

**ILT-10 NRC Post Exam Comment  
Written Exam Question #56**

**Hatch Request:** For written exam Question #56, Revise 2<sup>nd</sup> part of answer and distractors:

**FROM:** (A2 and C2) ILLUMINATED / (B2 and D2) EXTINGUISHED

**TO:** (A2 and C2) WHITE FLASHING / (B2 and D2) GREEN SOLID

**The answer will remain “D”**

**Why the revision is necessary:**

In the original question, the intent of the 2<sup>nd</sup> half question is to determine whether a particular alarm will be alarming (flashing white), or whether it will auto reset (turn solid green) based on the conditions of the question. The original question asked whether the alarm would be ILLUMINATED (meaning alarming), or whether it would be EXTINGUISHED (meaning to reset). The issue of exact wording of the question happened in the mind of a student during the exam. The alarm is actually “ILLUMINATED” regardless of whether it is FLASHING WHITE (on) or is on as SOLID GREEN. The proposed wording of FLASHING WHITE or SOLID GREEN is technically accurate and will resolve the issue.

**This revision will change question wording:**

**FROM:**

- A. 10:01;  
ILLUMINATED
- B. 10:01;  
EXTINGUISHED
- C. 10:02;  
ILLUMINATED
- D. 10:02;  
EXTINGUISHED

**TO:**

- A. 10:01;  
WHITE FLASHING
- B. 10:01;  
GREEN SOLID
- C. 10:02;  
WHITE FLASHING
- D. 10:02;  
GREEN SOLID

## **ILT-10 NRC Post Exam Comment Admin 5 JPM**

### **Recommendation for 2016-301 ADMIN 5 (Evaluate an RWP and Survey Map):**

Change Step 1 of the ADMIN 5 JPM from a Critical Step to a step that is NOT CRITICAL. This will allow 2 critical steps to remain in the JPM.

- Step 2 to determine the estimated dose
- Step 3 to determine whether the task can be completed without exceeding the RWP limits.

### **Reasoning:**

Information provided to the student on a RADIS survey map did not provide information which indicated that the condition inside the Condenser Bay required the Condenser Bay to be posted as a LOCKED HIGH Radiation area based on radiation indications provided. There were no areas indicated as >1000 mR/hr. Neither RWP will allow the job to be completed with estimated dose estimate.

### **Definition of a LOCKED HIGH Radiation area:**

An accessible area in which a person could receive a whole body dose of at least 1000 mrem in one hour (1000 mrem/hr) at 30 centimeters (about 12 inches) from the source. The sign will have the symbol of a lock and key. Health Physics controls the keys to Locked High Radiation Areas.

### **Definition of a HIGH Radiation area:**

An accessible area in which a person could receive a whole body dose of at least 100 mrem in one hour (100 mrem/hr) at 30 centimeters (about 12 inches) from the source.

The original JPM submitted was a JPM from a previous license exam. The Initial Conditions for this location would have the operator plan to perform work in a diagonal. The item tested was calculation of dose and stay time. We were asked to replace this JPM.

We drafted a new JPM which went through several drafts before the final version (current version of ADMIN 5) was approved.

One version of the JPM reviewed for this exam did include an area with >1000 mR/hr. It also included an additional survey map which showed the entrance doors on the 112 foot elevation level to the Condenser Bay posted with a LOCKED HIGH Radiation symbol.

The FINAL version of the JPM survey map with a maximum radiation level of 105 mR/hr (clearly a HIGH Radiation area, but not obviously a LOCKED HIGH Radiation area).

The 112 ft elevation survey map was removed

## **ILT-10 NRC Post Exam Comment CR/SIM 3 JPM**

**JPM Task:** CR-SIM 3 Open MSIVs In Emergency

**Why the comment is necessary:**

Four (4) License Applicants opened MSIVs prior to equalizing pressure across the MSIVs during the ILT-10 Initial License Exam. The procedure directs the operator to equalize around the MSIVs and establish a dp of less than 200 psid before proceeding. Prior to equalizing pressure across the valves, the dp was approximately 900 psid. The JPM step (step 13) to verify dp <200 psid is not a critical step in the JPM.

The NRC Chief Examiner then stated the need to add a statement describing the consequences of opening MSIVs with 900 psid dp across them.

**Hatch Comment:**

The intent of the JPM is for applicants to:

1. Ensure Condenser Low Vacuum and Low Water Level isolations are bypassed
2. Reset the Group1 Isolation (CRITICAL STEP)
3. Open the Outboard MSIVs (CRITICAL STEP)
4. Open 2B21-F016 and 2B21-F019 (CRITICAL STEPS)
  - a. The MSL Drain valves are opened to reduce differential pressure across the Inboard MSIVs less than 200 psid.
5. Verify that pressure is below 200 psid
6. Open the Inboard MSIVs (CRITICAL STEP)

While the action of opening MSIVs with such high dp across them is certainly not a desired action, the consequences of opening the valves is not currently known and would require considerable analysis to understand the impact.

- Further analysis is needed to determine the consequences of opening MSIVs with a differential pressure of ~900 psi across the valve.

## **ILT-10 NRC Post Exam Comment CR/SIM6 JPM**

**Hatch Request:** Concerning CR/SIM 6 JPM Transfer an Emergency 4160 VAC Bus from the Emergency to the Normal Power Supply, do not create a new CRITICAL STEP based on whether EDG 1B trips on reverse power during the administration of this JPM.

### **Why the comment is necessary:**

**Issue:** EDG 1B tripped on Reverse Power while the applicant was transferring 4160 VAC Bus 2F from EDG 1B to Startup Auxiliary Transformer (SAT) 2D. The question was asked “whether a critical step should be added to the JPM based on EDG 1B tripping on Reverse Power.”

### **Reasoning for why a Reverse Power Trip is NOT a CRITICAL STEP:**

When the EDG trips on reverse power, the output breaker trips open and prevents the EDG from becoming a motor. The generator protects itself when reverse power relay trips open the output breaker and shutting down the EDG well before the EDG will experience any damaging effects from motorizing the EDG.

NOTE: Generator Reverse Power trip only trips the EDG while it is in TEST mode.

### **IAW Event Review Team Report 96-12, PROBLEM ANALYSIS - D/G REVERSE POWER TRIPS:**

“These events (reverse power trips) are marginally significant from an equipment protection standpoint since damage could occur to the D/G during an actual reverse power condition if the reverse power trip feature did not function properly.”

In JPM CR/Sim 6:

- The JPM is a Normal evolution (no failures or alt path intended)
- The reverse power relay functioned as intended
- The potential for equipment damage was eliminated when it actuated and disconnected the EDG from the emergency bus

In the performance of this JPM, EDG 1B tripping due to reverse power does not constitute a CRITICAL STEP because the emergency bus remains energized from its normal power supply (SAT 2D), and no equipment damage or personnel injury occurs.