Level SRO Tier 2 Group 2 K/A# 011 2.4.4 Imp. RO 4.0 Imp. SRO 4.3

17. Pressurizer level is used as a decision point for SI actuation or SI re-initiation in several procedures. In which circumstance should we **NOT** initiate Safety Injection flow and transition to a different procedure?

a. Mode 1, implementing 1C4 AOP2, "Steam Generator Tube Leak", pressurizer level 30% and lowering with maximum charging.

b. Mode 3, implementing 1FR-P.1, "Response to Imminent Pressurizer Thermal Shock", SI terminated, pressurizer level 4% and lowering.

c. Mode 3, implementing 1ES-0.1, "Reactor Trip Response", pressurizer level is 3% and stable.

d. Mode 4, implementing 1ES-1.1, "Post-LOCA Cooldown and Depressurization", SI terminated, pressurizer level 6% and lowering.

ANSWER: B

Explanation:
- a For SG tube leak, there is no level value to initiate SI but reactor trip and SI are actuated if level can not be maintained with available charging flow.
- b Correct. FR-P.1 only uses RVLIS level to re-initiate SI.
- c Post trip, we should initiate SI if pressurizer level can not be maintained above 5%.
- d Post-LOCA, SI reinitiation pressurizer level criterion is 7%.

Technical References: 1C4 AOP2, "Steam Generator Tube Leak", 1FR-P.1, "Response to Imminent Pressurizer Thermal Shock", 1ES-0.1, "Reactor Trip Response", 1ES-1.1, "Post-LOCA Cooldown and Depressurization",

Objective: P8197L-011 P8197L-012 P8197L-014

KA Statement: Emergency Procedures/Plan: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. (Pressurizer Level Control System)

Cog. Level: LOW 10CFR55.41: YES 10CFR55.43: YES New Question: YES

Bank: Ques. ID: Modified: Last NRC Exam:

Recommend answer key be modified to accept B or D for SRO Question 17.

The question tests the candidates' ability to recognize entry conditions for emergency operating procedures. Specifically. the question asks "In which circumstance should we **NOT** initiate Safety Injection flow and transition to a different procedure?"

Choice B is correct and choices A and C are incorrect for the reasons stated in the answer key. However, choice D is also correct because although the circumstances do require initiation of SI flow, there is NO requirement to transition to a different procedure as required by the question stem. Refer to the SI reinitiation criteria on the information page of ES-1.1.

Ref: Information Page for ES-1.1 Procedure

INFORMATION PAGE FOR ES-1.1 PROCEDURE*

1. RCP TRIP CRITERIA - Trip both RCP's if conditions listed below occur:
   a. Injection flow exists to RCS:
      - AT LEAST ONE SI PUMP RUNNING AND FLOW INDICATED

      -OR-

      - AT LEAST ONE RHR PUMP RUNNING AND FLOW INDICATED
   b. RCS Pressure - LESS THAN 1250 PSIG [1575 psig]
   c. An operator controlled cooldown has NOT been initiated
2. SI TERMINATION CRITERIA - Go to ES-0.2 SI TERMINATION, if ALL conditions listed below occur:
   a. RCS subcooling based on core exit T/Cs - GREATER THAN 20°F [35°F]
   b. Total feed flow to intact SGs - GREATER THAN 200 GPM

      -OR-

      NR level in at least 1 intact SG - GREATER THAN 5% [WR 50%]
   c. RCS pressure:
      - GREATER THAN 2000 PSIG
      - STABLE OR INCREASING
   d. PRZR level - GREATER THAN 7% [27%]
3. SI REINITIATION CRITERIA - Start SI pumps as necessary if EITHER condition listed below occurs:
   - RCS subcooling based on core exit T/Cs - LESS THAN 20°F [35°F]
   - PRZR level - CANNOT BE MAINTAINED - GREATER THAN 7% [27%]
4. RED PATH SUMMARY
   a. SUBCRITICALITY - Nuclear power - GREATER THAN 5%
   b. CORE COOLING - Core exit TCs - GREATER THAN 1200°F

      -OR-

      Core exit TCs - GREATER THAN 700°F

      AND

      RVLIS full range - LESS THAN 40% WITH NO RCPs RUNNING
   c. HEAT SINK - Wide range level in both SGs - LESS THAN 50%

      AND

      Total feedwater flow - LESS THAN 200 GPM
   d. INTEGRITY - Cold leg temperature decrease - GREATER THAN 100°F IN LAST 60 MINUTES

      AND

      RCS cold leg temperature - LESS THAN 250°F
   e. CONTAINMENT - Containment pressure - GREATER THAN 46 PSIG
5. SECONDARY INTEGRITY CRITERIA - Go to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1, IF EITHER SG pressure is decreasing in an uncontrolled manner or has completely depressurized, and has not been isolated.
6. E-3 TRANSITION CRITERIA - Start SI pumps as necessary and Go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1, if either SG level increases in an uncontrolled manner or either SG has abnormal radiation.
7. RECIRCULATION SWITCHOVER CRITERION - If RWST level decreases to LESS THAN 33%, THEN go to ES-1.2, TRANSFER TO RECIRCULATION, Step 1.
8. AFW SUPPLY SWITCHOVER CRITERION - Switch to alternate AFW water supply if CST level decreases to less than 10000 gallons per C28.1 AOP2, LOSS OF CONDENSATE SUPPLY TO AUXILIARY FEEDWATER PUMP SUCTION.

*Adverse containment conditions are defined as a containment pressure greater than 5 psig or containment radiation level greater than 1E4 R/hr.