

**LOT 17 NRC Exam Question Analysis of High Missed Questions  
(Missed by  $\geq 6$  Applicants)**

Question #15 (Missed by 7 out of 12 applicants)

The correct response was "D". Distractor "A" (chosen by 2 applicants) is incorrect because the loss of the "A" RHR pump will cause letdown pressure to lower. PCV-0135 should be in manual, however, if it were in AUTO, it would close rather than open. Distractor "B" (chosen by 4 applicants) is incorrect because there is no "Automatic" feature associated with MOV-0066A. Distractor "C" (chosen by 1 applicant) is incorrect because PCV-0135 would have to be opened to raise Letdown Flow. Therefore, this question is valid. No exam changes are recommended.

Question #46 (Missed by 6 out of 12 applicants)

The correct response was "A". Distractor "B" (chosen by 1 applicant) is incorrect because procedurally, excess letdown is placed in service but is not directed to the RCDT. Distractor "C" (chosen by 4 applicants) is incorrect because normal letdown is not used under these conditions. Distractor "D" (chosen by 1 applicant) is incorrect because normal letdown is isolated prior to evacuating the control room and is not used under these conditions. Therefore, this question is valid. No exam changes are recommended.

Question # 59 (Missed by 6 out of 12 applicants)

The correct response was "B". Distractor "A" (chosen by 1 applicant) is incorrect because Power Range indication would be slightly lower, not higher due to the increased shielding caused by the colder water. Distractor "C" (chosen by 4 applicants) is incorrect because delta T indication would remain the same, not be lower since power generated by the reactor has not changed. Power Range indication would not remain the same, it would be lower as discussed above. Distractor "D" (chosen by 1 applicant) is incorrect because delta T indication would remain the same as discussed above. Therefore, this question is valid. No exam changes are recommended.

# POST-EXAM APPLICANT COMMENTS

## STP DECEMBER '09 WRITTEN EXAM

Question # 8 (Bank #929) - missed by 3 applicants, all chose "C"

Given the following conditions:

- Reactor power is at 15% with the SGWLC system in automatic on the Main Feed Reg Valves (MFRV's)
- #12 SGFPT is in service and in AUTO
- The SGFP Master Controller is in AUTO.
- Steam header pressure transmitter PT-557 fails high.

Which ONE of the following describes the INITIAL plant response?

	SGFP speed	Main Feed Reg Valves
A.	DECREASES	OPEN
B.	DECREASES	CLOSE
C.	INCREASES	OPEN
D.	INCREASES	CLOSE

ANSWER: D

**COMMENT:** When PT-557 fails, SGFP speed will rise. With Steam Dumps in the steam pressure mode, when PT-557 fails high steam dumps will open to try and lower steam pressure. When the Steam Dumps open, steam flow will rise above feed flow causing the SGWLCS to open the Main Feed Reg Valves to try and match feed flow with steam flow.

**RECOMMENDATION:** Accept both "C" and "D" as correct and revise the question before re-use. The question stem does not specify steam dump status (steam pressure or Tave mode is possible based on procedure guidance). When this scenario is run on the simulator in the Tave mode, Reg valves immediately close upon PT-557 failure. When run in the Steam Pressure mode, the Reg valves immediately open upon PT-557 failure.

# POST-EXAM APPLICANT COMMENTS

## STP DECEMBER '09 WRITTEN EXAM

Question #23 (Bank #1872) - missed by 3 applicants. 1 chose "A", 1 "B" and 1 "C"

Given the following:

- Unit 1 is in Mode 3
- A Pressurizer PORV has failed open and caused the PRT Rupture Disc to rupture.

Which of the below Containment parameters could be initially affected by this event AND indicates in the Control Room?

1. Air Temperature (RCFC Inlet)
2. ECCS Emergency Sump Level
3. RT-8011, RCS Atmosphere Rad Monitor
4. RT-8050, RCB High Range Area Monitor
5. Dewpoint

- A. 1, 2, 3
- B. 2, 3, 4
- C. 1, 4, 5
- D. 1, 3, 5

ANSWER: D

**COMMENT:** A Safety Injection signal would be generated prior to the rupture disc on the PRT failing. When the SI occurs, a Containment Ventilation Isolation signal is also generated which will isolate RT-8011 causing it to no longer indicate properly in the control room. With RCS leakage now into containment, depending on the activity in the RCS, RT-8050 would be affected making choice "C" correct.

**RECOMMENDATION:** Accept "C" and "D" as correct and revise the question before re-use. When run on the simulator from an NOP/NOT condition, a Safety Injection occurs well before the PRT rupture disc fails (causing RT-8011 to isolate). On the simulator, after the rupture disc fails, RT-8050 indication did rise. RT-8011's isolation results in loss of sample flow which changes its color-coded status on the Radiation Monitor Computer, thus it is affected which makes choice "D" correct. In addition, since RT-8050's indication did rise, then "C" would also be correct.

# POST-EXAM APPLICANT COMMENTS

## STP DECEMBER '09 WRITTEN EXAM

Question #55 (Bank #1842) - Missed by 3 applicants. all chose "A"

Given the following Unit 1 conditions:

- A Large Break LOCA has occurred
- Operators have completed OPOP05-EO-EO00, Reactor Trip or Safety Injection through step 4
- Containment pressure – 6.0 psig and stable
- Motor-driven AFW pumps – all running
- Turbine-driven AFW pump – not running
- Total AFW flow – 500 gpm
- Steam Generator NR levels range from 10 – 16%
- Addendum 5, Verification of SI Equipment Operation, is in progress at step 3, Verify AFW System Status.

As the Operator assigned to perform step 3 of Addendum 5, which one of the following correctly describes the MINIMUM required actions for step 3?

- A. Align AFW Regulating valves to achieve greater than 576 gpm total AFW flow using ONLY the running Motor-driven pumps.
- B. Align AFW Regulating valves to control ALL Steam Generator NR Levels between 14% and 50% with ONLY the running Motor-driven pumps.
- C. Manually OPEN steam supply valves to start the Turbine-driven AFW pump then verify total AFW flow is greater than 576 gpm.
- D. Manually OPEN steam supply valves to start the Turbine-driven AFW pump then control ALL Steam Generator NR Levels between 14% and 50%.

ANSWER: C

COMMENT: There is not a correct answer

RECOMMENDATION: Remove question from exam and revise before re-use. Step 3 of Addendum 5 only addresses the operation of the pumps (flow is addressed in step 5 - see attached). Therefore, the MINIMUM required action for step 3 for the condition in the question would be to open the steam supply valves.

# POST-EXAM APPLICANT COMMENTS

## STP DECEMBER '09 WRITTEN EXAM

OPOPO5-EO-E000

REACTOR TRIP OR SAFETY INJECTION

REV. 20

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### ADDENDUM 5 VERIFICATION OF SI EQUIPMENT OPERATION

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p><b><u>CAUTION</u></b></p> <p>Equipment should NOT be manually loaded on an ESF Bus until the respective ESF Load Sequencer has completed its automatic sequence OR it has been determined that the respective ESF Load Sequencer has failed to operate.</p>		
3	VERIFY AFW system status:	
	a. Motor-driven pump - RUNNING	a. <u>WHEN</u> the respective ESF Load Sequencer has completed its automatic sequence <u>OR</u> it is determined that the respective ESF Load Sequencer has failed, <u>THEN</u> manually START pump(s).
	b. Turbine-driven pump - RUNNING	b. Manually OPEN steam supply valves.
4	VERIFY AFW valve alignment - PROPER EMERGENCY ALIGNMENT	Manually ALIGN valves.
5	VERIFY total AFW Flow - GREATER THAN 576 GPM	PERFORM the following: a. Manually START pumps <u>AND</u> ALIGN valves to feed SGs. b. CONTROL AFW flow to maintain NR level BETWEEN 14% [34%] and 50%.