

Design Concept

A. Systems

1. Type
2. Components
3. Layout
4. State Points
5. Any atypical behaviors or nuances to the system
6. Include all significant systems

Include functional design criteria and how they are met

Passive vs. Active

pumps, turbines, heat exchangers, etc.

(Temperatures, Pressures, flow rates, velocities, etc.)

primary, secondary, support, safety, etc.

B. Components

1. Type
2. Dimensions
3. State Points
4. Behaviors
5. performance curves

axial vs. radial pump, shell & tube vs. plate heat

Sizes, thicknesses, heights, radii, etc.

(Temperatures, Pressures, flow rates, velocities, etc.)

Any different or noteworthy behavior of the system

Specifically for heat exchangers and

C. Structures

1. Type
2. Dimensions
3. Performance
4. If applicable, temperature gradients

Piping, vessel wall, support

Thickness, height, radius, weight, etc.

Stresses (Hoop, etc.), Pressure allowances, etc.

Core Design

A. Neutronic Performance

1. Power Levels
2. Fuel Cycle
3. Feedbacks
4. Control and Kinetics
5. Neutron Spectrum

B. ThermalHydraulic Components

1. Temperature Profiles
2. Flow Rates
3. Pressures

Safety Analysis

1. Peak Temperatures
2. Peak Powers
3. LOCA Transient w/ RELAP
4. Level 1 PRA w/ LBE's
5. Well reasoned events pathways for LBEs
6. Selection of mitigating SSC's
7. Reliability of mitigating SSCs

Frequency/Consequence Results

Known Gaps/holes

Future Work

Special Considerations, descriptions, or acknowledgments