VCS 2 – ILO-1201 NRC Exam Proposed Key Changes

Question: RO 20

Proposed Change: Accept 'C' and 'D' as correct

Basis:

After further review of this question, it has been determined that procedural deficiencies exist between AOP-904 (Security Events), AOP-601 (Evacuation of Control Room) and AOP-602 (DAS Operations at Local Cabinets). Consequently, Answers C and D are correct.

The exam team developed this question from the guidance provided in AOP-904. During a security event in which the MCR must be evacuated, AOP-904 gives the crew the option to perform **EITHER** AOP-601 (Evacuation of Control Room) OR AOP-602 (DAS Operation at Local Cabinets). Per AOP-904 Background Document, the crew would perform either AOP-601 or AOP-602 based on which location is both safe and functional. Since the RSR was inaccessible, the crew should perform AOP-602. This makes Answer D correct.

However, AOP-601 and AOP-602 are actually written in such a way that AOP-601 must be performed before performing AOP-602. Additionally, AOP-602 must be performed concurrently with AOP-601. Based on this information, Answer 'C' is also correct. attached.

VCS 2 – ILO-1201 NRC Exam Proposed Key Changes

Question: RO 57

Proposed Change: There is no correct answer

Basis:

After further review of this question, it has been determined that there is not enough design documentation to justify a correct answer. During the final submittal of this question, the exam team made a change to remove SG1 Tube flushing from the stem of the question. This stem change was determined to also change the answer. The exam team determined that "Abnormal radiation in SG 2 will first be detected by radiation monitors in BDS" due to perceived transport time differences between SG blowdown (BDS) and condenser air removal system (TDS/CMS).

After reviewing the EPRI Report (Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines – Revision 4 (2001)), EPRI determined that the offgas radiation monitor (TDS/CMS) **may** have a time delay response of a several minutes and blowdown **may** have indications delayed as much as 1 hour. Additionally, the VCS 2 AP1000 simulator does not show any increase in BDS or TDS/CMS during a SG Tube Leak. VCS 1 simulator shows abnormal radiation during SG Tube Leak first appearing in the condenser offgas system. Furthermore, VCS can find no design documentation stating which system (BDS or TDS/CMS) will first detect abnormal radiation during a SG Tube Leak.

VCS 2 – ILO-1201 NRC Exam Proposed Key Changes

Question: RO 58

Proposed Change: Answer 'B' is now technically correct. However, SRO knowledge is required to arrive to the correct answer. This is no longer a valid RO question and should be removed from the exam.

Basis:

During the initial review of this question, the second part of the question was changed due to concerns that the second part was at the SRO level. Consequently, the second half of the question was changed to state the Control Rod not moving in the question stem was inoperable. This change made the second half of the question at the desired RO level. However, this change had the undesired effect of making the first half of the question be at the SRO level. Additionally, it changed the correct answer from 'D' to 'B'. The exam team failed to recognize this cause and effect phenomenon.

Depending on the rod control failure, rods can continue to move even while one rod remains stationary. This has been demonstrated to the candidates several times in the simulator. This was the exam team's intent when writing this question. Additionally, a rod deviation alarm alone would not stop rod motion.

For a rod to be inoperable, it has to untrippable. An untrippable rod is a stuck rod. This information can only be obtained from knowledge of Technical Specification Bases which is a SRO only job task. When a rod is stuck and rod control attempts to move the rod, an urgent rod control alarm is generated immediately and all of the rods do not move. This was confirmed in the simulator.

VCS 2 – ILO-1201 NRC Exam Proposed Key Changes

Question: RO 62

Proposed Change: There is no correct answer

Basis:

This question was greatly influenced by BL-5 training. The exam team and validators were initially trained by WEC using BL-5. BL-5 training stated that one Turbine bearing with vibrations at the Alarm setpoint (7 mils) for 30 minutes would cause an automatic turbine trip. Additionally, an automatic turbine trip would be immediately generated with one bearing at the Trip vibration setpoint (12 mils) and another bearing at the alarm vibration setpoint (7 mils). The 30 minute turbine trip was confirmed in the current BL-7 AOP-208 (Turbine Malfunctions). Consequently, the exam team and validators did not question the technical correctness of this question as written.

However, the exam team has recently discovered conflicting information in three TOS ARPs and APP-TOS-M3C-100 (TOS Component Control Requirements). There are now three different alarm vibration setpoints compared to the two alarm setpoints per the BL-7 AOP-208. There is a High (Alarm) Setpoint (7 mils), High-2 (no name) Setpoint (10 mils) and a High-3 (Trip) Setpoint (12 mils). Per the ARP, if one bearing is at the High-2 setpoint (10 mils) and another bearing is at the High level (7 mils) for 30 minutes, the turbine will trip automatically. Per APP-TOS-M3C-100, if one bearing is at the High-2 setpoint (10 mils) and another bearing is at the High level (7 mils) the turbine will trip automatically immediately. Additionally, per APP-TOS-M3C-100, if one bearing is at the High-3 setpoint (12 mils) and another bearing is at the High level (7 mils) the turbine will trip automatically immediately. APP-TOS-M3C-100 clearly states there is no turbine trip based on bearing vibrations at any level for 30 minutes. The simulator was used to confirm that it is modeled as described in APP-TOS-M3C-100.

Based on this new information, an argument can be made that per RO 62, an automatic turbine trip signal was first generated at 1016, 1031 or 1046. Stating a bearing is in alarm is now not enough to determine how the turbine trip circuitry will respond, since "in alarm" could be interpreted at 7 mils or 10 mils. Additionally, 3 different BL-7 documents describe 3 different turbine trips at different vibration setpoints.

VCS 2 – ILO-1201 NRC Exam Proposed Key Changes

Question: SRO 12

Proposed Change: Accept 'C' and 'D' as correct

Basis:

The original correct answer (D) is correct as shown in the original question worksheet pedigree. "At time 1200, the crew will perform compensatory actions contained in AOP-303 (Loss of DC Power or Instrument Power) to support hydrogen igniter operation." AOP-303 Step 6 has clear guidance to perform Attachment 3 "Load Shedding To Support Hydrogen Igniter Operation" if EDS-4-DC-1 (EDS Battery Charger) supply is not in-service for 2 hours.

The exam team used AOP-302 (Loss of AC Power) as a plausible distracter, since the candidates often confuse the specifics between AOP-302 and AOP-303. These two AOP's are very similar and are usually performed concurrently due to the design of the AP1000 electric plant. AC malfunctions will affect the DC system (usually the battery chargers) and this often causes concurrent use of the two AOPs.

When the exam team reviewed AOP-302, it found no direct references to the Hydrogen Igniters. Consequently, AOP-302 was used as a distracter. After further review of AOP-302 and its background document, it was discovered that Attachment 1(Diesel Generator Load Management), Step 21 has a step to determine the status of EDS4-DC-1 (Battery Charger). If the battery charger is not in service for 2 hours, Step 21 RNO has the crew to open several EDS breakers. The background document for Attachment 1 Step 21 states that load shedding is done to ensure Hydrogen Igniters remain available. The exam team failed to recognize this statement in the AOP-302 Background Document.

Based on this new information, 'C' and 'D' are both correct.

VCS 2 – ILO-1201 NRC Exam Proposed Key Changes

Question: SRO 21

Proposed Change: There is no correct answer

Basis:

When this question was developed, the exam team solely relied on the guidance of VCB-OAP-0100.5. The issue was not detected during validation due to the limited exposure of the validators to administrative procedures.

After further review, the guidance in VCB-OAP-0100.5 is not valid. The AP-1000 interface for alarms does not require or lend itself to jumper, bypass or lifted leads to suppress nuisance / invalid alarms. Furthermore and unknown to the exam team, the candidates were told during VCB-OAP-0100.5 training, the procedure from VCS Unit 1 was used and was not technically correct as it pertained to lifting / bypassing leads for suppression of nuisance / invalid alarms for Units 2 and 3. The candidates were further told that the VCB-OAP-0100.5 would be revised to describe the correct method to suppress nuisance / invalid alarms for Units 2 and 3.

Part 2 of SRO 21 asks if NND-OR-148 is an acceptable method of documentation long term removal of invalid annunciators. However NND-OR-148 was replaced to VCB-SAP-0148. This change was missed by the exam team. Consequently, NND-OR-148 is no longer valid and is not correct as indicated on the exam key.

Based on this new information, SRO 21 is not a valid question.