

UNIVERSITY OF ILLINOIS
DEPARTMENT OF NUCLEAR, PLASMA AND RADIOLOGICAL ENGINEERING
NPRE 449 – Nuclear Systems Engineering and Design

Homework #1

1. (Read T-K chapter 1, NRC PWR, and NRC BWR handouts on box) Compare the PWR and BWR in terms of their basic features, characteristics of their thermodynamic cycle, and characteristics of the fuel.
2. Explain how decay heat is removed from a PWR, citing specific system(s) and how those system(s) operate.
3. What are the two purposes of the PWR ECCS? What system(s) within the ECCS is/are still available without electrical power? Explain how the system(s) work.
4. Explain how decay heat is removed from a BWR, citing specific system(s) and how those system(s) operate.
5. What systems make up the BWR ECCS? What system(s) within the ECCS is/are still available without electrical power? Explain how the system(s) work.