

Question Number 001
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000007 EK2.02

QUESTION

In Unit 2, the function of "Low Tavg" at 554°F, coincident with permissive P-4 (Reactor Trip) is to generate a:

- a. main steam line isolation signal to prevent excessive reactivity during the trip due to rapid RCS cooldown.
- b. feedwater isolation signal to prevent excessive reactor coolant system cooldown due to overfeeding of the steam generators.
- c. main turbine trip signal to prevent excessive cooldown of the steam generators and the reactor coolant system.
- d. feedwater flow conservation signal to ensure equal distribution of water to the steam generators.

ANSWER

b.

REFERENCE

RO-C-01100

BANK

FUNDAMENTAL

- a. Incorrect - Main steamline isolation is from hi flow with lo-lo tave, steam line delta-p, low steam line pressure, or containment pressure hi-hi.
- b. Correct - As power is raised, 02-OHP-4021-001-006, Step 4.49 Checks for temperature above 554°F to ensure operator is aware that P-4/feedwater isolation with temperature below 554°F is now active.
- c. Incorrect - Low Tavg and P-4 are not a turbine trip signal.
- d. Incorrect - Feedwater flow conservation is generated by a Train A/B signal for loss of feedwater pumps with AFW Pump in AUTO.

Question Number 002
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000008 AK2.02

QUESTION

Indication for the Pressurizer PORV/Safety Valves is available to the operator in the Control Room as indicated by the:

- | | ACOUSTIC MONITOR | TAILPIPE TEMPERATURE |
|----|-----------------------------------|---------------------------------|
| a. | each safety
each PORV | each safety
common PORV line |
| b. | common safety line
each PORV | common safety line
each PORV |
| c. | each safety
common PORV line | each safety
common PORV line |
| d. | common safety
common PORV line | each safety line
each PORV |

ANSWER

c.

REFERENCE

RO-C-00202 pg. 42-43

BANK

FUNDAMENTAL

- a. Incorrect - PORVs share Acoustic monitor.
- b. Incorrect - PORVs share indicators and safeties have separate indicators.
- c. The Pressurizer PORVs all discharge into a common line which is monitored with a single Acoustic Monitor and Temperature indicator. The Pressurizer Safety Valves have individual Acoustic monitors and temperature indicators.
- d. Incorrect - PORVs share indicators and safeties have separate indicators.

Question Number 003
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000009 EK3.11

QUESTION

Given the following Unit 1 conditions:

- A small break LOCA is in progress.
- SI has actuated.
- RCS Pressure is 1240 psig
- All systems and automatic actions are operating as expected.

Which ONE of the following is the reason for maintaining a secondary heat sink?

- a. To provide an alternate means of RCS pressure control.
- b. Reflux boiling is the primary means of heat removal prior to voiding in the hot legs.
- c. To ensure removal of RCS heat since the RCPs are expected to be running.
- d. RCS pressure may remain so high that cooling from injection flow alone is inadequate.

ANSWER

d.

REFERENCE

RO-C-EOP02, RO-C-EOP09

BANK

HIGHER

- a. Incorrect - RCS Pressure is being maintained by the mass/energy balance of break flow and injection flow.
- b. Incorrect - The primary means of heat removal is the break/SI flow. The SGs are just providing a secondary heat removal function.
- c. Incorrect - SBLOCA analysis assumes that the RCPs are tripped.
- d. Mass loss out the break is not sufficient to lower RCS pressure to a point where energy loss through the break along with injection flow is sufficient to address all decay heat removal requirements. The SG will aid in removing some of the excess decay heat.

Question Number 004
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000011 EK1.01

QUESTION

Given the following plant conditions:

- The operating shift has just entered ES-1.2, Post-LOCA Cooldown and Depressurization.
- Containment pressure has not exceeded 2.0 psig.
- The shift is confirming that Natural Circulation exists

Which one of the following conditions provides indication that natural circulation exists?

- a. RCS subcooling based on core exit TCs is 40°F and slowly rising.
- b. The delta-T (Thot-Tcold) across the SGs are 10°F and slowly lowering.
- c. SG pressures are slowly rising.
- d. RCS Hot leg temperatures are trending to saturation temperature for steam pressure.

ANSWER

a.

REFERENCE

1/2-OHP-4023-SUP-011

BANK

FUNDAMENTAL

- a. Correct - Based on SUP-011 criteria, one of the indications of natural circulation is subcooling greater than or equal to 40°F.
- b. Incorrect - A 10 degree ΔT across the SGs would not indicate natural circulation.
- c. Incorrect - SG pressure should be stable or decreasing for natural circulation indication.
- d. Incorrect - RCS Hot leg temperature should be stable or decreasing for natural circulation indication.

Question Number 005
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000022 AK1.02

QUESTION

The positions of QRV-251, Charging Line Flow Control Valve and QRV-200, RCP Seal Backpressure Valve, are changed to vary RCP seal injection flow.

Assuming QRV-251 is not adjusted, IF QRV-200 is closed slightly, THEN:

	Charging Pump Discharge Press	RCP Seal Injection Flow	Charging Flow to Regen Hx
a.	Lowers	Rises	Lowers
b.	Rises	Lowers	Rises
c.	Rises	Rises	Lowers
d.	Lowers	Lowers	Rises

ANSWER

c.

REFERENCE

SOD-00300-001

BANK

HIGHER

- a. - Incorrect CCP discharge pressure rises.
- b. - Incorrect Seal injection flow rises and Charging Flow lowers.
- c. - Correct QRV-200 will cause a higher backpressure on the CCP discharge and seal injection line, resulting in higher CCP discharge pressure and more flow to the RCP seals. In addition this action will lower charging flow.
- d. - Incorrect CCP discharge pressure rises, Seal injection flow rises, and Charging Flow lowers.

Question Number 006
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000025 AA2.05

QUESTION

During a drain down of Unit 2 to half loop conditions, RCS level began to lower uncontrollably near half loop conditions. The operators have stabilized level and are implementing 2-OHP-4022-017-001, Loss of RHR Cooling:

The following conditions exist:

- RCS level on NLI-122 is 614.35 ft and stable
- The West RHR pump is in operation with the East RHR pump available.
- RHR flow is through ICM-321 to loops 2 and 3 cold legs
- Control Board indication of RHR flow is 3400 gpm on IFI-321

The crew is implementing step 15c to verify proper RHR flow for operating RHR Pumps Based on the conditions provided RHR flow is aligned to the ____ (1) ____ flow path and flow is in the ____ (2) ____ Region.

(Refer to Attached portion of 2-OHP-4022-017-001)

- | | | |
|----|--------------------|-----------------|
| a. | 1) Injection | 2) Acceptable |
| b. | 1) Injection | 2) Unacceptable |
| c. | 1) Normal Cooldown | 2) Acceptable |
| d. | 1) Normal Cooldown | 2) Unacceptable |

ANSWER

b.

REFERENCE

2-OHP-4022-017-001

Attachment Provided: 2-OHP-4022-017-001, Step 15 and Figure 1a/Figure 1b

NEW

HIGHER

- a. - Incorrect Values place flow in the Unacceptable Region.
- b. - Correct Using CONTROL BOARD (dashed line) indication on Figure 1a (Injection Flow Path through ICM-321), 3400 gpm at 614.35 ft places flow in the Unacceptable Region.
- c. - Incorrect Flow path is aligned for injection.
- d. - Incorrect Flow path is aligned for injection. Values place flow in the Unacceptable Region.

Question Number 007
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000026 2.1.8

QUESTION

The following plant conditions exist:

- Unit 2 has experienced a loss of both CCW pumps in MODE 3
- NEITHER Unit 2 CCW pump can be restarted
- 02-OHP-4022-016-004, Loss of CCW, is in progress

Which ONE of the following conditions considered alone would prevent CCW Cross-tie operation from Unit 1 from being implemented?

- a. Unit 1 CCW Surge Tank Level - RISING.
- b. Unit 2 CCW Surge Tank Level - STABLE.
- c. Unit 2 CCW pump cavitation due to suction piping rupture.
- d. Only one Unit 1 CCW pump available.

ANSWER

c.

REFERENCE

02-OHP-4022-016-004

BANK

HIGHER

- a. Incorrect A rising level in Unit 1 CCW surge tank does not prohibit use of the Unit 1 system to supply Unit 2.
- b. Incorrect Unit 2 surge tank level stable is an indication that the piping system is intact and that crosstie operations would be advisable.
- c. Correct If the Unit 2 CCW pump was cavitating, there is indication of a piping rupture. Therefore aligning Unit 1 to the system would not be beneficial.
- d. Incorrect Even if only one pump is available on the opposite unit, it will be used to supply CCW to both units.

Question Number 008
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000029 EK3.01

QUESTION

Unit 2 was operating at steady state full power when a loss of off-site power occurred. The following indications were observed during the performance of Step 1 of 02-OHP-4023-E-0, Reactor Trip or Safety Injection:

- WR Neutron flux is less than 5% and lowering
- Prior to RCP Bus transfer, the operator noted that Rod H8 was at 50 steps
- RTB is closed
- RTA, BYA, and BYB are open
- All Auxiliary Feedwater Pumps are Running

The above indications remained constant when the operators actuated the manual reactor trip breaker switch.

Which one of the following actions should the crew take?

- a. Go to 2-OHP-4023-FR-S.1, Response to Nuclear Power Generation/ATWS
- b. Continue in 2-OHP-4023-E-0, Reactor Trip or Safety Injection
- c. Go to 2-OHP-4023-ECA-0.0, Loss of all AC Power
- d. Go to 2-OHP-4023-FR-S.2, Response to Loss of Core Shutdown

ANSWER

b.

REFERENCE

02-OHP-4023-E-0

BANK

FUNDAMENTAL

- a. Incorrect FR-S.1 is used if WR Flux is not less than 5% or if flux is rising.
- b. Correct All trip breakers are not open, the operator verifies the trip by WR flux less than 5% and lowering.
- c. Incorrect ECA-0.0 is entered from a loss of ALL AC power, not just a loss of offsite power.
- d. Incorrect FR-S.2 is optionally entered (Yellow Path) on WR Startup rate not being as low as expected for conditions. These conditions do not meet the entry conditions for FR-S.2.

Question Number 009
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000032 AA1.01

QUESTION

Unit 2 is performing a shutdown. The following conditions exist :

- Reactor is critical at 8% power.
- Annunciator Panel 210 Drop 8, INTMED RANGE COMPENSATE VOLT FAILURE alarms due to loss of compensating voltage on N36.

How does this affect the Nuclear Instrumentation?

- a. N36 reading would NOT immediately change. During the subsequent shutdown, Source Range NIs will energize automatically when N35 drops below P-6 setpoint.
- b. N36 reading would NOT immediately change. During the subsequent shutdown, Source Range NIs must be manually energized because N36 reading will remain above the P-6 setpoint.
- c. N36 reading would immediately rise about 2 decades. During the subsequent shutdown, Source Range NIs must be manually energized because N36 reading will remain above the P-6 setpoint.
- d. N36 reading would immediately drop about 2 decades. During the subsequent shutdown, Source Range NIs will energize automatically when N35 drops below P-6 setpoint.

ANSWER

b.

REFERENCE

RO-C-01300 Excore Nuclear Instrumentation System Handout #3

BANK

HIGHER

- a. Incorrect Both IR channels must be below P-6 to energize the SR.
- b. Correct When the compensating voltage is lost, while in the power range the effect will not be noticed since the impact from the gamma radiation is a small percentage of the total current. At lower power levels, excessive gamma current will cause the IR detector to indicate excessively HIGH. This may result in 1 of 2 channels remaining above the P-6 setpoint, which would keep all P-6 blocking features active.
- c. Incorrect While in the power range the impact from gamma and the gamma compensation is a small percentage of the actual current.
- d. Incorrect While in the power range the impact from gamma and the gamma compensation is a small percentage of the actual current.

Question Number 010
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000051 2.1.23

QUESTION

Given the following events and conditions:

- A loss of condenser vacuum occurred on Unit 2.
- Reactor power is less than P-8.
- Turbine load is 25%.
- The operators are rapidly lowering turbine load.

Which ONE of the following statements describes the required action(s) (2-OHP-4024-218 Drops 12, 13, & 14 attached)?

- a. When condenser vacuum is less than 24.8 inches Hg, trip the turbine then shutdown the reactor.
- b. When condenser vacuum is less than 24.8 inches Hg, trip the reactor then trip the turbine.
- c. When condenser vacuum is less than 21.0 inches Hg, trip the reactor then trip the turbine.
- d. When condenser vacuum is less than 21.0 inches Hg, trip the turbine then shutdown the reactor.

ANSWER

b.

REFERENCE

02-OHP-4024-218, Annunciator #218 Response: Main and FPT, Drops 12, 13, and 14

BANK

HIGHER

Attachment Provided : 2-OHP-4024-218 Drops 12, 13, & 14

- a. Incorrect The Reactor must be tripped first.
- b. Correct Since reactor power is <P-8 (29%) the Reactor and Turbine Must be tripped when Vacuum lowers to < 24.8 inches Hg.
- c. Incorrect At lower powers turbine blading may overheat if the Reactor/Turbine is Not tripped when vacuum is less than 24.8 inches Hg.
- d. Incorrect At lower powers turbine blading may overheat if the Reactor/Turbine is Not tripped when vacuum is less than 24.8 inches Hg. The Reactor must be tripped first.

Question Number 011
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000054 AA1.03

QUESTION

A screen collapse has resulted in debris intrusion into the circulating water system in Unit 2. As a result, the following conditions exist in Unit 2:

- A Reactor Trip/Turbine Trip was initiated due to the need to trip both Main Feedwater Pumps on lowering vacuum
- A loss of ESW has occurred due to high delta-p on the pump strainers.
- The crew is implementing the following procedures in parallel:
 - 2-OHP-4022-019-001, ESW System Loss/Rupture
 - 12-OHP-4022-057-001, Response to Degraded Forebay

All three AFW pumps are operating and supplying SGs. Which of the following actions is required as a result of the current conditions.

- a. Stop the East and West Motor Driven AFW Pumps and ensure the TDAFP remains operating.
- b. Verify both Motor Driven AFW pumps are supplying SGs and stop the Turbine Driven AFW Pump.
- c. Leave the AFW pumps running and open the doors to the Motor Driven AFW Pump rooms.
- d. Stop all but one AFW pump and ensure AFW flow is maintained to at least two Steam Generators.

ANSWER

c.

REFERENCE

2-OHP-4022-019-001

NEW

HIGHER

- a. Incorrect Procedures do not dictate stopping AFW pumps. Pumps should remain running, but may be stopped if indications if strainer plugging occur.
- b. Incorrect Procedures do not dictate stopping AFW pumps. Pumps should remain running, but may be stopped if indications if strainer plugging occur.
- c. Correct 2-OHP-4022-019-001, directs the opening of the doors to the MDAFW Pump rooms. The pumps may still be operated. Note: Oil cooling is supplied by NESW and is NOT required for operation of the pumps.
- d. Incorrect The concern at this point in the procedure is with room cooling, not with AFW flow directly,

Question Number 012
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License Level B
Points 1.00
K/A 000055 2.1.9

QUESTION

A loss of offsite power has occurred. During the recovery phase it was discovered that complete loss of the switchyard 125V DC distribution systems occurred.

How will this affect the restoration of power to the plant?

- a. The 4 kV circuit breakers CAN NOT be operated in auto or manual.
- b. The 345 kV and 765 kV switchyard circuit breakers can not be opened or closed from the control room.
- c. Heat tracing and cooling is lost for TR4 and TR5, reducing their load carrying capacity.
- d. The air compressors for the 345 kV and 765 kV circuit breakers have lost power.

ANSWER

b.

REFERENCE

RO-C-08200

BANK

FUNDAMENTAL

- a. Incorrect 4KV breakers are supplied control power from the AB/CD 250 VDC systems.
- b. Correct The switchyard 125V DC distribution system supplies control power to the yard breakers.
- c. Incorrect There is no Heat Tracing supplied to TR4/TR5.
- d. Incorrect The air compressors for the yard circuit breakers are AC power.

Question Number 013
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000056 AA2.83

QUESTION

Given the following:

- Unit 2 Plant Air Compressor (PAC) is operating with Unit 1 PAC in Standby.
- Both Units are operating at 100% when a tornado causes a Loss of All Offsite Power.
- Both Units' EDGs started and are supplying their respective buses.

Which ONE of the following describes the impact to the Unit 1 Plant & Control Air Systems due to the loss of power with NO operator action?

- a. Plant Air Compressor is locked out on load shed signal.
Control Air Compressor is locked out on load shed signal.
- b. Plant Air Compressor is locked out on load shed signal.
Control Air Compressor will auto start if pressure lowers below auto start setpoint.
- c. Plant Air Compressor will start and load.
Control Air Compressor is locked out on load shed signal.
- d. Plant Air Compressor will start but NOT auto load.
Control Air Compressor will auto start if pressure lowers below auto start setpoint.

ANSWER

b.

REFERENCE

RO-C-06401

BANK

HIGHER

- a. Incorrect The Control Air Compressor does NOT receive a load shed (lockout) signal.
- b. Correct The Plant Air Compressor (PAC) receives a load shed (lockout) signal on an undervoltage condition, during the LOOP, and will NOT automatically restart. The Control Air Compressor (CAC) does NOT receive a load shed signal and will have power available when the Vital 600v block loads are re-energized from the CD EDG. The CAC will auto start on low pressure if pressure lowers below the auto start setpoint.
- c. Incorrect The Plant Air Compressor (PAC) will NOT start due to a load shed (lockout) signal. Additionally, the unloader valve on the Standby PAC is maintained in MANUAL therefore the compressor will NOT auto load. The Control Air Compressor does NOT receive a load shed (lockout) signal.
- d. Incorrect The Plant Air Compressor (PAC) will NOT start due to a load shed (lockout) signal.

Question Number 014
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000057 AA2.06

QUESTION

The following plant conditions exist:

- Unit 1 is in Hot Standby.
- Reserve Feed Breaker 12AB has tripped due to a fault.
- 1AB Emergency Diesel Generator failed to start.
- Ann.119, Drop 9, BATTERY CHARGER 1AB1 FAILURE is LIT

Which ONE of the following describes the condition of the Control Room Instrument Distribution (CRID) system resulting from these conditions?

- a. 120 VAC power to CRID III and CRID IV from inverters has been lost.
- b. 250 VDC Battery AB is supplying all power for CRID III and CRID IV.
- c. 250 VDC Battery CD is supplying all power for CRID III and CRID IV.
- d. CRID III and CRID IV Inverters are being supplied with power from the regulated 600/120VAC transformer.

ANSWER

b.

REFERENCE

SOD-08203-001, RO-C-AOP-4

BANK

HIGHER

- a. Incorrect Nothing indicates inverter power is lost
- b. Correct Without AC power to battery charger then the battery which is the inverter power supply carries both CRID buses via the inverter.
- c. Incorrect Battery CD does not supply CRID III and IV
- d. Incorrect Batteries are supplying the CRIDs

Question Number 015
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000001 AK3.02

QUESTION

Unit 2 is at 89% power. The unit has just stabilized following an instrument malfunction which caused a rod withdrawal from the original positions. All rods moved from their original positions.

Control Bank D Group 1 step counter position is 201 with RPIs indicating the following:

- Control Rod D4: 194 steps.
- Control Rod D12: 205 steps.
- Control Rod M12: 182 steps.
- Control Rod M4: 180 steps.

Which ONE of the following describes the action(s) required by Technical Specifications?

- a. Verify shutdown margin is within the limits within 1 hour **AND** be in Hot Standby within 6 hours.
- b. Restore control rods to within alignment in 30 minutes **OR** be in Hot Standby within 6 hours.
- c. Reduce thermal power to less than 75% within 1 hour **AND** restore control rods to within alignment within 2 hours.
- d. Immediately trip the reactor **AND** emergency borate the RCS.

ANSWER

a.

REFERENCE

TS 3.1.4, Action D

BANK

FUNDAMENTAL

- a. Correct TS 3.1.4, Action D, Required SDM verification within 1 hour and Mode 3 in 6 hours.
- b. Incorrect More than 1 rod is misaligned. No opportunity provided for restoration.
- c. Incorrect Power reduction is not required for 2 rods misaligned.
- d. Incorrect A reactor trip is required for 2 dropped rods. Boration for stuck rods.

Question Number 016
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000015 AA1.09

QUESTION

Given the following conditions:

- Unit 2 tripped from 29% power.
- 21 RCP breaker tripped open when the busses swapped.

Which one of the following describes the response of T_{hot} and T_{cold} in Loop 21?

- a. T_{cold} rises to approximately equal T_{hot} .
- b. T_{hot} lowers to approximately equal T_{cold} .
- c. T_{cold} lowers, T_{hot} remains approximately stable.
- d. T_{hot} rises, T_{cold} remains approximately stable.

ANSWER

b.

REFERENCE

RO-C-TRANS4, RCS Loop Flow Transients pg. 20-25

BANK

HIGHER

- a. Incorrect T_{cold} remains approximately the same, at low power near saturation for SG.
- b. Correct Loss of RCS flow in 1 loop, reverse flow in that loop will cause T_{hot} to drop (no more forced circulation in that loop) to the T_{cold} value or slightly below.
- c. Incorrect T_{cold} remains approximately the same, at low power near saturation for SG. T_{hot} lowers since the core exit flow is not forced into the loop.
- d. Incorrect T_{hot} lowers since the core exit flow is not forced into the loop.

Question Number 017
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000061 AK3.02

QUESTION

Given the following:

- Unit 1 is in Mode 4.
- The Containment Purge System was aligned for full flow purge operation with the following lineup:

Purge Supply Fan 1-HV-CPS-1 - RUNNING
Purge Exhaust Fan 1-HV-CPX-2 - RUNNING
Purge Supply to Upper Containment 1-VCR-105 and 1-VCR-205 OPEN
Purge Exhaust from Upper Containment 1-VCR-106 and 1-VCR-206
OPEN

- Following a HIGH alarm on ERS-1305, Lower Containment Radiation Monitor, the Containment Purge System is aligned as follows:

Purge Supply Fan 1-HV-CPS-1 - RUNNING
Purge Exhaust Fan 1-HV-CPX-2 - RUNNING
Purge Supply to Upper Containment 1-VCR-105 and 1-VCR-205 OPEN
Purge Exhaust from Upper Containment 1-VCR-206 OPEN
Purge Exhaust from Upper Containment 1-VCR-106 CLOSED

Which ONE of the following describes the required operator actions?

Stop 1-HV-CPS-1 and 1-HV-CPX-2, Close 1-VCR-105, 205, and 206 and ...

- a. declare 1-VCR-105 and Purge Isolation System inoperable.
- b. declare 1-VCR - 206, 1-HV-CPX-2, and Purge Isolation System inoperable.
- c. log completion of the purge. Containment Purge Isolation is NOT required to be operable in this mode.
- d. initiate an eSAT to investigate why 1-VCR-106 incorrectly closed from Lower Containment Radiation.

ANSWER

a.

REFERENCE

Tech Spec 3.3.6 and 3.6.3

BANK

HIGHER

- a. Correct ERS-1305 closes the Inside Containment Isolation Valves VCR-101 through VCR-107 and trips the Instrument room purge supply (CIPS) fans. These dampers are required to close in modes 1-4.
- b. Incorrect VCR-206 and HV-CPX-2 are closed by the ERS-1400 channels.
- c. Incorrect Purge Isolation and Vent Isolation are required in Mode 4.
- d. Incorrect VCR-106 should close from a high rad signal on ERS-1305.

Question Number 018
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000062 AA1.07

QUESTION

Given the following conditions:

- Unit 1 is at 100% power.
- The crew has entered 01-OHP-4022-019-001, ESW System Loss/Rupture, due to a large leak just downstream of the U1 East ESW Pump Discharge Valve (WMO-701).
- The control room crew has closed WMO-707 (Unit 2 ESW Header Crosstie) as directed by the procedure.
- The 1E ESW pump is NOT running.

Which of the following component ESW supplies have been completely lost due to these actions?

- a. DG1CD Cooling Water Supply
East MDAFP Emergency Suction
North Control Room Air Conditioning ESW Supply
East CCW Hx Cooling Water Supply
- b. DG1AB Cooling Water Supply
West MDAFP Emergency Suction
South Control Room Air Conditioning ESW Supply
West CCW Hx Cooling Water Supply
- c. West MDAFP Emergency Suction
East MDAFP Emergency Suction
North Control Room Air Conditioning ESW Supply
East CCW Hx Cooling Water Supply
- d. TDAFP Emergency Suction
West MDAFP Emergency Suction
South Control Room Air Conditioning ESW Supply
West CCW Hx Cooling Water Supply

ANSWER

c.

REFERENCE

SOD-01900-001

NEW

HIGHER

- a. Incorrect DG1CD normal supply is lost, but the alternate supply is still available.
- b. Incorrect DG1AB alternate lost but the normal supply is still available. N CRAC and

- c. Correct E CCW Hx are affected.
East and West MDAFPs, N CRAC, and E CCW Hx, are supplied by the 1E ESW Pump Header.
- d. Incorrect TDAFP is supplied by opposite train. N CRAC and E CCW Hx are affected.

Question Number 019
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Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000067 AA2.02

QUESTION

Which ONE of the following lists the Unit 1 Control Room Ventilation system damper alignment for operation during a fire located in the Control Room Cable Vault?

	1-HV-ACR-DA-1/1A Outside air to CR	1-HV-ACR-DA-2 Outside air to CR PRZN	1-HV-ACR-DA-2A Outside air to CR PRZN	1-HV-ACR-DA-3 CR air to PRZN
a.	OPEN	PARTIAL OPEN	CLOSED	OPEN
b.	CLOSED	CLOSED	PARTIAL OPEN	OPEN
c.	OPEN	CLOSED	PARTIAL OPEN	CLOSED
d.	CLOSED	PARTIAL OPEN	CLOSED	CLOSED

ANSWER

d.

REFERENCE

SOD-02801A-001

BANK

FUNDAMENTAL

- | | | |
|----|-----------|--|
| a. | Incorrect | Dampers 1, 1A and 3 will be closed on the fire. |
| b. | Incorrect | Damper 3 will be closed on the fire. Damper 2a may be partially open if damper 2 fails to open in the allotted time. |
| c. | Incorrect | Damper 1 and 1A will be closed on the fire. |
| d. | Correct | The only damper that remains open on a fire in the CR Cable vault is the either the 1-HV-ACRDA-2 or 1-HV-ACRDA-2A damper (which is only run partial open). |

Question Number 020
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000003 AK2.05

QUESTION

Unit 2 was operating at 20% power when a Control Bank A rod dropped into the core. During recovery of the dropped rod, an URGENT FAILURE alarm was received.

Which ONE of the following is the reason for this alarm?

- a. Output voltage to the moveable and stationary grippers has excessive ripple.
- b. Moveable and stationary grippers attempt to energize at the same time.
- c. Current signals to moveable and stationary grippers are lost at the same time.
- d. Current to the moveable and stationary grippers does not match the current command signal.

ANSWER

d.

REFERENCE

RO-C-AOP-6

BANK

FUNDAMENTAL

- a. Incorrect There is no alarm associated with excessive ripple effect in the rod control circuit.
- b. Incorrect There is no Urgent Failure alarm associated with the moveable and stationary grippers attempting to energize at the same time.
- c. Incorrect There is no Urgent Failure alarm associated with the moveable and stationary grippers losing current at the same time.
- d. Correct The disconnects are open for the non affected rods. When the operator begins to retrieve the dropped rod, the rod control system will sense a current demand to the rods with the disconnect switches open and no current to the coils resulting in an Urgent Failure Alarm.

Question Number 021
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 002000 A1.13

QUESTION

The control room operators are performing 01-OHP-4023-FR-C.1, Inadequate Core Cooling . They are NOT able to establish high head ECCS flow.

The following conditions exist:

- SG depressurization proves to be ineffective.
- SG NR levels are stable at 20%.
- All core exit TCs are greater than 1250°F and slowly rising.

The operators were attempting to establish conditions for RCP restart, but are unable to establish RCP seal injection or 200 psid across the #1 seal.

What actions are appropriate for these conditions?

- a. Start one RCP at a time until core exit TCs are less than 1200°F.
- b. Do NOT start the RCPs. Open all PRZ PORVs and block valves.
- c. Start all RCPs simultaneously to reduce core exit TC's to less than 1200°F.
- d. Do NOT start the RCPs. Continue attempts to establish high head injection.

ANSWER

a.

REFERENCE

1-OHP-4023-FR-C.1

BANK

FUNDAMENTAL

- a. Correct Since adequate SG levels for heat sink exist, the RCPs are started in an attempt to circulation coolant/steam through the SG tubes in an attempt to cool the RCS. Adequate support condition for the RCPs are desired but NOT required since Core cooling is severely challenged.
- b. Incorrect Plausible since this is the RNO for step 22 if RCP or SG level is not available.
- c. Incorrect Starting RCPs without all support conditions and at this temperature may damage RCPs so only 1 is started at a time. This is plausible since the loss of cooling is a severe challenge to the core and starting all RCPs may provide more cooling.
- d. Incorrect This is plausible since the RCPs do not have all support conditions available (& opening the PRZ PORVs is a drastic step)

Question Number 022
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 003000 K3.01

QUESTION

The following plant conditions exist on Unit 2:

- Loop flow measurement determined the Reactor Coolant Pump 4 impeller has degraded such that its Reactor Coolant System (RCS) loop flow has lowered by 5% from its original value.
- The other three RCS loop flows remain UNCHANGED.
- The Reactor is operating at 100% Power.

Based on these conditions, which one of the following would be a result of the lowered flow rate in the RCS loop 4?

- a. Delta temperature in RCS loop 4 at full power will be lower.
- b. Demand on the pressurizer variable heaters at 2235 psig will be higher.
- c. Steam pressure in the Steam Generator 4 at full power will be higher.
- d. The reactor core margin to Departure from Nucleate Boiling will be lower.

ANSWER

d.

REFERENCE

ITS Basis - B 3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

BANK

HIGHER

- a. Incorrect Plausible since Delta T is affected however, Delta T would actually be higher in this situation.
- b. Incorrect Plausible since Loop 3 & 4 RCPs provide PRZ spray. However, based on plant design, the #4 RCP is less effective than the #3 RCP and provides limited flow. Under steady state - 2235 psig conditions, the sprays are closed and bypasses provide minimal flow to keep the lines warm, so therefore not much impact on current draw from variable heaters. If the heater were impacted it would cause a "lower" demand/current due to less spray flow.
- c. Incorrect Plausible since Delta T is affected however, Higher Delta T means Tcold would be lower and therefore steam pressure would be lower.
- d. Correct Putting out the same MWt with a reduced flowrate means reduced heat transfer capabilities and therefore operation closer to DNB.

Question Number 023
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 004000 A3.05

QUESTION

Unit 1 is operating at 80% power with Tavg at 554°F.

All systems are functioning in AUTOMATIC mode EXCEPT ROD CONTROL which is in MANUAL.

If Loop 2 Tcold fails HIGH, what would be the effect on RCP seal injection flows? (Assume No Operator Action)

- a. The change in pressurizer reference (setpoint) level will cause RCP Seal Injection flow to lower.
- b. Since there is no actual change in Tavg, RCP Seal injection flow will remain the same.
- c. The change in pressurizer reference (setpoint) level will cause RCP Seal Injection flow to rise.
- d. Since 1-QRV- 200 is operated in manual, there will be no change in RCP Seal injection flow.

ANSWER

c.

REFERENCE

RO-C-00202, RO-C-AOP-3

BANK

HIGHER

- c. Correct Failure of the Tcold will cause Auctioneered High Tavg to fail high. Since reference pressurizer level is based on Auctioneered High Tavg, the setpoint will rise from 45% to 46.6%. The change in reference level will cause charging flow to rise. Charging flow rising will cause more flow to the seals since QRV-200 (RCP Seal Backpressure Valve) is operated in Manual.
- a., b., d. Incorrect With QRV-200 in manual, seal injection flow changes in the same directions as charging flow. Since pressurizer level reference is based on Auctioneered High Tavg (which is failed high) charging flow will rise to try to raise pressurizer level, thus raising seal injection flow.

Question Number 024
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 004000 K3.05

QUESTION

Given the following plant conditions on Unit 1:

- Reactor power - 100%
- PRZ level at program level
- All controls are in AUTOMATIC with Boric Acid Controller set at 14.7
- 120 gpm Letdown is in service
- Charging and letdown are balanced

Which ONE of the following describes the effect on the plant if 1-QRV-251, Charging Flow Controller, loses control air? (USFAR Table 9.2-2 CVCS Design Parameters is attached)

- a. VCT level will lower to the Refueling Water Sequence setpoint.
- b. Pressurizer level will lower to the 17% letdown isolation setpoint then rise to the high level reactor trip setpoint.
- c. Pressurizer level will lower to the 17% letdown isolation setpoint then continue to lower until reactor trips on low pressurizer pressure.
- d. Pressurizer level will rise to the high level reactor trip setpoint.

ANSWER

d.

REFERENCE

RO-C-00300, UFSAR Table 9.2-2

NEW

HIGHER

- a. Incorrect VCT level will be maintained by auto makeup from the blender.
- b. Incorrect Pressurizer level will rise due to QRV-251 failing open on loss of air.
- c. Incorrect Pressurizer level will rise due to QRV-251 failing open on loss of air.
- d. Correct QRV-251 fails open on loss of air. This will result in charging flow going high. VCT level will lower but will be maintained by auto makeup. Reactor will trip on high pressurizer water level.

Attachment Provided: USFAR Table 9.2-2 CVCS Design Parameters

Question Number 025
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 005000 2.2.27

QUESTION

Given the following plant conditions:

- Refueling is in Progress
- The Refueling Cavity Level is 644.5 ft elevation
- Reactor Coolant System (RCS) temperature is 125°F.
- The East Residual Heat Removal (RHR) train is in the Shutdown Cooling Mode.
- The East RHR heat exchanger suddenly develops a 50 gpm tube leak.

Based on these conditions and assuming no operator action is taken, what will be the result of this event?

- a. Refueling Cavity Level rises and the RHR Hx Delta-T rises.
- b. Refueling Cavity Level lowers and the RHR Hx Delta-T lowers.
- c. CCW surge tank level will rise, until overflowing to the Waste Gas Header.
- d. CCW surge tank level will lower, until the CCW pumps trip, resulting in a loss of shutdown cooling.

ANSWER

b.

REFERENCE

RO-C-AOP-4, 2-OHP-4022-016-003

MODIFIED

HIGHER

- a. Incorrect Because CCW is at lower pressure than RHR, therefore all parameters are exactly opposite of what would happen. Plausible if candidate assumes CCW pressure is higher.
- b. Correct RHR system pressure is higher than CCW system pressure, causing an RCS leak into CCW. With Hot RCS mixing with the CCW the RCS cooldown will not be as effective.
- c. Incorrect Plausible because although CCW surge tank rises and overflows, the overflow/ drain funnel goes to the AB Drain system versus the waste gas system. The tank is vented to the AB exhaust through the vent/overflow valve CRV-412. CRV-412 may auto close on High radiation. The tank will then be protected by the safety valve which relieves to AB Drain system.
- d. Incorrect RHR system pressure is higher than CCW system pressure which is around 80 to 90 psig, therefore leakage will be into the CCW system and surge tank level will rise. Plausible if candidate assumes CCW pressure is higher.

Question Number 026
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 005000 K2.03

QUESTION

Unit 2 is performing a normal cooldown in accordance with 02-OHP-4021-001-004, Plant Cooldown From Hot Standby To Cold Shutdown.

Power for 2-IMO-128/ICM 129 (RHR Suctions from Loop 2) is:

- a. removed when reaching Mode 4 with RHR in service to ensure RHR cooling is maintained during the remainder of the cooldown.
- b. maintained when in Mode 4 to allow RHR to be isolated in the event of a Mode 4 LOCA
- c. removed when reaching Mode 4 to ensure that the RHR suction relief is maintained for LTOP.
- d. maintained when Mode 4 is reached, but will be removed when RCS cold leg temperatures are less than 300°F for LTOP controls.

ANSWER

b.

REFERENCE

NEW

FUNDAMENTAL

02-OHP-4021-001-004

- a. Incorrect Power is maintained to the valves in Mode 4.
- b. Correct Per 02-OHP-4021-001-004, Mode 4 LOCA analysis requires that IMO-128/ICM-129 power remain on to allow isolation of the RHR suction in the event of a LOCA on RHR in Mode 4.
- c. Incorrect Power is maintained to the valves in Mode 4.
- d. Incorrect Power is maintained to the valves in Mode 4 and is not removed until Mode 5 (less than 200°F).

Question Number 027
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 006000 K5.09

QUESTION

The following plant conditions exist:

- A reactor trip and safety injection have occurred.
- The crew is responding to a Small Break Loss of Coolant Accident (LOCA).
- All Reactor Coolant Pumps are tripped.
- The crew is depressurizing the Reactor Coolant System (RCS) in accordance with Step 13 of 02-OHP-4023-ES-1.2, Post LOCA Cooldown and Depressurization.
- A PORV is being used to depressurize the RCS until Pressurizer level is > 37%.

Based on these conditions, as the depressurization occurs:

- 1) What is the expected trend of PRZ level?
- 2) What adverse operating condition may INITIALLY occur as a result?
 - a. 1) Lowering PRZ Level
2) Uncovering PRZ heaters.
 - b. 1) Rising PRZ Level
2) Water solid conditions in the PRZ.
 - c. 1) Rising PRZ Level
2) Upper head region voiding may occur.
 - d. 1) Lowering PRZ Level
2) Upper head region voiding may occur.

ANSWER

c.

REFERENCE

02-OHP-4023-ES-1.2 step 13, 12-OHP-4023-ES-1.2 -EOP Step #: 13 N1 ERG Step #: 11 C1

BANK

HIGHER

- a. Incorrect PRZ will rise during depressurization versus lower. It is plausible that if the operator does not understand this concept and they believe PRZ level will drop that the heaters would become uncovered which is an undesirable condition.
- b. Incorrect Although it is correct that PRZ level will rise and it is plausible that eventually the PRZ would go solid, that this would not INITIALLY occur.
- c. Correct The caution prior to commencing depressurization in ES-1.2 to refill the

- d. Incorrect PRZ, states that a head void may occur as indicated by a rising PRZ level as water is transferred from the RCS to the PRZ. PRZ level will rise vs. lower. The reason is plausible and tests whether the student correctly understands the important concept.

Question Number 028
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 007000 2.1.9

QUESTION

Unit 2 is in Mode 5 preparing to drain the RCS.

During the drain down, the level in the PRT is maintained _____(1)_____ for the purpose of _____(2)_____.

- a. 1) greater than 25%
2) covering the sparge line to allow for nitrogen to aid in RCS draining.
- b. 1) greater than 5%
2) covering the sparge line to prevent nitrogen in the PRT from getting into the steam generator tubes.
- c. 1) less than 5%
2) keeping the sparge line uncovered to allow nitrogen to aid in RCS draining.
- d. 1) less than 25%
2) keeping the sparge line uncovered to allow nitrogen to aid in draining the steam generator tubes.

ANSWER

c.

REFERENCE

RO-C-NOP3

BANK

FUNDAMENTAL

- a. Incorrect 25% level covers the sparge line which does not aid in RCS draining.
- b. Incorrect greater than 5% covers the sparge line & the purpose is to aid in draining by allowing nitrogen into the RCS/SG tubes
- c. Correct PRT level is lowered to 5% in the PRT to uncover the sparge line and provide a better connection between the vapor space of the PRT (with nitrogen blanket) and the PRZ vapor space, to aid in RCS draining.
- d. Incorrect the sparge line is at 5%. The purpose of the nitrogen blanket is to aid in RCS draining.

Question Number 029
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 007000 A1.02

QUESTION

Given the following:

- Unit 1 was operating at 100% power when the turbine tripped.
- The reactor failed to automatically trip but was manually tripped.
- All other systems operated as expected.
- The Emergency procedures have been performed and the plant stabilized.
- It was noted that on the transient RCS pressure reached 2370 psig.

Which ONE of the following represents the expected status of the PRT and the actions that must be taken to restore it to normal limits?

- a. PRT Temperature = 100°F, Level = 15%, and Pressure = 14 psig
Open the Vent to depressurize and add water to cool the tank.
- b. PRT Temperature = 140°F, Level = 84%, and Pressure = 12 psig
Reduce level and add water to cool & depressurize the tank
- c. PRT Temperature = 280°F, Level = 82%, and Pressure = 34 psig
Open the Vent to depressurize and add water to cool the tank.
- d. PRT Temperature = 240°F, Level = 95%, and Pressure = 3 psig
Reduce level and add water to cool & depressurize the tank.

ANSWER

b.

REFERENCE

01-OHP-4022-002-009, Leaking Pressurizer Power Operated Relief Valve,
01-OHP-4021-002-006, Pressurizer Relief Tank Operation

BANK

HIGHER

- a. Incorrect The tank temperature and level are too low and the pressure is too high. The Vent will not open at this pressure.
- b. Correct PRT temperature is normally at Containment Temperature of ~100-110°F with level 80-84% and pressure of ~ 2-3 psig. With the RCS pressure given the PORVs would have lifted causing an elevated PRT temperature, Pressure and Level. This would be reduced by draining and cooling the tank.
- c. Incorrect Given this temperature and pressure the tank would be saturated. This is not expected to occur from a single discharge of the PORV. The vent will not open at this pressure.
- d. Incorrect At this temperature pressure would need to be 10 psig. Level would not be expected to increase this much.

Question Number 030
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 008000 K1.02

QUESTION

Unit 1 has just experienced a spurious safety injection. Which ONE of the following automatic actions are expected to occur in the CCW system?

- 1) CCW from the RHR Hx throttles to approximately 3,000 gpm.
 - 2) CCW to CEQ fan motors open.
 - 3) Standby CCW pump auto starts.
 - 4) Letdown Hx CCW return valve 1-CRV-470 closes.
- a. 1, 2, 3
- b. 1, 3, 4
- c. 2, 3, 4
- d. 1, 2, 4

ANSWER

b.

REFERENCE

RO-C-01600

BANK

FUNDAMENTAL

- b. Correct CCW to CEQ fans valves open on an independent signal of 1.1 psig in containment which is separate from the SI signal.
- a., c., d. Incorrect CCW to CEQ fan motors do NOT open.

Question Number 031
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 00WE04 2.4.5

QUESTION

A small break LOCA has occurred outside containment in Unit 1.

Actions of 1-OHP-4023-ECA-1.2, LOCA Outside Containment, have been completed and RCS pressure continued to lower.

A transition was made to 1-OHP-4023-ECA-1.1, Loss of Emergency Coolant Recirculation.

Which of the following is the reason a transition was made to ECA-1.1?

- a. To terminate offsite release.
- b. To recover after the break was isolated.
- c. To take compensatory actions for lack of inventory in the containment sump.
- d. To reverify that all automatic actions have been completed.

ANSWER

c.

REFERENCE

RO-C-EOP9, 2-OHP-4023-ECA-1.2 including Background Document

BANK

FUNDAMENTAL

- a. Incorrect While terminating the release may be a beneficial action, this is not the reason for going to ECA-1.1.
- b. Incorrect The break has not been isolated since RCS pressure continues to lower.
- c. Correct Since the LOCA is outside containment, the water being lost is not being collected in the containment sump. Therefore, actions are required to conserve inventory of the RWST while continuing to address the LOCA.
- d. Incorrect All auto actions have previously been verified.

Question Number 032
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 00WE05 EK2.1

QUESTION

The operators are instructed to stop ALL running RCPs during the initial steps of 2-OHP-4023-FR-H.1, Loss of Secondary Heat Sink.

This action is required to allow the operators time to:

- a. establish a higher flow rate for high pressure SI thus increasing the RCS cooldown rate.
- b. control the over-cooling via natural circulation when feedwater is established.
- c. depressurize the intact SGs in order to reduce RCS pressure and inject accumulators.
- d. reduce the heat addition to the RCS and extend the time to depletion of the steam generator inventory.

ANSWER

d.

REFERENCE

RO-C-EOP11, Study Guide, FR-H.1 Background

BANK

FUNDAMENTAL

- a. Incorrect Stopping the RCP will not significantly lower pressure.
- b. Incorrect Cooldown would be better controlled if the RCPs were running, not stopped.
- c. Incorrect Stopping RCPs will not depressurize the SGs.
- d. Correct RCPs are tripped to extend the time till SG generator dryout by reducing the amount of heat needed to be removed.

Question Number 033
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 00WE07 EK1.2

QUESTION

A LOCA is in progress, and the control room operators are attempting to stabilize plant conditions.

The following plant conditions exist:

- Core Exit TCs: 450°F.
- RCS Pressure: 400 psig.
- RVLIS Narrow Range: 76%.
- RVLIS Wide Range: 27%.
- ALL RCPs: OFF.

Which ONE of the following describes current core conditions and operational requirements?

(Refer to attached 02-OHP-4023-F-0.2, Core Cooling status tree as needed.)

- a. Subcooled. Operator action is not required because core cooling is satisfactory.
- b. Saturated. At their discretion, the operators may perform 02-OHP-4023-FR-C.3, Response to Saturated Core Cooling to restore subcooled core cooling.
- c. Degraded. Prompt action must be taken as per 02-OHP-4023-FR-C.2, Response to Degraded Core Cooling or conditions could degrade to an inadequate core cooling condition.
- d. Inadequate. Immediate action must be taken as per 02-OHP-4023-FR-C.1, Response to Inadequate Core Cooling or core uncover and fuel damage could occur.

ANSWER

b.

REFERENCE

02-OHP-4023-F-0.2, Critical Safety Functions Status Trees, Core Cooling

BANK

HIGHER

Attachment Provided - 02-OHP-4023-F-0.2, Core Cooling status tree

- a. Incorrect The plant is saturated.
- b. Correct 400 psig = 414.7 psia = 448°F indicating that Subcooling is <36°F. With NO RCPs running and NR RVLIS > 46% the correct procedure would be 02-OHP-4023-FR-C.3, Response to Saturated Core Cooling. This is a yellow path procedure so discretion is allowed.
- c. Incorrect Temperature is low enough and there is enough inventory that a degraded condition does not exist.

- d. Incorrect Temperature is low enough and there is enough inventory that an inadequate condition does not exist.

Question Number 034
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 00WE08 EK2.2

QUESTION

Following a small break LOCA, the crew is performing the actions contained in FR-P.1, Response To Imminent Pressurized Thermal Shock Conditions.

Which ONE of the following describes the difference in SI termination criteria for 2-OHP-4023-FR-P.1 as opposed to the criteria in 2-OHP-4023-ES-1.1, Safety Injection Termination?

The criteria in 2-OHP-4023-FR-P.1 is...

- a. more restrictive to ensure adequate ECCS flow and allow for a more controlled reduction in RCS pressure.
- b. less restrictive to limit cooldown from ECCS and allow for a faster reduction in RCS pressure.
- c. more restrictive because subsequent RCP restart is likely to cause propagation of any existing flaw in the reactor vessel walls.
- d. less restrictive because subsequent RCP restart is likely to cause propagation of any existing flaw in the reactor vessel walls.

ANSWER

b.

REFERENCE

RO-C-EOP12, Westinghouse Ergs Background for FR-P.1

BANK

FUNDAMENTAL

- a. Incorrect Opposite of actual reason.
- b. Correct The criteria are less restrictive so that SI reduction can aid the RCS pressure reduction and in addition to limiting the cooldown effects of the ECCS water. RVLIS level rather than PRZ level is used as a measure of inventory.
- c. Incorrect RCP restart will not cause a crack to propagate under any of the conditions analyzed for this procedure. However, propagation of flaws is a major concern in a PTS event.
- d. Incorrect RCP restart will not cause a crack to propagate under any of the conditions analyzed for this procedure. However, propagation of flaws is a major concern in a PTS event.

Question Number 035
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 00WE10 EA2.1

QUESTION

The following plant conditions exist:

- The unit has tripped from 100% power when a switchyard failure caused a loss of offsite power.
- 02-OHP-4023-ES-0.2, Natural Circulation Cooldown, is in progress to perform a natural circulation cooldown and depressurization of the reactor coolant system (RCS).
- The crew is about to perform the step to initiate RCS depressurization following the block of SI actuation.

For which one of the following situations should a transition to 02-OHP-4023-ES-0.3, Natural Circulation Cooldown with Steam Void in Vessel, occur?

- a. The Safety Injection accumulators are unable to be isolated.
- b. Pressurizer Auxiliary Spray becomes unavailable for use in depressurizing the RCS.
- c. NO Reactor Coolant Pumps will be able to be restarted prior to cooling down the RCS to less than 200°F.
- d. A required high rate of plant cooldown and depressurization is required due to a reduced Condensate Storage tank level.

ANSWER

d.

REFERENCE

02-OHP-4023-ES-0.2, Natural Circulation Cooldown Foldout page criteria

BANK

FUNDAMENTAL

- a. Incorrect During all natural circulation procedures, the SI accumulators are isolated. Plausible because failure to isolate accumulators could lead to nitrogen bubbles in the RCS.
- b. Incorrect Plausible because although aux spray is desired for depressurization, it is not a reason for transition.
- c. Incorrect If RCPs are restarted in this procedure there is no longer a natural circulation issue and transition back to normal operating procedures is directed. Plausible since starting the RCPs would be desirable for cooldown.
- d. Correct In accordance with ES-0.2 foldout page, the criteria for a rapid cooldown and depressurization has been met to allow a transition to ES-0.3.

Question Number 036
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 00WE11 EK3.1

QUESTION

Unit 1 is responding to a LOCA. The crew entered 01-OHP-4023-ECA-1.1, Loss of Emergency Coolant Recirculation from 01-OHP-4023-E-1, Loss of Reactor or Secondary Coolant when it was determined that cold leg recirculation capability could NOT be verified.

Upon entering 01-OHP-4023-ECA-1.1, Loss of Emergency Coolant Recirculation, the following conditions existed:

- 1W RHR pump - tagged out
- 1E RHR tripped and would not restart
- Containment pressure - 6 psig
- RCS pressure - 1200 psig
- RWST level - 36%
- Both SI pumps are running
- Both CCPs are running
- Both CTS Pumps are running
- No RCPs are running

The crew has now reached step 12, Check if an RCP should be started.

Which ONE of the following list the pump(s) that are required to be running at this point in the procedure?

(Refer to attached 01-OHP-4023-ECA 1.1, Steps 1-12 as needed.)

- a. One CCP and one SI pump only.
- b. Both CCPs and both SI pumps only.
- c. One CCP, one SI pump and one CTS pump only.
- d. One CCP, one SI pump and both CTS pumps.

ANSWER

a.

REFERENCE

01-OHP-4023-ECA-1.1

MODIFIED

HIGHER

- a. Correct Both CTS pumps are stopped at step 5 according to the table. One CCP is stopped in step 11a. One SI pump is stopped in step 11b.
- b. Incorrect Plausible if candidate believes both SI and CCPs are required .

- c. Incorrect Plausible if candidate misses requirement to stop both CTS pumps.
- d. Incorrect Plausible if candidate misinterprets table for stopping CTS pumps.

Question Number 037
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 00WE12 EK1.1

QUESTION

Operators are performing 02-OHP-4023-ECA-2.1, Uncontrolled Depressurization of All Steam Generators, due to a steam leak inside containment along with failure of all SG stop valves to close.

During recovery actions, which ONE of the following is the minimum AFW flow rate to each SG during an uncontrolled depressurization of all SGs, and the reason for this flow rate?

- a. 25 kpph, provide minimum flow for decay heat removal.
- b. 25 kpph, prevent complete dryout of the SG tubes.
- c. 60 kpph, provide minimum flow for decay heat removal.
- d. 60 kpph, prevent complete dryout of the SG tubes.

ANSWER

b.

REFERENCE

RO-C-EOP07, 12-OHP-4023-ECA-2.1 (ECA-2.1 Background Doc)

BANK

FUNDAMENTAL

- a. Incorrect Right flow rate but wrong reason.
- b. Correct Per the background document for ECA-2.1, a minimum of 25,000 pph is maintained to prevent SG tubes from drying out and the associated tube stresses.
- c. Incorrect Wrong flow rate and wrong reason.
- d. Incorrect Wrong flow rate and right reason.

Question Number 038
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 010000 K6.04

QUESTION

Given the following conditions:

- Unit 1 is at 100% power
- Pressurizer PORV NRV-151 opens and sticks open.
- The associated PORV block valve cannot be closed
- PRT pressure rises to the point that the PRT Rupture Disc ruptures

What is the effect of the disc rupturing?

- a. N2 Supply to the PRT automatically isolates.
- b. Pressurizer PORV outlet temperature lowers.
- c. PRT Drain Valve opens to lower level.
- d. PRT level drains below the sparging nozzles.

ANSWER

b.

REFERENCE

RO-C-GF14

BANK

HIGHER

- a. Incorrect - There is no automatic isolation of the nitrogen supply to the PRT on low pressure.
- b. Correct Once the rupture discs blow, the temperature in the PORV discharge will lower from saturation temperature for 100 psig (rupture disc setpoint) to saturation temperature for 0 psig (approximate containment pressure).
- c. Incorrect - There are no auto open features for the PRT drain valve.
- d. Incorrect - Plausible if the candidate assumes that rupture discs are low on the PRT. Wrong because rupture discs are on the top of the PRT.

Question Number 039
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 012000 K5.01

QUESTION

Unit 2 is at 50% power with all controls in Automatic.

A failure of turbine first stage pressure instrumentation causes rods to slowly withdraw. Rods continue to withdraw slowly when placed in Manual.

Assuming no operator actions, which one of the following trips is designed to ensure DNB parameters are not exceeded for this transient?

- a. Overpower-Delta Temperature
- b. Power Range High Flux (high setpoint)
- c. Overtemperature-Delta Temperature
- d. Pressurizer High Level

ANSWER

c.

REFERENCE

RO-C-TRANS2, UFSAR 14.1.2

NEW

FUNDAMENTAL

- a. Incorrect - Fuel integrity and total core power protection.
- b. Incorrect - Fuel integrity protection
- c. Correct FSAR Chapter 14 Transient and accident analysis describes that OTDT is provided to address a slow control rod withdrawal transient at lower power levels.
- d. Incorrect - RCS pressure protection

Question Number 040
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 013000 K2.01

QUESTION

The following conditions exist:

- Containment pressure instrument Channel #4, 2-PPP-300 declared inoperable.
- Required actions per 02-OHP-4022-013-011 Containment Instrumentation Malfunction have been completed.
- Required Technical Specification Actions have been taken for Channel #4, 2-PPP-300.

Which ONE of the following describes the SI and CTS, and Containment Isolation Phase A (CIA) and B (CIB) response to a subsequent failure of CRID 3 power supply.

	SI	CTS	CIA	CIB
	ACTUATES	ACTUATES	ACTUATES	ACTUATES
a.	YES	NO	YES	NO
b.	YES	YES	YES	YES
c.	NO	YES	NO	YES
d.	NO	NO	NO	NO

ANSWER

a.

REFERENCE

02-OHP-4022-013-011 Containment Instrumentation Malfunction

MODIFIED

HIGHER

- a. Correct The CTS Actuation Bistable is placed in the BYPASSED condition to prevent inadvertent actuation. This changes the remaining channel coincidence to 2/3 instead of the previous 2/4. Only 3 channels (Channels 2, 3, & 4) feed the SI Actuation (including this channel). The bistable for the SI actuation is placed in the TRIP condition, making the SI a 1/2 coincidence for the remaining channels (2 and 3). CRID 3 failure will meet the 1/2 co-occurrence for SI and CIA. CTS/CIB still required 2/3 to actuate, therefore only one channel will not cause the CTS/CIB.
- b. Incorrect CTS/CIB requires 2/3 channels to actuate in this condition.
- c. Incorrect SI/CIA actuates. CTS/CIB do not actuate.
- d. Incorrect SI/CIA will actuate.

Question Number 041
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 015000 K6.02

QUESTION

Which one of the following contains BOTH conditions that will result in indicated reactor flux level counts being LOWER than actual reactor flux level counts?

- a. Source Range pulse height discrimination set too HIGH.
Intermediate Range compensating voltage set too HIGH.
- b. Source Range pulse height discrimination set too HIGH.
Intermediate Range compensating voltage set too LOW.
- c. Source Range pulse height discrimination set too LOW.
Intermediate Range compensating voltage set too HIGH.
- d. Source Range pulse height discrimination set too LOW.
Intermediate Range compensating voltage set too LOW.

ANSWER

a.

REFERENCE

RO-C-01300

BANK

FUNDAMENTAL

- a. Correct SR Pulse Height Discriminator too high will remove more Neutron induced flux causing lower reading. IR Compensation voltage too high drive the IR indication lower than actual.
- b. Incorrect Should be Intermediate Range compensating voltage set too HIGH.
- c. Incorrect Should be Source Range pulse height discrimination set too HIGH.
- d. Incorrect Should be BOTH Intermediate Range compensating voltage and Source Range pulse height discrimination set too HIGH.

Question Number 042
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 016000 A4.02

QUESTION

Unit 2 is operating at 50% power.

Control rods are operating in automatic at 175 Steps on Bank D.

- Loop #21 Hot Leg RTD fails High.
- The Control rods insert 15 steps before rods are placed to Manual.
- The Rod Bank D Low Low alarm is received.
- The Rod Insertion Limit Recorder indicates that the Rod Insertion Limit for CB D is 189 Steps.

Which of the following describes the required actions?

- a. The RIL recorder is correct. Immediately initiate Emergency Boration until Shutdown Margin is restored.
- b. The RIL recorder is correct. Initiate actions to withdraw Control Rods to the pre-transient position.
- c. The RIL recorder is NOT correct. The RIL is met. Placing the Delta T Defeat switch to Loop #1 will correct the RIL recorder Indication.
- d. The RIL recorder is NOT correct. The RIL is met. Placing the Tavg Defeat switch to Loop #1 will correct the RIL recorder Indication.

ANSWER

c.

REFERENCE

SD-01200

NEW

HIGHER

- a. Incorrect The RIL is indicating the 100% power value based on the failed Channel.
- b. Incorrect The RIL is indicating the 100% power value based on the failed Channel.
- c. Correct The RIL computer/recorder uses the Auctioneered High Delta T as an input to determine Reactor Power. When the Thot RTD fails this generates a larger than actual power level requesting rods to be further withdrawn than required. Defeating the Failed Channel will allow the RIL to provide proper indication. (RIL for 50% power is ~ 95 steps.)
- d. Incorrect The RIL will not be correct until the Delta T is selected to defeat loop 1.

Question Number 043
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 017000 K4.01

QUESTION

Unit 2 is operating at 100% power. The 43-TSAT-2 Thermocouple Selector Switch is selected to use the Auctioneering function.

An OPEN has developed in one of the thermocouples used by the Saturation Meter. What impact will the failed thermocouple have on the Saturation Meter Subcooling indication?

- a. The Saturation Meter subcooling monitor will indicate a reduced subcooling since meter selects the highest of the train A or train B thermocouples average.
- b. The Saturation Meter subcooling monitor will indicate maximum subcooling since meter selects the highest of the train A or train B thermocouples average.
- c. The Saturation Meter subcooling monitor will indicate normal subcooling since the meter selects the auctioneered high thermocouple.
- d. The Saturation Meter subcooling monitor will indicate inadequate subcooling since the meter selects the auctioneered high thermocouple.

ANSWER

c.

REFERENCE

RO-C-00202 pg. 32, RO-C-01301, RO-C-GF27

NEW

HIGHER

- a. Incorrect - The thermocouples for each Train are not averaged.
- b. Incorrect - The thermocouples for each Train are not averaged.
- c. Correct A failed OPEN TC will indicate LOW (200°F) . There are eight thermocouple signals to the meter. The operator can select high-select or one of seven of the eight thermocouple signals in order to perform the margin calculation. Since the Stem states that the Switch is in the Auctioneering Function, the failure does not impact the Saturation meter indication.
- d. Incorrect - The thermocouple would fail low causing a higher subcooling value if used.

Question Number 044
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 022000 A2.01

QUESTION

Unit 2 is operating at 100% power.
Control Rod Drive Mechanism Cooling Fan HV-CRD-3A trips due to overcurrent.

Which of the following describes the required actions?

- a. Start the standby CRDM Cooling Fan. Operation may continue as long as CRDM temperatures remain less than 170°F.
- b. Start the standby CRDM Cooling Fan. Begin a shutdown since less than 4 fans are available for natural circulation head cooling.
- c. Verify the standby CRDM Cooling Fan automatically started. Begin a shutdown since less than 4 fans are available for natural circulation head cooling.
- d. Verify the standby CRDM Cooling Fan automatically started. Operation may continue as long as CRDM temperatures remain less than 170°F.

ANSWER

a.

REFERENCE

02-OHP-4021-028-001 Containment Ventilation pg. 11-12 Step 4.5

NEW

HIGHER

- a. Correct There are typically 3 CRDM fans operating (as long as temps are < 170°F). If 1 Fan trips the standby should be started. Operation may continue as long as temperatures are maintained < 170°F.
- b. Incorrect A Shutdown is NOT required. Plausible since the natural circulation cooldown rate is limited with < 4 fans.
- c. Incorrect These fans do not have an auto start. Plausible since fans trip on Phase B.
- d. Incorrect These fans do not have an auto start. Plausible since fans trip on Phase B & since the natural circulation cooldown rate is limited with < 4 fans.

Question Number 045
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 025000 A4.02

QUESTION

Which ONE of the following correctly describes operation of the Ice Condenser Air Handling Unit Fans?

The Air Handling Unit fans are:

- a. manually stopped before a defrost cycle but will automatically trip when DIS is placed in service.
- b. automatically stopped by a defrost cycle and when DIS is placed in service.
- c. manually stopped before a defrost cycle and when DIS is placed in service.
- d. automatically stopped by a defrost cycle but must be manually stopped when DIS is placed in service.

ANSWER

d.

REFERENCE

RO-C-01000, Ice Condenser System

BANK

FUNDAMENTAL

- a. Incorrect Fans stop automatically on defrost and manually prior to DIS.
- b. Incorrect Fans must be manually stopped prior to DIS.
- c. Incorrect Fans will automatically stopped prior to defrost cycle.
- d. Correct On a Defrost Cycle one group of AHUs will go into defrost and AHU's fans turn off automatically. The fans are manually stopped when DIS is placed in service to reduce potential ignition sources (defrost units).

Question Number 046
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 025000 K1.01

QUESTION

Prior to aligning the Containment Purge System for Clean-up operation, 01-OHP-4021-028-005, Operation Of The Containment Purge System, requires the Upper Containment Purge Supply valves to be opened if Containment Pressure is less than 0 psig.

Which ONE of the following describes the basis for this step?

- a. Technical Specifications require Containment pressure to be greater than 0 psig at all times.
- b. Prevent a negative pressure from adversely affecting the radiation monitor readings.
- c. Containment Purge Exhaust Valves are interlocked to close when containment pressure is less than 0 psig.
- d. Prevent Ice Condenser doors from opening when initiating containment purge.

ANSWER

d.

REFERENCE

01-OHP-4021-028-005, Operation Of The Containment Purge System, Attachment 1, step 1.1

BANK

FUNDAMENTAL

- a. Incorrect T.S. 3.6.1.4, Internal Pressure requires pressure to be -1.5 psig to .03 psig.
- b. Incorrect Negative pressure will not affect the radiation monitors - they monitor air are still able to provide accurate readings.
- c. Incorrect A low pressure interlock does not exist.
- d. Correct A low pressure in upper containment with respect to lower containment will cause the Ice Condenser Doors to open. 01-OHP-4021-028-005 Attachment 1 step 4.7.4 is performed to raise upper containment pressure.

Question Number 047
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 026000 A4.01

QUESTION

Unit 1 has experienced a large break LOCA. Thirty (30) minutes after the LOCA initiated, the RWST Low level annunciator alarmed. Which ONE of the following describes the operator actions for cold leg recirculation alignment using Train-A ECCS Equipment?

- a. Maintain the West RHR and CTS pumps running
Open the West Containment Recirculation Sump Valve, 1-ICM-306
Close West CTS and RHR pump suction valves (1-IMO-320 and 225)
- b. Maintain the East RHR and CTS pumps running
Open the East Containment Recirculation Sump Valve, 1-ICM-305
Close East CTS and RHR pump suction valves (1-IMO-310 and 215)
- c. Place the West CTS and RHR pumps in Pull To Lock
Close the West CTS and RHR pump suction valves (1-IMO-320 and 225)
Open the West Containment Recirculation Sump Valve, 1-ICM-306
Start the West CTS and RHR pumps
- d. Place the East CTS and RHR pumps in Pull To Lock
Close the East CTS and RHR pump suction valves (1-IMO-310 and 215)
Open the East Containment Recirculation Sump Valve, 1-ICM-305
Start the East CTS and RHR pumps

ANSWER

d.

REFERENCE

01-OHP-4023-ES-1.3, Cold Leg Recirculation Step 6, SOD-008-002

BANK

FUNDAMENTAL

- a. Incorrect The CTS and RHR pumps must be stopped
- b. Incorrect The CTS and RHR pumps must be stopped
- c. Incorrect These are the Train B valves.
- d. Correct The CTS and RHR pumps must be stopped since the RWST suction is closed before the Sump suction valves are opened. The Train A Valves are IMO-310, 215, & ICM 305.

Question Number 048
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 026000 K4.05

QUESTION

Which ONE of the following Unit 2 design features minimizes the potential for debris plugging the spray nozzles when the Containment Spray System takes a suction from the Recirc Sump following a LOCA?

- a. Water entering the Recirc Sump must flow over a curb, which removes large debris. A strainer at the outlet of each CTS Heat Exchanger removes small debris.
- b. A trash screen over the Recirc Sump inlet removes large debris. A CTS Pump suction strainer on each pump inlet line removes small debris.
- c. A sloped trash screen over the Recirc Sump exit prevents large debris from entering the suction lines. Strainers in the suction lines just before the 2-ICM-305/306 valves remove small debris.
- d. A trash curb ahead of the Recirc sump removes large debris. Large grating and fine screens over the Recirc Sump provide for removal of small debris.

ANSWER

d.

REFERENCE

UFSAR Chapter 6 pg. 35

BANK

FUNDAMENTAL

- a. Incorrect A strainer does Not exist
- b. Incorrect A strainer does Not exist
- c. Incorrect A strainer does Not exist
- d. Correct The Containment sump is equipped with a large grating and a 1/4" screen to keep larger particles out of the CTS pump and Nozzles.

Question Number 049
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 028000 K5.01

QUESTION

A reactor trip and safety injection occurred due to a LOCA. There are several ECCS system failures. The following plant conditions exist:

- Containment pressure is 7.2 psig and rising.
- Containment (PACHMS) hydrogen concentration is 5.8% and rising.

Which ONE of the following describes the correct mitigating strategy for hydrogen control?

- a. A hydrogen recombiner should be placed in service if 6 hours have elapsed since the start of the LOCA.
- b. Both hydrogen recombiners should be started immediately.
- c. Contact the Plant Evaluation Team to evaluate PACHMS for failed analyzers because containment hydrogen is never expected to exceed 5% during any accident.
- d. Contact the Plant Evaluation Team to evaluate the condition because operation of the hydrogen recombiners may cause an explosion.

ANSWER

d.

REFERENCE

2-OHP-4023-E-1, Loss Of Reactor Or Secondary Coolant Background, Step 17

BANK

FUNDAMENTAL

- a. Incorrect If Hydrogen concentration is between 0.5% and 4%, then a check would be made to place the recombiners in service if 6 hours had elapsed.
- b. Incorrect Hydrogen Recombiners should NOT be started at this concentration.
- c. Incorrect Hydrogen concentration may reach 10-12 % during an accident.
- d. Correct The hydrogen recombiners are used if the indicated hydrogen is <4% which would be equivalent to 6% in a moist environment. With concentrations higher than this an evaluation must be performed because starting the recombiners could cause an explosion and potential damage to equipment.

Question Number 050
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 034000 A2.01

QUESTION

The following conditions exist:

- There is a Unit 2 core off-load in progress.
- An irradiated fuel assembly was accidentally dropped while being moved to a location in the spent fuel pool.
- Bubbles are seen rising from the assembly.
- R-5, Spent Fuel Pit Radiation monitor indicates High Alarm.

Which of the following describes the expected automatic actions, if any and the required operator actions as per 12-OHP-4022-018-006, Irradiated Fuel Handling Accident in Spent Fuel Storage Area - Control Room Actions?

- a. No Automatic Actions are expected.
The Crew should manually align the Fuel Hdlg Area and Control Room Ventilation Systems to place the Charcoal Filters in Service.
The Fuel Hdlg Area Supply fans should be stopped.
- b. The Fuel Hdlg Area Supply Fans will automatically trip.
The Fuel Hdlg Area Charcoal Filters should be verified aligned.
The Crew should manually align the Control Room Ventilation Systems to place the Charcoal Filters in Service.
- c. The Fuel Hdlg Area Supply Fans will automatically trip.
The Fuel Hdlg Area and Control Room Ventilation Systems Charcoal Filters should be verified aligned.
The Crew should direct the personnel on the Containment Penetration Breach List to set Containment Closure.
- d. No Automatic Actions are expected.
The Crew should manually align the Fuel Hdlg Area to place the Charcoal Filters in Service and stop the Fuel Hdlg Area Supply fans.
Personnel on the Containment Penetration Breach List should be directed to set Containment Closure.

ANSWER

b.

REFERENCE

12-OHP-4022-018-006, Irradiated Fuel Handling Accident in Spent Fuel Storage Area - Control Room Actions Steps 3 & 4, RO-C-AOP-12 pg. 21-24

NEW

HIGHER

- a. Incorrect - The Fuel Hdlg Area Supply Fans will trip & Dampers will align.
- b. Correct When R-5 Alarms the Fuel Hdlg Area Supply Fans will trip. The System will also automatically align the charcoal filters (they are typically aligned when moving fuel). The Control Room Systems must be manually aligned. (Automatically align only on SI or local area radiation)
- c. Incorrect - The Control Room System will Not Automatically Align. Containment Closure is only set for the Containment Incident.
- d. Incorrect - The Fuel Hdlg Area Supply Fans will trip & Dampers will align. Containment Closure is only set for the Containment Incident.

Question Number 051
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 039000 A1.06

QUESTION

During the final stages of an RCS heatup, a SG Safety begins to leak at an RCS temperature of 495°F. The Unit Supervisor directs you to cooldown to 480°F and stabilize RCS Temperature and SG pressure.

Which ONE of the following is the correct Steam Dump Pressure Controller setpoint required to maintain RCS temperature at approximately 480°F?

- a. 447 psig
- b. 551 psig
- c. 566 psig
- d. 581 psig

ANSWER

b.

REFERENCE

Steam Tables, SOD-05200-001, Steam Dump System

MODIFIED

HIGHER

- a. Incorrect 447 is "T"sat minus 15 for 480 psig.
- b. Correct 566 psia is Psat for 480°F. The Controller would need to be set at 551 psig.
- c. Incorrect 566 psia is Psat for 480°F.
- d. Incorrect 581 psig is adding 15 psi to 566 psia.

Question Number 052
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 041000 K2.01

QUESTION

Which ONE of the following power supply failures would allow the steam dump system to continue to operate?

- a. CRID II
- b. CRID III
- c. 250 VDC Bus VDAB
- d. 250 VDC Bus VDCD

ANSWER

b.

REFERENCE

RO-C-05200 Steam Dump System pg. 15-16

BANK

FUNDAMENTAL

- a. Incorrect CRID II powers the Steam Dump Controllers
- b. Correct CRID III does Not supply power to the Steam Dumps or relays.
- c. Incorrect 250 VDC Bus VDAB powers 1 train of Steam Dump Solenoids
- d. Incorrect 250 VDC Bus VDCD powers 1 train of Steam Dump Solenoids

Question Number 053
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 045000 2.1.30

QUESTION

Given the following plant conditions:

- Unit 2 is at 8% power, Unit startup in progress.
- OHP-4021-001-006, Power Escalation, is in use.
- A NOTE prior to opening the TACW valves from the Hydrogen coolers directs operators to control Cold Gas temperatures between 40 degrees C and 30 degrees C, and to maintain Cold Gas temperature 3 to 5 degrees C less than Stator Cooling inlet temperature.

Which ONE of the following describes the method and the reason for maintaining Cold Gas temperature 3 to 5 degrees C less than Stator Cooling inlet temperature?

- a. The RO will adjust the control room Hydrogen Cooler temperature controller to minimize condensation on the outside of the teflon hoses and conduction of current along the hoses.
- b. The RO will adjust the control room Hydrogen Cooler temperature controller to minimize the hydrogen diffusion across the teflon hoses and in the Stator Cooling System expansion tank.
- c. The AEO must locally throttle Hydrogen Cooler TACW outlet valves to minimize condensation on the outside of the teflon hoses and conduction of current along the hoses.
- d. The AEO must locally throttle Hydrogen Cooler TACW outlet valves to minimize the hydrogen diffusion across the teflon hoses and in the Stator Cooling System expansion tank.

ANSWER

c.

REFERENCE

OHP-4021-001-006, RO-C-NOP7, RO-C-08004A, RO-C-8004B

MODIFIED

FUNDAMENTAL

- a. Incorrect There is no control room controller.
- b. Incorrect - There is no control room controller and the reason is to minimize condensation.
- c. Correct The temperature differential is maintained to reduce the amount of condensation that forms on the hoses. Condensation could lead to shorting and arcing within the generator. The temperature is maintained locally, there are no control room controllers.

d. Incorrect - The reason is to minimize condensation.

Question Number 054
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 059000 A1.07

QUESTION

If the Unit 2 Turbine Bypass Header Pressure Transmitter 2-UPC-101 fails LOW during normal plant operation the MFP Speed Control System will generate an indicated FW Delta-P signal ____ (1) ____ than required, causing the main feed pump(s) to ____ (2) ____.

(Assume the failover circuit does NOT function)

- | | (1) | (2) |
|----|---------|-----------|
| a. | larger | speed up |
| b. | larger | slow down |
| c. | smaller | speed up |
| d. | smaller | slow down |

ANSWER

b.

REFERENCE

SOD-05100-003

MODIFIED

HIGHER

- | | | |
|----|-----------|--|
| a. | Incorrect | The controller will lower FW pump Speed. |
| b. | Correct | The Main FW Pump Speed control compares the UPC-101 steam header pressure to the FW pump Discharge pressure. The speed control attempts to maintain the Main FW Pump speed such that the FW header to Steam Header DP is on Program. When the Steam Pressure fails low, it will appear that a larger DP exists which will lower FW pump speed to try to lower FW pump Discharge header pressure. |
| c. | Incorrect | Steam to FW discharge pressure DP will be higher. The controller will lower FW pump Speed. |
| d. | Incorrect | Steam to FW discharge pressure DP will be higher. |

Question Number 055
 Exam Date 2007/08/25
 Facility Docket 315
 Reactor Type PWR-WEC4
 License Level B
 Points 1.00
 K/A 061000 K6.01

QUESTION

The following conditions exist on Unit 2:

- Steam Generator (S/G) #24 is faulted and completely depressurized.
- The West Motor Driven AFW pump Flow Retention Switches have failed (can Not Actuate)
- No operator action has been taken.

Which of the following lists the expected positions of the AFW to SG FMOs?

MDAFP (2-FMO-)	211	221	231	241
TDAFP (2-FMO-)	212	222	232	242
a.	CLOSED OPEN	OPEN OPEN	OPEN OPEN	CLOSED OPEN
b.	THROTTLED THROTTLED	OPEN THROTTLED	OPEN THROTTLED	THROTTLED THROTTLED
c.	OPEN THROTTLED	THROTTLED THROTTLED	THROTTLED THROTTLED	OPEN THROTTLED
d.	OPEN OPEN	THROTTLED OPEN	THROTTLED OPEN	OPEN THROTTLED

ANSWER

c.

REFERENCE

SOD-05600-001, Auxiliary Feedwater System

NEW

HIGHER

- a. Incorrect The Flow Retention will limit the flow to the SGs on the TDAFP Valves.
- b. Incorrect The West MDAFP feeds the #21 & #24 SGs (Plausible if Candidate thinks West MDAFP feeds #21 & #24)
- c. Correct The loss of pressure in SG #24 will cause the flow retention to actuate and throttle closed on the Turbine Driven AFW Pump valves to each of the SGs. This will help prevent pump runout and will ensure that some AFW flow is provided to each SG. Since the Switches for the West MDAFP have failed the SG #21 & #24 AFW valves will remain full open
- d. Incorrect Flow Retention Switches for the TDAFP actuate All 4 Valves (MDAFP switches each actuate a separate valve)

Question Number 056
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 062000 K3.01

QUESTION

Unit 2 was operating at 100% power when a reactor trip occurred.

The following conditions currently exist:

- 2CD Emergency Diesel Generator running
- RCP23, Circ Water Pump 21, North Hotwell, North Condensate, and North Heater Drain Pumps are NOT running
- West CCP, CCW, ESW, NESW and MDAFW Pumps are all running
- East CCW, ESW, NESW and MDAFW Pumps are all running

Which ONE of the following failures is the cause?

- a. RCP Bus 2D supply breaker tripped
- b. RCP Bus 2C supply breaker tripped
- c. Loss of ALL power to 250V DC Bus 2CD
- d. RCP Bus 2C and 2D Underfrequency

ANSWER

a.

REFERENCE

02-OHP-2110-BKM-001, Control Of Operations Department Unit 2 Breaker Cleaning Maps, Figure 12 page 23, SOD-08201-001, Emergency Electrical Distribution

- a. Correct When RCP Bus 2D trips it de-energizes the #23 RCP, #21 CW, North Hotwell, North Condensate, and North Heater Drain Pumps as well as the T21D bus. This will start the 2CD EDG and energize the Blackout Sequencer Loads - East CCW, ESW, NESW and MDAFW Pumps
- b. Incorrect Plausible since 2CD EDG is running. The T21D Bus loads would not be operating and the #23 RCP, #21 CW, North Hotwell, North Condensate, and North Heater Drain Pumps would not be tripped.
- c. Incorrect Plausible since loss of DC does impact the RCP & T21 bus loads except Loss of DC would prevent T21D loads from energizing.
- d. Incorrect Plausible since UF does de-energize RCP buses but RCP underfrequency would trip all RCPs.

Question Number 057
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 063000 A2.01

QUESTION

Unit 2 is at 100% power, steady state conditions. A POSITIVE 250V ground exists on DC Bus 2CD. If a NEGATIVE 250V ground also occurs on Bus 2CD, which one of the following describes the Plant response and the required operator actions? (Assume ground is on the bus bar.)

- a. The DC bus fuses will blow causing a complete loss of DC 2CD busses resulting in a Reactor Trip.
Perform actions of 02-OHP-4023-E-0, 02-OHP-4023-ES-0.1 and 02-OHP-4022-082-002CD to stabilize the plant.
- b. The Positive and Negative ground will balance out the circuit, however many relays will actuate causing a Reactor Trip.
Perform actions of 02-OHP-4023-E-0, 02-OHP-4023-ES-0.1 and 02-OHP-4022-082-002CD to stabilize the plant.
- c. The DC bus fuses will blow causing a complete loss of DC 2CD busses.
The Reactor will NOT Trip.
Perform actions of 02-OHP-4022-082-002CD to stabilize the plant.
- d. The Positive and Negative ground will balance out the circuit, however many relays will fail to actuate if required.
The Reactor will NOT Trip.
Perform actions of 02-OHP-4022-082-002CD and begin a Unit shutdown.

ANSWER

a.

REFERENCE

RO-C-08204,SD-08204, & RO-C-AOP10

NEW

HIGHER

- a. Correct The complete ground on opposite busses will cause the fuse to blow and the loss of DC Bus 2CD. The Loss of either DC bus causes a reactor trip due to the RCP Under Frequency. [Note grounds of the same magnitude will typically cause the ground detection circuit to null out. This is true for all size grounds, but full grounds will also cause excessive current flow (similar to a direct short) which will result in a blown fuse.]
- b. Incorrect The Grounds will cause a loss of DC Busses.
- c. Incorrect The Reactor will trip.
- d. Incorrect The Reactor will trip & the Grounds will cause a loss of DC Busses.

Question Number 058
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 064000 A2.14

QUESTION

A Small Break LOCA occurred with a loss of offsite power. The diesel generators have started and all the required loads have sequenced on. Safety injection has been reset and the RHR pumps were stopped as directed in 02-OHP-4023-ES-1.2.

Offsite Power was restored to Bus T21A & T21B.

The BOP was directed to shutdown the 2AB EDG and inadvertently depressed the Emergency Trip Pushbutton for the 2CD EDG.

Which one of the following describes the plant response and the required actions to restore the EDG and associated equipment?

- a. The EDG will automatically Restart to re-energize T21C & T21D.
The associated CCP, SI, and RHR pumps will automatically Restart.
The Crew will need to Shutdown the RHR pump.
- b. The EDG will automatically Restart to re-energize T21C & T21D.
The associated CCP, SI, and RHR pumps will NOT automatically Restart.
The Crew will need to Start the associated CCP and SI pump.
- c. The EDG will NOT automatically Restart.
The Crew will need to reset the HEA relay to re-energize T21C & T21D.
The associated CCP, SI, and RHR pumps will then automatically Restart.
The Crew will then need to Shutdown the RHR pump.
- d. The EDG will NOT automatically Restart.
The Crew will need to reset the HEA relay to re-energize T21C & T21D.
The associated CCP, SI, and RHR pumps will NOT automatically Restart.
The Crew will need to Start the associated CCP and SI pump.

ANSWER

d.

REFERENCE

RO-C-03200 pg. 31-32, 12-OHP-4023-ES-1.2 Caution 1C2 Background

NEW

HIGHER

- a. Incorrect The EDG & Pumps will NOT automatically Restart.
- b. Incorrect The EDG will NOT automatically Restart.
- c. Incorrect The Pumps will NOT automatically Restart.
- d. Correct The EDG will NOT automatically Restart until the HEA relay is reset.
Then the EDG will restart due to the Bus Undervoltage signal. The

Blackout Loads will restart, but the ESF loads must be manually started.

Question Number 059
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 068000 A3.02

QUESTION

While performing a liquid release through Unit 2, all Circulating Water Pumps trip.

Which ONE of the following will occur FIRST?

- a. The selected Monitor Tank pump trips off.
- b. The Data Acquisition Module alarms due to high flow.
- c. The Liquid Waste Effluent Discharge Header Shutoff valve, 12-RRV-285, closes.
- d. The Liquid Waste Effluent to U-2 Circ Water Discharge valve, 2-RRV-286, closes.

ANSWER

d.

REFERENCE

SD-02200 Waste Disposal System SD pg. 24-25

BANK

FUNDAMENTAL

- a. Incorrect The Monitor Tank Pumps will trip off on High Radiation or High/Low flow on the Release Monitor (Flow is not lost until after 2-RRV-286 closes)
- b. Incorrect The DAM will not see a high flow (Low Flow after 2-RRV-286 Closes)
- c. Incorrect The Release valve RRV-285 will trip Closed on High Radiation or High/Low flow on the Release Monitor (Flow is not lost until after 2-RRV-286 closes)
- d. Correct Loss of circulating water Pumps will close 1-RRV-287 or 2- RRV-286

Question Number 060
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 072000 K1.04

QUESTION

Which ONE of the following describes the Control Room Ventilation System pressurization fan alignment following receipt of a ERS 8401 Control Room Radiation Monitor High alarm?

- a. Both Unit 1 Control Room Pressurization Fans are RUNNING
Both Unit 2 Control Room Pressurization Fans are RUNNING
- b. Both Unit 1 Control Room Pressurization Fans are STOPPED
Both Unit 2 Control Room Pressurization Fans are RUNNING
- c. Both Units West Control Room Pressurization Fans are RUNNING
Both Units East Control Room Pressurization Fans are STOPPED
- d. Both Units West Control Room Pressurization Fans are STOPPED
Both Units East Control Room Pressurization Fans are RUNNING

ANSWER

b.

REFERENCE

SOD-01350-001, SOD-02801A-001, RO-C-02801A

NEW

FUNDAMENTAL

- a. Incorrect Only the Unit 2 Fans Operate off of ERS-8401
- b. Correct Each Control Room has a Separate Control Room Ventilation System.
Each Control Room Has a Separate Radiation Monitor which controls its associated fans. ERS-7400 for Unit 1 and ERS-8400 for Unit 2.
- c. Incorrect Both Unit 2 Fans Operate off of ERS-8401 (True for a train of SI)
- d. Incorrect Both Unit 2 Fans Operate off of ERS-8401 (True for a train of SI)

Question Number 061
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 073000 K4.01

QUESTION

Which ONE of the following is the proper response to a HIGH radiation alarm on VRS-1505, Unit 1 Vent Effluent Radiation Monitor - Low Range Noble Gas, during a release of #1 Gas Decay Tank?

- a. If VRS-2505, Unit 2 Vent Effluent Radiation Monitor - Low Range Noble Gas, has NOT alarmed, then Shutdown the Unit 1 Aux Building Exhaust Fans and continue to monitor the release.
- b. Verify 12-RRV-306, GDT Release Header To Aux Bldg Vent Stack Shutoff Valve automatically closed.
If VRS-2505, Unit 2 Vent Effluent Radiation Monitor - Low Range Noble Gas, has NOT alarmed, then bypass VRS-1505, reopen 12-RRV-306 and continue with the release through the Unit 2 Vent.
- c. Verify 12-RRV-306, GDT Release Header To Aux Bldg Vent Stack Shutoff Valve automatically closed.
Print a release history of VRS-1505 and analyze to determine if the release is stopped.
- d. Manually close 12-RRV-306, GDT Release Header To Aux Bldg Vent Stack Shutoff Valve.
Print a release history of VRS-1505 and analyze to determine if the release is stopped.

ANSWER

c.

REFERENCE

12-OHP-4021-023-002, Release Of Radioactive Waste From Gas Decay Tanks, step 4.10

- a. Incorrect High radiation on VRS-1505 will cause RRV-306 to close. RRV-306 will also close with the Loss of Unit 1 Exhaust fans.
- b. Incorrect The RRV-306 will not reopen with the VRS-1505 in High Alarm.
(Procedure has reset conditions if Alarm has cleared & RP determines it can recommence - but additional actions would be required if VRS-1505 is inop)
- c. Correct When the VRS-1505 or 2505 Alarms, the RRV-306 automatically closes to terminate the release. If the release terminates due to HIGH radiation or low flow the operator is directed to print the History and analyze the readings to verify the release has terminated.
- d. Incorrect RRV-306 will automatically close on High Radiation.

Question Number 062
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 076000 2.1.33

QUESTION

Both Units are in Mode 1.

The Unit 1 East Essential Service Water (ESW) pump tripped and could not be restarted.

Which ONE of the following describes the operability and Technical Specification (TS) applicability associated with the ESW System?

- a. Enter Technical Specification 3.7.8 on Unit 1 and Unit 2. The Unit 2 ESW TS may be exited if the Unit Header Crosstie valves have been verified closed.
- b. Enter Technical Specification 3.7.8 on Unit 1 and Unit 2. The Unit 2 ESW TS may NOT be exited even if the Unit Header Crosstie valves are verified closed.
- c. Enter Technical Specification 3.7.8 on Unit 1 ONLY. The Unit 2 ESW TS entry is NOT required since the Unit Header Crosstie valves are capable of being closed.
- d. Technical Specification 3.7.8 entry is NOT required on either Unit since the Unit Header Crosstie valves may be opened.

ANSWER

a.

REFERENCE

Technical Specification 3.7.8 Essential Service Water Systems, SR 3.7.8.3

NEW

HIGHER

- a. Technical Specification 3.7.8 requires 2 Operable trains. If the Crosstie valves are open (Normally open) the opposite units pump is considered part of the train. A loss of the U-1 East ESW will require entry into both Units' TS 3.7.8. If the crosstie valves are closed unit 2 may exit.
- b. Incorrect - Unit 2 may exit TS 3.7.8 after the crosstie valves are closed.
- c. Incorrect - Unit 2 TS 3.7.8 is applicable as long as the valves are open.
- d. Incorrect - Loss of the Unit 1 ESW pump requires TS 3.7.8 entry on both units as long as crossties are open.

Question Number 063
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 076000 K4.06

QUESTION

Given the following:

- U1 'W' ESW Pump is Running
- U2 'W' ESW Pump is Running
- U1 'E' ESW Pump is in Standby
- U2 'E' ESW Pump is in Standby

If the U2 'W' ESW Pump motor fails, the _____ will be supplied with cooling water from the _____.

- a. 2E CCW Hx, 2E ESW pump
- b. 2E CCW Hx, 1E ESW pump
- c. 2W CCW Hx, 2E ESW pump
- d. 2W CCW Hx, 1E ESW pump

ANSWER

d.

REFERENCE

SOD-01900-001

BANK

HIGHER

- a. Incorrect - Plausible if the candidate thinks that the 2E pump will auto start on loss of 2W ESW pump, but the ESW system is cross connected between units.
- b. Incorrect - Plausible if the candidate thinks that the 2E pump supplies the unit 2 east train, but the ESW system is cross connected between units.
- c. Incorrect - Plausible if the candidate thinks that the 2E pump will auto start on loss of 2W ESW pump, but the ESW system is cross connected between units.
- d. Correct The ESW System normally operates with two of four ESW pumps running, one pump supplying a header on each unit. Either the Unit 1 East or Unit 2 West Pumps supply the Unit 1 East Header and the Unit 2 West Header. Either the Unit 1 West or Unit 2 East Pump supplies the Unit 1 West Header and the Unit 2 East Header. A low ESW header pressure at 40 psig will start the standby pump (if in auto).

Question Number 064
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.2.22

QUESTION

Unit 2 was operating at 50% power for several days due to the West Main Feedwater Pump being OOS for maintenance. A severe plant transient occurred. Several automatic trip signals were generated without the reactor trip breakers opening. A manual trip was successfully performed.

After stabilizing the plant, a Post Trip Review indicated the following simultaneous panel readings occurred during the transient:

- RCS pressure: 2400 psig
- Reactor power: 52%
- RCS TAVG: 640°F
- RCPs: All running

Using the given Tech Spec and COLR references, which of the following statements is correct?

- a. Both Reactor Core and the RCS Pressure Safety Limits were exceeded.
- b. Only the RCS Pressure Safety Limit was exceeded.
- c. Only the Reactor Core Safety Limit was exceeded.
- d. No safety limits were exceeded.

ANSWER

d.

REFERENCE

Technical Specifications 2.1.1 & 2.1.2, COLR Figure 6

BANK

HIGHER

- a. Incorrect Both within Limits
- b. Incorrect Pressure was < 2735 psig.
- c. Incorrect Plant was under 2400 psig curve(acceptable region)
- d. Correct The RCS Pressure Safety Limit of TS 2.1.2 is 2735 psig. The RCS Pressure, Temperature, & Power Combination is within the limits of the 2400 psig curve on figure 6 of the COLR (at 52% power & 2400psig, the TavG limit is ~ 645°F)

Question Number 065
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.2.30

QUESTION

Given the following conditions in Unit 2:

- Unit 2 is in MODE 6
- Refueling is in progress
- Source Range Audible Count Rate in containment and Control Room just became INOPERABLE.

Which ONE of the following describes the required Technical Specification actions for these conditions?

- a. Immediately initiate actions to isolate unborated water sources to the RCS.
- b. Within one hour verify adequate SHUTDOWN MARGIN and suspend all core alterations.
- c. No action is required as long as both Source Range Flux Monitors remain OPERABLE.
- d. Within 15 minutes, return Control Room Audio Count Rate to OPERABLE and return the containment Audio Count Rate to OPERABLE within one hour.

ANSWER

a.

REFERENCE

Tech. Spec. 3.9.2

BANK

FUNDAMENTAL

- a. Correct Technical Specification 3.9.2 requires an audible count rate circuit to be operable. If the audible is lost, TS 3.9.2 action C requires the operator to Immediately initiate actions to isolate unborated water sources to the RCS.
- b. Incorrect If < 2 SR channels are operable, the Action is to immediately suspend Core Alterations.
- c. Incorrect The Unborated water sources must be isolated.
- d. Incorrect The Unborated water sources must be isolated

Question Number 066
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 078000 A3.01

QUESTION

The Plant and Control Air Systems are aligned as follows:

- U-1 Plant Air Compressor (PAC) is loaded in auto.
- U-2 PAC is in standby alignment.
- Both Control Air Compressors (CACs) are in standby alignment.

If U-1 Plant Air Compressor (PAC) trips and Air header pressure drops continuously, in what order will the following automatic actions/alarms occur?

- 1) Plant Air Header Crosstie Valves CLOSE
- 2) Plant Air alarm PAC fail/low press' Annunciates
- 3) Control Air Compressors (CACs) Start
- 4) U-2 Plant Air Compressor (PAC) Starts

- a. 2, 4, 3, 1
- b. 2, 1, 4, 3
- c. 4, 2, 1, 3
- d. 4, 2, 3, 1

ANSWER

a.

REFERENCE

SD-06401-002, Compressed Air System Description pg. 38

BANK

FUNDAMENTAL

- a. Correct Per SD-06401-002, Compressed Air System description
- b. Incorrect - It would be plausible for the air header to isolate any potential leakage paths prior to starting the compressors.
- c. Incorrect - It would be plausible for the PAC to start before the alarm actuates and then isolate the header and start the CAC if pressure continues to fall.
- d. Incorrect - It would be plausible for the PAC to start before the alarm actuates.

Question Number 067
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 103000 K1.02

QUESTION

The following conditions exist:

- Refueling is underway in Unit 2.
- Used fuel assemblies are being moved from Containment into the Spent Fuel Pit.
- The Equipment Hatch is installed with four bolts in place.
- Both upper containment airlock doors are open with cables running through the upper airlock.
- Quick disconnects are installed on each line running through the upper airlock and all procedural requirements for lines through the airlock are met.
- All containment penetrations directly to the outside atmosphere are isolated with a manual valve or are blind flanged.

Which ONE of the following describes the containment / refueling integrity status?

- a. Containment Operability exists, but refueling must be stopped.
- b. Refueling Integrity exists, refueling may continue.
- c. Containment Closure capability does NOT exist, but refueling may continue.
- d. Refueling Integrity does NOT exist, refueling must be stopped.

ANSWER

b.

REFERENCE

T.S. 3.9.3, Containment Building Penetrations, PMP-4100-SDR-001, Plant Shutdown Safety And Risk Management, 2-OHP-4030-227-041, Refueling Integrity

NEW

HIGHER

- a. Incorrect Containment Operability does not exist as it requires air locks and hatches closed and pressure tested.
- b. Correct Refueling Integrity requires only 1 isolation method be provided. Additionally, provisions are made for the air lock doors being open.
- c. Incorrect Containment closure capability is met based on PMP-4100-SDR-001, Plant Shutdown Safety And Risk Management, requirements.
- d. Incorrect Refueling Integrity does exist.

Question Number 068
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.1.22

QUESTION

At 0600, the following conditions are noted:

- Unit 1 is shutdown, preparing for refueling.
- Initial RCS temperature was 175°F.
- Initial RCS pressure was 100 PSIG.
- Normal Cooldown Alignments.
- Subsequently, RHR is lost and the RCS heats up at 4°F/minute.

Which of the following correctly identifies the initial MODE and MODE at 0640?

- | | Initial MODE | MODE at 0640 |
|----|--------------|--------------|
| a. | MODE 6 | MODE 5 |
| b. | MODE 5 | MODE 4 |
| c. | MODE 5 | MODE 3 |
| d. | MODE 6 | MODE 3 |

ANSWER

b.

REFERENCE

Technical Specifications Table 1.1-1

BANK

HIGHER

- a. Incorrect MODE 6 is closely associated with refueling operations, since the stem states that preps for refueling are underway, the examinee may wrongly assume that MODE 6 has been entered. If this error is made and the examinee recognizes that a mode change has occurred, then MODE 5 would be a logical step up from MODE 6.
- b. Correct Mode 5 is Defined as < 200°F (and head fully tensioned - Mode 6 Definition). Temperature will rise 160°F which raises temperature to 325°F which is Mode 4 (<350°F)
- c. Incorrect If examinee recognizes that MODE 5 is the starting MODE, yet incorrectly assigns an incorrect value for the MODE change from 4 to 3, then this choice would be selected.
- d. Incorrect Combination of errors for A and D.

Question Number 069
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.1.30

QUESTION

Unit 2 is performing 02-OHP-4022-064-002 Loss of Control Air Recovery procedure. All RCPs have been tripped. You are told to initiate a cooldown. Which one of the following describes the method used to perform a RCS cooldown and the concerns?

Nitrogen must be locally aligned to the SG PORVs and then the cooldown is performed by...

- a. evenly steaming all 4 SGs from the Control Room SG PORV Controllers to prevent uneven cooling which could lead to a SI.
- b. steaming SGs #21 & 22 from the Control Room SG PORV Controllers to prevent excessive cooldown in the Pressurizer loop which could lead to loss of level.
- c. directing operators stationed at #21/24 & #22/23 SG PORV Emergency Control Loader valves to evenly steam all 4 SGs to prevent uneven cooling which could lead to a SI.
- d. directing an operator to steam SGs #21 & 24 from the SG PORV Emergency Control Loader valves to prevent excessive cooldown in the Pressurizer loop which could lead to loss of level.

ANSWER

c.

REFERENCE

RO-C-AOP08 pgs. 34, 46-47 & RO-C-EC01 pg. 14-15, 02-OHP-4022-064-002

NEW

HIGHER

- a. Incorrect When on Backup Nitrogen, the Local Control Stations must be used.
- b. Incorrect When on Backup Nitrogen, the Local Control Stations must be used. The Cooldown rate is limited to prevent loss of PRZ level but cooling must be even.
- c. Correct After Nitrogen is aligned to the SG PORVs, They must be controlled locally using the SG PORV Emergency Control Loader valves (Two Stations each with 2 controllers for #21/24 SG PORVs & #22/23 SG PORVs). With the RCPs Stopped the cooldown must be evenly performed to prevent lowering 1 SG pressure below the others. If 1 Pressure is < 100psig below 2 others an SI signal is generated.
- d. Incorrect The Cooldown rate is limited to prevent loss of PRZ level but cooling must be even.

Question Number 070
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.2.23

QUESTION

Which one of the following is required to identify/track Tech Spec status of equipment that is made Inoperable for planned maintenance during Modes 1 through 4? (Assume Inoperability will continue through shift turnover.)

- a. A Control Room Log entry and Shift Manager Log entry
- b. An AR (eSAT) and Control Room Log entry
- c. An AR (eSAT) and an Abnormal Position Log entry
- d. A Control Room Log entry and an Open Items Log entry

ANSWER

d.

REFERENCE

OHI-4000, OHI-4043

BANK

FUNDAMENTAL

- a. Incorrect The SM log does not need to duplicate Control Room Entries & an Open Items Log is required.
- b. Incorrect An AR (eSat) is not required for planned maintenance.
- c. Incorrect An AR (eSat) is not required for planned maintenance.
- d. Correct A Control Log Entry and Open Items Log Entry is required for inoperable TS equipment.

Question Number 071
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.3.1

QUESTION

The following radiological conditions exist for a room in the plant:

General dose rate levels range from 25 - 45 mrem/hr.

Measurements taken on pipes and valves include:

- Point 1: 80 mrem/hr at 30 cm.
- Point 2: 490 mrem/hr at 30 cm.
- Point 3: 1100 mrem/hr at 30 cm.

The room is accessible to plant personnel.

Based on these conditions what is the radiological posting required for this room and who can authorize an individual to exceed Federal Annual TEDE limits while working in this room during a NON-emergency situation?

- a. High Radiation Area, Plant Manager.
- b. Locked High Radiation Area, Site Vice-President.
- c. High Radiation Area, Nobody can authorize exceeding the Federal Limits.
- d. Locked High Radiation Area, Nobody can authorize exceeding the Federal Limits.

ANSWER

d.

REFERENCE

RO-C-RP02, PMP-6010-RPP-001, PMP-6010-RPP-100

BANK

FUNDAMENTAL

- a., b., c. Incorrect All distractors are combinations of plausible incorrect answers or incorrect conditions.
- d. Correct In accordance with PMP-6010-RPP-001, areas accessible to personnel with radiation levels greater than 1000 mrem/hr @ 30 cm from the radiation source or from any surface that the radiation penetrates shall be provided with locked doors to prevent unauthorized entry. Additionally, according to the PMP-6010-RPP-100 Section 3.9, approval and extension of approvals are applicable only up to the extent of a workers federal limits.

Question Number 072
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.3.4

QUESTION

Per DC Cook Radiation Limits, each individual has an Administrative dose guideline of (1) mrem TEDE per year (at Cook). This guideline can be raised to (2) REM for lifesaving missions.

	(1)	(2)
a.	2000	5
b.	1000	25
c.	1000	5
d.	2000	25

ANSWER

d.

REFERENCE

RO-C-RP02, RMT-2080-TSC-001, Attachment 13

BANK

FUNDAMENTAL

- a. Incorrect - 25 REM for lifesaving (non-volunteer)
- b. Incorrect - Admin Limit is 2000 mrem
- c. Incorrect - Admin Limit is 2000 mrem & 25 REM for lifesaving (non-volunteer)
- d. The Cook Administrative Dose Limit is 2000 mrem TEDE of exposure at Cook (Federal Limit is 5000 & 3000 Cook + other sites). This may be raised to 25 REM for lifesaving (non-volunteer).

Question Number 073
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.3.9

QUESTION

The following conditions exist on Unit 1:

- Unit is in MODE 5
- 1-HV-CPS-1, Containment Purge Supply Fan, and 1-HV-CPX-2, Purge Exhaust Fan, are running
- An automatic Containment Phase A Isolation (CI-A) signal from A Train SSPS has been inadvertently initiated.

Which ONE of the following describes the effect of the single train CI-A signal on the Containment Purge System?

- a. Both fans (Supply and Exhaust) will stop.
All supply and exhaust containment isolation valves (inside and outside containment) close.
- b. Both fans (Supply and Exhaust) continue to run.
All supply and exhaust containment isolation valves (inside and outside containment) close.
- c. Both fans (Supply and Exhaust) will stop.
Supply and exhaust containment isolation valves outside containment will close.
- d. Both fans (Supply and Exhaust) continue to run.
Supply and exhaust containment isolation valves inside containment will close.

ANSWER

d.

REFERENCE

RO-C-02800, Containment Ventilation System, SOD-02800-002

BANK

HIGHER

- a. Incorrect The Fans will remain running
- b. Incorrect The outside valves will remain open
- c. Incorrect The Fans will remain running & outside valves will remain open.
- d. Correct The Inside Containment isolation Valves receive a close signal from Train A Phase A and CVI. The Fans Trip on CVI train B.

Question Number 074
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.4.4

QUESTION

Given the following Unit 2 plant conditions:

- Reactor power: 58% and rising
- RCS pressure: 2235 PSIG and lowering
- Auctioneered High Tavg: 562°F and lowering
- Turbine power: 605 MWE and lowering
- Containment pressure: 0.7 PSIG and rising

Based on the above plant indications, what event is occurring?

- a. Steamline Break.
- b. RCS Dilution Event.
- c. Small Break RCS LOCA.
- d. Steam Generator Tube Rupture.

ANSWER

a.

REFERENCE

RO-C-EOP07, Secondary Side Breaks E-2 series EOPs & Background Information pg. 12

BANK

HIGHER

- a. Correct Explanation: Reactor power is rising, indicating positive reactivity event (C' and D' wrong). Electric load is lowering, indicating loss of steam to the turbine. Also although a dilution event would add positive reactivity, it would result in an rise in RCS temperature vs. lower. The fact that containment pressure is rising indicates the SLB is inside the containment (A' correct, B' wrong).
- b. Incorrect Plausible since a dilution would raise power.
- c. & d. Incorrect Plausible since RCS pressure is lowering.

Question Number 075
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.4.4

QUESTION

The plant has experienced a major plant transient. An ORANGE path Functional Restoration Procedure (FRP) is currently being implemented.

The implementation of the ORANGE path FRP must be suspended for all of the following conditions EXCEPT when...

- a. a higher priority ORANGE path FRP is identified.
- b. a RED path FRP is identified.
- c. the ORANGE path condition clears.
- d. a total loss of onsite and offsite AC power occurs.

ANSWER

c.

REFERENCE

OHI-4023 Abnormal/Emergency Procedure User's Guide, Attachment 5

- a. Incorrect An Orange path is Suspended for a higher priority Orange Path.
- b. Incorrect An Orange path is Suspended when a RED path FRP is identified.
- c. Correct An Orange path procedure is performed through to completion (or directed transition) unless a higher priority Orange path, any Red path, or Loss of All AC procedure is required.
- d. Incorrect An Orange path is Suspended a total loss of onsite and offsite AC power occurs.

Question Number 076
 Exam Date 2007/08/25
 Facility Docket 315
 Reactor Type PWR-WEC4
 License Level B
 Points 1.00
 K/A 000024 AA2.04

QUESTION

Per the TRM 8.1.1 Boration System - Operating, which of the following conditions would result in the Boration System being OPERABLE? (Refer to TDB 12-Figure 18.10 and 12-Figure 19.17 as appropriate.)

	RWST Level	RWST Boron Conc.	BAST Level	BAST Temp	BAST Boron Conc.
a.	25%	2350 ppm	70%	60°F	6600 ppm
b.	25%	2550 ppm	75%	90°F	6600 ppm
c.	20%	2350 ppm	70%	90°F	6400 ppm
d.	20%	2550 ppm	75%	60°F	6400 ppm

ANSWER

b.

REFERENCE

TRM 8.1.1, TDB 12-Figure 18.10, 12-Figure 19.17

NEW

HIGHER

Attachment Provided - TDB 12-Figure 18.10 and 12-Figure 19.17 as appropriate.

- a. Incorrect Out on RWST Boron, BAST Level, BAST Temp
- b. Correct Per TRM 8.1.1
- c. Incorrect Out on RWST Level, RWST Boron, BAST Level, BAST Boron
- d. Incorrect Out on RWST Level, BAST Temp, BAST Boron

Question Number 077
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000027 AA2.18

QUESTION

The following series of events have taken place on Unit 2:

- Unit 2 is in MODE 1
- Pressurizer Master Pressure Controller output failed high.
- 2-NRV-163 and 2-NRV-164, PZR Spray valves opened.
- Pressurizer pressure lowered to 2000 psig.
- Unit 2 RO took manual control of the Pressurizer Master Pressure Controller and lowered the output causing the Spray valves to close.
- Unit 2 RO manually energized all Pressurizer heaters to raise Pressurizer pressure.
- Pressurizer pressure rose to 2330 PSIG.
- Unit 2 RO placed Pressurizer heater control switches to off.
- Pressurizer pressure slowly returned to 2235 PSIG.

Which of the following is accurate regarding this transient?

- 1) Technical Specification Action Condition should have been entered for Low Pressurizer Pressure.
 - 2) High RCS Pressure Safety Limit has been exceeded.
 - 3) Automatic Low Pressurizer Pressure Reactor trip failed to actuate.
 - 4) Automatic High Pressurizer Pressure Reactor trip failed to actuate.
- a. Only 1
 - b. 2 and 4
 - c. 1 and 3
 - d. Only 4

ANSWER

a.

REFERENCE

RO-C-00202, SOD-00202-001, SOD-00202-002, TS 3.4.1

BANK

FUNDAMENTAL

- a. Correct Entered DNB TS 3.4.1 at 2200 psig.
- b. Incorrect High Pressure Safety Limit is 2735 psig. High Pressure trip is 2385 psig
- c. Incorrect Low Pressure trip is 1950 psig and although it is rate compensated, pressure only lowered to 2000 psig.
- d. Incorrect High Pressure trip is 2385 PSIG.

Question Number 078
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000037 2.1.10

QUESTION

Given the following conditions on Unit 2:

- Leakage into #23 steam generator is determined to be 0.5 gpm
- No leakage is detectable into the other steam generators
- Other leakage whose source can not be identified is determined to be 0.9 gpm
- Leakage from known sources other than steam generator leakage is determined to be 8.0 gpm

Which one of the operational limitations in Unit 2 Technical Specifications has been exceeded and the consequences of exceeding this limit?

- a. Unidentified leakage.
Magnifies the severity of a Loss of Coolant Accident (LOCA).
- b. Primary to Secondary Leakage.
May cause plant to exceed exposure limits defined in 10 CFR 100
- c. Identified leakage.
Raises the potential for a containment overpressurization.
- d. Pressure Boundary Leakage
Increases the likelihood of a Design Basis Accident (DBA)

ANSWER

b.

REFERENCE

U2 TS 3.4.13

BANK

FUNDAMENTAL

- a. Incorrect Plausible if using U1 TS value of 0.8 gpm for Unidentified Leakage. U2 value is 1.0 gpm.
- b. Correct 0.5 gpm is 720 gal per day through #23 SG. This is in excess of the 500 gal per day limit in TS 3.4.13.
- c. Incorrect Identified Leakage limit is 10 gpm.
- d. Incorrect Plausible if SG leakage is thought to be pressure boundary leakage.

Question Number 079
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000040 2.4.45

QUESTION

Unit 2 was operating at 40% power and experienced a severe Feedwater Break. SG 22 has completely depressurized and 02-OHP-4023-E-2, Faulted Steam Generator Isolation, has been entered.

The following conditions exist:

- RCS Tcolds are 500°F and slowly lowering.
- All Main Feedwater Isolation valves are closed.
- All SG Stop valves and Stop Valve Dump valves are closed.
- Pressure in SGs 21, 23, and 24 are lowering.
- SG 21, 23, and 24 Steam Gen Steam Line Pressure Low annunciators just alarmed.

Which ONE of the following procedural transitions is required based on these conditions?

- a. 02-OHP-4023-FR-H.1, Response to Loss of Secondary Heat Sink.
- b. 02-OHP-4023-ECA-2.1, Uncontrolled Depressurization of all Steam Generators.
- c. 02-OHP-4023-E-3, Steam Generator Tube Rupture.
- d. 02-OHP-4023-FR-H.5, Response to Steam Generator Low Level.

ANSWER

b.

REFERENCE

02-OHP-4023-E-2, Faulted Steam Generator Isolation

BANK

HIGHER

- a. Incorrect - Adequate AFW flow exists. No reason to enter FR-H.1.
- b. Correct 2-OHP-4023-E-2, Step 3 requires a transition to ECA-2.1 in the event that no SG Pressure Boundary is intact. SG 21, 23, and 24 Steam Gen Steam Line Pressure Low annunciators at set at 550 psig which equates to 480°F Tsat. These indications show that the pressure reduction in the SGs is from the cooldown of the SGs rather than the RCS cooldown.
- c. Incorrect - SGTR would be indicated by an uncontrolled level rise in a SG.
- d. Incorrect - FR-H.5 is a yellow path procedure. Yellow path procedures are never required to be entered.

Question Number 080
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000055 2.1.6

QUESTION

Unit 2 was operating at 100% power when the following occurred:

- Reactor Trip due to a Loss of Offsite Power
- Neither Diesel Generator starts
- Crew entered 02-OHP-4023-ECA-0.0, Loss of ALL AC Power, actions
- Reactor Coolant Pump seal injection valves have been closed

Twenty minutes later electrical power is restored to T21A from EP, and the crew transitioned to 02-OHP-4023-ECA-0.1, Loss of ALL AC Power Recovery Without SI Required.

Which ONE of the following best describes the restoration of RCP seal injection in 02-OHP-4023-ECA-0.1?

- a. Slowly restore seal injection cooling limiting the cooldown rate to 1°F per minute
- b. Do not restore seal injection cooling due to potential damage to the CCW thermal barrier heat exchanger.
- c. Restore seal injection cooling as rapidly as possible to minimize the potential for seal degradation.
- d. Do not restore seal injection cooling due to potential damage from thermal shock to the reactor coolant pump seals.

ANSWER

d.

REFERENCE

02-OHP-4023-ECA-0.1 (Loss of ALL AC Power Recovery Without SI Required) Step 2
Background & Question 1

BANK

HIGHER

- a. Incorrect Plausible since Old procedure guidance restored seal cooling in this manner. Also seals must be cooled slowly but this is accomplished by cooling the RCS.
- b. Incorrect Plausible since the current seal leakoff is flowing through the thermal barrier but incorrect as the concern is that restoring CCW to the thermal barrier will cool the RCS to the seals causing damage.
- c. Incorrect Plausible since it is normally desired to restore seal injection as soon as possible but in this case all seal injection & Thermal barrier cooling may have been lost for an extended period of time allowing the seals to reach excessive temperatures. Rapidly restoring seal injection could cause seal

- d. Correct failure.
- If all seal cooling has been lost long enough that the maximum RCP seal parameters identified in the RCP Vendor Manual have been exceeded, seal injection and CCW thermal barrier cooling should not be established to the affected RCP(s). Both of these methods of seal cooling could have unintended consequences that result in additional pump damage or the failure of plant safety systems. Seal cooling should instead be restored by cooling the RCS, which will reduce the temperature of the water flowing through the pump seals.

Question Number 081
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000058 2.1.7

QUESTION

The following conditions exist in Unit 2:

- The plant tripped from MODE 1
- CRID 1 Bus Voltage is 0 volts
- CRID 2 Bus Voltage is 0 volts
- All Train A DC Motor Operated Valves - NO INDICATING LIGHTS
- FRV-220 and 230 (Feed Reg Valves) - NO INDICATING LIGHTS

These indications are consistent with a loss of the __ (1) __ 250 VDC bus. Subsequent RCS temperature stabilization will require operation of the SG PORVs _____ (2) _____.

- a. 1) AB
2) manually from the control room controllers.
- b. 1) AB
2) using the local control stations.
- c. 1) CD
2) manually from the control room controllers.
- d. 1) CD
2) using the local control stations.

ANSWER

d.

REFERENCE

2-OHP-4022-082-002CD

NEW

HIGHER

- a. Incorrect The indications represent a loss of the CD 250 VDC bus. No control from the control room is available.
- b. Incorrect The indications represent a loss of the CD 250 VDC bus.
- c. Incorrect No control from the control room is available.
- d. Correct The indications represent a loss of the CD 250 VDC bus. For this loss, the SG PORVs can only be controlled from the local operation stations.

Question Number 082
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000059 2.1.33

QUESTION

Given the following in Unit 1:

- The Steam Generator 11 is being drained through the Blowdown System for an inspection when the R-19, Steam Generator Blowdown Monitor, fails terminating the (batch) release.
- The DRS 3100, Steam Generator Blowdown Monitor, is out-of-service.

Which ONE of the following provides an acceptable method to recommence draining the Steam Generator per the attached copy of PMP-6010-OSD-001, Off-site Dose Calculation Manual?

Draining may recommence provided...

- a. grab samples have been analyzed and found to be $<10 \text{ E-7 uCi/gram Dose Equivalent I-131}$ at least once per 30 days.
- b. grab samples have been analyzed and found to be $<0.01 \text{ uCi/gram Dose Equivalent I-131}$ at least once per 24 hours.
- c. at least 2 independent samples have been analyzed and the discharge lineup has been independently verified by 2 AEOs.
- d. the flow rate has been estimated using pump curves and valve settings.

ANSWER

c.

REFERENCE

PMP-6010-OSD-001, Off-site Dose Calculation Manual, Attachment 3.2 page 46-47.

BANK

HIGHER

- a. Incorrect Plausible since this is the accuracy required for samples taken per action 2.
- b. Incorrect Plausible since this is the requirement for Action 2.
- c. Correct PMP-6010-OSD-001, Off-site Dose Calculation Manual, Attachment 3.2 item 1.b provides for the use of the monitors as either batch or continuous release points (double **). If it is a batch release (as is draining SG per example) then Action 1 is applicable instead of Action 2.
- d. Incorrect Plausible since this is the action required if a flow meter is not available per a single *.

Attachment Provided - PMP-6010-OSD-001, Off-site Dose Calculation Manual Attachment 3.2

Question Number 083
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000065 AA2.05

QUESTION

Given the following conditions:

- Unit 2 at 100% power
- Air header pressure is slowly lowering
- 02-OHP-4022-064-001, Control Air Malfunction is in progress

The Unit Supervisor will direct a _____(1)_____ when _____(2)_____.

- a. 1) Controlled Power Reduction
2) Control Air Header reaches 80 psig
- b. 1) Controlled Power Reduction
2) Plant Air Header Pressure reaches 80 psig
- c. 1) Reactor Trip
2) Control Air Header reaches 80 psig
- d. 1) Reactor Trip
2) Plant Air Header Pressure reaches 80 psig

ANSWER

c.

REFERENCE

02-OHP-4022-064-001

NEW

FUNDAMENTAL

- a. Incorrect Reactor trip is required.
- b. Incorrect Reactor trip is required when control air reaches 80 psig.
- c. Correct Per Step 1 of 2-OHP-4022-064-001, a reactor trip is required when control air header pressure in XPI-100 reaches 80 psig.
- d. Incorrect Reactor trip is required when control air reaches 80 psig.

Question Number 084
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000074 EA2.08

QUESTION

After a Unit 1 accident, the crew has implemented FR-C.1, Response to Inadequate Core Cooling, with the following conditions:

- RCS pressure is 622 psig.
- SG pressures are 500 psig.
- CETC temperatures are 766°F and rising.
- RCPs are stopped
- SI flow is NOT available from either U1 or U2 (CVCS Crosstie).
- RVLIS Narrow Range level is 38% and lowering.

Which of the following methods should be used FIRST to maintain core cooling?

- a. Depressurize SGs to inject SI accumulators.
- b. Open RCS head vent valves to raise vessel level.
- c. Open PRZ PORVs to allow RHR injection.
- d. Start one RCP to establish forced RCS flow.

ANSWER

a.

REFERENCE

01-OHP-4023-FR-C.1

BANK

FUNDAMENTAL

- a. Correct Based on the conditions of the RCS, 01-OHP-4023-FR-C.1 will require the SGs to be depressurized to 90 psig to cooldown/depressurize the RCS to inject water from the accumulators.
- b. Incorrect Procedure requires head vent valves to be checked closed.
- c. Incorrect Procedure requires Pressurizer PORVs to be checked closed.
- d. Incorrect RCPs are only restarted if SG depressurization is found to be ineffective and TCs rise to 1200°F.

Question Number 085
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 000038 EA2.05

QUESTION

Consider the following Unit 1 conditions:

- A Unit 1 Reactor Trip and Safety Injection has occurred.
- 01-OHP-4023-E-0, Reactor Trip or Safety Injection, Step 8 "Check If Ruptured SG Is Suspected" is being implemented
- SG 13 NR level is 20% and rising in an uncontrolled manner.
- SG 13 pressure is 1000 PSIG and rising in an uncontrolled manner.
- All other SG NR levels are offscale low
- Pressurizer level is 7% and lowering.
- Containment pressure is 0.1 PSIG.

Which of the following actions should the Unit Supervisor direct at this time?

- a. Direct RO to isolate flow from the SG 13 by closing SG 13 MSIV and securing blowdown from SG 13.
- b. Direct RP Tech to immediately conduct radiation survey of SG 13. If SG 13 has verified abnormal radiation, immediately transition to 01-OHP-4023-E-3, Steam Generator Tube Rupture.
- c. Direct RO to isolate feed flow to the SG 13 since its level is rising in an uncontrolled manner.
- d. Immediately transition to 01-OHP-4023-E-3, Steam Generator Tube Rupture, since SG 13 level is rising in an uncontrolled manner.

ANSWER

c.

REFERENCE

01-OHP-4023-E-0

BANK

FUNDAMENTAL

- a. Incorrect - Isolating flow FROM the SG is plausible, as this would minimize the radiation released from the SG, however, these steps are addressed later in the EOP set.
- b. Incorrect - Plausible as radiation levels are checked later in the EOP set, additionally, the transition to EOP-3 is not made from the FOP.
- c. Correct E-0, Step 8 (Continuous Action) has operator isolated feedwater to a suspected ruptured SG once NR level is greater than 14%.
- d. Incorrect - Transition step later within the body of E-0, after other diagnostics have been done.

Question Number 086
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 008000 2.4.24

QUESTION

The following plant conditions exist:

- Unit 2 has experienced a loss of both CCW pumps in MODE 3
- Unit 2 East CCP is tagged out for maintenance
- NEITHER Unit 2 CCW pump can be restarted
- 02-OHP-4022-016-004, Loss of CCW, is in progress

Under these conditions the Unit 2 West CCP is:

- a. left running until failure to provide seal injection to the RCPs.
- b. stopped and placed in Pull-to-Lock to ensure pump is available once CCW is restored.
- c. operated intermittently to maintain RCP lower bearing temperatures less than 200°F.
- d. run until locally monitored bearing metal temperature exceeds 175°F

ANSWER

b.

REFERENCE

02-OHP-4022-016-004

- a. Incorrect If only one CCP is available the CCP is stopped.
- b. Correct In accordance with 2-OHP-4022-016-005, if only one CCP is available it is stopped in to save the pump until CCW can be cross-tied to the opposite unit.
- c. Incorrect Plausible if thought is that pump can be run for short periods without CCW without damage. If only once CCP is available the CCP is stopped.
- d. Incorrect No provision given for locally monitoring the pump bearing temps. Note states that pump failure may occur within 1.5 minutes with no CCW flow. This would not provide enough time to get an operator to locally monitor.

Question Number 087
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 011000 A2.07

QUESTION

You are the Unit 1 SRO.

Given the following plant conditions:

- Unit 1 is at 100% power with all plant equipment in AUTOMATIC.
- West CCP is running.
- East CCP in Neutral.
- An electrical fault results in the West CCP tripping on motor overload.

Which of the following describes the required directions to the RO to restore Pressurizer Level Control to normal status?

- a. Verify that the East CCP has AUTO started, stabilize charging and restore letdown.
- b. Verify that the East CCP has AUTO started, stabilize charging and reset CCW flow to the letdown heat exchanger.
- c. Manually start the East CCP, restore charging and restore letdown.
- d. Manually start the East CCP, restore charging and reset CCW flow to the letdown heat exchanger.

ANSWER

c.

REFERENCE

RO-C-00300

NEW

HIGHER

- a. Incorrect - There is no AUTO start for CCP on loss of charging flow.
- b. Incorrect - There is no AUTO start for CCP on loss of charging flow. CCW to the letdown Hx isolates on an SI.
- c. Correct There is no AUTO start of the standby CCP on loss of charging. The letdown orifice isolation valves close when both CCP breakers are in the OPEN position.
- d. Incorrect - CCW to the letdown Hx isolates on an SI.

Question Number 088
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 012000 A2.03

QUESTION

Given the following conditions in Unit 2:

- The Plant is at 100% power
- Reactor trip breaker testing is being performed with Reactor Trip Bypass Breaker B (52/BYB) racked in and closed
- Both Reactor Trip Breakers (52/RTA and 52/RTB) are closed
- Reactor Trip Bypass Breaker A (52/BYA) is open and racked out

What would be the consequences and required actions if the Train A Output Bay Mode Selector Switch was placed to TEST instead of the Train B switch?

- a. A General Warning on Train B only. Reactor would not trip. Enter TS 3.03 due to 2 Trains of Reactor Trip being inoperable.
- b. A General Warning on Train A only. Reactor would not trip. Enter 02-OHP-4023-E-0, Reactor Trip or Safety Injection to initiate a Manual reactor trip since 2 Trains of Reactor Trip are inoperable.
- c. A General Warning on both RPS trains causing all Reactor Trip and Bypass Breakers to receive a trip signal. Enter 02-OHP-4023-E-0, Reactor Trip or Safety Injection to stabilize the plant.
- d. A General Warning on Train B only which would result in opening the Reactor Trip B breaker only. Enter 02-OHP-4023-FR-S.1 Response to Nuclear Power Generation/ATWS to shutdown the reactor.

ANSWER

c.

REFERENCE

RO-C-01101

BANK

HIGHER

- a. Incorrect General Warning on both trains. Reactor Trips.
- b. Incorrect General Warning on both trains. Reactor Trips.
- d. Incorrect All Trip Breakers get an open signal.
- c. Correct Having the BYP B breaker closed is already providing a General Warning for TRAIN B (Open Contact K524 TRAIN B). Placing the Train A Output Mode Selector to Test will generate a Train A General Warning. Two General warnings will cause both trains to Trip.

Question Number 089
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 078000 2.1.8

QUESTION

Given the following:

- A small fire has damaged the Plant Services Panel in the Unit 2 Control Room.
- The fire has been extinguished and the reactor tripped.
- The Plant Air Header Crosstie Isolation Valves PRV-10, 11, 20, and 21 are all closed.
- Unit 1 is at 100% power with normal Plant and Control Air pressures.
- The Unit 2 Plant Air Compressor and Control Air Compressor control switches are damaged.
- An extra RO has been assigned to help restore Unit 2 Control Air.

Which ONE of the following actions would be the fastest method to have the RO restore Unit 2 Control Air?

- a. Open PRV-20 and PRV-21 using the Unit 2 Main Control Room switches.
- b. Start the Unit 2 Control Air Compressor from the Unit 2 Hot Shutdown Panel.
- c. Open PRV-10 and PRV-11 using the Unit 1 Main Control Room switches.
- d. Start the Backup Plant Air Compressor from the local control panel.

ANSWER

b.

REFERENCE

RO-C-06401, 02-OHP-4030-STP-049, Hot Shutdown Panel Operability Test

BANK

HIGHER

- a. Incorrect - With the Unit 1 PRV-10 and 11 valves closed the Plant Air header is depressurized, so opening PRV-20 and 21 will not restore air.
- b. Correct To start the Control Air Compressor from the Hot Shutdown Panel switch the RO must go to the Hot Shutdown Panel in U1 Control Room, select local and start the Control Air Compressor.
- c. Incorrect - With the Unit 2 PRV-20 and 21 valves closed the Plant Air header is depressurized, so opening PRV-10 and 11 will not restore air.
- d. Incorrect - The RO would need to manually align the Backup Air Compressor and start it from the Unit 1 Aux Building Roof.

Question Number 090
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A

QUESTION

Unit 2 is in a refueling outage. The following events occur:

- A used fuel assembly is being returned to the core and is currently in the manipulator crane mast near the core.
- The conveyer cart cable comes loose on the containment side and the cart cannot be returned.

A leak develops in the reactor cavity seal resulting in the implementation of 02-OHP-4022-018-002, Loss of Refueling Water Level During Refueling Operations - Local Actions.

1) Where should the used fuel assembly be placed, and, 2) What actions are required to maintain the level in the Spent Fuel Pit during this transient?

- a.
 - 1) The used fuel assembly should be placed in the reactor core.
 - 2) The Reactor Cavity and the SFP will be isolated from each other by closing the transfer tube gate valve.
- b.
 - 1) The used fuel assembly should be lowered to the bottom of the mast resting on the refueling cavity floor.
 - 2) The Reactor Cavity and the SFP will be isolated from each other by closing the transfer tube gate valve.
- c.
 - 1) The used fuel assembly should be placed in the reactor core.
 - 2) The SFP weir gate must be closed and plant air aligned to the weir gate seal.
- d.
 - 1) The used fuel assembly should be lowered to the bottom of the mast resting on the refueling cavity floor.
 - 2) The SFP weir gate must be closed. The air supply to the weir gate is not required as is only used as a backup seal for the weir gate.

ANSWER

c.

REFERENCE

12-OHP-4022-018-002, RO-C-AOP12, SD-01800

NEW

HIGHER

- a. Incorrect Refueling cavity and SFP cannot be isolated from each other. Due to the cart being inside containment, the transfer tube gate valve cannot be closed.

- b. Incorrect Fuel assembly should be placed in the core. Due to the cart being inside containment, the transfer tube gate valve cannot be closed.
- c. Correct The fuel assembly would be placed in the core. Refueling cavity level will continue to lower to the flange. The Refueling cavity and the transfer canal completely separated due to the inability to close the transfer tube gate. Once air is aligned to the weir gate seal and the weir gate is closed, SFP will be isolated from the Reactor cavity.
- d. Incorrect Fuel assembly should be placed in the core. Air supply is required for a weir gate seal.

Question Number 091
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.1.6

QUESTION

The following conditions exist:

- A LOCA occurred 30 minutes ago
- RCS pressure is 125 psig
- RCS Core Exit TCs read 380°F
- RCS Cold Leg temperatures are 250°F
- 1N SI Pump is running providing 325 gpm flow
- 1E RHR Pump is running providing 1150 gpm flow

What is the appropriate action taken in response to the above conditions?

Entry into 01-OHP-4023-FR-P.1 Response to Pressurized Thermal Shock Condition is...

- a. made but NO actions are implemented before returning to procedure in effect.
- b. made and cooldown will continue within a limit of 50°F in any 60 minute period.
- c. made and a RCS temperature soak for a ONE hour period will be completed.
- d. NOT required since RCS pressure is below 300 psig.

ANSWER

a.

REFERENCE

01-OHP-4023-FR-P.1

BANK

HIGHER

- a. Correct Entry into FR-P.1 is required due to the Orange Path with RCS at <285°F. The first step of P.1 checks RCS pressure at greater than 300 psig. Since Pressure is less than 300 psig and RHR flow is >400 gpm, no actions are performed and the operator is directed back to the procedure & step in effect.
- b. Incorrect Cooldown is not limited since the RCS has already experienced a large break.
- c. Incorrect A soak is not required since the RCS has already experienced a large break.
- d. Incorrect Entry into the procedure is still required and a pressure and flow check is made within the procedure.

Question Number 092
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.4.35

QUESTION

Given the following conditions:

- You are the Shift Manager.
- The Control Room is being evacuated due to a fire.
- The Reactor and Turbine have been verified Tripped.
- You are assigning responsibilities in the Shift Managers office in accordance with 02-OHP-4025-001 Emergency Remote Shutdown.

Which ONE of the following actions will you direct the Turbine Tour Operator to perform FIRST?

- a. Proceed to the Unit 2 EDG rooms to locally trip any unloaded EDGs.
- b. Proceed to the Turbine Building, Unit 2 MDAFP room and locally open the Unit 1 Crosstie to align the Unit 1 MDAFP to supply AFW flow to Unit 2.
- c. Proceed to the Auxiliary Building, Start up Flash Tank Area and locally open SG 22 & 23 FMO valves to establish AFW flow.
- d. Proceed to the Unit 2 4 KV Switchgear rooms to locally trip any ECCS Pumps that have spuriously started.

ANSWER

b.

REFERENCE

02-OHP-4025-001 Step 19 & Figure 1

NEW

FUNDAMENTAL

- a. Incorrect SD of unloaded EDGs is performed later in the procedure an is not a priority.
- b. Correct The Turbine Tour should be directed to first crosstie AFW with the Opposite unit per step 19.
- c. Incorrect This task is performed typically by the BOP and is performed after the AFW systems are crosstied.
- d. Incorrect SD of equipment that has spuriously actuated is performed later in the procedure an is not a priority.

Question Number 093
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.2.10

QUESTION

Given the following:

- An On The Spot Change (OTSC) has been written to a surveillance procedure to run the North Safety Injection pump with the discharge valve throttled 75% open and collect motor data.
- The plant conditions required for the above evolution are NOT described in current procedures or the Updated Safety Analysis Report.

The OTSC author is the System Engineer, who has brought it to you for review and approval. The SRO can...(PMP-2010-PRC-002 Figures 2, 4, & 5 attached)

- a. NOT approve the OTSC under any conditions. A Temporary or Special Use Procedure with a 50.59 screening/evaluation is required.
- b. review and approve the OTSC without restriction.
- c. NOT approve the OTSC until the Qualified Technical Reviewer has reviewed and approved.
- d. review and approve the OTSC ONLY if a 50.59 screening/evaluation has been approved.

ANSWER

a.

REFERENCE

PMP-2010-PRC-002 Figures 2 & 4

BANK

FUNDAMENTAL

Attachment Provided: PMP-2010-PRC-002 Figures 2, 4, & 5

- a. Correct The Throttling of the Pump Discharge valve changes the intent of the procedure and therefore an OTSC is Not appropriate. A Temporary One-time- Use or special procedure should be generated. This requires following the normal alteration process.
- b. Incorrect an OTSC is not appropriate and a 50.59 evaluation is required.
- c. Incorrect an OTSC is not appropriate.
- d. Incorrect an OTSC is not appropriate.

Question Number 094
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.2.26

QUESTION

The plant is in MODE 6.

Fuel movement was suspended for repairs to the Spent Fuel Bridge Crane. Repairs to the Spent Fuel Bridge Crane are complete.

- Source Range Channel N31 is INOPERABLE
- Source Range Channels N32 and N23 are OPERABLE.
- The West RHR pump has just been placed in service due to the failure of the East RHR pump seal.
- The Reactor Cavity Water Level is 644' 6".

The refueling team has established communications with the control room, and has requested permission to move the next fuel bundle from the fuel building to the core.

Are administrative conditions met to recommence fuel movement?

- a. Yes, but only if the Reactor Cavity Water Level is raised to greater than 644' 9"
- b. No, the East RHR pump must be restored to OPERABLE.
- c. No, Source Range Channel N31 must be restored to OPERABLE.
- d. Yes, provided that the Audible count rate circuit is selected to N32.

ANSWER

d.

REFERENCE

01-OHP-4030-STP-037, Refueling Surveillance, Data Sheet 2 & 3

NEW

HIGHER

- a. Incorrect Level is only required to be 644' 1.5". 644' 9" is nominal.
- b. Incorrect Only 1 RHR is required to be operable with > 23'.
- c. Incorrect The gamma Metrics may be used for the second source range channel.
- d. Correct For refueling to begin, 2 SR channels are required, one with an audible count rate indication. This comes only from N31 or N32. The gamma metrics (N23) may be used for the other channel. One RHR pump must be operating and level must be > 23' or 644' 1.5". The conditions are met for refueling provided that the audible count rate is selected to N32.

Question Number 095
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.3.2

QUESTION

You are the Unit Supervisor and are briefing two operators on a system startup lineup. The system requires dual verification. The operators note that a drain valve on the lineup is located in a Locked High Radiation Area (LHRA). No maintenance has been performed on this portion of the system. The dose rate in the area of the valve is 1.5 Rem/hr. The task is expected to take 10 minutes

Which ONE of the following methods will result in the LOWEST exposure AND still meet procedural requirements?

- a. Direct one operator to perform the initial valve position check, waive the independent verification and note the exemption on the lineup sheet.
- b. Waive both the initial check and independent verification and note the exemption on the lineup sheet.
- c. Submit a request to the ALARA committee to grant a waiver to both the initial check and independent verification.
- d. Submit a request to Radiation Protection to have shielding installed to reduce the dose rate prior to conducting the verification.

ANSWER

b.

REFERENCE

PMP-4043-VLU-001 Valve Lineups and Position Control Section 3.5.4 pg 10

BANK

FUNDAMENTAL

- a. Incorrect This would NOT meet the lowest exposure criteria.
- b. Correct Components located in a high radiation area may be waived at the discretion of the supervisor with operational control. The exemption will be noted on the lineup sheet.
- c. Incorrect The ALARA committee does NOT make this determination
- d. Incorrect This would result in exposure to both the operators and those installing shielding.

Question Number 096
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 022000 A2.05

QUESTION

Unit 2 has experienced a NESW rupture inside containment. The crew has entered 02-OHP-4022-020-001, NESW System Loss/Rupture.

Which ONE of the following describes the required actions and the reason for these actions?

The Unit Supervisor should direct the crew to trip the Reactor and ...

- a. stop all RCPs to minimize the risk of fire since RCP fire protection has been lost.
- b. stop all RCPs to prevent pump damage since all RCP cooling has been lost.
- c. stop three RCPs. A containment pressure relief is performed to minimize the risk of a safety injection actuation since containment cooling has been lost.
- d. stop three RCPs. A containment pressure relief is performed to allow containment purge supply to be started since ice condenser cooling has been lost.

ANSWER

c.

REFERENCE

RO-C-AOP-5, Abnormal Operating Procedures Day 5

BANK

FUNDAMENTAL

- a. Incorrect RCP fire protection is lost but this is not the reason for stopping RCPs. One RCP is maintained operating to aid in a cooldown.
- b. Incorrect RCP motor air coolers are lost, but all cooling is not lost. The primary function of the motor air coolers is to cool the hot exhaust air from the RCP to keep the environment cool and not the pump. One RCP is maintained operating to aid in a cooldown.
- c. Correct The reactor must be tripped if a loss of NESW to containment occurs. Three RCPs are removed from service to stop heat input to the containment atmosphere during a loss of containment cooling. The heat input would cause a rapid rise in containment pressure, resulting in an SI and CTS actuation based solely on a loss of containment cooling.
- d. Incorrect Ice condenser cooling is provided by the Glycol cooling system which uses NESW to Cool its chillers. A rupture inside containment should not impact this cooling. The containment purge system is not used.

Question Number 097
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 056000 A2.04

QUESTION

The following plant conditions exist on Unit 2:

Unit 2 is at 50% power

- North and South Condensate Booster Pumps (CBPs) are running
- Middle Condensate Booster Pump (CBP) is in Auto

The following alarm is received in the Main Control Room:

Ann. 216, Drop 82, CNDST BOOSTER PUMP MOTOR OVERHEATED

While addressing the alarms, the following events occur:

- Ann. 216, Drop 72, CNDST BOOSTER PUMP MOTOR OVERLOAD TRIP - LIT
- Ann. 216, Drop 73, CNDST BOOSTER PUMP DISCH PRESSURE LOW - LIT
- Ann. 215, Drop 41, FEEDPUMP SUCTION HEADER PRESSURE LOW alarmed for approximately 3 seconds then cleared.

The following breaker indicating light conditions exist:

- North CBP: Red
- Middle CBP: Green
- South CBP: Green

The Unit Supervisor should direct the BOP to _____(1)_____, and locally have an operator _____(2)_____.

- a. 1) trip the running Main Feedwater pump
2) close the South CBP recirculation valve manual isolation.
- b. 1) start the Middle CBP
2) check the position of 2-CRV-224, Low Pressure Heater Bypass Valve
- c. 1) start the Middle CBP
2) verify CBP recirculation valve manual isolation valves are throttled.
- d. 1) trip the running Main Feedwater pump
2) open 2-CRV-224, Low Pressure Heater Bypass Valve

ANSWER

b.

REFERENCE

RO-C-05400, RO-C-05500, 2-OHP-4024-215, Drops 31 & 41

2-OHP-4024-216- Drop 73

NEW

HIGHER

- a. Incorrect Do not trip the running Main Feedwater Pump. Recirc valve is not isolated.
- b. The Middle CBP should have started in Auto when Ann 216, Drop 73 alarmed. The Feedpumps do not trip until 180 psig for greater than 5 seconds. Ann. 215 Drop 41 is set at 188 psig. Momentary alarm on Ann. 215, Drop 41 may open CRV-224. If pressure remains above 188 psig. Valve should be closed.
- c. Incorrect Check the position of CRV-224, NOT the recirc valve manual isolations.
- d. Incorrect Do not trip the running Main Feedwater Pump. CRV-224 may open but should be re-closed under these conditions.

Question Number 098
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 062000 A2.08

QUESTION

Given the following:

- Unit 2 is at 100% power.
- One of the 4 KV Bus "Loss of Voltage" undervoltage relays on Bus T21D fails to the tripped condition.

Which one of the following describes the effect of this malfunction on the plant?

- a. The Loss of Voltage Relays are arranged in a 2 of 3 coincidence, so this failure places the logic in a 1 of 2 coincidence. Initiate corrective actions to MTI to repair faulty relay. No actuation occurs.
- b. A Load Shed signal for Bus T21D only is initiated. Have operator verify loads are tripped off the 21D bus, the CD Diesel starts, and the Bus T21D loads are sequenced on to the diesel using the Black Out Sequence.
- c. A Load Shed signal for Buses T21C and D is initiated. Have operator verify loads are tripped off both T21C and T21D, the CD Diesel starts, and the Bus T21C and T21D loads are sequenced on to the diesel using the Black Out Sequence.
- d. A Load Shed signal for Bus T21D only is initiated after 2 minutes. Have operator verify loads are tripped off the T21D bus, the CD Diesel starts, and the Bus T21D loads are sequenced on to the diesel using the Black Out Sequence.

ANSWER

a.

REFERENCE

RO-C-08201, RQ-C-KNOW

BANK

HIGHER

- a. Correct The Loss of Voltage Relays are arranged in a 2 of 3 coincidence, so this failure places the logic in a 1 of 2 coincidence. No actuation occurs.
- b. Incorrect It takes 2 of 3 to give a Loss of Voltage Signal. Load shed would affect both "C" and "D" busses.
- c. Incorrect It takes 2 of 3 to give a Loss of Voltage Signal.
- d. Incorrect It takes 2 of 3 to give a Loss of Voltage Signal.

Question Number 099
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.1.10

QUESTION

Unit 1 is at 100% power. The following plant conditions exist:

- Both Supplemental DGs are out of service due to an electrical control problem
- The 1CD Emergency Diesel Generator (EDG) was declared INOPERABLE today(Monday) at 0600.
- Engineering can NOT rule out EDG common mode failure

What action is required?

(Refer to attached TS 3.8.1 as appropriate.)

- a. Perform an operability run on the 1AB EDG by 0600 tomorrow AND restore one Supplemental DG by 0600 Thursday.
- b. The unit must be in at least HOT STANDBY by 1200 today.
- c. Perform an operability run on the 1AB EDG by 0600 tomorrow AND restore both Supplemental DGs by 0600 Thursday.
- d. Restore both Supplemental DGs by 1800 today OR perform an operability run on the 1AB EDG by 0600 tomorrow.

ANSWER

c.

REFERENCE

Technical Specifications 3.8.1

NEW

HIGHER

- a. Incorrect Both SDGs are required.
- b. Incorrect This is the action for both EDGs being inoperable. The 1AB EDG may be run within 24 hours to confirm operability. 72 hours is allowed to restore both SDGs or the CD EDG.
- c. Correct Tech Spec requires action B to be entered. Action B1 requires both Supplemental DGs to be operable (Action C required them to be restored within 72 hours if EDG is not restored). Since common mode failure can not be ruled out the AB EDG must be run.
- d. Incorrect The SDGs must be restored within 72 hours AND the AB EDG must be run. (12 hour limit comes from Action E offsite & EDG inop)

Attachment Provided - TS 3.8.1

Question Number 100
Exam Date 2007/08/25
Facility Docket 315
Reactor Type PWR-WEC4
License Level B
Points 1.00
K/A 2.4.1

QUESTION

The following plant conditions exist:

- A valid reactor trip signal has been received.
- The crew has entered OHP-4023-FR-S-1, Response to Nuclear Power Generation, from step 1 of OHP-4023-E-0, Reactor Trip Or Safety Injection.
- The main turbine is tripped.
- Emergency boration is in progress.
- All SG Narrow Range levels are offscale low.
- NO AFW pumps are running.
- RCS pressure is 2285 psig.
- OHP-4023-FR-S-1 immediate actions have just been completed.

Which ONE of the following is the required crew response to the above conditions?

- a. Open Pressurizer PORVs to lower pressure to 2135 psig to enhance boration flow. Transition to OHP-4023-E-0 at the completion of OHP-4023-FR-S-1.
- b. Perform the remainder of OHP-4023-FR-S-1 and then transition to OHP-4023-FR-H-1, Response to Loss of Secondary Heat Sink.
- c. Immediately transition to OHP-4023-FR-H-1, Response to Loss of Secondary Heat Sink, since the reactor is now tripped.
- d. Manually initiate Safety Injection and transition to OHP-4023-E-0.

ANSWER

b.

REFERENCE

OHI-4023, Abnormal / Emergency Procedure User's Guide, Attachment 5,
1/2-OHP-4023-F-0-3, Heat Sink CSF Status Tree

BANK

HIGHER

- a. Incorrect PORVs are only opened if Pressurizer pressure is >2335 psig and transition to OHP-4023-E-0, Reactor Trip Or Safety Injection is incorrect.
- b. Correct When a Functional Restoration (FR) procedure is entered, it is required that the FR be implemented to completion unless a higher priority red path is identified. In this case, OHP-4023-FR-S-1, Response to Nuclear Power Generation, is the highest priority red path (OHP-4023-FR-H-1, Response to Loss of Secondary Heat Sink, is the third highest). Loss of all AFW with low SG levels warrants entry into OHP-4023-FR-H-1 following completion of OHP-4023-FR-S-1.

- c. Incorrect Must perform OHP-4023-FR-S-1, Response to Nuclear Power Generation, to completion before transitioning to OHP-4023-FR-H-1, Response to Loss of Secondary Heat Sink.
- d. Incorrect Conditions do NOT warrant SI actuation and transition to OHP-4023-E-0, Reactor Trip Or Safety Injection is incorrect.