

Reactor Modeling and Analysis

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The Pressurized-Water Reactor (PWR)

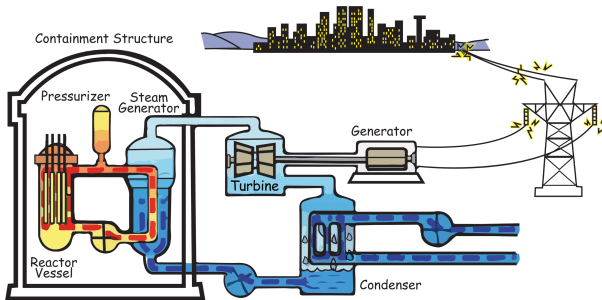


Figure: Why are we here?

Typical Pressurized Water Reactor

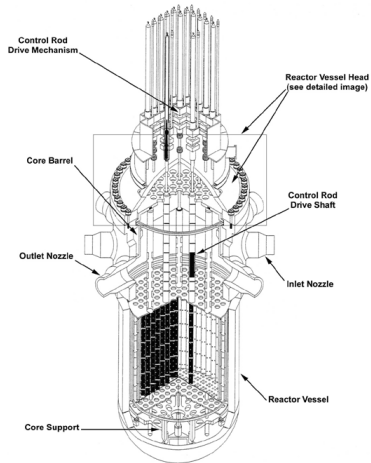
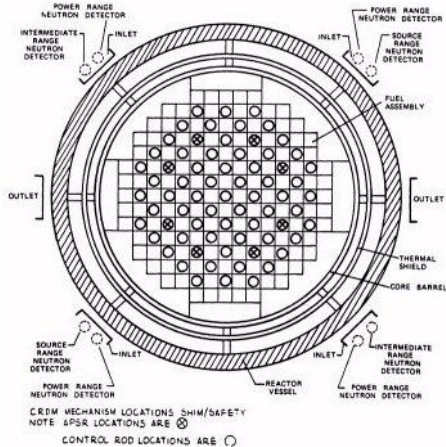
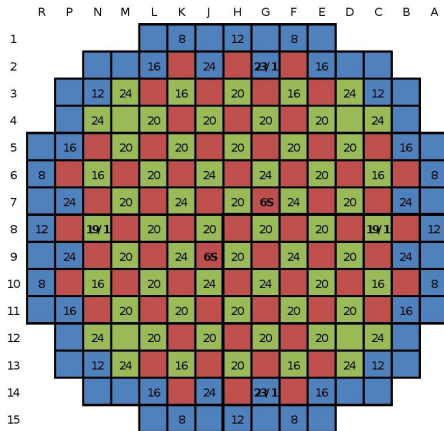


FIGURE-4 TOP VIEW OF REACTOR CORE



Introduction



Region 1: 2.10 wt% U-235



Region 2: 2.60 wt% U-235



Region 3: 3.10 wt% U-235

XXYY

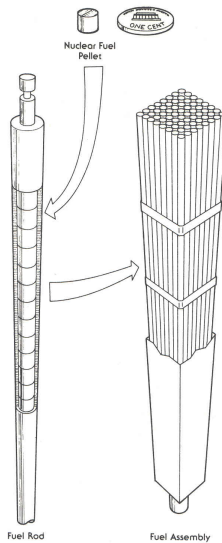
XX=Number of Burnable Absorber Rods

Y=Number of Primary Source Rods

6S

Secondary Source Assemblies

Introduction



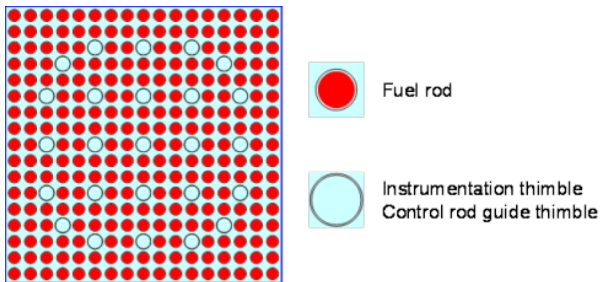


Figure: PWR assembly geometry.

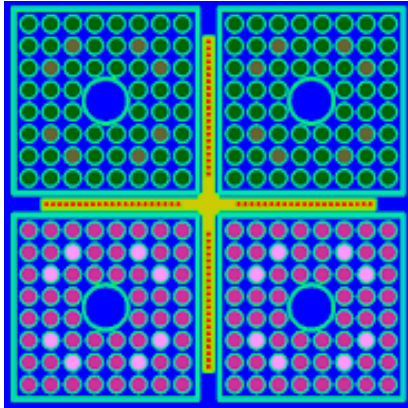


Figure: BWR assembly geometry.

Table: Typical LWR Parameters

Parameter	BWR	PWR
Rod diameter [in]	0.48	0.37
Rod height [m]	4.1	4.0
Rod pitch	0.64	0.50
Assembly lattice	8x8	17x17
# rods/assembly	62	264
# assemblies/core	732	241
Total # rods	45384	63624

Energy Self Shielding

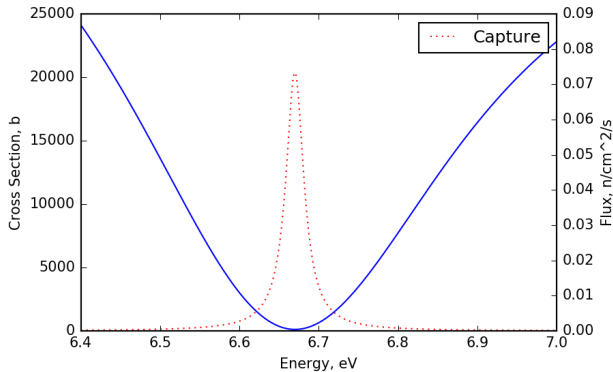


Figure: Self shielding of neutron flux in resonance.