

**Final Oral Exam (as administered)**

**45 Minutes**

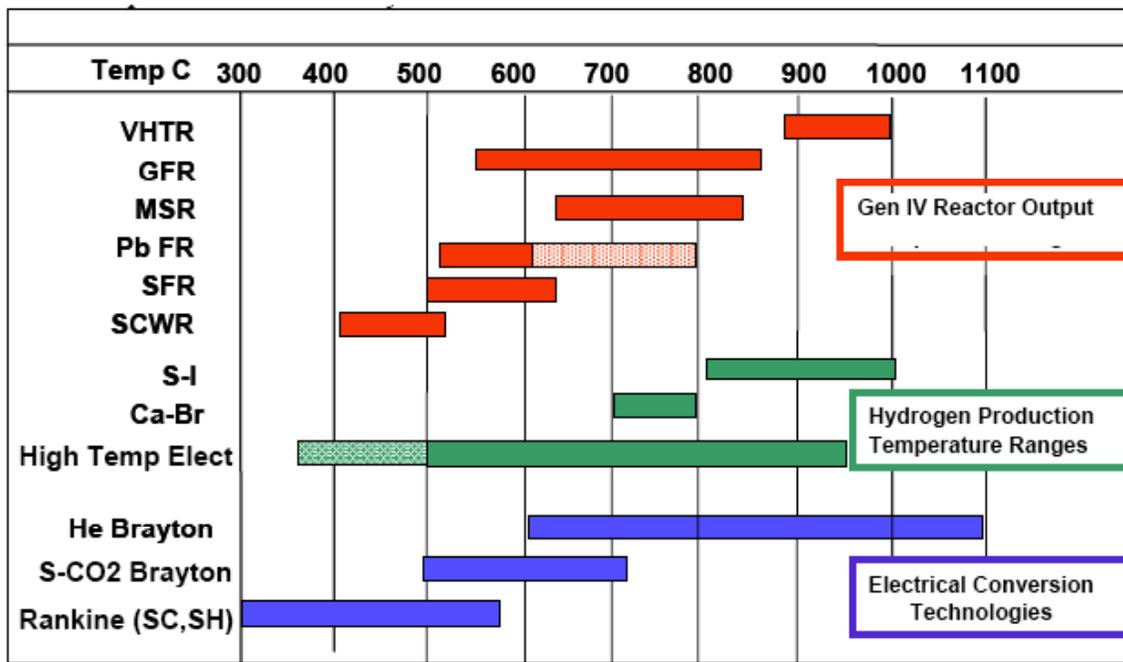
The Next Generation Nuclear Plant authorized by the US Energy Act of 2005 (August 8) for construction at the Idaho National Laboratory is to be a high temperature reactor capable of

1. production of electricity
2. production of hydrogen, or
3. production of electricity and hydrogen

You are asked to consider only option 3 in this question. Assume that 10% of the heat from the primary loop must be able to be diverted to the production of hydrogen. The remaining 90% will be used to produce electricity.

The attached figure from Class Note #1 may be of use to you.

Question: For the mission of Option 3 select the reactor type, reactor power rating, primary coolant, primary loop operating temperatures and the secondary side configuration and coolant. Explicitly discuss the safety and licensing challenges for this option and how you would address them.



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