

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 1

EXAM KEY

JANUARY 2009

---

Columbia is operating at full power in Mode 1. A Main Turbine trip causes a reactor scram. The lights in the Control Room go out and approximately 5 seconds later some of the lights come back on.

Which of the following describes the probable electrical plant lineup and what procedures would the Control Room Supervisor enter after receiving the scram report from CRO1?

- A. TR-B is powering SM-7 and SM-8. Enter PPM 3.3.1 Reactor Scram, and ABN-ELEC-GRID.
- B. DG-1 is powering SM-7 and DG-2 is powering SM-8. Enter PPM 3.3.1 Reactor Scram; PPM 5.1.1 RPV Control, and ABN-ELEC-GRID.
- C. TR-B is powering SM-7 and SM-8. Enter PPM 5.1.1 RPV Control, and ABN-ELEC-GRID.
- D. DG-1 is powering SM-7 and DG-2 is powering SM-8. Enter PPM 5.1.1 RPV Control, and ABN-ELEC-GRID.

ANSWER: C

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295003 AA2.05 Ability to determine and/or interpret the following as they apply to Partial or Complete loss of A.C. Power: Whether a partial or complete loss of A.C. power has occurred. (3.9 / 4.2) 55.43.5

REFERENCE: SD000182 pages 55, 60, 61; PPM 5.1.1; SD000200 page 41; ABN-ELEC-GRID page 2

SOURCE: New

LO: 5050 Describe the cause-and-effect relationship for: a. "N" and "S" breakers on each bus; b. breakers DG1-7, B-7, B-8 and DG2-8.

RATING: H2

ATTACHMENT: None

JUSTIFICATION: TR-S should have immediately closed in but did not which is indicated by the lights going out. TR-B closes in on SM-7/8 5.5 seconds after UV on SM7/8 and when it does, some of the lights come back on (All don't come on because CR lights on MC-7E and 8E are load shed). It takes at least 10 seconds for DG-1/2 to come up to

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

speed and then close in (B and D are incorrect); PPM 3.3.1 is not entered by the CRS (A is incorrect). PPM 5.1.1 will always be entered due to low RPV Level (A is incorrect) and ABN-ELEC-GRID is entered due to the unanticipated loss of TR-S.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 2

EXAM KEY

JANUARY 2009

---

Columbia was operating in MODE 1 when events occurred that required the Shift Manager to decide to abandon the Main Control Room. All immediate actions were completed by the crew prior to leaving. The following plant conditions now exist:

Reactor Power is 4 percent and steady  
One SRV is cycling  
RPV level is -10 inches and up slow  
Drywell pressure is 1.3 psig and up slow  
Suppression Pool temperature is 85° and up slow

Which of the following procedures should the crew perform?

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

ANSWER: D

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295016 2.4.16 Knowledge of EOP implementation hierarchy and coordination with other support procedures (3.0 / 4.0) 55.43.5

REFERENCE: ABN-CR-EVAC Page 7

SOURCE: Bank modified LO01620

LO: 6105 State which procedures have priority/precedence over all other operating procedures when an emergency exists.

RATING: H2

ATTACHMENT: None

JUSTIFICATION: EOP 5.1.1 could be entered on SRV cycling and RPV level; EOP 5.1.2 could be entered from 5.1.1 on failure to scram; There is no current entry into PPM 5.2.1; Per ABN-CR-EVAC note, the ABN supersedes EOPs and PPM 3.3.1 (D is correct)

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 3

EXAM KEY

JANUARY 2009

---

Columbia is in MODE 5 with the fuel shuffle on going and the Drywell open for outage maintenance activities. A fuel bundle free falls from the fuel grapple and lands on the reactor flange. In response to the event, Reactor Building Ventillation isolates and both Standby Gas Treatment systems auto start.

Which of the following is correct for these conditions?

- A. Enter PPM 5.4.1, Radioactivity Release Control.
- B. Enter PPM 5.3.1, Secondary Containment Control.
- C. Enter ABN-RAD RELEASE.
- D. Enter ABN-RAD-HIGH.

ANSWER: B

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295023 AA2.01 Ability to determine and/or interpret the following as they apply to Refueling Accidents: Area Radiation Levels (3.6 / 4.0) 55.43.4 and 5

REFERENCE: PPM 5.3.1 entry condition

SOURCE: New

LO: 8017 Given plant conditions, recognize an EOP entry condition(s) and enter the appropriate flow chart.

RATING: H2

ATTACHMENT: None

JUSTIFICATION: RB Ventillation isolating and SGT starting is indication a 'Z' signal exists which is entry condition into EOP 5.3.1; EOP 5.4.1 is entered on offsite release (A is incorrect); Entry conditions do not exist for either of the ABNs (C & D incorrect)

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 4

EXAM KEY

JANUARY 2009

---

A series of events has resulted in the following:

MSIVs - closed  
Suppression Pool Temperature is 111°F  
RPV Level is -140" and is steady  
2 SRVs are being cycled to maintain RPV Pressure

Based on the current plant status, what should be the next level band directed by the CRS?

- A. -140" to -80"
- B. -155" to -65"
- C. -161" to -65"
- D. -183" to -161"

ANSWER: D

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295037 EA2.02 Ability to determine and/or interpret the following as they apply to Scram Condition Present and Reactor Power above APRM Downscale or Unknown: Reactor Water Level (4.1 / 4.2) 55.43.5

REFERENCE: PPM 5.0.10 pages 149, 150, 151. PPM 5.1.2 flow chart level leg

SOURCE: New

LO: 8108 Given a list, identify the statement that describes the reasons for maintaining the specified RPV water level for the following conditions: 3. Level/Power Conditions exist

RATING: H2

ATTACHMENT: None

JUSTIFICATION: Parameters given indicate that Level/Power conditions exist. RPV level is lowered to -161" and no less than -183" (D is correct). -140 to -80 is the normal level band for ATWS (A is incorrect). -155' to -65 is current level to highest LL allowed in an ATWS (B is incorrect) -161" is lower end of band without level/power conditions and -65 is highest level in ATWS (C is incorrect).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 5

EXAM KEY

JANUARY 2009

---

Columbia is in MODE 5 during a refueling outage with fuel shuffle underway. SM-8 is currently de-energized for maintenance. Forty five minutes ago, RHR-P-2A developed low discharge pressure and was secured.

Based on the above information which of the following is correct?

- A. Within the next hour verify an alternate method of decay heat removal is available.
- B. Immediately suspend loading irradiated fuel into the RPV.
- C. Within the next 15 minutes verify reactor coolant circulation by an alternate method.
- D. Within the next 3 hours and 15 minutes initiate actions to suspend OPDRVs.

ANSWER: C

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295021 2.2.26 Loss of Shutdown Cooling - Knowledge of Refueling administrative requirements (2.5 / 3.7) 55.43.2

REFERENCE: TS 3.9.8 pages 1 and 2; 3.5.2 pages 1 and 2

SOURCE: New

LO: 9670 Given appropriate conditions, indications and copies of Technical Specifications, determine when an entry condition is met and interpret required Technical Specification actions from an analysis of plant conditions.

RATING: L3

ATTACHMENT: Yes – TS pages 3.9.8-1 and 3.9.8-2; 3.5.2-1 and 3.5.2-2

JUSTIFICATION: Question implies no RHR loop is in SDC sending you to Tech Spec 3.9.8. A is incorrect as this would be 1 hr 45 min. after condition A is met and is required within 1 hour. B is incorrect as it gives you a total of 1 hour as per action A.1 – you would have an additional 15 minutes before having to do this; C is correct because the 1 hr time clock is over in 15 minutes. D is it would be required after 1 hour per action B.1; D is incorrect because the spec is not applicable as water would be GT 22 ft above flange.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 6

EXAM KEY

JANUARY 2009

---

Columbia experienced a LOCA. When the Reactor was manually scrammed, all rods did not go in. Reactor power is 2% and steady, Drywell Pressure is 12 psig and trending up slow and Suppression Pool temperature is 85°F and steady. The Shift Manager declares a Site Area Emergency.

Which of the following prompts the Shift Manager to declare a Site Area Emergency and what actions should the CRS direct?

- A. Suppression Pool Level indicates 19 ft. 1 inch. Direct HPCS initiation per PPM 5.5.23.
- B. Wetwell Pressure indicates 12 psig. Direct Drywell sprays be initiated per PPM 5.2.1.
- C. RPV/L indicates -181". Enter PPM 5.1.5 and direct an Emergency Depressurization.
- D. An ATWS exists. Enter PPM 5.1.2 and direct PPM 5.5.10 and PPM 5.5.11 to insert rods.

ANSWER: B

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295024 AA2.04 Ability to determine and/or interpret the following as they apply to High Drywell Pressure: Suppression Chamber Pressure (3.9 / 3.9) 55.43.5

REFERENCE: PPM 13.1.1 block 3.1.S.1; PPM 5.2.1

SOURCE: New

LO: 6131 With the procedures available for reference and plant conditions such that an emergency classification be declared, correctly classify the event.

RATING: H3

ATTACHMENT: Yes - PPM 13.1.1 blocks for 2.2.S.1; 3.1.S.1; 2.1.S.1; 3.2.U.1

JUSTIFICATION: The SAE is declared due to 3.1.S.1 – Drywell pressure response not consistent with LOCA conditions as WW and DW pressures are almost equal. Normal dP is 5 psig. A is incorrect as a UE would be declared. C is incorrect as RPV/L would need to be -183" for SAE. D is incorrect as all the conditions for 2.2.S.1 are not met.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 7

EXAM KEY

JANUARY 2009

---

Columbia is operating at 80% power. A malfunction in the DEH system causes the governor valves to start to slowly go closed.

Which of the following explains the plant response to the failure and what procedure would be entered first to mitigate the transient?

- A. Reactor power will rise. ABN-PRESSURE will be entered.
- B. Reactor power will drop. ABN-PRESSURE will be entered.
- C. Reactor power will rise. ABN-POWER will be entered.
- D. Reactor power will drop. ABN-POWER will be entered.

ANSWER: A

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295025 EA2.02 Ability to determine and/or interpret the following as they apply to High Reactor Pressure: Reactor Power (4.2 / 4.2) 55.43.6

REFERENCE: ABN-PRESSURE page 2 and 12; ABN-POWER page 2

SOURCE: New

LO: 11666 Explain the cause-effect relationships between the DEH Control System and the following: Reactor power

RATING: H3

ATTACHMENT: None

JUSTIFICATION: Closing of the GVs causes RPV/P to rise (B and D are incorrect) ABN-PRESSURE is the procedure utilized to mitigate the rise in RPV Pressure caused by GVs closing. ABN power is also entered but ABN pressure mitigates the failure.(C is incorrect).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 8

EXAM KEY

JANUARY 2009

---

Columbia is shutdown in a refueling outage with a complete core offload in progress. There are two evolutions in progress, that if not coordinated, could drain the reactor vessel. The outside air temperature is 110°F. OPS2 contacts the Control Room and reports that the general area temperature on the 471' elevation of the Reactor Building West side (area around SH-10 breaker) has been 105°F for the last 75 minutes. The high temperature is partially due to maintenance on the ventilation system in that area of the plant.

Which of the following is correct?

- A. Immediately initiate actions to suspend operations that have a potential of draining the reactor vessel.
- B. Initiate actions to restore the areas temperature to within limits of Condition C within 4 hours.
- C. Any required action may be delayed for up to four hours because the temperature increase was partially due to maintenance activities.
- D. Immediately suspend movement of irradiated fuel in the Secondary Containment.

ANSWER: A

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295032 EA2.02 Ability to determine and/or interpret the following as they apply to High Secondary Containment Area Temperature; Equipment Operability (3.3 / 3.5)  
55.43.2

REFERENCE: LCS 1.7.1; TS 3.4.6.3

SOURCE: Bank LO01643

LO: 9540 Given appropriate conditions, indications, and copies of Technical Specifications, determine when an entry condition is met and interpret the required Tech Spec actions from an analysis of plant conditions.

RATING: H4

ATTACHMENT: Yes - LCS 1.7.1; TS 3.6.4.3

JUSTIFICATION: High temp for 75 minutes causes both trains of SGT to be inoperable. TS 3.6.4.3 requires OPDRVs be suspended (A is correct). The delay of 4 hours does not apply (C is incorrect). Suspending movement of irradiated fuel was a requirement prior to source term revision (D is incorrect). B is incorrect because requirement is 1 hour,

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

COMMENTS: not 4 hours.  
DO I NEED TO INCLUDE THE ENTIRE LCS OR CAN I PUT IN JUST THE  
PAGES NEEDED?

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 9

EXAM KEY

JANUARY 2009

---

Following a Loss of Coolant Accident and subsequent reactor scram, Drywell pressure reached 13 psig. Additionally, Drywell and Wetwell hydrogen concentrations have increased to 6.2 percent and Drywell and Wetwell oxygen concentrations have increased to 3.6 percent.

The Incident Advisor then informs you that the following plant conditions now exist:

Drywell pressure is now 17 psig

Hydrogen in the Drywell has been reduced to 5.8 percent and Oxygen in the Drywell is now 4.8 percent

Hydrogen in the Wetwell is still 6.2 percent and Oxygen in the Wetwell is now 5.2 percent

ODCM RFO Limits of TABLE 27 will not be exceeded

Which of the following actions is correct for this situation?

- A. Enter PPM 5.1.3 and perform an Emergency Depressurization.
- B. Spray the Wetwell and Drywell. Disregard adequate core cooling if necessary.
- C. Stop operation of the Drywell recirculation fans.
- D. Perform PPM 5.5.21. Disregard offsite release rates limits if necessary.

ANSWER: A

---

QUESTION TYPE: SRO Closed  
KA # & KA VALUE: 500000 EA2.03 Ability to determine and/or interpret the following as they apply to High Primary Containment Hydrogen Concentrations: Combustible limits for Wetwell (3.3 / 3.3) 55.43.5

REFERENCE: PPM 5.2.1

SOURCE: New

LO: 11150 Given plant conditions and EOP flowcharts, evaluate plant conditions and determine the appropriate actions according to EOP 5.2.1

RATING: H2

ATTACHMENT: Yes - PPM 5.2.1 PC Gas leg

JUSTIFICATION: ED is required per leg U due to combustible limit reached in WW A is correct). 5.5.21 can be performed but release rates limits are not disregarded because combustible levels do not exist in DW (D is incorrect). DW recirc fans are stopped if DW combustible levels are exceeded (C is incorrect). Only WW sprays can be initiated with adequate core cooling disregarded (B is incorrect).

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 10

EXAM KEY

JANUARY 2009

---

Columbia is starting up following a maintenance outage. Main Generator output is 760 MWe. Problems with screen fouling in the Circ Water basin has caused a delay in the startup. Backpressure is currently 5.5” Hg and going up (getting worse) at the rate of 1” hg per hour.

Assuming no reduction in Main Generator output and the backpressure trend continues at this rate, which of the following is correct?

- A. Columbia can remain on line for 1.5 hours but then a manual Reactor scram and Main Turbine trip will be required within the following half hour.
- B. An immediate Reactor scram and Main Turbine trip is required due to exceeding backpressure limits.
- C. Within the next hour, a required manual Reactor scram will be inserted and then the Main Turbine will be tripped.
- D. The Main Turbine will automatically trip on high backpressure at 8 “ Hg. which will then cause an automatic Reactor scram.

ANSWER: C

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 295002 2.4.49 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls (4.0 / 4.0) 55.43.5

REFERENCE: ABN-VACUUM

SOURCE: New

LO: 6785 Describe the immediate actions (and bases) required for a Loss of Main Condenser Vacuum and the desired effect these actions will have.

RATING: H2

ATTACHMENT: Yes – Attachment 7.1 of ABN-VACUUM

JUSTIFICATION: Per ABN-VACUUM, if backpressure gets within 1” of trip setpoint a scram and MT trip is required. The parameters and trends given will put operation within the 1” limit within the next hour (C is correct and B is incorrect). A is incorrect as it does not take into account the procedure requirement to scram/trip within 1” of limit. D is incorrect as it is limit for output at GT 840 MWe.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 11

EXAM KEY

JANUARY 2009

---

During operation in MODE 1, LPCS-P-2 trips. Direction is given to start LPCS-P-1 and RHR-P-2A. Before RHR-P-2A can be started, the “RHR A PUMP DISCH PRESS HIGH/LOW” alarm annunciates and the control power fuses are pulled to prevent a pump start. A short time later a LOCA and a Loss of Offsite Power occur. The following plant conditions now exist:

DG-2	Inoperable
HPCS-P-1	tripped
LPCS-P-1	injecting at 6800 gpm
Reactor pressure	150 psig down slow
Reactor level	-50 inches down slow
Drywell pressure	16 psig up slow
Wetwell pressure	11 psig up slow
SP temperature	108 degrees F and up slow

Which of the following is the correct concerning the use of RHR-P-2A?

- A. Leave the control power fuses removed and do not use RHR-P-2A.
- B. Fill and vent ‘A’ RHR system, reinstall the control power fuses and then spray the Wetwell and place the remainder of available flow into Suppression Pool cooling.
- C. Reinstall the control power fuses and commence injection into the RPV.
- D. Reinstall the control power fuses and spray the Wetwell and then spray the Drywell.

ANSWER: C

---

QUESTION TYPE: SRO closed

KA # & KA VALUE: 203000 A2.17 Ability to (a) predict the impacts of the following on RHR/LPCI Injection Mode and b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Keepfill System Failure (3.3 / 3.5) 55.43.5

REFERENCE: ARP 4.601.A4 drop 3-1; PPM 5.0.10; PPM 5.2.1

SOURCE: New

LO: 11144 Given plant conditions and EOP flowcharts, evaluate plant conditions and determine the appropriate actions according to EOP 5.1.1.; 11150 Given plant conditions and EOP flowcharts, evaluate plant conditions and determine the appropriate actions according to EOP 5.2.1.

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

RATING: H3

ATTACHMENT: None

JUSTIFICATION: Per note in ARP, the RHR pump can be restarted for EOP related activities (A and B are incorrect). Fill and Vent is required per ABN-RHR-DEPRESS but EOPs override ABNs (B is incorrect). Correct use for RHR A after fuses are installed is to inject. (C is correct). Spraying the DW is not permitted until WW/P is GT 12 psig, not Drywell pressure. (D is incorrect).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 12

EXAM KEY

JANUARY 2009

---

Columbia is in MODE 5 with all control rods fully inserted. A fuel bundle is in transit between the spent fuel pool and the reactor cavity. SRM-A and SRM-C are both out of service with maintenance troubleshooting underway to repair the instrument drawer.

During troubleshooting activities, the I&C Technician inadvertently moves the Mode Switch for SRM-B out of the 'OPERATE' position.

Which of the following is correct?

- A. Only one SRM channel is required to be operable for this Mode of operation. The fuel shuffle may continue per the approved NCTL.
- B. Return at least one SRM to operable status within 4 hours. The fuel shuffle may not continue, place the fuel bundle in a temporary location that is designated on the NCTL.
- C. Immediately suspend control rod withdrawals. The fuel shuffle can continue if the operable SRM is in the quadrant where the bundle will be placed.
- D. Immediately suspend core alterations except for control rod insertions. Place the fuel bundle back in its original location and orientation.

ANSWER: D

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 215004 2.2.24 SRM System – Ability to analyze the affect of maintenance activities on LCO status (2.6 / 3.8) 55.43.2; 55.43.7

REFERENCE: TS 3.3.1.2; PPM 6.3.2 page 15.

SOURCE: New

LO: 10294 Given appropriate conditions, indications and copies of Technical Specifications, interpret required Technical Specification actions from an analysis of plant conditions.

RATING: H2

ATTACHMENT: Yes – TS 3.3.1.2 pages 1, 2, and 6

JUSTIFICATION: Table 3.3.1.2-1 requires 2 SRMs in Mode 5 (A is incorrect). B and C are incorrect as these are Mode 2 requirement. Additionally, the fuel bundle should be placed in a temp. location designated on NCTL (D is correct).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 13

EXAM KEY

JANUARY 2009

---

The following plant conditions exist:

A loss of offsite power has occurred and DG-2 is the only source of power available  
RHR 'B' system is tagged out for maintenance and RHR-P-2C has a shaft shear  
Efforts are being made to return RHR 'B' to service but no source of RPV injection is currently available  
RPV level is -170 inches and trending down slow  
RPV pressure is being maintained 800 psig to 1000 psig and one SRV is currently opened

A malfunction of both CIA programmers renders the continuous SRV pneumatic supply unavailable.

Which of the following actions should be taken?

- A. When RPV level decreases to -183 inches, Emergency Depressurization of the RPV is required.
- B. Emergency Depressurization of the RPV is now required.
- C. When RPV level reaches -201 inches, PC Flooding would be required.
- D. Place control switches for all SRVs to the 'AUTO' position.

ANSWER: B

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 239002 2.4.7 SRVs Knowledge of event based EOP mitigation strategies (3.1 / 3.8)  
55.43.5

REFERENCE: PPM 5.1.1

SOURCE: New

LO: 8057 Given a list, identify the conditions that exist when continuous SRV nitrogen supply is unavailable.

RATING: H3

ATTACHMENT: Yes – PPM 5.1.1 Level leg blocks L-13 to end and Leg N

JUSTIFICATION: With Steam Cooling required take override in pressure leg and enter leg N. Leg N override states that if one or more SRVs are used and SRV pneumatic supply becomes unavailable then ED is required (B is correct). A would be correct if block L-13 is answered incorrectly. C would be correct if Leg N were not entered. D could

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

be an action taken to maximize the remaining CIA pressure.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 14

EXAM KEY

JANUARY 2009

---

Columbia is operating at 88% power with no equipment out of service. Due to a valving error coincident with a planned surveillance, the High Pressure Core Spray system receives an initiation signal.

Concerning the initiation of the HPCS System, which of the following is correct?

- A. Reactor power would increase. ABN-POWER would be entered and CRO2 would check two Drywell pressure and two RPV level indicators and if no initiation parameter is met, would then secure HPCS-P-1 and close HPCS-V-4.
- B. Reactor power would decrease. ABN-POWER would be entered and CRO2 would check two Drywell pressure and two RPV level indicators and if no initiation parameter is met, would then secure HPCS-P-1 and close HPCS-V-4.
- C. There would be an increase in RPV level. ABN-LEVEL would be entered. CRO2 would check two RPV level indicators and when RPV Level is observed to be in normal operating band, CRO2 would then secure HPCS-P-1 and close HPCS-V-4.
- D. There would be a decrease in Reactor power. ABN-POWER would be entered and CRO2 would check a Drywell pressure and a RPV level indicator and if no initiation parameter is met, CRO2 would then secure HPCS-P-1 and close HPCS-V-4.

ANSWER: B

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 209002 A2.01 Ability to (a) predict the impacts of the following on High Pressure Core Spray System and b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:  
System Initiation (3.8 / 3.8) 55.43.5; 55.43.6

REFERENCE: ABN-POWER pages 2, 4, 12; SD000174 pages 12 & 13

SOURCE: New

LO: 11723 Describe the operational implications of the following concepts as they apply to the High Pressure Core Spray System: d. Inadvertent HPCS initiation

RATING: H3

ATTACHMENT: None

JUSTIFICATION: Inadvertent HPCS injection has been shown to cause a power drop and NOT a power increase. ABN-POWER is entered due to the HPCS initiation and directs

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

securing pump/valve closure on invalid signal. The bases and PPM 1.3.1 require 2 indicators be checked (2 Pressure/2 levels) B is correct. There is no entry into ABN-LEVEL given although level would go up (C is incorrect).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 15

EXAM KEY

JANUARY 2009

---

Columbia is operating at full power with SGT-FN-1B1 running for containment venting per SOP-CN-CONT-VENT. A trip of both Reactor Feedwater Pumps occurs. All systems respond as designed.

Which of the following describes the Standby Gas Treatments response and which procedures are entered to mitigate the effects of the event?

- A. SGT-FN-1B1 trips  
SGT-FN-1B2 auto starts  
SGT-V-1B (containment purge exhaust) was opened and now closes  
SGT-V-2B (Reactor Building intake) remains open, providing pressure control for the Reactor Building  
PPM 5.1.1, RPV Control, and ABN-FAZ are entered.
- B. SGT-FN-1B1 trips  
SGT-V-1B (containment purge exhaust) was opened and now closes  
SGT-V-2B (Reactor Building intake) remains closed  
RB HVAC maintains pressure control for the Reactor Building  
PPM 5.1.1, RPV Control, PPM 5.3.1, Secondary Containment Control, and ABN-FAZ are entered.
- C. SGT-FN-1B1 remains running  
SGT-FN-1B2 auto starts  
SGT-V-1B (containment purge exhaust) was opened and now closes  
SGT-V-2B (Reactor Building intake) was closed and now opens, providing pressure control for the Reactor Building  
PPM 5.1.1, RPV Control, is entered.
- D. SGT-FN-1B1 remains running  
SGT-V-1B (containment purge exhaust) was opened and now closes  
SGT-V-2B (Reactor Building intake) was closed and now opens, providing pressure control for the Reactor Building  
PPM 5.1.1, RPV Control, and ABN-FAZ are entered.

ANSWER: A

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 261000 A2.10 Ability to (a) predict the impacts of the following on Standby Gas Treatment System and b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:  
Low Reactor Water Level (3.1 / 3.2) 55.43.4, 55.43.5

REFERENCE: SD000144 Pages 7, 8, and 10 PPM 5.1.1 Entry Conditions; ABN-FAZ page 2; SOP-

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

SGT-START Pages 6 and 7

**SOURCE:** New

**LO:** 5828 State the SGT system response to a FAZ signal. Include all major valves, heaters, and fans and their associated time delays. 8017 Given plant conditions, recognize an EOP entry condition(s) and enter the appropriate flow chart.

**RATING:** H2

**ATTACHMENT:** None

**JUSTIFICATION:** A trip of both RFW pumps causes a -50" isolation (an 'A' signal). PPM 5.1.1 and ABN-FAZ are entered. There would be no entry into PPM 5.3.1 (C is incorrect). Fan 1B1 trips and fan 1B2 auto starts (B and D are incorrect). SGT-V-2B remains open. RB HVAC trips.

**COMMENTS:**

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 16

EXAM KEY

JANUARY 2009

---

Columbia has just entered MODE 2 following a refueling outage. Per OSP-CRD-C701, the Control Rod Coupling Integrity surveillance, the first affected control rod that requires a coupling check, rod 18-51, is being withdrawn. During the coupling check, the 'ROD OVERTRAVEL' annunciator (4.603.A7 1-8), is received.

Which of the following is correct concerning this alarm?

- A. The CRO should announce this as an expected alarm. This alarm signifies that the control rod is coupled. The alarm window should be flagged to indicate that it is an expected alarm if other coupling checks are to be performed. The ARP is referenced the first time and then need not be referenced again.
- B. This alarm signifies the control rod is not coupled. Entry into ABN-ROD is made which gives direction to insert the control rod to position 00 to accomplish recoupling. The control rod is then withdrawn to position 48 to verify coupling. This attempt is only allowed once.
- C. This alarm signifies the control rod is not coupled. Tech Spec 3.1.3 Action Statement C is entered. The alarm response procedure will provide direction to attempt to recouple the control rod. This attempt is only allowed once.
- D. This alarm signifies the control rod is not coupled. Entry into ABN-ROD is made which gives direction to insert the control rod fully within 3 hours and to disarm the control rod within 4 hours.

ANSWER: C

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 201003 A2.02 Ability to (a) predict the impacts of the following on the Control Rod And Drive Mechanism and b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:  
Uncoupled Rod (3.7 / 3.8) 55.43.5; 55.43.2

REFERENCE: 4.603.A7 1-8, ABN-ROD entry conditions; TS 3.1.3

SOURCE: New

LO: 10363 Given plant annunciation and indications, evaluate conditions for entry into ABN-ROD. 5219 Referencing Technical Specifications associated with the Control Rod Drive Mechanism and a set of plant conditions, determine as applicable the LCO, the action statement, and the appropriate bases.

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

RATING: H3

ATTACHMENT: Yes – Tech Spec 3.1.3 Pages 1, 2 and 3

JUSTIFICATION: If the annunciator is expected, which it is not, this is the action the CRO would take (A is incorrect). ABN-ROD does not have an entry for uncoupled rod (B is incorrect). ARP allows one attempt to recouple and then if not recoupled the TS 3.1.3 action C is entered, not ABN-ROD (D is incorrect). C is correct per the ARP.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 17

EXAM KEY

JANUARY 2009

---

A control rod withdrawal for start up is underway with power below the RSCS Low Power Setpoint (LPSP). Control rod 30-19 is being withdrawn from position 00 to position 12. At position 10, CRO1 notes an 'XX' indication and the DATA FAULT light illuminated.

Which of the following is correct?

The reed switch at position.....

- A. 08 failed to open. Refer to ABN-RMCS and if unable to enter a substitute position, drive 30-19 full in and declare it inoperable per Tech Spec 3.1.3, Control Rod Operability.
- B. 10 failed to close. Refer to ABN-RPIS. If unable to enter a substitute position, drive 30-19 full in, and declare it inoperable per Tech Spec 3.1.3, Control Rod Operability.
- C. 08 failed to open. Refer to ABN-RPIS to insert a substitute value in RSCS and RWM.
- D. 10 failed to close. Refer to ABN-RMCS to insert a substitute value in RSCS and RWM.

ANSWER: C

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 214000 A2.01 Ability to (a) predict the impacts of the following on the Rod Position Information System and b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:  
Failed Reed Switches (3.1 / 3.3) 55.43.5; 55.43.2

REFERENCE: SD000148 page 9 ABN-RPIS pages 2, 6, and 7

SOURCE: Bank Modified LO00194

LO: 7781 List the available rod position indications available on Panel P603 and PPCRS computer. 6708 Given plant annunciation and indications' evaluate conditions for entry into ABN-RPIS.

RATING: H2

ATTACHMENT: None

JUSTIFICATION: XX indicates reed switch 08 failed to open and 2 positions are being sent (08 and 10) (B and D are incorrect). You would drive rod full in and declare the rod inoperable per TS if unable to insert a substitute position but not per ABN-RMCS (per ABN-RPIS) (A is incorrect). C is correct per ABN-RPIS.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 18

EXAM KEY

JANUARY 2009

---

The plant is operating at 100% power. 'B' RHR was declared inoperable two days ago because of a ground on RHR-P-2B's motor. During an 'A' RHR Operability test, RHR-V-4A, Suppression Pool suction valve, was stroked closed, tripped on electrical overload mid-stroke, and was subsequently declared inoperable.

Which of the following is correct?

- A. Return either 'A' RHR or 'B' RHR to operable status within 8 hours.
- B. Close RHR-V-4A within 8 hours and verify affected penetration flow path is isolated once per 31 days.
- C. Initiate action within 1 hour to place the plant in Mode 2 within 7 hours, Mode 3 within 13 hours, and Mode 4 within 37 hours.
- D. Return either 'A' RHR and 'B' RHR to operable status within 72 hours, or be in Mode 3 within 12 hours and in Mode 4 within 36 hours.

ANSWER: A

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 226001 A2.11 Ability to (a) predict the impacts of the following on the RHR/LPCI: Containment Spray Mode and b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Motor Operated Valve Failures (3.0 / 3.0) 55.43.2

REFERENCE: TS 3.6.1.5-1; TS 3.6.1.3-1 & -2; TS 3.5.1-1, -2 & -3; TS 3.6.2.3-1

SOURCE: Bank - Modified LR01108

LO: 5783 Referencing Columbia's Technical Specifications associated with the RHR System and a set of plant conditions, determine as applicable the LSSS, the LCO, the action statement, and the appropriate bases.

RATING: H2

ATTACHMENT: Yes – TS 3.6.1.5-1; 3.6.1.3-1 and -2; TS 3.5.1-1, -2 and -3; TS 3.6.2.3-1

JUSTIFICATION: Tech Spec 3.6.1.5 (DW spray) requires returning one loop to operable status with 8 hours (A is correct). TS 3.6.1.3 requires isolating the penetration within 4 hours (8 hrs is for MSIVs) (B is incorrect). This TS would be applicable if other ECCS Systems/ADS valves were also inoperable (LCO 3.0.3). (C is incorrect). This LCO is correct for condition but is not as restrictive as 3.6.1.5 (D is incorrect).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 19

EXAM KEY

JANUARY 2009

---

Which of the following is correct concerning Rated Thermal Power (RTP) and operation of Columbia Generating Station?

Columbia's maximum RTP is .....

- A. 3846 MWt. If Reactor power exceeds 3846 MWt, Technical Specifications require immediate reduction in power to LT 3846 MWt.
- B. 3486 MWt. If Reactor power exceeds 3486 MWt, Technical Specifications require immediate reduction in power to LT 3486 MWt.
- C. 3846 MWt. If Reactor power exceeds 3846 MWt, actions will immediately be taken to reduce power per ABN-CORE.
- D. 3486 MWt. If Reactor power exceeds 3486 MWt, actions are immediately taken to lower MWt per ABN-POWER.

ANSWER: D

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 2.1.20 Ability to execute procedure steps (4.5 / 4.2) 55.43.1

REFERENCE: Tech Spec definitions page 1.1-6; ABN-POWER page 3

SOURCE: New

LO: 6747 State the immediate actions (and bases) associated with entry into ABN-POWER.

RATING: L2

ATTACHMENT: None

JUSTIFICATION: Per TS Definition RTP is 3486 MWt (not 3846 – A and C are incorrect). TS does not have a specific LCO for RTP (B is incorrect). Per ABN-POWER, if RTP exceeds 3486 actions are immediately taken to reduce RTP (D is correct).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 20

EXAM KEY

JANUARY 2009

---

During the fuel shuffle in a refueling outage, as the Refueling Floor Supervisor, you observe a fuel bundle that doesn't seem to have the correct orientation. You review the NCTL and note the fuel bundle's orientation is 180 degrees different from what the NCTL requires.

Which of the following is correct concerning this situation?

- A. This is not considered to be a fuel loading error nor is it considered to be a reactivity event. The Refuel Floor Supervisor has the authority to correctly orientate the fuel bundle and will document the move on the NCTL.
- B. This is considered to be a fuel loading error. The Refuel Floor Supervisor will correctly orientate the fuel bundle and document the move on the NCTL.
- C. This is not considered to be a fuel loading error. This is considered to be a reactivity event which should be brought to managements attention.
- D. This is considered to be a fuel loading error. The Reactivity Manager and the Shift Manager will determine how to resolve the error and must give permission to recommence the fuel shuffle.

ANSWER: C

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 2.2.28 Knowledge of new and spent fuel movement procedures (2.6 / 3.5) 55.43.7

REFERENCE: PPM 6.3.2 Precaution and Limitation 5.25 page 15

SOURCE: New

LO: 8816 Given copies of plant procedures locate and demonstrate an understanding of the procedural "prerequisites, precautions and limitations" (Refueling).

RATING: L3

ATTACHMENT: None

JUSTIFICATION: Per PPM 6.3.2, the SM and Reactivity Manager are notified and will resolve error and give permission to recommence core alts (C is correct). The RFO does not have authority to resolve error alone (A is incorrect). Neither the CRS nor the Reactivity Manager alone gives permission to restart core alt's (B and D are incorrect).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 21

EXAM KEY

JANUARY 2009

---

An Equipment Operator is required to enter a High Radiation Area to manipulate a valve. The Equipment Operator will be in the High Radiation Area for 15 minutes.

If the operator has received 951 mrem TEDE during the present quarter and 1031 mrem TEDE during the previous 3 quarters which of the following is correct?

- A. Complete a Planned Special Exposure Request for the Equipment Operator prior to the start of the job. This form is required because the Equipment Operator will exceed the yearly dose Admin limit of 2 Rem TEDE.
- B. Complete a Planned Special Exposure Request for the Equipment Operator prior to the start of the job. The Plant General Manager's review and approval is required.
- C. The Equipment Operator may perform the assigned task. A Planned Special Exposure Request is not required until the Equipment Operator will exceed a yearly dose total of 5 Rem TEDE.
- D. The Equipment Operator may perform the assigned task. A Planned Special Exposure Request is not required until the Equipment Operator will exceed a quarterly dose total of 2 Rem TEDE.

ANSWER: C

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 2.3.4 Knowledge of the radiation exposure limits and contamination control / including permissible levels in excess of those authorized (2.5 / 3.1) 55.43.4

REFERENCE: GEN-RPP-08 Page 3, 7, and 11

SOURCE: Bank Modified – LO00254

LO: 11257 Knowledge of 10 CFR: 20 and related facility radiation control requirements.

RATING: L2

ATTACHMENT: None

JUSTIFICATION: GEN-RPP-08 requires a PSE to be initiated prior to exposure when in excess of 10CFR20.1201 limits which is 5 Rem TEDE (C is correct and A and B are incorrect). The quarterly dose received is LT 1 Rem but Columbia has no quarterly admin limit any longer.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 22

EXAM KEY

JANUARY 2009

---

Which of the following is correct concerning automatic Protective Action Recommendation (PARs) and a Site Area Emergency declaration?

- A. Automatic PARs include evacuation of the Exclusion Area.
- B. Automatic PARs include evacuation of the Columbia River.
- C. Automatic PARs include sheltering all sections for a two mile radius and evacuation of affected sector 2-10 miles downwind.
- D. There are no automatic Protective Action Recommendations associated with a Site Area Emergency declaration.

ANSWER: B

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 2.4.44 Knowledge of the Emergency Plan Protective Action Recommendations  
(2.1 / 4.0) 55.43.5

REFERENCE: Classification Notification Form #24075 Block 5c

SOURCE: New

LO: 8893 Identify the required PARs for each Emergency Classification.

RATING: L3

ATTACHMENT: None

JUSTIFICATION: Per CNF, automatic PARs at SAE require Columbia River evacuation and not Exclusion area (B is correct and A and D are incorrect). Sheltering is required at a GE not a SAE (C is incorrect).

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 23

EXAM KEY

JANUARY 2009

---

BPA has contacted Columbia and requested a reduction in power to 85% for economic dispatch. During the downpower, a loss of the annunciators associated with H13-P601, H13-P602 and H13-P603 occurs. H13-P603.A7-1.1 'ANNUNCIATOR 125 VDC LOSS' is illuminated.

Which of the following is correct?

- A. The required Reactor scram is made promptly and a continuous walk down of all plant parameters on H13-P601, P602 and P603 must be started. All operations not essential to safe plant operations and surveillance testing must be stopped. An Unusual Event is declared immediately.
- B. The required controlled plant shutdown may commence immediately. A continuous walk down of H13-P601, P602 and P603 of scram parameters shall be performed during the plant shutdown. An Unusual Event is declared after 15 minutes if annunciation is not restored.
- C. The plant downpower is stopped. An Unusual Event is not declared as annunciation on Bd. C is still active. Continuously monitor non-annunciated plant and scram parameters on H13-P601, P602 and P603.
- D. The plant downpower is stopped. An Unusual Event is declared after 15 minutes if annunciation is not restored. Continuously monitor non-annunciated plant and scram parameters on H13-P601, P602 and P603.

ANSWER: D

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 2.4.32 Knowledge of operator response to loss of all annunciators (3.3 / 3.5) 55.43.5

REFERENCE: ABN-ANNUN Page 2 and 3; 4.P603.A7-1.1; PPM 13.1.1A page 122 (7.3.U.1 bases); OI-15 page 25

SOURCE: New

LO: 9972 Describe the actions required to be performed promptly for a Loss of Control Room Annunciators and discuss the desired effect these actions will have.

RATING: L2

ATTACHMENT: Yes – 13.1.1 Att. 5.1 - box for 7.3.U.1 (UE associated with loss of annunciation)

JUSTIFICATION: There is no 'required' scram or shutdown (A and B are incorrect); An Unusual

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

Event is required but 15 minutes is waited (A and C are incorrect). D is correct.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 24

EXAM KEY

JANUARY 2009

---

Columbia operating in MODE 1. Three hours ago SGT-FN-1A1 was tagged out for motor replacement. As the CRS, you receive a call from the Shift Support Supervisor, who informs you that the electricians have removed the power leads from SGT-FN-1B1 instead of from SGT-FN-1A1.

Which of the following Technical Specification actions, if any, is required?

- A. Enter LCO 3.0.3 and within 1 hour take actions to be in MODE 2 within the next 7 hours and MODE 4 within the next 37 hours.
- B. Return SGT-FN-1B1 to operable status within 7 days or be in MODE 3 in 12 hours and MODE 4 in 36 hours.
- C. Run SGT-FN-1B2 to verify 'B' SGT operability. SGT 'A' is required to be operable in 7 days or be in MODE 3 in 12 hours and MODE 4 in 36 hours.
- D. Both the 'A' and the 'B' SGT systems are still considered operable. No Tech Specs actions are applicable.

ANSWER: B

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 2.2.24 Ability to analyze the affect of maintenance activities on LCO status (2.6 / 3.8) 55.43.2

REFERENCE: TS 3.6.4.3-1 and -2 and bases pages 3.6.4.3-2 and -3

SOURCE: New

LO: 9670 Given appropriate conditions, indications and copies of Technical Specifications, determine when an entry condition is met and interpret required Technical Specification actions from an analysis of plant conditions. (Containment)

RATING: H3

ATTACHMENT: Yes - TS 3.6.4.3-1 and -2 and bases pages 3.6.4.3-2 and -3

JUSTIFICATION: Reliance for SGT operability with one primary fan (SGT-FN-1B2) and one backup fan (SGT-FN-1A2) is not allowed per bases therefore one train has to be declared inoperable – B is correct and D is incorrect. A is incorrect as both SGT trains need to be inop for Condition D to apply. C is the time for one SGT and not restored within the 7 day timeframe of Condition A.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**

QUESTION # 25

EXAM KEY

JANUARY 2009

---

From the list of events/activities, select the choice that contains only items that Operating Instruction OI-09 'Operations Standards and Expectations' includes is the standard for announcements to the made to the plant staff over the PA system?

1. Initiation of Wetwell Sprays – first initiation
2. Initiation of Drywell sprays – second initiation
3. Attaining 100% Reactor power – first time following startup
4. Flow reduction to maintain LT Tech Spec Thermal Power Limit
5. Reduction in power to 80% for control rod exercise
6. Starting COND-P-1A if it is the third condensate pump running
7. EOP PPM 5.1.1 entry
8. Reactor Building elevator being out of service

A. 1, 3, 5, 7

B. 2, 4, 6, 7

C. 1, 2, 5, 8

D. 4, 5, 6, 8

ANSWER: A

---

QUESTION TYPE: SRO Closed

KA # & KA VALUE: 2.1.14 Knowledge of system status criteria which require the notification of plant personnel (2.5 / 3.3) 55.43.5

REFERENCE: OI-09 page 22

SOURCE: New

LO: 6086 State what information should be announced to the plant staff over the PA system.

RATING: L2

ATTACHMENT: None

JUSTIFICATION: Item 2 is specifically called out in OI-09 as not being the standard. Additionally item 4 would not require a PA announcement. A is correct as incorrect choices B, C, and D include either 2 or 4.

COMMENTS:

**COLUMBIA GENERATING STATION  
SENIOR REACTOR OPERATOR WRITTEN EXAMINATION**