containment cooling. Perform actions of EOP Supplement 42, "PRE AND POST RAS ACTIONS."
- d. Runout of Containment Spray Pump, P-54C. Transition to EOP-9.0 "FUNCTIONAL RECOVERY PROCEDURE."

ANSWER

b.

REFERENCE

EOP Supplement 42 step 2.0. 1.k

EOP Supplement 42 basis

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible because only one spray pump is operating, however containment cooling is met with containment air coolers.
- b. CORRECT
- c. Plausible for same reason as 'a'.
- d. Plausible if the student believes safety function cannot be met with one spray pump available.

Question #: 087
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 062 2.2.44

Question:

Following a manual Reactor trip, the Reactor Operator reports the following indications for Pressurizer Heaters on panel C-02:

- Pressurizer level lowered to 24% and is currently at program level
- Group 3 and 4 Backup Heaters indicating lights are OFF
- Group 2 Proportional Heaters indicating lights are OFF
- Heater Transformer 16 Ammeter indicates "0" amps

The above indicates that Pressurizer Heater power is lost from Bus (1) and the remaining heater capacity is based on (2) .

- a. (1) 1E
(2) the ability to establish and maintain PCS natural circulation in MODE 3.
- b. (1) 1E
(2) assurance that a 20°F subcooling margin, due to pressure decay, is not exceeded.
- c. (1) 1D
(2) the ability to establish and maintain PCS natural circulation in MODE 3.
- d. (1) 1D
(2) assurance that a 20°F subcooling margin, due to pressure decay, is not exceeded.

ANSWER

c.

REFERENCE

E-1, sheet 1; Tech Spec 3.4.9 basis, page 3

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible if the student misapplies the power supply for pressurizer heater transformer 16. Correct basis
- b. Plausible if the student misapplies the power supply for pressurizer heater transformer 16. Wrong basis, this is the basis for 5 hours to transfer to emergency heater power
- c. CORRECT
- d. Correct power supply. Wrong basis, this is the basis for 5 hours to transfer to emergency heater power

Question #: 088
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 064A202

Question:
Given the following with the plant in MODE 1 at 100% power:

- LIA-1400, Diesel Fuel Oil Storage Tank T-10A level indication, is out of service
- Auxiliary Operator reports that T-10A level indicates 51" by dipstick

Which one of the following describes the appropriate action to take AND the basis for the action?

- a. Immediately declare BOTH EDGs inoperable. The EDG fuel oil supply is less than the required 15 hour supply.
- b. Within 1 HOUR initiate action to transfer fuel oil from T-926, Feedwater Purity Fuel Oil Tank. The EDG fuel oil supply is less than the required 7 day supply.
- c. Immediately declare BOTH EDGs inoperable. The EDG fuel oil supply is less than the required 7 day supply.
- d. Within 1 HOUR initiate action to transfer fuel oil from T-926, Feedwater Purity Fuel Oil Tank. The EDG fuel oil supply is less than the required 15 hour supply.

ANSWER

c.

REFERENCE

SOP-22, Attachment 3 (PROVIDE)

LCO 3.8.3.G; Tech Spec 3.8.3 basis

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Correct action, wrong basis -this is the basis for the day tank.
- b. Wrong action, correct basis.
- c. CORRECT
- d. Wrong action, wrong basis.

Question #: 089
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 073 2.2.39

Question:

With the plant in MODE 1 at full power the following occurs:

- EK-1370, "RADIATION MONITORS SAMPLERS FLOW FAILURE," annunciates on panel C-13 due to low sample flow from RIA-1811, W ENG Safeguards Radwaste Ventilation Monitor
- Sample Flow to RIA-1811 CANNOT be established

Which one of the following describes the action that must be taken and the Technical Specification basis for the action?

- a. WITHIN 1 HOUR initiate action to close PO-1811 and PO-1812, West Engineered Safeguards Radwaste Isolation Dampers. This action lowers the potential dose at the site boundary to less than 10CFR 100 guidelines if an accident occurs.
- b. WITHIN 1 HOUR initiate action to close PO-1811 and PO-1812, West Engineered Safeguards Radwaste Isolation Dampers. This action minimizes post RAS dose in the Auxiliary Building to less than 10CFR 20 guidelines.
- c. IMMEDIATELY initiate action to close PO-1811 and PO-1812, West Engineered Safeguards Radwaste Isolation Dampers. This action lowers the potential dose at the site boundary to less than 10CFR 100 guidelines if an accident occurs.
- d. IMMEDIATELY initiate action to close PO-1811 and PO-1812, West Engineered Safeguards Radwaste Isolation Dampers. This action minimizes post RAS dose in the Auxiliary Building to less than 10CFR 20 guidelines.

ANSWER

c.

REFERENCE

ARP-8, window 70

LCO 3.3.10

Tech Spec Basis 3.7.13

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible action correct reason
- b. Plausible action incorrect reason
- c. CORRECT
- d. Correct action, incorrect reason

Question #: 090
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 078A201

Question:

With the plant operating in MODE 1 the following occurs:

- EK-1102, "INSTRUMENT AIR LO PRESS" and EK-1105, "AIR COMPRESSORS STBY COMP RUNNING" annunciate on panel C-13
- All Instrument Air Compressors are running
- Instrument Air header pressure is 83 psig
- Instrument Air Flow as read on FI-1210 indicates 325 cfm
- Instrument Air Dryer, M-2, pre-filter Δp indicates 3.8 psi

Based on these conditions, which one of the following describes the cause of the above symptoms and the procedural action(s) that will restore Instrument Air Pressure?

- a. A leak exists on the Instrument Air system. Bypass M-2, Air Dryer, and place both Air Dryer pre and post filters in service in accordance with SOP-19, "Instrument Air System."
- b. The Instrument Air Dryer pre-filter is clogged. Swap to the standby pre-filter in accordance with SOP-19, "Instrument Air System."
- c. The Instrument Air Dryer pre-filter is clogged. Open CV-1221, Service/Instrument Air Tie-in from the FWP Building.
- d. A leak exists on the Instrument Air system. Augment Instrument Air system by Cross-tying T-9C, High Pressure Control Air Receiver, with Instrument Air.

ANSWER

a.

REFERENCE

ARP-7, window 2 and 5

BANK

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT
- b. Plausible, however, pre-filter Δp is high because air flow is high, if the pre-filter was clogged, Δp would be > 4 psi.
- c. Plausible, however, pre-filter Δp is high because air flow is high, if the pre-filter was clogged, Δp would be > 4 psi.
- d. Plausible, however, T-9C cross-tie to instrument air is not proceduralized.

Question #: 091
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 001A208

Question:

With the plant in MODE 1 at full power the following conditions exist:

- EK-0954, "ROD DRIVE SEAL LEAK OFF HI TEMP," annunciates
- Control Rod Seal leakoff temperature for Rod #26 is indicating 225°F on TRA-0150, CRDM Seal Leakoff Temperature Alarm Recorder
- All other CRDM Leak Off temperatures indicate normal

Which one of the following describes the required action for these conditions?

- a. Enter ONP-6.2, "Loss of Component Cooling Water," due to an elevated CRDM seal leak off temperature for CRD-26.
- b. Initiate a work request for repairs because an indication of > 212°F on CRDM leakoff temperature indicates a failed temperature element.
- c. Verify CRDM Cooling Fans, V-49A/B, are in service and perform a normal plant shutdown to MODE 3 in accordance with GOP-8.
- d. Perform a Primary Coolant System leakage calculation in accordance with DWO-1, "Operator's Daily/Weekly Items, MODE 1, 2, 3, 4," to verify seal leakage from CRD-26.

ANSWER

d.

REFERENCE

ARP-5, window 54

NEW

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student believes that actions in this procedure.
- b. Plausible as this would be the action if temperature were above 250F.
- c. Plausible as this could cause CRDM seal leak off temperatures to be higher than normal but not 250°F.
- d. CORRECT

Question #: 092
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 002A203

Question:
Given the following conditions:

- The plant is in MODE 3
- Primary Coolant Pumps P-50A and P-50C are in service
- CCW Return from Containment, CV-0940, fails closed and CANNOT be opened
- P-50A and P-50C are tripped in accordance with ONP-6.2, "Loss of Component Cooling"

Which one of the following describes the proper procedure to mitigate the event?

- a. EOP-8.0, "Loss of Forced Circulation Recovery."
- b. EOP-9.0, "Functional Recovery Procedure."
- c. ONP-18, "Pressurizer Pressure Control Malfunctions."
- d. ONP-17, "Loss of Shutdown Cooling."

ANSWER

a.

REFERENCE

ONP-6.2, step 4.3

NEW

HIGH

DISTRACTOR ANALYSIS

- a. CORRECT -This would be a lower mode entry
- b. Plausible if the student believes the MVAW safety function cannot be met and EOP-9 must be entered.
- c. Plausible because with all PCPs lost, there is no PZR spray flow.
- d. Plausible because ONP-6.2 directs operators to EOP-8 or ONP-17 as appropriate after tripping PCPs.

Question #: 093
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 015 2.1.32

Question:

Which one of the following describes why Reactor power is limited to $\leq 70\%$ RTP when two Power Range Excure Nuclear Instrument channels are inoperable?

- a. This is below the power at which Quadrant Power Tilt (QPT) is required to be monitored.
- b. Due to the increased uncertainty associated with the input to Thermal Margin/Low Pressure (TMLP) and Variable High Power (VHPT) trips.
- c. This is below the power at which Axial Shape Index (ASI) is required to be monitored.
- d. Due to the increased uncertainty associated with the input to Loss of Load and Variable High Power (VHPT) trips.

ANSWER

b.

REFERENCE

Tech Spec Basis 3.3.1.F.1

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible but QPT is required to be monitored $> 25\%$ power.
- b. CORRECT
- c. Plausible but ASI is required to be monitored $< 25\%$ power.
- d. Plausible but Loss of Load trip is not considered in the safety analysis

Question #: 094
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 2.1.14

Question:

During a Site Area Emergency, which one of the following persons is responsible for ensuring PA announcements regarding emergency conditions occur at regular intervals?

- a. Shift Manager
- b. Site Emergency Director
- c. Operational Support Center Director
- d. Control Room Technical Information Facilitator (TIF)

ANSWER

b.

REFERENCE

EI-2.1, 6.6

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible as this person could make the announcements but it is not their responsibility
- b. CORRECT -This is an SRO only question because filling the role of the SED is an SRO only duty
- c. Plausible since this person is in an operational role
- d. Plausible as this person is handling information coming in and out of the control room

Question #: 095
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 2.1.29

Question:

During testing in preparation for a plant startup in MODE 5, the following exists:

- P-8A, Auxiliary Feedwater Pump, Start Select handswitch is in "MANUAL"
- P-8B, Auxiliary Feedwater Pump, Steam Supply Valve, CV-0522B handswitch is in "CLOSE"
- P-8C, Auxiliary Feedwater Pump, Start Select handswitch is in "AUTO" and the pump is operable

Which one of the following describes when ALL Auxiliary Feedwater Pumps are required to be OPERABLE?

All AFW Pumps must be operable prior to . . .

- a. PCS reaching 325 °F.
- b. Reactor criticality.
- c. entering MODE 4.
- d. entering MODE 3.

ANSWER

b.

REFERENCE

TS 3.7.5

HIGH

BANK

DISTRACTOR ANALYSIS

- a. Plausible, similar to HPSI pump operability
- b. CORRECT
- c. Plausible because only one AFW motor driven pump is required to be operable in MODE 4.
- d. Plausible because both AFW motor driven pumps are required to be operable in MODE 3.

Question #: 096
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 2.2.38

Question:
Given the following:

- The plant is in an emergency
- The control room crew determines that an action must be taken to maintain the plant in a safe condition but the action deviates from the Palisades operating license

The MINIMUM permission required to take this action is _____(1)_____ and the NRC must be notified of this action no later than ____ (2)____ from the time that it was taken.

- a. (1) The Shift Manager
(2) 30 minutes
- b. (1) An On-Shift Licensed Senior Reactor Operator
(2) 30 minutes
- c. (1) The Shift Manager
(2) one hour
- d. (1) An On-Shift Licensed Senior Reactor Operator
(2) one hour

ANSWER

d.

REFERENCE

10CFR50.54(x) and (y); 10CFR50.72(b)

BANK

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Incorrect approver, incorrect time -this is the time that the local and state authorities must be notified
- b. Correct approver, incorrect time -this is the time that the local and state authorities must be notified
- c. Incorrect approver, correct time
- d. CORRECT

Question #: 097
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 2.3.12

Question:

Two Auxiliary Operators are preparing to enter Containment to perform a Control Rod Drive seal leak-off measurement. Given the following conditions:

- Reactor power is 100%
- Containment pressure is 0.1 psig
- Containment temperature is 105°F
- Radiation Protection Manager approval has been obtained

Based on the above conditions, which one of the following requirements is associated with this entry?

- a. Reactor power must be lowered to $\leq 80\%$.
- b. Reactor power must be maintained constant.
- c. Containment Monitor readings must be $< 100\text{mr}/\text{Hour}$.
- d. Containment Temperature must be $\leq 100^\circ\text{F}$.

ANSWER

HP-2.6, 4.1.1

REFERENCE

b.

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible as this should lower radiation readings.
- b. CORRECT
- c. Plausible but RP manager approval has been obtained.
- d. Plausible but no limit on containment temperature is specified.

Question #: 098
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 2.3.14

Question:

A Site Area Emergency has been declared due to a LOCA outside Containment. An Auxiliary Operator has been assigned to make an emergency entry into the Auxiliary Building to attempt to isolate the leak. This action will result in protecting the offsite population from receiving significant dose. As the Site Emergency Director, you have approved this individual to enter. While briefing prior to entry, what will you instruct the operator is their MAXIMUM exposure limit for this activity?

Given the following information for the Auxiliary Operator:

- Total Lifetime exposure: 3800 mrem TEDE
 - Current Year exposure: 800 mrem TEDE
-
- a. 1200 mrem TEDE.
 - b. 4200 mrem TEDE.
 - c. 24200 mrem TEDE.
 - d. 25000 mrem TEDE.

ANSWER

d.

REFERENCE

EI-2.1, section 6.14

BANK

HIGH

DISTRACTOR ANALYSIS

- a. Plausible if the student misapplies the rule for reducing offsite dose and believes that the limit for this person is 2 REM (administrative limit).
- b. Plausible if the student misapplies the rule for reducing offsite dose and believes that the limit for this person is 5 REM (legal limit)
- c. Plausible if the student correctly applies the 25R limit but incorrectly applies the current annual exposure.
- d. CORRECT

Question #: 099
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 2.4.2

Question:

Which one of the following does NOT restrict entry into EOP-2.0, "Reactor Trip Recovery," in accordance with EOP-1.0, attachment 1, "Event Diagnostic Flow Chart?"

- a. Loss of DC Buses D21-1 AND D21-2.
- b. Containment pressure indicates 1.5 psig.
- c. PCS pressure indicates 1620 psia and stable.
- d. Loss of 2400V Bus 1C AND DC Bus D11A.

ANSWER

d.

REFERENCE

EOP-1.0, attachment 1

NEW

DISTRACTOR ANALYSIS

- a. Loss of D21-2 causes a loss of control room alarms which is criteria for EOP-9.0 entry.
- b. Containment pressure > 0.85 psig does not satisfy entry into EOP-2.0
- c. PCS pressure requirement is > 1650 psia and not lowering.
- d. CORRECT -SROs are required to perform EOP-1.0 event diagnostic flow chart

Question #: 100
Exam Date: 20080711
Facility: Palisades
Exam Level: S
K/A 2.4.3

Question:

Which one of the following instruments is identified as Post Accident Instrumentation per LCO 3.3.7, "Post Accident Monitoring Instrumentation"?

- a. Source Range neutron flux indication.
- b. Wide Range neutron flux indication.
- c. AFW Flow indication.
- d. SIRWT Level indication.

ANSWER

b.

REFERENCE

LCO 3.3.7

NEW

FUNDAMENTAL

DISTRACTOR ANALYSIS

- a. Plausible but this is identified as alternate shutdown instrumentation.
- b. CORRECT
- c. Plausible but this is identified as alternate shutdown instrumentation.
- d. Plausible but this is identified as alternate shutdown instrumentation.