

5.3 REACTOR

Applicability

Applies to the reactor core, and reactor coolant system.

Objective

To define those design features which are essential in providing for safe system operations.

A. Reactor Core

1. The reactor core contains approximately 89 metric tons of uranium in the form of slightly enriched uranium dioxide pellets. The pellets are encapsulated in Zircaloy-4 or ZIRLO™ tubing to form fuel rods. The reactor core is made up of 193 fuel assemblies. Each fuel assembly contains 204 fuel rods.⁽¹⁾
2. The average enrichment of the initial core was a nominal 2.8 weight percent of U-235. Three fuel enrichments were used in the initial core. The highest enrichment was a nominal 3.3 weight percent of U-235.⁽²⁾
3. Reload fuel will be similar in design to the initial core. The enrichment of reload fuel will be no more than 5.0 weight percent of U-235.
4. Burnable poison rods were incorporated in the initial core. There were 1434 poison rods in the form of 8, 9, 12, 16, and 20-rod clusters, which are located in vacant rod cluster control guide tubes.⁽³⁾ The burnable poison rods consist of borosilicate glass clad with stainless steel.⁽⁴⁾ Burnable poison rods of an approved design may be used in reload cores for reactivity and/or power distribution control.

5. There are 53 control rods in the reactor core. The control rods contain 142 inch lengths of silver-indium-cadmium alloy clad with the stainless steel.⁽⁵⁾

B. Reactor Coolant System

1. The design of the reactor coolant system complies with the code requirements.⁽⁶⁾
2. All piping, components and supporting structures of the reactor coolant system are designed to Class I requirements, and have been designed to withstand the maximum potential seismic ground acceleration, 0.15g, acting in the horizontal and 0.10g acting in the vertical planes simultaneously with no loss of function.
3. The nominal liquid volume of the reactor coolant system, at rated operating conditions and with 0% equivalent steam generator tube plugging, is 11,522 cubic feet.

Basis

Deleted

References

- (1) FSAR Section 3.2.2
- (2) FSAR Section 3.2.1
- (3) FSAR Section 3.2.1
- (4) FSAR Section 3.2.3
- (5) FSAR Sections 3.2.1 & 3.2.3
- (6) FSAR Table 4.1-9

5.3-2

Amendment No. 13, 34, 86, 101, 104, 118,