

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 1

EXAM KEY

05/05/2005

EX05023

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The plant was operating at 99% power when a loss of battery charger C1-1 occurred. Battery voltage is 92VDC and going down.

Which of the following is correct concerning this condition?

- A. RHR-P-2A and LPCS-P-1 may not be available during a LOCA.
- B. RHR-P-2B and RHR-P-2C may not be available during a LOCA.
- C. TG-EOP-1 Main Turbine Emergency Oil Pump may not be available if needed.
- D. RFT-EOP-1A RFP Turbine Emergency Oil Pump may not be available if needed.

ANSWER: A

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QUESTION TYPE: RO

KA # & KA VALUE: 295004 AA1.02 – Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF DC POWER: System necessary to assure safe plant shutdown IMP 3.8

REFERENCE: ABN-ELEC-125VDC rev. 1 page 13, SD000188 rev. 7, pages 31 & 32

SOURCE: **BANK QUESTION – MODIFIED – T1, GP1**

LO: 5262, 5263

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: Charger C1-1 feeds the div. 1 battery, B1-1. This is a 125 VDC battery. C and D are incorrect because they are 250VDC loads. B is incorrect because it is a div 2, 125VDC load. A is correct as the loss of div 1, 125VDC will cause the loss of ability to operate div 1 breakers.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 2

EXAM KEY

05/05/2005

EX05024

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A plant startup is in progress. Reactor pressure has just been increased to 950 psig and is stable. A leak in the CAS System has resulted in a reduction of CAS pressure to 90 psig and going down. A complete loss of air is imminent.

Which of the following describes the effect of this loss on the Feedwater System?

- A. Feedwater heater level control valves will fail as is.
- B. Feedwater heater level control valves will fail closed.
- C. RFW-FCV-10A & B will fail as is.
- D. RFW-FCV-10A & B will fail closed.

ANSWER: C

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QUESTION TYPE: RO

KA # & KA VALUE: 295019 AK2.03 - Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR and the following: Reactor feedwater IMP 3.5

REFERENCE: SD000205 rev. 9 page 21 & SD000157 rev. 12 page 19

SOURCE: **NEW QUESTION -**

LO: 7605, 5400

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: On a complete loss of CAS, feedwater heater LCVs fail open. A and B are incorrect. RFW-FCV-10A & 10B fail as is. D is incorrect. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 3

EXAM KEY

05/05/2005

EX02025

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How does boron injection affect reactor power during ATWS conditions?

- A. The magnitude of power oscillations during ATWS conditions is reduced by the initiation of the SLC System as the boron concentration in the core increases.
- B. The magnitude of power oscillations during ATWS conditions is reduced by the initiation of the SLC System as inlet subcooling increases.
- C. Core power goes down because core void fraction goes down as the concentration of boron in the core goes up.
- D. Core power goes down because moderator density goes up as the concentration of boron in the core goes up.

ANSWER: A

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QUESTION TYPE: RO

KA # & KA VALUE: 295037EK1.03 – Knowledge of the operational implications of the following concepts as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN: Boron affects of reactor power IMP 4.2

REFERENCE: PPM 5.0.10 Flowchart Training Manual rev 8, pages 187 & 188

SOURCE: **NEW QUESTION – T1, GP1**

LO: 8086

RATING: L4

ATTACHMENT: NONE

JUSTIFICATION: B is incorrect because an increase in core inlet subcooling causes increases in the occurrences of core power oscillations. C is incorrect because a decrease in void fraction causes power to increase. D is incorrect because an increase in moderator density causes a power increase. A is correct as stated in the reference.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 4

EXAM KEY

05/05/2005

EX02026

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Which of the following lists EOP actions that mitigate off-site doses due to release of reactor coolant in the secondary containment?

- A. Isolate primary systems leaking into secondary containment.  
Operate available Reactor Building Ventilation.  
Isolate Standby Gas Treatment System.
- B. Isolate primary systems leaking into secondary containment  
Shut down the reactor.  
Operate available Reactor Building Ventilation.
- C. Isolate Standby Gas Treatment System.  
Shut down the reactor.  
Emergency depressurize the reactor.
- D. Isolate primary systems leaking into secondary containment.  
Shut down the reactor.  
Emergency depressurize the reactor.

ANSWER: D

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QUESTION TYPE: RO

KA # & KA VALUE: 295038 EK3.02 - - Knowledge of the reasons for the following responses as they apply to HIGH OFF SITE RELEASE RATE: System isolations IMP 3.9

REFERENCE: PPM 5.0.10 rev. 8 pages 312 - 314

SOURCE: **BANK QUESTION LR00884 – Slightly modified for clarity – T1, GP1**

LO: 8460

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: PPM 5.0.10 specifically states the actions in D as methods to mitigate rad release. Neither operating Reactor Building Ventilation nor isolating SGT reduces release of radioactivity from the secondary containment. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 5

EXAM KEY

05/05/2005

EX05027

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The plant was operating at 99% power when a scram occurred due to a LOCA concurrent with a lockout on the Startup Transformer. Drywell temperature is going up rapidly. The CRS has directed you to "Maintain drywell temperature below 135°F with available drywell cooling. Upon investigation, you discover all drywell cooling fans have stopped.

Which of the following signals caused these fans to trip?

- A. Reactor level -68 inches.
- B. Drywell pressure +2.05 psig.
- C. RB Exhaust Plenum 19 mr/hr.
- D. Momentary loss of voltage on their respective buses.

ANSWER: D

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QUESTION TYPE: RO

KA # & KA VALUE: 295012 AK2.02 – Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following: Drywell cooling IMP 3.6

REFERENCE: EWD 23E-001 (typical)

SOURCE: **NEW QUESTION – T1, GP2**

LO: 5639  
H4

RATING:

ATTACHMENT: NONE

JUSTIFICATION: The FAZ signals do not trip the drywell cooling fans. Due to the arrangement of the control switch contacts, the fan stops on loss of voltage and will not restart until the CS is taken to the START position. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 6

EXAM KEY

05/05/2005

EX05028

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The plant was operating at 100% power when an ATWS occurred coincident with a loss of MC-7B. Suppression pool temperature is now 115°F and going up.

Which of the following is the current configuration of the SLC System?

- A. SLC-P-1A on, SLC-V-1A (suction) open, and SLC-V-4A (squib valve) actuated.
- B. SLC-P-1B on, SLC-V-1B (suction) open, and SLC-V-4B (squib valve) actuated.
- C. SLC-P-1A on, SLC-V-1A/1B (suction) open, and SLC-V-4A/4B (squib valves) actuated.
- D. SLC-P-1B on, SLC-V-1A/1B (suction) open, and SLC-V-4A/4B (squib valves) actuated.

ANSWER: B

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QUESTION TYPE: RO

KA # & KA VALUE: 211000 K6.03 - Knowledge of the effect that a loss or malfunction of the following will have on the STANDBY LIQUID CONTROL SYSTEM: AC power IMP 3.2

REFERENCE: SD000172 SLC rev. 10, page 19

SOURCE: **BANK QUESTION LX00530 – Slightly modified – T2, GP1**

LO: 5931

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: MC-7B powers the Div 1 equipment, SLC-P-1A, V-1A and V4A. MC-8B powers Div2 equipment, SLC-P-1B, V-1B and V4B. The loss of MC-7B only allows Div 2 equipment to operate. B is correct.

COMMENTS:

**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 7

EXAM KEY

05/05/2005

EX05029

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APRM A, C, and E just failed downscale.

Which of the following caused these indications?

A loss of...

- A. MC-8A
- B. 125 VDC division 1
- C. 24 VDC distribution panel DP-SO-A
- D. Reactor protection system (RPS) bus A

ANSWER: D

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QUESTION TYPE: RO

KA # & KA VALUE: 215005 K2.02 – Knowledge of the electrical power supplies to the following:  
APRM channels IMP 2.6

REFERENCE: SD000149 ARPM rev. 10 page 31

SOURCE: **BANK QUESTION – Slightly modified LO00391 – T2, GP1**

LO: 5095

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: The power supply for APRM A, C, & E is RPS A as stated n the systems text. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 8

EXAM KEY

05/05/2005

EX05030

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The plant was operating at 89% power when a transient occurred. The CRS has directed the CRO to open the 7 ADS SRVs by arming and depressing the A and C Logic Channel pushbuttons. When the CRO pushes the pushbuttons, the 7 ADS SRVs open immediately. All 7 ADS SRVs close immediately upon release of the pushbuttons by the CRO.

Which of the following is correct concerning these conditions?

- A. The Division 1 Inhibit switch is in the INHIBIT position.
- B. The Division 2 Inhibit switch is in the INHIBIT position.
- C. RHR-P-2A is not running.
- D. RHR-P-2C is not running.

ANSWER: A

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QUESTION TYPE: RO

KA # & KA VALUE: 218000 K5.01 - Knowledge of the operational implications of the following as they apply to ADS SYSTEM: ADS logic operation IMP 3.8

REFERENCE: SD000186 ADS rev. 10 page 4

SOURCE: **BANK QUESTION – LO01235 – 2001 NRC Exam – T2, GP1**

LO: 5073

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: With all ADS logic made up (all auto contacts made up and the 105 second timer timed out) and the INHIBIT Switches in inhibit, there is no auto initiation. If all ADS logic is made up and the Arm and Depress logic pushbuttons are pushed with the INHIBIT Switches in inhibit, the valves open. When the pushbutton is released, the valves close. A is correct.

COMMENTS:



**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 9

EXAM KEY

05/05/2005

EX05031

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Which of the following functions could be affected by a trip of BKR S-1 when the plant is in Mode 4, with TR-B and DG-1 out of service?

- A. High Pressure Core Spray
- B. RHR-C LPCI Injection
- C. Suppression Pool Spray
- D. Head Spray

ANSWER: C

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QUESTION TYPE: RO

KA # & KA VALUE: 230000 K2.02 - Knowledge of the electrical power supplies to the following:  
Pumps IMP 2.8

REFERENCE: SD000198 RHR rev. 11, pages 5 and 49

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5058

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: BKR S-1 feeds SM-7 via SM-1. Suppression pool spray could be performed by RHR-P-2A and could be affected by the loss of S-1. C is correct. High and RHR-C pumps are both powered from a different bus. Head spray is on RHR loop B and would not be affected.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 10

EXAM KEY

05/05/2005

EX05032

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The plant is in Mode 5 with a core offload in progress. The reactor mode switch is in the REFUEL position.

Which of the following describes a condition that by itself, would generate a control rod withdraw block.

- A. A control rod is selected with the refueling bridge over the spent fuel pool with the grapple loaded.
- B. A control rod is selected with another control rod already withdrawn.
- C. The refueling bridge is positioned over the core with the main hoist grapple loaded.
- D. The refueling bridge is in position over the core when a single control rod is selected for movement.

ANSWER: C

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QUESTION TYPE: RO

KA # & KA VALUE: 234000 K4.02 - Knowledge of FUEL HANDLING EQUIPMENT design features and/or interlocks which provide for the following: Prevention of control rod movement during core alterations IMP 3.3

REFERENCE: SD000148 RMCS rev. 11 pages 12 and 13

SOURCE: **BANK QUESTION – Slightly modified LO00937 – T2, GP2**

LO: 5360

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: A and D do not generate rod blocks. B generates a Select block, but not a rod block. C is the only selection that results in a rod out block. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 11

EXAM KEY

05/05/2005

EX05033

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The plant is in an ATWS condition. The CRO has placed ECCS VALVE LOGIC OVERRIDE key lock switch, LPCS-RMS-S21, for injection valve LPCS-V-5 to OVERRIDE. Reactor pressure is currently at 900 psig.

Which of the following describes the correct response of LPCS-V-5 when the control switch is taken to the OPEN position?

- A. OPEN, because LPCS-RMS-S21 bypasses the pressure permissive.
- B. OPEN, because the reactor pressure permissive is met.
- C. NOT open, because the reactor pressure permissive is not met.
- D. NOT open, because LPCS-RMS-S21 overrides this control switch.

ANSWER: C

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QUESTION TYPE: RO

KA # & KA VALUE: 2.1.24 Ability to obtain and interpret station electrical and mechanical drawings. IMP 2.8

REFERENCE: SD000192 page 5

SOURCE: **BANK QUESTION – MODIFIED SLIGHTLY LO00200 – T3**

LO: 7664

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: LPCS-RMS-S21 does not bypass the 470 psig permissive.  
COMMENTS:

COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 12

EXAM KEY

05/05/2005

EX05034

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What is the minimum temperature in the flange area that allows tensioning of the reactor vessel head?

- A. 75°F
- B. 80°F
- C. 85°F
- D. 90°F

ANSWER: B

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QUESTION TYPE: RO

KA # & KA VALUE: 2.1.32 Ability to explain and apply system limits and precautions IMP 3.4

REFERENCE: TS SR 3.4.11.7 SD000125 RPV rev. 11 page 19

SOURCE: **BANK QUESTION – LO00882 – T3**

LO: 5006

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: As stated in the systems text, the correct answer is 80°F. B is correct.  
COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 13

EXAM KEY

05/05/2005

EX05035

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A valve in a high-high rad area has to be closed to prevent uncovering the core.

Which of the following is the maximum administrative TEDE limit for an individual to complete this task?

- A. 5 rem TEDE
- B. 10 rem TEDE
- C. 15 rem TEDE
- D. 20 rem TEDE

ANSWER: B

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QUESTION TYPE: RO

KA # & KA VALUE: 2.3.2 Knowledge of the facility ALARA program

IMP 2.5

REFERENCE: GEN-RPP-07 rev. 3, page 8

SOURCE: **BANK QUESTION MODIFIED – LO00351 – T3**

LO: 6016

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: As stated in the procedure, the maximum administrative dose for equipment or health and safety of the public is 10 rem TEDE. A is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 14

EXAM KEY

05/05/2005

EX02036

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The reactor was operating at 98% power when a scram occurred. The CRO noted the following conditions:

Reactor pressure	935 psig, down fast
Reactor level	+ 3 inches, down slow
Bypass Valves	100% open
Generator load	572 MWe, down fast
Turbine throttle valves	Closed
Governor valves	Closed

Which of the following is correct concerning subsequent Bypass Valves response?

The Bypass Valves remain full open...

- A. until feedwater returns reactor level to GT +13 inches.
- B. intercept valves close.
- C. until generator load is less than 25% with a 3-5 second time delay.
- D. then close after a 20 second time delay following the turbine trip.

ANSWER: C

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QUESTION TYPE: RO

KA # & KA VALUE: 295005AA2.03 - Ability to determine and/or interpret the following as they apply to MAIN TURBINE GENERATOR TRIP: Turbine valve position

IMP 3.1

REFERENCE: SD000129 Main Turbine rev. 9, page 20

SOURCE: **BANK QUESTION – 99 NRC Exam - ex99019** - RO T1, G1

LO: 5562

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: C is correct because the DEH opens the BPVs following a scram until main generator load is less than 25% with a 3-5 second time delay.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 15

EXAM KEY

05/05/2005

EX02037

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Which of the following is correct concerning the basis for the High Drywell Pressure scram?

- A. The allowable value is selected to ensure that, for transients involving MSIV isolations, energy discharged to the containment is at its lowest level.
- B. The allowable value is selected to ensure that, for transients involving LOCAs initiation of low pressure ECCS at RPV level 1 will not be required.
- C. Minimizes the possibility of exceeding ASME code stresses on the primary containment during transients.
- D. Minimizes the possibility of fuel damage and reduces the amount of energy being added to the coolant and containment.

ANSWER: D

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QUESTION TYPE: RO

KA # & KA VALUE: 295024 EK3.06 - Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE: Reactor Scram IMP 4.0

REFERENCE: TS Bases for 3.3.1.1 RPS Instrumentation

SOURCE: **NEW QUESTION** – T1, GP1

LO: 5949

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: D is correct as stated in the TS basis for the LCO. A, B, and C are all incorrect combinations of other bases for RPS instrumentation.

COMMENTS:

**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 16

EXAM KEY

05/05/2005

EX05038

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The plant was scrammed and EOPs were entered due to increasing temperature from a leak in the drywell.

To which of the following panels should CRO 3 respond first?

- A. P840, Bd. A
- B. P800, Bd. C
- C. P602
- D. P601

ANSWER: D

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QUESTION TYPE: RO

KA # & KA VALUE: 295028 2.4.13 – Knowledge of crew roles and responsibilities during EOP flowchart use IMP 3.3

REFERENCE: PPM 1.3.1 rev. 67, page 35

SOURCE: **NEW QUESTION** – T1, GP1

LO: 6088

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: PPM directs that CRO 3 be directed to P601 during the initial stages of a casualty. D is correct.

COMMENTS:



# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 17

EXAM KEY

05/05/2005

EX05039

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The plant is operating at 15% power. A rod drift alarm is received on control rod 30-31. It is drifting out. Reactor power is going up. Before the immediate actions are taken for control rod 30-31, rod 02-43 starts drifting out.

Which of the following is correct for these conditions?

- A. Immediately trip both RRC pumps.
- B. Immediately scram the reactor.
- C. Drive both control rods full in using the normal insert pushbutton.
- D. Drive both control rods full in using the continuous insert pushbutton.

ANSWER: B

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QUESTION TYPE: RO

KA # & KA VALUE: 295014 AA1.01 – Ability to operate and or monitor the following as they apply to INADVERTENT REACTIVITY ADDITION: RPS IMP 4.0

REFERENCE: ABN-ROD rev. 8, page 3

SOURCE: **NEW QUESTION** – T1, GP2

LO: 6695

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: The conditions given are for 2 rods drifting out with power increasing. ABN-power says to trip the RRC pumps with power increasing with an RRC FC malfunction. A is incorrect. With one control rod drifting out, ABN-ROD directs that the continuous pushbutton be used to drive the rod full in. With rods drifting out, the direction is given to scram the reactor. C and D are incorrect. B is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 18

EXAM KEY

05/05/2005

EX05040

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The plant was operating at 100% power when a transient occurred. Available drywell sprays are in operation per PPM 5.2.1 Primary Containment Control for H<sub>2</sub>O<sub>2</sub> Control. The following conditions now exist:

Reactor level	-186 inches and stable
Reactor pressure	75 psig and down
Drywell pressure	9.6 psig
Drywell temperature	155°F
Drywell hydrogen	7%
Drywell oxygen	0.5%
Suppression pool temperature	101°F
SM-7	Lockout due to overcurrent relay actuation

Change...

- A. RHR-P-2B to RPV injection.
- B. RHR-P-2A to RPV injection.
- C. RHR-P-2A to suppression pool cooling.
- D. RHR-P-2B to suppression pool cooling.

ANSWER: A

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QUESTION TYPE: RO  
KA # & KA VALUE: 500000 EA1.06 - Ability to operate and or monitor the following as they apply to HIGH CONTAINMENT HYDROGEN CONTROL: Drywell sprays IMP 3.3  
REFERENCE: PPM 5.2.1, PPM 5.1.1  
SOURCE: **NEW QUESTION – T1, GP2**  
LO:  
RATING: H3  
ATTACHMENT: NONE  
JUSTIFICATION: Reactor level at –186 inches requires that all available ECCS be used for RPV injection. With SM-7 OOS, that leaves only Div. 1 ECCS. B and D are incorrect because they are Div 2 and C is incorrect because the 2A pump is required for RPV injection. A is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 19

EXAM KEY

05/05/2005

EX05041

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The plant was operating at 99% power when a LOCA occurred. The following conditions exist:

Reactor level	-125 inches and up slow
Reactor pressure	10 psig
Suppression pool level	+5 inches and stable
Wetwell pressure	12 psig

All ECCS pumps are running on minimum flow.

Which of the following operator actions will cause suppression pool level to go down and stabilize at a substantially lower level?

Start...

- A. RPV Head spray with RHR-P-2A
- B. Drywell spray with RHR-P-2B
- C. RPV injection with RHR-P-2C
- D. Wetwell spray with RHR-P-2B

ANSWER: C

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QUESTION TYPE: RO  
KA # & KA VALUE: 203000 A1.05 – Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: INJECTION MODE controls including: Suppression pool level IMP 3.8  
REFERENCE: SD000198 rev. 11, fig. 1  
SOURCE: **NEW QUESTION** – T2, GP1  
LO: 5774  
RATING: H2  
ATTACHMENT: NONE  
JUSTIFICATION: A is incorrect because the head spray line is on RHR-B. B and D are incorrect because these flow paths take suction from the wetwell and put the water right back into the suppression pool. C is correct because the pump takes suction from the SP and refills the core shroud back up to the –210 inch level (2/3 core height), which reduces the level in the SP until water spills out of the core shroud and back into the SP.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 20

EXAM KEY

05/05/2005

EX05042

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A transient occurred that has caused reactor level to be -140 inches for the last 115 seconds. No SRVs are open at this point of the transient. Concurrently with this transient, a loss of SM-8 occurred due to an overcurrent. Reactor pressure is currently 485 psig. All other plant equipment operated as expected.

LPCS-V-5...

- A. opens when ADS auto initiates and reduces reactor pressure to less than the setpoint.
- B. opens after the ADS DIV 1 manual initiation pushbutton is pushed and reactor pressure is reduced to less than the setpoint.
- C. opens after the ADS DIV 2 manual initiation pushbutton is pushed and reactor pressure is reduced to less than the setpoint.
- D. cannot be opened because ADS will not reduce reactor pressure with a timer failure.

ANSWER: B

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QUESTION TYPE: RO

KA # & KA VALUE: 209001 K6.11 – Knowledge of the effect that a loss or malfunction of the following will have on the LOW PRESSURE CORE SPRAY SYSTEM: ADS IMP 3.6

REFERENCE: SD000192 LPCS rev. 10, page 5 & SD000186 ADS rev. 10, page 4&5

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5484b, 5071

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: From the conditions given, Div 2 ECCS pumps are not running and Div 2 ADS logic is not made up. Div 1 ADS will not reduce pressure without manual action because the 105s timer should be timed out, but no valves are open. A and C are incorrect. Since reactor pressure is 485 psig, above the valve permissive at 470 psig, the valve is not currently open. D is incorrect. B is correct because the only way the valves will open under these conditions is to push the Div 1 pushbutton. The valves stay open while the button is depressed.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 21

EXAM KEY

05/05/2005

EX05043

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A plant startup is in progress with reactor power on range 6 of the IRMs. Annunciator 603.A7 drop 3-5 IRM MONITORS UPSCALE then illuminates. No RPS actuations have occurred.

Which of the following indications caused this alarm?

IRM-A at...

- A. 100/125 of scale.
- B. 105/125 of scale.
- C. 115/125 of scale.
- D. 120/125 of scale.

ANSWER: C

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QUESTION TYPE: RO

KA # & KA VALUE: 215003 A3.02 – Ability to monitor automatic operations of the IRM SYSTEM including: Annunciation and alarm signals IMP 3.3

REFERENCE: PPM 4.603.A7.3-5 rev. 30

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5459

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: As per the references, the rod block is at 108/125 of scale. Neither A nor B would cause a rod block. And since the stem states that there have been no RPS actuations, D is incorrect. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 22

EXAM KEY

05/05/2005

EX05044

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Which of the following lists the panels from which the ADS SRVs can be operated?

- A. P601, P628, and P631
- B. P602, P628, and P629
- C. P601, P609, and P631
- D. P602, P609, and P611

ANSWER: A

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QUESTION TYPE: RO

KA # & KA VALUE: 239002 K4.09 – Knowledge of RELIEF/SAFETY VALVES design features and/or interlocks which provide for the following: Manual opening of the SRV  
IMP 3.7

REFERENCE: SD000186 rev. 10, page 3

SOURCE: **NEW QUESTION** – T2, GP1 (Put in VISION as - LO01386)

LO: 5074

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: As stated in the systems text, the ADS SRVs can be operated from P628 and P631. In addition to these 2 panels, all SRVs can be operated from P601. A is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 23

EXAM KEY

05/05/2005

EX05045

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The reactor is in Mode 5 with irradiated fuel being moved in the reactor vessel. Reactor water level has dropped to 21 feet 8 inches above the top of the reactor flange.

Which of the following is correct for this condition?

- A. Movement of irradiated fuel can continue.
- B. Restore water level to greater than the limit within one hour.
- C. Restore Secondary Containment within one hour.
- D. Immediately suspend movement of irradiated fuel in the vessel.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 259002 2.2.27 – Knowledge of the refueling process

IMP 2.6

REFERENCE: TS 3.9.6

SOURCE: **NEW QUESTION** – T2, GP1

LO: 6926

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: TS requires that water level be GE 22 feet above the reactor flange when moving irradiated fuel in the vessel. The correct action from TS is to stop movement of irradiated fuel in the vessel. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 24

EXAM KEY

05/05/2005

EX05046

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The plant is operating at 100% power when a loss of MC-7A occurs.

What effect will this have on the operation of IN-1?

- A. The inverter is powered from the normal DC power supply, S1-2.
- B. The inverter is powered from the normal DC power supply, S2-1.
- C. The Static Switch auto transfers to the backup AC supply, MC-7B.
- D. The Static Switch auto transfers to the backup AC supply, MC-8A.

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 262001 K3.04 – Knowledge of the effect that a loss or malfunction of the AC ELECTRICAL DISTRIBUTION will have on the following: UPS IMP 3.1

REFERENCE: SD000194 rev. 9, page 4

SOURCE: **BANK QUESTION – 99 NRC EXAM Ex99060 – T2, GP1**

LO: 5896

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: The normal AC source for IN-1 is MC-7A. The parallel source is fed from S2-1, 250 VDC. When the primary AC source is lost, the auctioneering diode allows 250 VDC from S2-1 to power the inverter. B is correct.

COMMENTS:



**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 25

EXAM KEY

05/05/2005

EX05047

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A fault has caused the complete loss of DC Bus S1-1.

Which of the effects would this loss have on plant equipment?

Loss of control power to....

- A. Bkr 3-8
- B. Bkr 1-7
- C. Bkr 8-3
- D. Bkr 7-1

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 263000 A4.01 - Ability to manually operate and/or monitor in the control room:  
Major breakers and control power fuses IMP 3.3

REFERENCE: SD000188 rev. 7, pages 24 & 25

SOURCE: **BANK QUESTION – slightly modified 99 NRC Exam ex99084 – T2, GP1**

LO: 5065

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: Bus S1-1 powers division 1 equipment/breaker indication. Only D is a Division 1 load and is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 26

EXAM KEY

05/05/2005

EX05048

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The plant is operating at 100% power. You have just closed RCC-V-6 with the control switch.

Which of the following loads will **NOT** experience a loss of RCC flow?

- A. EDR-HX-2 RB Equipment Drain Heat Exchanger
- B. FPC-HX-1A Fuel Pool Cooling Heat Exchangers
- C. RWCU-P-1A Motor Coolers
- D. RRC-P-1A Reactor Recirculation Pump

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 400000 A1.01 - Ability to predict and/or monitor changes in parameters associated with operating the CCWS controls including: CCW flow rate  
IMP 2.8

REFERENCE: SD000196 rev. 10, page 18

SOURCE: **NEW QUESTION** – T2, GP1

LO: 7668

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: RCC-V-6 isolates all equipment outside of the drywell from the RCC system and causes all flow to be diverted into the drywell. The only load listed in the drywell is D. It is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 27

EXAM KEY

05/05/2005

EX05049

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Which of the following RWCU components/design features is utilized to maximize plant efficiency?

- A. CRD purge flow
- B. RWCU pump cooling heat exchangers
- C. Regenerative heat exchangers
- D. Non-regenerative heat exchangers

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 204000 K4.06 - Knowledge of RWCU design features and/or interlocks which provide for the following: Maximize plant efficiency IMP 2.6

REFERENCE: SD000190 rev. 11, page 5

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5034d

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: Specifically, the Regen HXs are designed to increase overall plant efficiency by using return water to cool reactor water prior to the demineralizers. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 28

EXAM KEY

05/05/2005

EX05050

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To which of the following systems does the Rod Worth Minimizer input rod blocks for application of control rod movement restrictions?

- A. RMCS, Reactor Manual Control System
- B. RPIS, Rod Position Information System
- C. RSCS, Rod Sequence Control System
- D. RBM, Rod Block Monitor System

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 201002 K1.05 - Knowledge of the physical connections and/or cause-effect relationships between RMCS and the following: RWM IMP 3.4

REFERENCE: SD000154 RWM, rev. 11, page 5

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5916

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: The RWM inputs control rod blocks to the RDCS/RMCS, which imposes the rod movement restrictions. A is correct. The RWM does not interface with RSCS and RBM. The RPIS inputs to the RWM, not from it.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 29

EXAM KEY

05/05/2005

EX05051

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The plant is operating at 100% power with RHR-P-2B in operation in the suppression pool cooling mode.

Which of the following will automatically reposition valves to secure RHR-P-2B from cooling the suppression pool?

- A. Drywell pressure 1.71 psig
- B. Reactor level –126 inches
- C. Rx Building Ventilation 22 mr/hr
- D. RHR area high temperature

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 219000K3.01 K3.01 - Knowledge of the effect that a loss or malfunction of the RHR SUPPRESSION POOL COOLING MODE will have on the following:  
Suppression pool temperature control IMP 3.9

REFERENCE: SD000198 RHR rev. 11, page 16

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5781f

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: A LPCI initiation signal causes suppression pool cooling to isolate. Of the above signals, only A is a LPCI initiation signal. A is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 30

EXAM KEY

05/05/2005

EX05052

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The plant is operating at 100% power. The normal cooling water supply for Fuel Pool Cooling has been lost and is not available.

Under these conditions, which of the following systems can be operated from the control room for fuel pool temperature control?

- A. RHR Fuel Pool Cooling Assist
- B. Reactor Closed Cooling Water
- C. Standby Service Water
- D. Plant Service Water

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 233000 A4.05 - Ability to manually operate and/or monitor in the control room:  
Pool temperature IMP 2.5

REFERENCE: SD000202 FPC rev. 11 page 15

SOURCE: **NEW QUESTION – T2, GP2**

LO: 8931

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: RCC is the normal cooling water and is unavailable. TSW cools RCC, which is unavailable, which makes both B and D incorrect. RHR fuel pool assist needs a spool piece installed in the plant and is incorrect. SW is the backup system operated from the control room. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 31

EXAM KEY

05/05/2005

Ex05053

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The plant is operating at 85% power when several alarms are received on back panels. Upon investigation, you note that the Reactor Building exhaust fan tripped off, RB pressure increased to approximately 4 inches of H<sub>2</sub>O. You then noted that RB pressure stabilized at 0 inches H<sub>2</sub>O.

Which of the following explains these indications?

- A. ROA-AD-5 Alternate Relief Damper opened to reduce pressure to 0 inches H<sub>2</sub>O.
- B. ROA-V-1 & 2 and REA-V-1 & 2 closed for pressure control.
- C. The Reactor Building supply fan tripped due to high pressure.
- D. The standby Reactor Building exhaust fans started due to high pressure.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 290001 K4.02 - Knowledge of SECONDARY CONTAINMENT design features and/or interlocks which provide for the following: Protection against over pressurization IMP 2.8

REFERENCE: SD000183 RB HVAC rev. 9, pages 8 & 16

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5680, 5681, 5677b

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: Both REA and ROA fans trip at 4 inches of water for pressure control. C is correct. A is incorrect because ROA-AD-5 will close by 1.5 inches of water. B is incorrect because these valves do not close on high pressure in the reactor building. D is incorrect because the standby fan auto starts only if the running fan remains on.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 32

EXAM KEY

05/05/2005

Ex05054

---

The plant was operating at 98% power when a Station Blackout occurred. The following conditions exist:

4 control rods failed to insert fully  
Reactor Level -172 inches

Which of the following actions is required by Tech Specs?

- A. Initiate action within 1 hour to restore level to greater than -129 inches.
- B. Within 1 hour, restore reactor level to greater than + 13 inches and insert all insertable control rods.
- C. Within 2 hours, restore reactor level greater than -161 inches and insert all insertable control rods.
- D. Initiate action within 2 hours to restore level to greater than -129 inches.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 2.2.22 Knowledge of limiting conditions for operations and safety limits  
IMP 3.4

REFERENCE: TS 2.1

SOURCE: **BANK QUESTION – EX00005 – T3**

LO: 6934

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: Reactor level at -172 inches is a safety limit violation. C is the correct action reactor water level.

COMMENTS:



# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 33

EXAM KEY

05/05/2005

EX05055

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The plant is operating at 100% power when a loss of all annunciation to panels P601, P602, and P603 occurs. P603 A7 annunciator 1-1, ANNUNCIATOR 125 VDC LOSS, is illuminated.

Which of the following caused this loss of annunciation?

Loss of power from...

- A. DP-SO-A
- B. DP-SO-B
- C. DP-S2-1
- D. DP-S1-2A

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 2.4.32 Knowledge of operator response to loss of all annunciators IMP 3.3

REFERENCE: PPM 4.603.A7.1-1 ANNUNCIATOR 125 VDC LOSS rev. 30

SOURCE: **NEW QUESTION – T3**

LO: 5262

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: The procedure states the power supply for this loss as DP-S1-2A. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 34

EXAM KEY

05/05/2005

EX05056

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The reactor was operating at 100% power when a scram occurred. Following the scram the RO notes the UPSCL NEUT FIRST light is illuminated on P608.

Which of the following caused the scram?

- A. Loss of both RPS MG Sets.
- B. Loss of containment cooling.
- C. Trip of both feed pumps.
- D. Main turbine trip.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 295006AK2.06 – Knowledge of the interrelations between SCRAM and the following: Reactor Power IMP 4.2

REFERENCE: SD000149 rev/ 10, pages 11 & 12

SOURCE: **BANK QUESTION – T1, GP1**

LO: 5089

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: The loss of RPS, containment cooling and both feed pumps cause a scram but no large power spike. Loss of the main turbine causes a larger pressure/power spike, which results in an upscale neutron trip before the thermal trip occurs (due to the time constant associated with the thermal trip).

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 35

EXAM KEY

05/05/2005

EX05057

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The control room has been evacuated to the Remote Shutdown Panel due to a fire. RHR-P-2B was in Shutdown Cooling, but the normal discharge flowpath has been lost.

Which of the following is an acceptable flow path for Alternate Shutdown Cooling?

RHR-P-2B in operation discharging through...

- A. RHR-V-42B LPCI Injection.
- B. RHR-V-53B SDC return.
- C. RHR-V-24B Full Flow Test.
- D. RHR-V-23 Head Spray.

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 295021 2.4.35 – Knowledge of local operator auxiliary operator tasks during emergency operations including system geography and system implications.  
IMP 3.3

REFERENCE: ABN-CR-EVAC rev. 7, page 55

SOURCE: **NEW QUESTION – T1, GP1**

LO: 5574i

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: ABN-CR-EVAC directs the use of RHR-V-42B if the 53B valve is unavailable for injection. A is correct.

COMMENTS:

**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 36

EXAM KEY

05/05/2005

Ex05058

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PPM 5.2.1 Primary Containment Control has been entered due to low suppression pool water level.

Which of the following systems is used to add water to the suppression pool from the Condensate Storage Tanks under these conditions?

- A. LPCS
- B. HPCS
- C. RHR
- D. RCIC

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 295030 EA1.06 - Ability to operate and/or monitor the following as they apply to LOW SUPPRESSION POOL WATER LEVEL: Condensate storage and transfer (make up to the suppression pool) IMP 3.4

REFERENCE: PPM 5.5.23 rev. 4

SOURCE: **NEW QUESTION – T1, GP1**

LO: NO LO

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: PPM 5.5.23 gives direction to use HPCS to fill the suppression pool from the CSTs. B is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 37

EXAM KEY

05/05/2005

EX05059

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The plant is operating at 100% power.

Which of the following act to limit reactor pressure and maintain MCPR below the Safety Limit during a feedwater controller failure transient?

- A. Bypass Valves
- B. Throttle Valves
- C. Governor Valves
- D. Intercept Valves

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 295007AK3.06 – Knowledge of the reasons for the following responses as they apply to HIGH REACTOR PRESSURE: Reactor/turbine pressure regulating system IMP 3.7

REFERENCE: SD000146 DEH, rev. 8, page 3

SOURCE: **NEW QUESTION** – T1, GP2

LO: 5267 - Purpose

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: As stated in the reference, the BPVs are designed to limit MCPR during a feedwater controller failure transient. A is correct. The Throttle Valves and Governor Valves control pressure from 0 to 100% power and the Intercept valves only come into play during an overspeed event.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 38

EXAM KEY

05/05/2005

EX05060

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The plant was operating at 100% power when a transient occurred which resulted in a scram. The following conditions now exist:

Narrow Range	0 inches
Wide Range	-148 inches and stable
Fuel Zone	-129 inches and stable
Upset Range	0 inches
Drywell Temperature	165° F and up slow
Reactor Pressure	480 psig and down slow

Which of the following is correct concerning these conditions?

Actual reactor level is...

- A. 0 inches
- B. -148 inches
- C. -129 inches
- D. not able to be determined

ANSWER: C

---

QUESTION TYPE: RO  
KA # & KA VALUE: 295009 AA2.01 – Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL: Reactor water level IMP 4.2  
REFERENCE: PPM 5.1.1 rev. 16, caution 1 and RPV Saturation Curve.  
SOURCE: **NEW QUESTION – T1, GP2**  
LO: 8491  
RATING: H3  
ATTACHMENT: YES - PPM 5.1.1 rev. 16, caution 1 and RPV Saturation Curve.  
JUSTIFICATION: It is given in the stem that indications are stable and conditions are less than the sat curve, which indicates there are no inop instrument issues. The WR, NR, and UR are below the MUL, which makes A, B, & C incorrect. The Fuel Zone is on scale and operable. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 39

EXAM KEY

05/05/2005

EX05061

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The plant was operating at 25% power when a transient caused a scram. The following conditions now exist:

Reactor level	+14 inches
Reactor pressure	129 psig
Drywell pressure	1.62 psig

Which of the following is interlocked closed/prevented from opening?

- A. RHR-V-24B Full Flow Test
- B. RHR-V-53B SDC Return
- C. RHR-V-27B Suppression Pool Spray
- D. RHR-V-42B LPCI Injection

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 205000 K1.01 – Knowledge of the physical connections and/or cause-effect relationships between SHUTDOWN COOLING SYSTEM and the following:  
Reactor pressure IMP 3.6

REFERENCE: SD000198 rev. 11, page 30

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5780

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: Of the signals listed, only the reactor pressure signal causes an RHR isolation/interlock. This high-pressure interlock prevents the SDC section of piping from being over pressurized. The LPCI piping is also protected from over pressurization, but the setpoint is 470 psig. B is the correct answer.

COMMENTS:

**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 40

EXAM KEY

05/05/2005

EX05062

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Which of the following systems does RCIC share a common injection line for its return to the RPV?

- A. HPCS
- B. LPCS
- C. RHR-A
- D. RHR-B

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 217000 K1.05 - Knowledge of the physical connections and/or cause-effect relationships between RCIC SYSTEM and the following: RHR system  
IMP 2.6

REFERENCE: SD000180 RCIC rev. 12, page 32 SD000198 rev. 11, figure 1G

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5774, 5726

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: The RHR-B system injects through the RCIC head spray line and tap is between RCIC-V-13 and RCIC-V-65. D is correct.

COMMENTS:



# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 41

EXAM KEY

05/05/2005

EX05063

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A normal plant startup is in progress with reactor power at approximately 1000 counts on the source range. SRM-B is bypassed for maintenance. During work on SRM-B, the mode switch for SRM-D is inadvertently placed in Standby position.

What effect does this have on the startup?

- A. A ½ scram and an upscale trip on SRM-D.
- B. A ½ scram and an Inop trip on SRM-D.
- C. A rod out block and an upscale trip on SRM-D.
- D. A rod out block and an Inop trip on SRM-D.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 215004 A1.06 - Ability to predict and/or monitor changes in parameters associated with operating the SRM controls including: Lights and alarms  
IMP 3.1

REFERENCE: SD000132 SRM rev. 10, page 26

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5942

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: Placing the mode switch in Standby causes an Inop trip on SRM-D. A and C are incorrect. An Inop trip on an SRM causes a rod block and not a scram. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 42

EXAM KEY

05/05/2005

EX05064

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The plant is operating at 100% power when a loss of control power to RCC-P-1A occurs.

There will be an increase in....

- A. CRD pump lube oil temperature.
- B. CRD pump motor temperature.
- C. drywell air temperature.
- D. drywell (EDR-HX-1) Equipment Drain sump temperature.

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 201001 K6.06 - Knowledge of the effect that a loss or malfunction of the following will have on the CRDH SYSTEM: CCW system IMP 2.8

REFERENCE: SD000142 CRD rev. 12, page 37

SOURCE: **NEW QUESTION** –T2, GP2

LO: 5706

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: The loss of control power to RCC-P-1A closes RCC-V-6. This closure causes a loss of cooling to loads external to the containment. The loss of cooling to CRD results in the increasing temperature of the lube oil for the CRD Pumps. A is correct, B is incorrect. C and D are both incorrect because these coolers do not lose RCC flow.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 43

EXAM KEY

05/05/2005

EX05065

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The plant is operating at 100% power with CRA-FN-4A Drywell Head Return Fan tagged out for electrical disconnect maintenance. Concurrently with this maintenance, CRA-FN-4B Drywell Head Return Fan trips and cannot be restarted.

Which of the following is correct for this condition?

- A. There are no regulatory requirements for the Drywell Head Return Fans.
- B. With both fans inoperable, be in Mode 3 in 12 hours.
- C. Restore one fan to operable in 30 days.
- D. Verify by admin means in 1 hour that the H2 and O2 control function is maintained and restore one fan to operable in 7 days.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 223001 K3.04 - Knowledge of the effect that a loss or malfunction of the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES will have on the following: Drywell hydrogen gas concentration IMP 3.3

REFERENCE: TS 3.6.3.2

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5135, 5136

RATING: H3

ATTACHMENT: YES – TS 3.6.3.2

JUSTIFICATION: Because of the potential for the loss of mixing function of these fans, the H2/O2 control function must be verified to prevent potential local H2 burns post LOCA due to high concentrations of H2 gas. TS states that with 2 fans inop, verify operability of the H2/O2 control systems and restore one fan to operable in 7 days. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 44

EXAM KEY

05/05/2005

EX05066

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The plant is operating at 100% power with the FIRE MAIN PRESSURE LOW annunciator illuminates due to a fire for the last minute. Fire main pressure is 96 psig. The ARP directs the operator to check the status of the fire pumps and start them as required.

Which of the following is correct for these conditions?

FP-P-3 Jockey pump, FP-P-2A Electric pump...

- A. should be running, but not FP-P-2B Electric pump, FP-P-1 diesel pump, and FP-P-110 Diesel pump.
- B. and FP-P-2B Electric pump should be running, but not FP-P-1 diesel pump and FP-P-110 Diesel pump.
- C. FP-P-2B Electric pump, and FP-P-1 diesel pump should be running, but not FP-P-110 Diesel pump.
- D. FP-P-2B Electric pump, FP-P-1 diesel pump, and FP-P-110 Diesel pump should be running.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 286000A2.11 - Ability to predict the impacts of the following on the FIRE PROTECTION SYSTEM and based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Pump trips IMP 3.1

REFERENCE: 4.FCP.3 drop 18-2 rev. 11, page 103 SD000107 FP rev. 11, pages 24 & 36

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5377

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: Since the annunciator illuminates at 100 psig, all listed pumps should be in operation. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 45

EXAM KEY

05/05/2005

EX05067

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The reactor is operating at 99% power, with HPCS out of service, when a loss of DP-S1-1A occurs. Shortly thereafter, a loss of feedwater initiates a reactor scram. Reactor level is -63" and up slow.

Which of the following describes an action taken based on these conditions?

- A. Verify that IN-2 transferred to the alternate AC source.
- B. Go to P628 to operate all SRVs for pressure control.
- C. Go to P631 to operate the ADS SRVs for pressure control.
- D. Verify that IN-1 transferred to the alternate AC source.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 2.1.30 Ability to locate and operate components / including local controls  
IMP 3.9

REFERENCE: LO000128 MS rev. 8, pages 6 & 7

SOURCE: **BANK QUESTION – 98 NRC Exam EX98110 – T3**

LO: 5262

RATING: H4

ATTACHMENT: NONE

JUSTIFICATION: A is incorrect because IN-2 is powered from DP-S1-2. B is incorrect because only ADS SRVs can be operated from P628, not all. D is incorrect because IN- 2 is powered from 250 VDC not 125 VDC.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 46

EXAM KEY

05/05/2005

EX05068

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The reactor is in MODE 5. The following conditions exist:

SRM-A	OOS
SRM-B	2.8 counts per second (S/N 9.3/1)
SRM-C	2.5 counts per second (S/N 10.7/1)
SRM-D	OOS
MODE SWITCH	REFUEL
Reactor Coolant Temperature	108°F
Reactor Head and Internals	Removed

It is desired to start a full core off load from the vessel at this time.

Irradiated fuel movement .....

- A. may not start at this time, there are no operable SRMs.
- B. may not start at this time, reactor coolant temperature is greater than 100°F.
- C. may start in either the quadrant with the B or C SRM.
- D. may start in any quadrant in the reactor vessel.

ANSWER: A

---

QUESTION TYPE: RO  
KA # & KA VALUE: 2.2.30 Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area / communications with fuel storage facility / system operated from the control room in support of fueling operations/ and supporting instrumentation IMP 3.5  
REFERENCE: TS 3.3.1.2 pages 3.3.1.2-1 through 6  
SOURCE: **BANK QUESTION – 99 NRC Exam EX99009 – T3**  
LO: 10298  
RATING: H3  
ATTACHMENT: YES - TS 3.3.1.2 pages 3.3.1.2-1 through 6 TS 3.4.11  
JUSTIFICATION: The TS requires at least 2 operable SRMs before core alts can start. In this instance, with B and C LT 3 cps, they are not operable and no fuel movement is allowed. A is the correct answer.  
COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 47

EXAM KEY

05/05/2005

EX05069

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The plant was operating at 98% power when a LOCA occurred. Following the LOCA, LPCS-P-1 is secured, then LPCS PUMP DISCH PRESS HIGH/LO annunciator illuminates. Reactor pressure is 290 psig and going down.

Which of the following is correct if LPCS-P-1 is restarted under these conditions?

- A. LPCS-P-1 starts but fails due to overcurrent from excessive flow.
- B. LPCS-P-1 starts but does not inject at this pressure.
- C. The discharge piping could break resulting in Reactor Building flooding and a reduction in suppression pool level.
- D. The discharge piping could break in containment resulting in a reduction in suppression pool level.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 209001K5.05 K5.05 – Knowledge of the operational implications of the following as they apply to LOW PRESSURE CORE SPRAY SYSTEM: System venting IMP 2.5

REFERENCE: PPM 4.601.A3 drop 5-3 rev. 14

SOURCE: **NEW QUESTION** – T2, GP1

LO: 7447

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: A is incorrect because the excessive flow will not cause an overcurrent. B is incorrect because LPCS is injecting at this pressure. D is incorrect because a break in containment would cause suppression pool level to remain static. C is correct as stated in the procedure.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 48

EXAM KEY

05/05/2005

EX05070

---

The reactor was at 100% power when a loss of feedwater caused an auto start of HPCS and RCIC. HPCS-V-4 (injection valve) has been closed to stop HPCS flow. RCIC is injecting into the RPV at 600 gpm. A high suppression pool level annunciator is received. Suppression pool level is +2 inches and increasing.

Which of the following is the reason for the above indications?

- A. HPCS is on minimum flow from the CSTs causes suppression pool level to increase.
- B. RCIC steam exhaust to the suppression pool causes a temperature increase and a false increasing level indication.
- C. HPCS on minimum flow causes air entrainment in the suppression pool and a false indicated level increase.
- D. RCIC is on minimum flow from the CSTs causes suppression pool level to increase.

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 209002 K1.02 - Knowledge of the physical connections and/or cause-effect relationships between HIGH PRESSURE CORE SPRAY SYSTEM and the following: Suppression pool IMP 3.5

REFERENCE: SD000174 HPCS rev. 10, page 4

SOURCE: **BANK QUESTION – 98 NRC Exam EX98044 – T2, GP1**

LO: 5421

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: B is incorrect because a temperature increase from RCIC would not give a false high level indication. C is incorrect because the level upset from minimum flow would not cause a steadily increasing level. D is incorrect because the min flow valve is closed when RCIC is injecting into the vessel.

COMMENTS:



**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 49

EXAM KEY

05/05/2005

EX05071

---

Which of the following actions would result in a stable  $-80$  second period?

- A. Trip of one RRC pump.
- B. Trip of both RRC pumps.
- C. Normal control rod insertion.
- D. Full reactor scram.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 212000 A4.05 – Ability to manually operate and/or monitor in the control room:  
Reactor power IMP 4.3

REFERENCE: GFES Reactor Theory Text Chapter 3 page 54

SOURCE: **NEW QUESTION – T1, GP1**

LO: NO LO

RATING: L4

ATTACHMENT: NONE

JUSTIFICATION: A and B are both incorrect because they do not result in stable periods until power stabilizes and period would be infinite. C is incorrect because normal control rod insertion does not give enough negative reactivity for a  $-80$  second period. D is correct because following a reactor scram, period stabilizes at  $-80$  seconds for approximately 4 minutes.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 50

EXAM KEY

05/05/2005

EX05072

---

The plant is operating at 88% power, when the following auto actions take place:

- SGT started
- CSP/CEP isolated
- CN makeups isolated
- CR and TSC Emerg Filtration starts and aligns to remote air intakes
- RB Emerg Room Coolers start
- RB Lighting quenches
- RB Ventilation Isolates
- No DG starts

Which of the following procedures should be entered due to these conditions?

- A. PPM 5.1.1 RPV Control and PPM3.3.1 Reactor Scram
- B. PPM 5.3.1 Secondary Containment Control and ABN-FAZ
- C. PPM 5.1.1 RPV Control and PPM 5.1.2 Primary Containment Control
- D. PPM 5.3.1 Secondary Containment Control and PPM 3.3.1 Reactor Scram

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 223002 2.4.11 – Knowledge of abnormal condition procedures IMP 3.4

REFERENCE: SD000173 NS4 rev. 10, pages 5, 19, & 20

SOURCE: **BANK QUESTION – EX00022 2000 NRC Exam – MODIFIED – T2, GP1**

LO: 6974

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: Since there were no DG starts, there was no F or A signal and not scram. A Z signal is not an entry into PPM 5.1.1, so A, C, and D are all incorrect. B is correct because the indications were caused by a Z signal and the isolation of the reactor building ventilation causes secondary containment pressure to increase for an entry into 5.3.1.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 51

EXAM KEY

05/05/2005

EX05073

---

HPCS was in a normal standby lineup when annunciator HPCS SUCTION SWITCHOVER CST LEVEL LOW illuminated. CST level is 1 foot 6 inches and going down.

Which of the following is directed by the ARP?

Verify...

- |    |                                    |             |
|----|------------------------------------|-------------|
| A. | HPCS-V-15 Suppression Pool Suction | auto closed |
|    | HPCS-V-1 CST Suction               | auto closed |
|    | HPCS-V-10 Test Bypass              | open        |
|    | HPCS-V-11 Test Bypass              | open        |
| B. | HPCS-V-15 Suppression Pool Suction | auto opened |
|    | HPCS-V-1 CST Suction               | auto opened |
|    | HPCS-V-10 Test Bypass              | closed      |
|    | HPCS-V-11 Test Bypass              | closed      |
| C. | HPCS-V-15 Suppression Pool Suction | auto opened |
|    | HPCS-V-1 CST Suction               | auto closed |
|    | HPCS-V-10 Test Bypass              | closed      |
|    | HPCS-V-11 Test Bypass              | closed      |
| D. | HPCS-V-15 Suppression Pool Suction | auto closed |
|    | HPCS-V-1 CST Suction               | auto opened |
|    | HPCS-V-10 Test Bypass              | open        |
|    | HPCS-V-11 Test Bypass              | open        |

ANSWER: C

QUESTION TYPE: RO

KA # & KA VALUE: 209002A2.13 A2.13 - Ability to predict the impacts of the following on the HPCS and based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Low condensate storage tank level IMP 3.4

REFERENCE: 4.601.A1 drop 5-6 HPCS SUCTION SWITCHOVER CST LEVEL LOW SD000174 rev. 10, pages 8-10 & 19

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5429

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: As stated in the procedure and the interlock section of the systems text, only answer C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 52

EXAM KEY

05/05/2005

EX05074

---

A transient has resulted in a LOCA. Reactor level has been –130 inches for the last 60 seconds. All plant equipment is operating as designed. The CRO pushes the Div. 1 Reactor Vessel Low Level/Timer Seal-In pushbutton.

Which of the following is correct concerning these conditions?

- A. Only Div.2 ADS SRVs open in 105 seconds to reduce reactor pressure.
- B. Only Div.2 ADS SRVs open in 45 seconds to reduce reactor pressure.
- C. All ADS SRVs open in 105 seconds to reduce reactor pressure.
- D. All ADS SRVs open in 45 seconds to reduce reactor pressure.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 218000A1.04 - Ability to predict and/or monitor changes in parameters associated with operating the ADS controls including: Reactor Pressure  
IMP 4.1

REFERENCE: SD000186 ADS rev. 10, page 4

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5073

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: The low level/timer seal in pushbutton interrupts the time and restarts the timing sequence to 105 seconds. In this case, however, only the Div. 1 timer is reset – Div. 2 continues. When the Div.2 timer times out in 45 seconds, the Div. 2 solenoids energize and open all 7 ADS valves. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 53

EXAM KEY

05/05/2005

EX05075

---

While moving a spent fuel bundle from the core during a refueling outage, the fuel bundle accidentally strikes the edge of the cattle chute while moving into the spent fuel pool. The refuel bridge phone talker then reports seeing bubbles streaming to the surface from the bundle.

What actions are required to be performed immediately?

- A. Stop the fuel movement and evacuate all personnel from the refuel floor.
- B. Stop the fuel movement and all personnel go to the RB 606' HP control point for further assistance.
- C. Continue the fuel movement until the bundle can be place in the correct location in the spent fuel rack.
- D. Move the bundle back into the reactor cavity and lower the fuel bundle into the RPV as far as possible to maximize shielding.

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 295023AA1.05 - Ability to operate and/or monitor the following as they apply to REFUELING ACCIDENTS: Fuel transfer system IMP 2.8

REFERENCE: ABN-FUEL-HAND rev. 2, page 2

SOURCE: **BANK QUESTION – 99 NRC Exam EX99081 – T1, GP1**

LO: 6897

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: Answer A is the only response that matches the immediate actions of the procedure.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 54

EXAM KEY

05/05/2005

EX05076

---

The plant was operating at 100% power, when a DEH malfunction caused reactor pressure to go up to 1050 psig.

Which of the following is correct for this condition?

Reactor power...

- A. goes down, feedwater level control, controls RPV level at a new higher level.
- B. goes down, reactor scram and level is controlled by FWLC setpoint setdown.
- C. goes up, feedwater level control returns RPV level to the normal range.
- D. goes up, feedwater level control controls RPV level at a new lower level.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 295025 EA2.02 - Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: Reactor power IMP 4.2

REFERENCE: SD000161 RPS rev. 12, page 12 BWR GFES Reactor Theory, page 52

SOURCE: **NEW QUESTION – T1, GP1**

LO: 7271

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: When pressure goes up, voids decrease, power goes up and level is returned to the normal band by feedwater. A and B are both incorrect because power goes up, not down. D is incorrect because FWLC returns RPV level to the normal range and not a lower level. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 55

EXAM KEY

05/05/2005

EX05077

---

The plant is operating at 100% power when UPS E-IN-1 TRIPPED annunciator illuminates. Local investigation indicates that IN-1 has tripped from over voltage.

The ARP refers you to ABN-ELEC-INV, which directs you to verify which of the following?

- A. The static switch has auto transferred to Alternate AC input from MC-7A.
- B. The static switch has auto transferred to Alternate AC input from MC-7F.
- C. The Kirk Key has been manually transferred to Alternate AC input from MC-8A.
- D. The Kirk Key has been manually transferred to Alternate AC input from MC-8F.

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 262002A2.02 - Ability to predict the impacts of the following on the UPS and based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Over voltage  
IMP 2.5

REFERENCE: ABN-ELEC-INV rev. 1, page 2 4.800.C1 drop 6-4, SD000194 UPS rev. 9, pages 3-6 & Fig. 3

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5896

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: The alternate power supply for the Kirk Key interlock is from MC-7A so C & D are incorrect. The static switch Alternate AC input is from MC-7F which makes

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 56

EXAM KEY

05/05/2005

EX05078

---

The plant was operating at 23% power when annunciator MAIN GEN EXCITER FIELD BKR TRIP illuminated.

Which of the following is correct for this condition?

- A. The main turbine remains in operation as before.
- B. Enter ABN-GENERATOR.
- C. Enter PPM 3.3.1 Reactor scram.
- D. Enter PPM 5.1.1 RPV Control.

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 262002A2.01 – Ability to predict the impacts of the following on the AC ELECTRICAL DISTRIBUTION and based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Turbine/generator trip IMP 3.4

REFERENCE: 4.800.C4 drop 8-2

SOURCE: **NEW QUESTION – T2, GP1**

LO: 5520

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: When the field breaker trips, the main generator and turbine trip. Since reactor power was less than 25%, there is no reactor scram. A, C, and D are incorrect. B is the correct answer.

COMMENTS:



# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 57

EXAM KEY

05/05/2005

EX05079

---

Which of the following describes the reason Standby Gas Treatment auto starts on the high radiation signal from Reactor Building Ventilation?

Standby Gas Treatment...

- A. recirculates and filters reactor building atmosphere during accident conditions to allow personnel entry.
- B. maintains reactor building pressure of at least +.25 inches of WC during all conditions.
- C. limits the release of radioactive material within the guidelines of 10CFR100 during accident conditions.
- D. reduces airborne activity during normal operation by exhausting at least one complete volume of reactor building atmosphere per day.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 295034 EK1.02 – Knowledge of the operational implications of the following concepts as they apply to SECONDARY CONTAINMENT VENTILATION  
HIGH RADIATION: Personnel protection IMP 3.8

REFERENCE: SD000144 SGT rev. 12, page 3

SOURCE: **BANK QUESTION – 99 NRC Exam ex99054 – T1, GP2**

LO: 5821

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: By definition, SGT reduces the discharge to the atmosphere to less than the limits of 10CFR100. C is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 58

EXAM KEY

05/05/2005

EX05080

---

Which of the following requires the operator to have a procedure in hand?

When responding to a transient and you are...

- A. taking manual control of the FW level controller to prevent exceeding level 8.
- B. performing the immediate actions of PPM 3.3.1 Reactor Scram.
- C. starting SW-P-1A following a failure to auto start.
- D. starting RHR in suppression pool cooling.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 2.1.1 Knowledge of Conduct of Operations Requirements

IMP 3.7

REFERENCE: OI-9 rev. 2, page 29

SOURCE: **NEW QUESTION – T3**

LO: 6060

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: As stated in OI-9, A, B, and C are specifically exempted from have a procedure present. Only D would require the use of a procedure and is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 59

EXAM KEY

05/05/2005

EX05081

---

The plant is operating at 99% power. RHR-P-2B was in operation for surveillance when a fault caused an overcurrent on RHR-P-2B. The overcurrent caused a lockout on BKR 8-3 and a loss of SM-8.

Which of the following is correct for these conditions?

- A. The lockout on BKR 8-3 auto resets as soon as the breaker for RHR-P-2B is racked out.
- B. The lockout relay must be manually reset at BKR 8-3 before the bus can be repowered.
- C. SM-8 can be manually repowered as soon as RHR-P-2B is racked out.
- D. SM-8 will repower automatically as soon as RHR-P-2B is racked out.

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 2.4.48 Ability to interpret control room indications to verify the status and operation of system/and understand how operator actions and directives affect plant and system conditions IMP 3.5

REFERENCE: SD000182 AC, rev. 13, page 20

SOURCE: **BANK QUESTION – 03 NRC Exam EX03030 – T3**

LO: 5049d

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: Prior to the reset of an 86 device the fault must be cleared from the bus. The 86 then can be manually reset and the breaker can be close manually. B is correct.

COMMENTS:

**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 60

EXAM KEY

05/05/2005

EX05082

---

The plant was operating at 99% power when RRC-P-1A tripped.

Which of the following is correct plant response immediately following the trip?

Reactor...

- A. power goes up because core void fraction goes up.
- B. power goes down because core void fraction goes down.
- C. level goes down because core void fraction goes down.
- D. level goes up because core void fraction goes up.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 295001 AK3.01 – Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION: Reactor water level response IMP 3.4

REFERENCE: GFES Reactor Theory ch. 4, Reactivity Coefficients, pages 15 & 20

SOURCE: **NEW QUESTION – T1, GP1**

LO: 7271

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: With the trip of 1 RRC pump, core voiding increases which results in an immediate power reduction and an increase in indicated level. This makes D the only correct answer.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 61

EXAM KEY

05/05/2005

EX05083

---

The plant is in Mode 4 with RHR-P-2B in operation in Shutdown Cooling.

Which of the following would cause the loss of RHR-P-2B?

- A. Reactor pressure 115 psig
- B. Reactor level +10 inches
- C. Drywell pressure 1.96 psig
- D. RHR SDC flow equal to 5.3 psid

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: AA1.02 - Ability to operate and/or monitor the following as they apply to LOSS OF SHUTDOWN COOLING: RHR/shutdown cooling

REFERENCE: SD000173 NS4, rev. 10, pages 5, 12, &21

SOURCE: **NEW QUESTION** – T1, GP1

LO: 5597

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: Of the signals given, only B causes the loss of RHR-P-2B and the loss of shutdown cooling.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 62

EXAM KEY

05/05/2005

EX05084

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The plant is operating at 100% power with DG-1 in operation for a surveillance. A fire alarm has been received in the DG-1 room. Subsequent to this annunciator, the standby fire pumps start to sequence on.

What are the required immediate actions for these conditions?

- A. Sound the Alerting Tone for 5 seconds  
Announce the location of the fire  
Repeat the above two steps
- B. Sound the Alerting Tone for 5 seconds  
Evacuate the Diesel Generator building  
Repeat the above two steps
- C. Evacuate the Diesel Generator building  
Direct the Fire Brigade response using the ROLM PA  
Notify the Hanford Fire Department
- D. Send an operator to verify the fire is real  
Announce the location  
Notify the Hanford Fire Department

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 600000 AA2.03 - Ability to determine and/or interpret the following as they apply to PLANT FIRE ON SITE: Fire Alarm

REFERENCE: ABN-FIRE rev. 7, page 2

SOURCE: **NEW QUESTION** – T1, GP1

LO: 6902

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: As stated in the procedure, only the actions in A are the correct immediate actions for the indications given.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 63

EXAM KEY

05/05/2005

EX05085

---

Which of the following is prevented by the performance of the PC Gas leg of PPM 5.2.1 Primary Containment Control?

- A. Damage to Standby Gas Treatment from excessive hydrogen concentration.
- B. An uncontrolled release of radioactivity to the environment.
- C. Damage to drywell equipment from drywell sprays.
- D. A failure of the drywell downcomers.

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 2.3.11 Ability to control radiation release

IMP 2.7

REFERENCE: PPM 5.0.10 rev. 8, page 277

SOURCE: **BANK QUESTION – 02 NRC Exam EX02074 – T3**

LO: 8425

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: PPM 5.0.10 states the reason/basis for the PC Gas control leg of PPM 5.2.1 is to prevent the uncontrolled release of radioactivity to the environment. B is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 64

EXAM KEY

05/05/2005

EX05086

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During a Control Room Evacuation, transfer switches are repositioned at the Remote Shutdown Panel to the EMERG position to separate equipment control circuits exposed to the control room fire from Safe Shutdown control signals initiated from...

- A. DG-1 Local Control Panel  
DIV 1 Switchgear Cubicles
- B. DG-2 Local Control Panel  
DIV 2 Switchgear Cubicles
- C. DG-1 Local Control Panel  
DIV 2 Switchgear Cubicles
- D. DG-2 Local Control Panel  
DIV 1 Switchgear Cubicles

ANSWER: B

---

QUESTION TYPE: RO  
KA # & KA VALUE: 295016 AK2.03 – Knowledge of the interrelations between CONTROL ROOM ABANDONMENT and the following: Local control stations. IMP 4.0  
REFERENCE: ABN-CR-EVAC bases 7.2  
SOURCE: NEW  
LO: 5886  
RATING: L2  
ATTACHMENT: NONE  
JUSTIFICATION: B is the only choice that includes all of the locations where safe shutdown control signals may be initiated.  
COMMENTS:



# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 65

EXAM KEY

05/05/2005

EX05087

---

The plant is operating at 100% power when a leak in the RCC system occurs. The leak is in the radwaste building and it is increasing.

Which of the following automatic actions mitigate the effects of this leak?

- A. RCC-V-6 Radwaste/Reactor building supply closes.
- B. All RCC Pumps trip on low surge tank level.
- C. All RCC containment Isolation valves close.
- D. RCC-V-48 Surge Tank Make Up auto opens on low surge tank level.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 295018 AA1.08 – Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER: Affected systems so as to isolate damaged portions. IMP 3.3

REFERENCE: SD000196 RCC rev. 10, pages 8-10

SOURCE: **NEW QUESTION**

LO: 5707

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: At 1.68 psig drywell pressure, RCC pumps trip off and RCC containment isolation valves close.

COMMENTS:

**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 66

EXAM KEY

05/05/2005

EX05088

---

Columbia was operating a full power when a series of events occurred that left the plant in an ATWS condition. PPM 5.1.2 was entered from PPM 5.1.1. Per PPM 5.1.2 Power Leg, Boron injection is required before wetwell temperature exceeds 110°F.

Which of the following is the reason for boron injection before wetwell temperature reaches 110°F?

110°F is.....

- A. the wetwell temperature at which Technical Specifications requires a reactor scram.
- B. the wetwell temperature where no damage to the RCIC system would occur if operation is required to support boron injection.
- C. the highest wetwell temperature at which initiation of boron injection will permit injection of the Hot Shutdown Boron Weight of boron before drywell pressure exceeds the Primary Containment Pressure Limit.
- D. the highest wetwell temperature at which initiation of boron injection will permit injection of the Cold Shutdown Boron Weight of boron before wetwell temperature exceeds Heat Capacity Temperature Limit.

ANSWER: A

---

QUESTION TYPE: RO  
KA # & KA VALUE: 295026 EK3.04 – Knowledge of the reasons for the following as they apply to HIGH SUPPRESSION POOL WATER TEMPERATURE: SLC injection IMP 3.7

REFERENCE: PPM 5.0.10 Pg 189 of 318  
SOURCE: NEW  
LO: 8086  
RATING: L2  
ATTACHMENT: NONE  
JUSTIFICATION: BIIT is defined as: the wetwell temperature at which Technical Specifications would require a reactor scram or the highest wetwell temperature at which initiation of boron injection will permit injection of the Hot Shutdown Boron Weight of boron before wetwell temperature exceeds Limit Heat Capacity Temperature Limit. Only A is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 67

EXAM KEY

05/05/2005

EX05089

---

Per PPM 5.1.1, adequate core cooling can be defined four ways:

Core Submergence  
Steam Cooling with Injection  
Steam Cooling without injection  
Spray Cooling

Which of the following defines Spray Cooling?

- A. RPV level GT –201 inches and HPCS or LPCS flow GT 6000 gpm
- B. RPV level GT –201 inches and RHR-A, B, or C combined flow GT 6000 gpm
- C. RPV level GT –210 inches and RHR-A, B, or C combined flow GT 6000 gpm
- D. RPV level GT –210 inches and HPCS or LPCS flow GT 6000 gpm

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 295031 EK3.03 – Knowledge of the reason for the following responses as they apply to REACTOR LOW WATER LEVEL: Spray Cooling IMP 4.1

REFERENCE: PPM 5.0.10

SOURCE: NEW

LO: 8018

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: PPM 5.0.10 defines Spray cooling as GT –210 inches with HPCS or LPCS flow at GT 6000 gpm. D is correct.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 68

EXAM KEY

05/05/2005

EX05090

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Columbia Generating Station is operating in MODE 1 at 95% power. Due to a fault on the bus, a loss of power to S1-2 occurs.

Which of the following describes the operational impact of a loss of S1-2 on the diesel generators?

- A. DG-1 cannot be started locally or from the control room.
- B. DG-2 cannot be started locally or from the control room.
- C. DG-3 could be started locally but not from the control room.
- D. DG-2 could be started locally but not from the control room.

ANSWER: B

---

QUESTION TYPE: RO

KA # & KA VALUE: 264000 K1.02 – Knowledge of the physical connections and/or cause-effect relationships between EMERGENCY DGS and the following: DC electrical distribution. IMP 2.9

REFERENCE: SD000200 PG 26

SOURCE: NEW

LO: 7653

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: Per SD000188, DG-2 cannot be started locally or from the control room. B is the correct answer. The loss of S1-2 has no effect on the other diesels.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 69

EXAM KEY

05/05/2005

EX05091

---

Columbia is in the process of a startup following a refueling outage with power being supplied from TR-S. Preparations for starting the first RRC pump, RRC-P-1A, have been completed. The Channel Selector Switch for Channel 1A1 is in the OFF position and the Channel Selector Switch for Channel 1A2 is in the ON position.

The Reactor Operator momentarily depresses the ASD START pushbutton for RRC-P-1A.

Which of the following describes the expected pump start sequence?

- A. ASD Channel 1A2 "READY" light immediately illuminates. RRC-P-1A then starts and ramps to approximately 400 RPM which correlates to 15 Hz.
- B. RRC-P-1A starts immediately. Pump speed ramps to approximately 150 RPM which correlates to 15 Hz.
- C. RRC-P-1A starts immediately. Pump speed ramps to approximately 450 RPM which correlates to 15 Hz.
- D. ASD Channel 1A2 "READY" light immediately illuminates. After a five second time delay RRC-P-1A starts and ramps to 450 RPM which correlates to 15 Hz.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 202001 A3.02 – Ability to monitor automatic operation of the RECIRCULATION SYSTEM including: Pump start sequence. IMP 3.1

REFERENCE: SOP-RRC-START

SOURCE: NEW

LO: 9681

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: Per SOP-RRC-START, the "READY" light should already be illuminated and the RRC pump immediately starts and increases speed to approximately 450 RPM (15 Hz).

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 70

EXAM KEY

05/05/2005

EX05092

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Due to a primary coolant pressure boundary leak, the CRS, ordered a reactor scram prior to the automatic scram signal being generated. Wetwell pressure has steadily increased and is currently 15 psig. All systems functioned as designed in response to the event.

Which of the following is correct concerning the spraying of containment at this pressure?

- A. If drywell sprays are placed on the 'B' RHR loop, indicated flow will be approximately 8500 GPM.
- B. If wetwell sprays are placed on the 'B' RHR loop, indicated flow will be approximately 1000 GPM.
- C. If a single loop of RHR was utilized for both wetwell and drywell sprays, indicated flow would be approximately 4200 GPM.
- D. If drywell sprays are placed on the 'A' RHR loop, indicated flow will be approximately 6500 GPM.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 226001 A3.03 – Ability to monitor automatic operations of THE CONTAINMENT SPRAY SYSTEM MODE including: System flow IMP 2.8

REFERENCE: PLANT SIMULATOR

SOURCE: NEW

LO: 5774, 5777

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: Pump run out is at approximately 8000 GPM. Wetwell spray flow is approximately 500 GPM and Drywell spray flow is approximately 6500 gpm on the Plant Simulator

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 71

EXAM KEY

05/05/2005

EX05093

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The plant is operating at 100% power when a leak develops in the instrument air dryer. The leak is larger than the capacity of the CAS System. At 85 psig, the Service Air Header pressure low alarm annunciates.

Which of the following is the next expected auto action to mitigate the effect of the leak?

- A. The standby CAS air compressor starts.
- B. The Service Air Compressor, SA-C-1, fully loads.
- C. The Air Dryer Bypass Valve, CAS-PCV-1, opens.
- D. The Service Air Header Isolation Valve, SA-PCV-2, closes.

ANSWER: D

---

QUESTION TYPE: RO

KA # & KA VALUE: 300000A2.01 – Ability to predict the impacts of the following on the INSTRUMENT AIR SYSTEM and based on those predictions, use procedures to correct, control or mitigate the consequences of those abnormal conditions or operations: Air dryer and filter malfunctions IMP 2.9

REFERENCE: SD000205, PPM 4.840.A5 7-5 and 7-6.

SOURCE: **BANK QUESTION – MODIFIED (LO00155; ex99096)**

LO: 5878

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: The Standby SAC Compressor starts at 100 psig, CAS-PCV-1 opens at 75 psig. The SA Compressor is always fully loaded when running. The SA header low pressure alarm is at 85 psig and SA-PCV-2 closes to 80 psig.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 72

EXAM KEY

05/05/2005

EX05094

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With Columbia operating in MODE 1, RHR-P-2B is running to lower suppression pool level. SW-P-1B is operating in support of the evolution. Due to a problem with the feedwater level control system, the CRS orders a reactor scram prior to the +13" automatic scram. When the Main Turbine trips, TR-S develops an overcurrent condition and a lockout is generated. SM-7 and SM-8 are re-energized from the Backup Transformer.

All systems operate as designed to this event.

Which of the following describes the response of the Service Water System to this event?

When power is restored,...

- A. SW-P-1B immediately re-starts. SW-V-2B and SW-V-12B remain open.
- B. after a 20 second time delay, and after SW-V-2B is fully closed, SW-P-1B re-starts. When SW-P-1B starts, SW-V-2B re-opens.
- C. after a 20 second time delay, and after SW-V-2B and SW-V-12B are both fully closed, SW-P-1B re-starts.
- D. SW-V-12B fully closes. When SW-V-12B is fully closed, SW-P-1B re-starts and SW-V-12B re-opens.

ANSWER: B

---

QUESTION TYPE: RO  
KA # & KA VALUE: 295003 2.1.24 – Ability to obtain and interpret station electrical and mechanical drawings IMP 2.8  
REFERENCE: EWD-58E-004  
SOURCE: NEW  
LO: 4046  
RATING: H3  
ATTACHMENT: EWD-58E-004  
JUSTIFICATION: As per the EWD, SW-V-2B has to be closed before SW-P-1B will restart. There is also a 20 second time delay. SW-V-12B strokes closed but stops mid-stroke when SW-P-1B starts and then goes full open. If SW-V-12B were to go full closed, SW-P-1B would trip.  
COMMENTS:



# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 73

EXAM KEY

05/05/2005

EX05095

---

SGT A has been place in operation for a surveillance.

Which of the following describes the operation of strip heater, SGT-ESH-1A?

- A. SGT-TS-1A21/1A41 open at 125° F and allow the heaters to automatically cycle back on at 110° F.
- B. SGT-RLY-ESH1A11/1A31 close at 125° F and allow the heaters to automatically cycle back on at 110° F.
- C. SGT-TS-1A11/1A31 and SGT-TC-1A1/1A2 cause the heaters to cycle on and off between 90° F and 110° F.
- D. SGT-TS-1A11/1A31 cause the heaters to cycle on at 110° F and SGT-TS-1A21/1A41 cause the heater to cycle off at 125° F.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 261000 2.1.24 – Ability to obtain and interpret station electrical and mechanical drawings. SGT System. IMP 2.8

REFERENCE: EWD-39E-004

SOURCE: NEW

LO: 4047

RATING: H3

ATTACHMENT: EWD-39E-004 and a section of E501

JUSTIFICATION: Per the EWD SGT-TS-1A11, 1A31 open if temp rises above 110°F and de-energize the heater. SGT-TC-1A1/1A1 are closed when the temp is less than 90° F which causes the heaters to cycle off and on between 90° and 110° F. If temperature increases to GT 125° F, SGT-RLY-ESH1A (CR1) de-energizes, which prevents the operation of the heaters until the reset is pushed. Only C is correct.

COMMENTS:

**COLUMBIA RO WRITTEN EXAM RETAKE**

QUESTION # 74

EXAM KEY

05/05/2005

EX05096

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The pressure input from the NBI system to the Main Steam Relief Valves has been lost.

What effect does this loss of pressure input from the NBI system have on the operation of the SRVs?

- A. The Safety and the Relief mode of operation would remain unaffected.
- B. Only the Safety mode of operation would be affected.
- C. Only the Relief mode of operation would be affected.
- D. Both the Safety and Relief mode of operation would be affected.

ANSWER: C

---

QUESTION TYPE: RO

KA # & KA VALUE: 239002.K6.01 – Knowledge of the effect that a loss or malfunction of the following will have on the RELIEF/SAFETY VALVES: NBI pressure indication IMP 3.2

REFERENCE: LO000128

SOURCE: NEW

LO: 5527; 7638j

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: NBI provides pressure input to the 18 SRVs for operation of the SRVs in the RELIEF mode of operation. The SAFETY mode of operation is actuated directly by the force exerted upon the valve spring by reactor pressure as remains unaffected by a loss of the pressure input.

COMMENTS:

# COLUMBIA RO WRITTEN EXAM RETAKE

QUESTION # 75

EXAM KEY

05/05/2005

EX05097

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The plant was operating at 25% power when annunciator RHR A PUMP ROOM WATER LEVEL HIGH illuminated. PPM 5.5.27 has been performed and the operator reports RHR-P-2A Room water level as 47 inches.

Which of the following is correct for these conditions?

- A. RHR-P-2A may not be able to perform its intended safety function if required.
- B. RHR-P-2A may not be operated under any conditions.
- C. RHR-P-2A may only be started one time under these conditions.
- D. There are no operational implications with water at this level.

ANSWER: A

---

QUESTION TYPE: RO

KA # & KA VALUE: 295036 EA2.01 - Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL:  
Operability of components within the affected area IMP 3.0

REFERENCE: PPM 5.3.1 Sec Cont Control, rev.13 PPM 5.0.10 rev. 8, pages 78 & 301

SOURCE: **NEW QUESTION – T1, GP2**

LO: 8040

RATING: H3

ATTACHMENT: YES – Table 25 from PPM 5.3.1

JUSTIFICATION: The level given in the stem is above the Max Safe Operating Level in Table 25. PPM 5.0.10 states the equipment may not be able to perform its intended safety function with water level greater than max safe. A is correct.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 1

EXAM KEY

05/05/2005

EX05001

---

The plant was operating at 99% power when a fire occurred in the control room that required an immediate evacuation. The immediate actions were performed and the following conditions now exist:

Reactor Power is 6% and steady  
2 SRVs are cycling open and closed  
Reactor level is -15 inches and down slow  
Drywell pressure is 1.83 psig and up slow  
Suppression Pool level is +3 inches and up slow

Which of the following procedures takes precedence under these conditions?

- A. PPM 5.1.1 RPV Control
- B. PPM 5.1.2.RPV Control ATWS
- C. ABN-CR-EVAC
- D. PPM 5.2.1 Primary Containment Control

ANSWER: C

---

QUESTION TYPE: SRO

KA # & KA VALUE: 295016AA2.01 – Ability to determine and/or interpret the following a they apply to CONTROL ROOM ABANDONMENT: Reactor Power 55.43.5  
IMP 4.2

REFERENCE: PPM 13.1.1 rev. 33, pages 21 & 36 ABN-CR-EVAC rev. 7, pages 6 &7

SOURCE: **NEW QUESTION** – SRO Tier 1 GP 1

LO: 6105

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: Conditions indicate an ATWS that would require an entry into both PPM 5.1.1 and 5.1.2. There are also entry conditions for PPM 5.2.1. However, a control room evacuation is required because of the fire, therefore ABN-CR-EVAC takes precedence as stated on the procedure. C is correct.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 2

EXAM KEY

05/05/2005

EX05002

---

The plant was operating at 99% power when a transient occurred which resulted in an offsite release. QEDPS indicates the following dose at the site area boundary:

TEDE dose rate                    2 mrem/hr  
CEDE thyroid dose rate        159 mrem/hr  
Standby Gas Treatment is in operation

Which of the following is correct for these conditions?

The release originates from the...

- A. turbine building and PPM 5.4.1 Radioactivity Release Control should be entered.
- B. turbine building and PPM 5.4.1 Radioactivity Release Control should **not** be entered.
- C. reactor building and PPM 5.4.1 Radioactivity Release Control should be entered.
- D. reactor building and PPM 5.4.1 Radioactivity Release Control should **not** be entered.

ANSWER: A

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 295038 EA2.04 - Ability to determine and/or interpret the following a they apply to HIGH OFF-SITE RELEASE RATE: Source of off-site release 55.43.5 IMP 4.5

REFERENCE: PPM 13.1.1 rev. 33 page 37  
SOURCE: **NEW QUESTION** – SRO T1, GP 1  
LO: 5821, 8017  
RATING: H3  
ATTACHMENT: YES - PPM 13.1.1 rev. 33 page 37, and tables 4 & 5  
JUSTIFICATION: As stated in the description and purpose of SGT, radioactive iodines are filtered out in the HEPA filters. A high CEDE dose rate indicates that either SGT is not in operation or the release is from a different source. This makes C and D incorrect. The CEDE dose rate is high enough for an ALERT classification and requires an entry into PPM 5.4.1. A is the correct answer.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 3

EXAM KEY

05/05/2005

EX05003

---

The plant was operating at 90% power with HPCS out of service for a motor replacement when a loss of both SM-1 & SM-2 occurred and a failure of RCIC to start. Assume no operator actions are taken for this transient.

Which of the following is correct for these conditions?

- A. PPM 1.10.1 requires an 8 hour report due to a reactor scram.
- B. PPM 1.10.1 requires a 4 hour report due to RCIC failure.
- C. GIH-9.1.3 requires that the CEO be notified in 1 hour.
- D. GIH-9.1.3 requires that the CEO be notified in 4 hours.

ANSWER: C

---

QUESTION TYPE: SRO

KA # & KA VALUE: 295009 2.1.14 – Knowledge of system status criteria which require the notification of plant personnel 55.43.5 IMP 3.3

REFERENCE: PPM 1.10.1 rev. 26, page 10 GIH-9.1.3 rev. 0

SOURCE: **NEW QUESTION** – T1, GP2

LO: 6011

RATING: H4

ATTACHMENT: YES - PPM 1.10.1 rev. 26, page 10, & 11 GIH-9.1.3 rev. 0

JUSTIFICATION: A is incorrect because the scram requires a 4 hour report. B is incorrect because it would require an 8 hour notification. D is incorrect because GIH 9.1.3 requires a 1 hour notification of the CEO on an emergency classification GT UE. C is correct.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 4

EXAM KEY

05/05/2005

EX05004

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The plant is operating at 99% power with the LPCS System Operability Test, OSP-LPCS/IST-Q702, in progress. Surveillance test results reveal the following:

LPCS-FCV-11 opens at 679 gpm  
LPCS-FCV-11 closes at 1148 gpm

All other plant equipment is operating as required.

Which of the following is correct for these conditions?

LPCS ...

- A. must be declared inoperable immediately.
- B. must be declared inoperable and the minimum flow function must be restored to operable in 7 days.
- C. minimum flow function must be declared inoperable immediately.
- D. minimum flow function must be restored to operable in 7 days.

ANSWER: D

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 209001 2.2.24 – Ability to analyze the affect of maintenance activities on LCO status 55.43.2 IMP 3.8  
REFERENCE: TS 3.3.5.1 and bases.  
SOURCE: **NEW QUESITON** – T2, GP 1  
LO: 6925  
RATING: H3  
ATTACHMENT: YES – TS 3.3.5.1, Table 3.3.5.1-1 page 1  
JUSTIFICATION: According to table 3.3.5.1-1, the LPCS minimum flow function is out of spec. 3.3.5.1.d gives the direction to restore the channel to operable in 7 days. Since the redundant feature ECCS is operable, the LPCS system does not have to be declared inop. D is the correct answer.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 5

EXAM KEY

05/05/2005

EX05005

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The plant was operating at 99% power when a transient occurred. The operating crew took all immediate actions. The following conditions exist 10 minutes following the transient:

Reactor level	-66 inches and down slow
Reactor pressure	1096 psig and steady
MSIVs	closed
MS-RV-1A & 1B	open
Suppression pool temp	88° F
Drywell pressure	1.58 psig and stable

Considering these conditions, which of the following procedures have been entered to mitigate the transient?

- A. PPM 5.1.1 RPV Control and PPM 5.3.1 Secondary Containment Control
- B. PPM 5.1.2 RPV Control ATWS and PPM 5.3.1 Secondary Containment Control
- C. PPM 5.1.1 RPV Control and PPM 5.2.1 Primary Containment Control
- D. PPM 5.1.2 RPV Control ATWS and PPM 5.2.1 Primary Containment Control

ANSWER: B

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 295015AA2.01 - Ability to determine and/or interpret the following as they apply to INCOMPLETE SCRAM: Reactor power 55.43.5  
IMP 4.3

REFERENCE: PPM 5.1.2 RPV Control ATWS and PPM 5.3.1 Secondary Containment Control entry conditions, LO000128 rev. 8, Main Steam System

SOURCE: **NEW QUESTION** – T1, GP 2

LO: 8017

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: The conditions given indicate approximately 12% steam flow 10 minutes following the transient. This is indicative of an ATWS. A and C are incorrect. With reactor level at -66 inches, RB ventilation supply and exhaust fans have tripped which results in an entry into PPM 5.3.1 from hi Sec. Cont. Pressure. There are no entry conditions at this time for PPM 5.2.1. B is correct.

COMMENTS:



# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 6

EXAM KEY

05/05/2005

EX05006

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During performance of OSP-ELEC-M702 DG-2 Monthly Operability Test, the equipment operator notifies you that annunciator 3.3 on E-CP-DG/CP2, ENG. 1 LUBE OIL LEVEL LOW is illuminated and there is 8 inches of oil above the LOW mark on the Engine 1 lube oil sump dipstick.

Which of the following is correct for these conditions?

- A. Declare DG-2 inoperable immediately.
- B. Restore the lube oil inventory to GT 165 gallons in the next 48 hours.
- C. Restore the lube oil inventory to GT 283 gallons in the next 48 hours.
- D. Restore the lube oil inventory to GT 330 gallons in the next 48 hours.

ANSWER: D

---

QUESTION TYPE: SRO

KA # & KA VALUE: 264000 2.1.33 – Ability to recognize indications for system operating parameters, which are entry-level conditions for technical specifications.  
55.43.2 IMP 4.0

REFERENCE: OSP-ELEC-M702 rev. 20, page 13, 4.DG2 drop 3-3 rev. 10, page 13, and TS 3.8.3 and bases

SOURCE: **NEW QUESTION** – T2, GP1

LO: 10305

RATING: H3

ATTACHMENT: YES - 4.DG2 drop 3-3 rev. 10, page 13, and TS 3.8.3

JUSTIFICATION: The indications given put lube oil level between 283 gal and 330 gal. This requires the lube oil be returned to GT 330 gal in 48 hours. D is correct.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 7

EXAM KEY

05/05/2005

EX00022

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The plant was operating at 98% power when the following occurred:

- SGT started
- CSP/CEP isolated
- CN makeups isolated
- CR and TSC Emerg Filtration starts and aligns to remote air intakes
- RB Emerg Room Coolers start
- RB Lighting quenches
- RB HVAC isolates and fans trip

The plant remains operating at power following the initiations.

Which of the following is correct concerning these conditions?

Enter...

- A. PPM 5.1.1 RPV Control and PPM 5.1.2 RPV Control ATWS
- B. PPM 5.1.2 RPV Control ATWS and PPM 5.2.1 Primary Containment Control
- C. PPM 5.3.1 Secondary Containment Control and ABN-FAZ
- D. PPM 5.4.1 Radioactivity Release Control and ABN-FAZ

ANSWER: C

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 2.4.7 Knowledge of how the event based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs 55.43.5 IMP 3.8

REFERENCE: SD000173 NS4 rev. 10 pages 5, 19, 20 & entry conditions for EOPs/ABN-FAZ

SOURCE: **BANK QUESTION – MODIFIED – T3**

LO: 6914

RATING: H3

ATTACHMENT: NONE

JUSTIFICATION: A and B are incorrect because there is no indication given that an ATWS occurred. -50" and 1.68 psig in the drywell would cause these conditions, they would also cause a scram. D is incorrect because the signal causing the indications is a high rad in the exhaust plenum, there is no indication of an offsite release. C is correct because the isolation of RB HVAC causes a high pressure entry into PPM 5.3.1 and an ABN-FAZ entry.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 8

EXAM KEY

05/05/2005

EX05008

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The plant was operating at 99% power when a DEH leak resulted in a DEH pressure reduction to 1100 psig.

Which of the following is correct?

- A. A reactor scram occurs because, under these conditions, control rod insertion may not initially add enough negative reactivity to overcome the positive reactivity added by the pressure increase from a turbine trip.
- B. A reactor scram occurs because, under these conditions, control rod insertion initially adds positive reactivity late core life that must be compensated for by the trip of both recirc pumps.
- C. A reactor scram occurs because, under these conditions, Recirc Pumps must be tripped late in core life to minimize the effect of all control rods withdrawn to the full out position and prevent exceeding the LHGR.
- D. The plant continues to operate at 99% power.

ANSWER: A

---

QUESTION TYPE: SRO

KA # & KA VALUE: 2.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits 55.43.2 IMP 3.7

REFERENCE: TS 3.3.4.1 and Bases, RPS Systems Text SD000161 rev. 12, page 12

SOURCE: **BANK QUESTION – MODIFIED – T3**

LO: 6925, 5949

RATING: H3

ATTACHMENT: None

JUSTIFICATION: Since the DEH pressure given is less than the RPS scram setpoint, D is incorrect. The correct basis as in TS is stated in A.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 9

EXAM KEY

05/05/2005

EX05098

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The reactor is at 35% power following a refueling/maintenance outage. A pile of leftover outage debris, outside of the Tip Room, has caught on fire and caused an alarm in the control room. All control room indication is normal except MS-LR-615 Fuel Zone Recorder, which is cycling full scale in an erratic fashion.

Which of the following is correct for these conditions?

- A. Tech Specs requires no action for these conditions.
- B. Restore MS-LR-615 to operable in 30 days.
- C. Restore MS-LR-615 to operable in 7 days.
- D. Be in Mode 3 in 12 hours.

ANSWER: B

---

QUESTION TYPE: SRO

KA # & KA VALUE: 2.4.27 Knowledge of fire in the plant procedure 55.43.2 IMP 3.5

REFERENCE: ABN-FIRE rev. 7 TS 3.3.3.1

SOURCE: **BANK QUESTION – MODIFIED – 2001 NRC EXAM EX01073– T3**

LO: 6904

RATING: H3

ATTACHMENT: YES – ABN-FIRE rev. 7, pages 65 & 66 & TS 3.3.3.1 with table 3.3.1-1

JUSTIFICATION: This fire is located of the northeast corner on the 501 elevation of the reactor building. Att. 7.4 indicates that a fire in this area could affect MS-LR-615. Given the erratic indications, MS-LR-615 is inop. This level recorder is required to be operable under the Post Accident Monitoring TS. The required action is B. It is correct.

COMMENTS: Renumbered question. Re-wrote question for a TS response base on NRC input.

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 10

EXAM KEY

05/05/2005

EX05009

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The plant was operating at 23% power when the Main Turbine tripped and a fuel bundle is dropped in the spent fuel pool during loading of a spent fuel container for ISFSI.

The following conditions exist:

Reactor level is 25 inches and stable  
SGT has auto initiated  
RB HVAC has isolated  
Drywell pressure is 1.1 psig  
Wetwell level is -1.9 inches  
Drywell temperature is 129 °F

Which of the following actions is correct?

Enter.....

- A. PPM 5.1.1 RPV Control and PPM 3.3.1 Reactor Scram.
- B. PPM 5.1.1 RPV Control and PPM 5.2.1 Primary Containment Control.
- C. PPM 3.3.1 Reactor Scram and PPM 5.3.1 Secondary Containment Control.
- D. PPM 5.3.1 Secondary Containment Control and immediately evacuate the refuel floor of all personnel.

ANSWER: D

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 295023 2.4.1 - Knowledge of EOP entry conditions and immediate action steps 55.43.5 IMP 4.6  
REFERENCE: ABN-FUEL-HAND rev. 2, page 2 PPM 5.0.10 rev. 8, page 294  
SOURCE: **NEW QUESITON** – T1, GP1  
LO: 6897, 8017  
RATING: H3  
ATTACHMENT: NONE  
JUSTIFICATION: Since the reactor was at 23% power, there was no scram from the turbine trip. There is no entry given for PPM 5.3.1. Therefore, A-C are incorrect. The immediate action for a dropped fuel bundle is to evacuate the refuel floor and 5.3.1 must be entered because of the high exhaust plenum rad as indicated by the auto SGT start. D is correct.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 11

EXAM KEY

05/05/2005

EX05010

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A plant startup is in progress following a maintenance/refueling outage. As reactor power is increased to approximately 10%, several SRVs begin to leak causing suppression pool temperature to increase.

What is the basis for the suppression pool temperature Tech Spec under these conditions?

The LCO ensures that...

- A. suppression pool temperature does not increase to the limits of the SRV Tail Pipe Level Limit.
- B. suppression pool temperature does not increase to the limits of the Pressure Suppression Pressure.
- C. peak containment temperatures and pressures do not exceed maximum allowable values during a DBA.
- D. peak containment temperatures and pressures do not exceed maximum allowable values during an ATWS.

ANSWER: C

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 295025EA2.03 - Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: Suppression Pool Temperature 55.43.2 IMP 4.1  
REFERENCE: TS Bases 3.6.2.1  
SOURCE: **NEW QUESTION** – T1, GP1 (Added to VISION as LO01387)  
LO: 6925  
RATING: L2  
ATTACHMENT: NONE  
JUSTIFICATION: A and B are both incorrect because the suppression pool temperature is not a variable for either limit. D is incorrect because the accident in the analysis is a LOCA, not an ATWS. C is correct.  
COMMENTS: Rewritten to TS bases after NRC Comment.

**COLUMBIA SRO WRITTEN EXAM RETAKE**

QUESTION # 12

EXAM KEY

05/05/2005

EX05011

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Which of the following is **NOT** a basis for the low suppression pool water level Tech Spec?

Low suppression pool water level could result in...

- A. less energy absorption and higher suppression pool temperatures following a DBA LOCA.
- B. inadequate makeup water source for ECCS systems required following a DBA LOCA.
- C. excessive clearing loads from SRV Tailpipe pipes during subsequent SRV actuations.
- D. inadequate steam condensation from SRV quenchers during subsequent SRV actuations.

ANSWER: C

---

QUESTION TYPE: SRO

KA # & KA VALUE: 295030 2.4.21 – Knowledge of the parameters and logic used to assess the status of safety functions including: Containment conditions 55.43.2 IMP 4.3

REFERENCE: TS 3.6.2.2 Basis

SOURCE: **NEW QUESTION – T1, GP1**

LO: 6925

RATING: L3

ATTACHMENT: NONE

JUSTIFICATION: A, B, and D are all bases for the low suppression pool water level LCO and are incorrect. C is correct. It is a basis for the high suppression pool level.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 13

EXAM KEY

05/05/2005

EX05012

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The plant is operating at 75% power during the month of January in a period of record cold weather. Temporary electrical radiant heaters are to be placed in the SM-7 and SM-8 switchgear rooms for supplementary heating.

Which of the following is true concerning these conditions?

- A. A 10 CFR 50.59 review must be performed.
- B. This is a temporary change that does not require a TMR, Temporary Modification Request.
- C. An Ignition Source Permit is **not** required for these heaters.
- D. These heaters do **not** require a fire tour.

ANSWER: A

---

QUESTION TYPE: SRO

KA # & KA VALUE: 262001 2.2.8 – Knowledge of the process for determining if the proposed change /test/or experiment involves an unreviewed safety question 55.43.3 IMP 3.3

REFERENCE: PPM 1.3.10A rev. 12, pages 14-18 PPM 1.3.9 rev. 38, pages 5-8

SOURCE: **NEW QUESTION – T2, GP1**

LO: 10784, 8625

RATING: H3

ATTACHMENT: YES - PPM 1.3.10A rev. 12, pages 14-18 PPM 1.3.9 rev. 38, pages 5-8

JUSTIFICATION: PPM 1.3.9 states that supplementary equipment for safety related systems requires a TMR and a 50.59 review prior to installation. B is incorrect. A is correct. C and D are incorrect because the installation of the heaters requires both an ISP and a fire watch.

COMMENTS:



# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 14

EXAM KEY

05/05/2005

EX05013

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The plant is operating at 32% power with control rod 30-31 selected. One of 4 operable A level LPRMs and all of the operable C level LPRMs feeding the RBM system fail downscale.

Which of the following is correct?

- A. The failure of these LPRMs does not inop the RBM system.
- B. All control rod movement must be suspended immediately except by scram.
- C. RBM-A is not required to be operable until 35% power.
- D. RBM-A has to be restored to operable status in 24 hours.

ANSWER: D

---

QUESTION TYPE: SRO

KA # & KA VALUE: 215002 2.1.12 Ability to apply technical specifications for a system. 55.43.2 IMP 4.0

REFERENCE: SD000166 RBM rev. 10, page 5 and 8 TS 3.3.2.1

SOURCE: **NEW QUESTION** – T2, GP2

LO: 5690, 7667

RATING: H3

ATTACHMENT: YES – TS 3.3.2.1

JUSTIFICATION: Center control rods provide inputs to each RBM from 8 LPRMs. Less than ½ the inputs causes a Rod Block and inops the RBM. A is incorrect. The RBM is required to be operable at 30% power so C is incorrect. The required action for one inop RBM at power is stated in D.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 15

EXAM KEY

05/05/2005

EX05014

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The plant was operating at 99% power with OG-RIS-601A Post Treatment Rad Monitor, failed upscale. A failure on PP-8A-A results in a loss of power and a downscale on OG-RIS-601B Post Treatment Rad Monitor. All other plant equipment operates as expected.

Assuming no operator actions, which of the following is correct?

- A. PPM 5.2.1 Primary Containment Control will **not** be entered.
- B. PPM 5.1.1 RPV Control will be entered for RPV level, pressure, and power control directions.
- C. The plant continues to operate at a new lower power level due to increased backpressure.
- D. There will be no effect on continued plant operation.

ANSWER: B

---

QUESTION TYPE: SRO

KA # & KA VALUE: 271000A2.08 - Ability to predict the impacts of the following on the OFF GAS System; and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: AC Dist failures 55.43.5 IMP 2.7

REFERENCE: LO000187 Off Gas rev. 10, pages 24-25

SOURCE: **NEW QUESTION – T2, GP2**

LO: 5621

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: The loss describe causes an isolation of the Off Gas system. This results in increasing backpressure until the main turbine trips. C and D are incorrect. The reactor scrams and an entry will be made into PPM 5.1.1 on reactor level. B is correct. Vacuum continues to decrease until the MSIVs shut which causes suppression pool temp to increase and an entry into PPM 5.2.1. A is incorrect.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 16

EXAM KEY

05/05/2005

EX05015

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The plant was operating at 100% power with all plant equipment operating as required. A transient occurred which caused the following indication. No operator actions have been performed.

Reactor power	92% and stable
Reactor level	36 inches and stable
Core flow	100 mlbm/hr and stable
RRC Pump Speed	60 hz
RRC Loop A Flow	43,000 GPM
RRC Loop B Flow	44,000 GPM
JP Loop A Flow	43E6 lbm/hr
JP Loop B Flow	56E6 lbm/hr

Several feedwater heater level annunciators illuminated and cleared.

Which of the following actions is required?

- A. Declare the loop with the lower flow to be "not in operation" in 2 hours.
- B. Be in Mode 3 in 12 hours.
- C. ABN-RRC-LOSS.
- D. PPM 3.3.1 Reactor Scram.

ANSWER: B

---

QUESTION TYPE: SRO

KA # & KA VALUE: 290002 2.1.7 – Ability to evaluate plant performance and make operational judgments based on operation characteristics / reactor behavior / and instrument interpretation 55.43.2 IMP 4.4

REFERENCE: ABN-POWER rev. 4, page 2

SOURCE: **NEW QUESTION** – T2, GP2

LO: 6727

RATING: H3

ATTACHMENT: YES – TS 3.4.2.1

JUSTIFICATION: The indications given are from a failure of the #1 and #2 jet pumps. This is an entry condition for ABN-POWER and does not require an entry into any of the distracters. B is the only correct answer.

COMMENTS:

**COLUMBIA SRO WRITTEN EXAM RETAKE**

QUESTION # 17

EXAM KEY

05/05/2005

EX05016

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Maintenance is replacing the old refuel floor jib crane (1250 pounds) and wants to transport it over the spent fuel pool in order to remove it. The water level in the spent fuel pool is at the 605 feet elevation.

What are the limitations of this lift?

The load can be lifted to a maximum of ...

- A. 6 feet above the spent fuel pool water level.
- B. 5 feet above the spent fuel pool water level.
- C. 4 feet above the spent fuel pool water level.
- D. 3 feet above the spent fuel pool water level.

ANSWER: C

---

QUESTION TYPE: SRO

KA # & KA VALUE: 2.2.26 Knowledge of refuel administrative requirements 55.43.7 IMP 3.7

REFERENCE: LCS 1.9.2

SOURCE: **BANK QUESTION – T3**

LO: 5362

RATING: H2

ATTACHMENT: LCS 1.9.2 and Figure 1.9.2-1

JUSTIFICATION: The 1250 pound load can be lifted a maximum of 4 feet above the level of the spent fuel pool. Since the 606 elevation is 1 foot above the water level, the correct answer is 3 feet above the floor level. D is correct.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 18

EXAM KEY

05/05/2005

EX05017

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The plant is operating at 22% power in preparation for a refueling outage. A containment purge has just been initiated to de-inert the containment.

Which of the following is correct for this condition?

- A. It is acceptable to use SGT with inoperable heaters because they have no effect on the ability of the train used for the purge to perform its function.
- B. The SGT train used for containment purge is inoperable due to the controller being placed in manual and no core alterations, operations with the potential for draining the reactor vessel, or movement of irradiated fuel is allowed.
- C. The SGT train used for containment purge is inoperable due to the potential for rapid over pressurization prior to closure of the containment isolation valves following a LOCA.
- D. At this power level, it is correct to use both trains of SGT for the containment purge because there is no postulated accident that can damage the Standby Gas Treatment System.

ANSWER: C

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 2.3.9 Knowledge of the process for performing a containment purge 55.43.4  
IMP 3.4  
REFERENCE: ODCM 6.2.2.6 and bases, TS 3.6.4.3  
SOURCE: **NEW QUESTION – T3**  
LO: 9498  
RATING: H3  
ATTACHMENT: YES - ODCM 6.2.2.6 and bases TS 3.6.4.3  
JUSTIFICATION: The plant is in Mode 1, which requires that the purge be through 1 train of SGT for the first 24 hours. The train used for the purge, must be operable, which makes A incorrect. The direction is to use only 1 train at this power level, which makes D incorrect. With 1 train of SGT operable, there is a 7 day limit to return SGT to operable. Core alts, etc are allowed with only 1 train inop. B is incorrect. The basis for this RFO states that the train used for the purge is inoperable due to possible over pressurization during a LOCA. C is correct.

COMMENTS:

**COLUMBIA SRO WRITTEN EXAM RETAKE**

QUESTION # 19

EXAM KEY

05/05/2005

EX05018

---

The plant is operating at 99% power with a stuck open SRV. Suppression pool temperature is now 111° F and going up.

Which of the following procedures takes precedence under these conditions?

- A. PPM 5.2.1 Primary Containment Control, PPM 5.1.1 RPV Control, and PPM 3.3.1 Reactor Scram.
- B. PPM 5.1.1 RPV Control, PPM 5.2.1 Primary Containment Control, and PPM 5.1.3 Emergency RPV Depressurization.
- C. PPM 5.1.1 RPV Control, ABN-SRV, and PPM 5.1.3 Emergency RPV Depressurization.
- D. PPM 5.2.1 Primary Containment Control, PPM 3.3.1 Reactor Scram, and ABN-SRV.

ANSWER: A

---

QUESTION TYPE: SRO

KA # & KA VALUE: 295026 2.4.16 – Knowledge of EOP implementation hierarchy and coordination with other support procedures 55.43.5 IMP 4.0

REFERENCE: PPM 5.1.1, 5.2.1, 5.1.3, 3.3.1, and ABN-SRV

SOURCE: **NEW QUESTION** – T1, GP1

LO: 8017

RATING: H3

ATTACHMENT: YES – 5.2.1 WW temp leg, PPM 5.1.1 Power leg. HCTL curves.

JUSTIFICATION: The conditions given require EOP entries in PPM 5.2.1 Primary Containment Control, which directs that PPM 5.1.1 RPV Control be entered at GT 110° F. 5.1.1 directs exiting to 3.3.1 with all control rods in. There are no conditions given which require an ED and ABN-SRV actions are superceded by the directions given in the EOPs . A is correct.

COMMENTS:

**COLUMBIA SRO WRITTEN EXAM RETAKE**

QUESTION # 20

EXAM KEY

05/05/2005

EX05019

---

The plant was operating at 75% power when a transient occurred that resulted in a loss of feedwater. Control rod 30-31 did not fully insert. None of HPCS, CRD, and RCIC could be started and level has been returned by low pressure systems to the normal operating band. All other plant systems operated as expected.

Which of the following is correct concerning these conditions?

As the Emergency Director, declare a(n)...

- A. Unusual Event.
- B. Alert.
- C. Site Area Emergency.
- D. General Emergency.

ANSWER: C

---

QUESTION TYPE: SRO

KA # & KA VALUE: 295031 2.4.38 – Ability to take actions called for in the facility emergency plan / including supporting or acting as emergency director 55.43.5 IMP 4.0

REFERENCE: PPM 13.1.1

SOURCE: **NEW QUESTION** – T1, GP1

LO: 6131

RATING: H3

ATTACHMENT: YES – PPM 13.1.1 pages 14 and 15

JUSTIFICATION: The loss of high pressure systems results in reactor level being reduced to TAF and ED to allow LP systems to inject. One control rod not inserting by itself does not require entry into the ATWS procedure. Therefore, the correct answer is C SAE.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 21

EXAM KEY

05/05/2005

EX05020

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A control rod withdrawal is in progress for a plant start up. Power is currently 250,000 counts on SRM A and C. SRM B and D indicate 95,000 counts.

Which of the following is correct for this condition?

- A. Enter PPM 4.603.A7.3-4 SCRAM SYSTEM A.
- B. Enter PPM 4.603.A7.2-7 ROD OUT BLOCK.
- C. Enter PPM 3.3.1 Reactor Scram.
- D. Control rod withdrawal can continue.

ANSWER: B

---

QUESTION TYPE: SRO

KA # & KA VALUE: 215004A2.04 – Ability to predict the impacts of the following on the SRM System; and based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:  
Upscale and downscale trips 55.43.5 IMP 3.7

REFERENCE: SD000132 rev/ 10, page 26

SOURCE: **NEW QUESTON – T2, GP1**

LO: 5795

RATING: H2

ATTACHMENT: NONE

JUSTIFICATION: The count level given for both A and C is above the scram setpoint on 2E5 counts. Since the shorting links are installed for a normal startup, the scram is not in affect. A and C are incorrect. The indications are above the rod block setpoint of 1.0E5 counts so D is incorrect. Since the rod block setpoint has been exceeded, B is correct.

COMMENTS:



# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 22

EXAM KEY

05/05/2005

EX05021

---

The plant is operating at 21% power following an outage. During the outage maintenance was performed on 6 SRVs with setpoints of 1165 psig and 1175 psig. These SRVs have not yet been declared operable.

Which of the following is correct concerning these conditions?

- A. Action must be taken within 1 hour to place the plant in Mode 2 within 7 hours and Mode 3 within 13 hours.
- B. The Mode Switch must be placed in SHUTDOWN immediately.
- C. Power can be increased to GT 25% as long as 2 of the inoperable SRVs are declared operable within 4 hours of exceeding 25% power.
- D. Power can be increased to 24% without declaring the SRVS operable.

ANSWER: D

---

QUESTION TYPE: SRO

KA # & KA VALUE: 239002 2.2.21 – Knowledge of pre and post maintenance operability requirements 55.43.2 IMP 3.5

REFERENCE: TS 3.4.3, 3.4.4, 3.0.4

SOURCE: **NEW QUESTON** - T2, GP1

LO: 10306

RATING: H3

ATTACHMENT: YES - TS 3.4.3, 3.4.4, 3.0.4

JUSTIFICATION: We have 18 SRVs and TS 3.4.3 requires only 12 to be operable for the safety function at GT 25% power. However, 3.4.4 requires that at least 2 be operable in the lowest 2 lift groups. The question states that there are no operable SRVs in the lowest 2 lift groups. TS 3.0.4 states that the specified condition of the operability must be allowed for an indefinite time for 3.0.4 to be utilized to go above 25% power (the condition is limited for 4 hours in this case). There is no 3.0.3 condition given in the question. Therefore, only D is correct. .

COMMENTS:

**COLUMBIA SRO WRITTEN EXAM RETAKE**

QUESTION # 23

EXAM KEY

05/05/2005

EX05022

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According to the Columbia Generating Station Facility Operating License, what is the maximum licensed power level?

- A. 3323 mwt
- B. 3386 mwt
- C. 3423 mwt
- D. 3486 mwt

ANSWER: D

---

QUESTION TYPE: SRO

KA # & KA VALUE: 2.1.10 Knowledge of conditions and limitations in the facility license. 55.43.1  
IMP 3.9

REFERENCE: Columbia License

SOURCE: **NEW QUESTION – T3**

LO: 10296

RATING: L2

ATTACHMENT: NONE

JUSTIFICATION: According to the facility operating license, 3486 is the max license power level. A is the old max level and B/C are incorrect combinations of the correct numbers.

COMMENTS: This question was added after deletion of the old 05022 to more evenly balance the exam to the requirements of 10CFR 55.43. The outline will be updated to reflect this change.

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 24

EXAM KEY

05/05/2005

EX00100

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The plant is operating at 97% power with a discharge from the Waste Collector Tank to the Circ. Water Blowdown line underway. An annunciator is received in the control room indicating that Process Rad Monitor FDR-RIS-606 (Radwaste Effluent) has failed downscale.

Which of the following is correct concerning these conditions?

- A. The discharge may continue for up to 30 days provided grab samples are collected and analyzed for radioactivity of at least  $10^{-7}$  micro curie/ml, at least once every 12 hours.
- B. The discharge may continue for up to 30 days provided that the discharge flow rate is estimated at least once every 4 hours during the release.
- C. Stop the discharge. The discharge may continue when 2 independent samples have been analyzed and 2 technically qualified members of the plant staff have independently verified the release calculations and the discharge valve lineup.
- D. Stop the discharge. The discharge may continue when a temporary monitor has been installed and the monitor calibration has been verified by analysis of 2 independent batch samples.

ANSWER: C

---

QUESTION TYPE: SRO

KA # & KA VALUE: 2.3.3 Knowledge of SRO responsibilities for auxiliary system that are outside the control room (e.g. / waste disposal and handling systems) 55.43.4

IMP 2.9

REFERENCE: ODCM 6.1.1 table 6.1.1.1-1

SOURCE: **BANK QUESTION from 2000 NRC exam – Slightly modified for clarification - T3**

LO: 7721 5650

RATING: H3

ATTACHMENT: YES - ODCM 6.1.1 table 6.1.1.1-1, PPM 4.602.A5.6-6

JUSTIFICATION: A and B are incorrect because they both allow the discharge to continue and the actions given are for the SW monitors and for the flow rate monitor of Rad Waste. D is incorrect because there is no action allowing the use of a temporary monitor in the place of FDR-RIS-606. C is correct. This is the action given in the ODCM.

COMMENTS:

# COLUMBIA SRO WRITTEN EXAM RETAKE

QUESTION # 25

EXAM KEY

05/05/2005

EX05007

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The plant is shutdown in Mode 5 with a complete core offload in progress. The outside air temperature is 110° F. Ops 2 reports that the general area temperature in the 471 RB west end (around E-SH-10) has been 105° F for the last 75 minutes. The temperature is due to maintenance on the ventilation system in the local area. All other plant equipment is operating normally.

Which of the following actions is correct for this condition?

- A. Immediately suspend movement of irradiated fuel in the secondary containment, core alterations, and initiate actions to suspend operations with a potential for draining the reactor vessel.
- B. The actions required can be delayed for a maximum of 4 hours due to the temperature increase resulting from a maintenance issue.
- C. Initiate action to restore the area to within the limits of Condition B in 4 hours.
- D. Initiate action to restore the area to within the limits of Condition C in 4 hours.

ANSWER: A

---

QUESTION TYPE: SRO  
KA # & KA VALUE: 295032EA2.02 - Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA TEMPERATURE: Equipment Operability 55.43.2 IMP 3.5  
REFERENCE: LCS 1.7.1 and TS 3.6.4.3  
SOURCE: **NEW QUESTION** – T1, GP2  
LO: 9540  
RATING: H4  
ATTACHMENT: YES – LCS 1.7.1 pages -1-3, 8, 15, &16 and TS 3.6.4.3 pages -1 - 3  
JUSTIFICATION: This high temperature for 75 minutes causes SGT div 1 and 2 to be inop under these conditions. The extra allotted 4 hours does not apply when Condition C is exceeded or the Condition B is exceeded for maintenance activities. B is incorrect. C and D are both incorrect because the allotted time would be 1 hour. A is correct per TS 3.6.4.3

COMMENTS: