

Primary heat transport system: Steam generators, Shutdown cooling

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Table of Contents

1 QUIZ	3
1.1 QUESTIONS.....	3
1.2 ANSWERS.....	3

1 Quiz

1.1 Questions

1. How many steam generators are used in a typical Pressurized Water Reactor?
2. How many circulation pumps are used for each primary loop in PHWR?
3. Classify steam generators.
4. Wet steam contains
 - (a) sub-cooled water
 - (b) sub-cooled water and steam
 - (c) superheated steam + saturated water
 - (d) saturated water + saturated steam
5. What is the purpose of steam dryer in steam generators of PWR?
6. Why is cooling required for several hours even after shutdown of a nuclear reactor?
7. What is the role of emergency condenser in BWR?
8. Which one of the following is not true?
 - (a) during normal operation steam bypasses turbine and reaches condenser
 - (b) during shutdown steam bypasses turbine and reaches condenser
 - (c) no steam production after shutdown
9. When is RHR in PWRs used?

1.2 Answers

1. 4
2. 2
3. (i) once-through type with water (ii) horizontal U-tube type or (iii) vertical U-tube type
4. (d) saturated water + saturated steam
5. To remove the residual saturated water present in the steam
6. In order to remove heat generated due to decay of fission products and heat generated due to fissions by delayed neutrons

7. This comes to operation when the main condenser is isolated. Steam is condensed in this condenser and returned back to the core.

8. (a) and (c)

9. RHR is used when the decay heat is too low to generate steam