ATTACHMENT 1

Consumers Power Company
Palisades Plant
Docket 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
ENRICHMENT IN NEW AND SPENT FUEL STORAGE

PROPOSED NEW PAGES

October 28, 1991

2 Pages

5.4 FUEL STORAGE

5.4.1 New Fuel Storage

a. The pitch of the new fuel storage rack lattice is ≥9.375 inches, and every other position in the lattice shall be permanently occupied by an 8" x 3" structural steel box beam or core plugs such that the minimum center-to-center spacing of new fuel assemblies in the alternating storage array is 13.26". This distance in the alternating storage lattice is sufficient so that K_{eff} will not exceed 0.95 where fuel assemblies with 216 UO_2 or Gd_2O_3-UO_2 fuel rods or metal rods and a maximum average planar enrichment in the UO_2 or Gd_2O_3-UO_2 fuel rods of 4.20 w/o U_{235} are in place and optimum moderation is assumed. The calculated K_{eff} includes appropriate conservatisms as described in Siemens Nuclear Power Corporation Report EMF-91-1421(P).

b. New fuel may also be stored in shipping containers.

c. The new fuel storage racks are designed as a Class I structure.

5.4.2 Spent Fuel Storage

a. Irradiated fuel bundles will be stored, prior to off-site shipment in the stainless steel-lined spent fuel pool.

b. (Deleted)

c. The spent fuel storage pool and spare (north) tilt pit are divided into two regions identified as Region I and Region II as illustrated in Figure 5.4-1. Region I racks are designed and shall be maintained with a nominal 10.25" center-to-center distance between fuel assemblies with the exception of the single Type E rack which has a nominal 11.25" center-to-center distance between fuel assemblies. The Region I spent fuel storage racks are designed such that fuel having a maximum assembly planar average U_{235} enrichment of 4.40 w/o placed in the racks would result in a K_{eff} equivalent to $\leq$ 0.95 when flooded with unborated water. The K_{eff} of $\leq$ 0.95 includes a conservative allowance for uncertainties. For enrichments above 3.27 w/o U_{235}, the fuel assemblies must contain 216 rods which are either UO_2, Gd_2O_3-UO_2 or solid metal.

d. Region II racks have a 9.17 inch center-to-center spacing. Because of this smaller spacing, strict controls are employed to evaluate burnup of the fuel assembly prior to its placement in Region II cell locations. Upon determination that the fuel assembly meets the burnup requirements of Table 5.4-1, placement in a Region II cell is authorized. These positive controls assure the fuel enrichment limits assumed in the safety analyses will not be exceeded.

e. (Deleted)

f. The minimum spent fuel pool water boron concentration shall be 1720 ppm. Boron concentration shall be verified at least once monthly.

g. The spent fuel racks are designed as a Class I structure.

h. (Deleted)

i. Storage in Region II of the spent fuel pool and spare (north) tilt pit shall be restricted by burnup and enrichment limits specified in Table 5.4-1.

NOTE: Until needed for fuel storage, one Region II rack in the northeast corner of the spent fuel pool may be removed and replaced with the cask anti-tipping device.

References

FSAR Update Chapter 5
FSAR Update Chapter 9

ATTACHMENT 2

Consumers Power Company
Palisades Plant
Docket 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
ENRICHMENT IN NEW AND SPENT FUEL STORAGE

MARKED UP PAGES

October 28, 1991

2 Pages

5.4 FUEL STORAGE

5.4.1 New Fuel Storage

a. The pitch of the new fuel storage rack lattice is ≥9.375 inches, and every other position in the lattice shall be permanently occupied by an 8" x 8" structural steel box beam or core plugs such that the minimum center-to-center spacing of new fuel assemblies in the alternating storage array is 13.26". This distance in the alternating storage lattice is sufficient so that K_{∞} will not exceed 0.~~98~~ .95 where fuel ~~which contains not more than 4.24 grams of U-235 per axial centimeter of active fuel assembly is~~ in place and optimum ~~(ie, aqueous foam)~~ moderation is assumed~~, and the K_{∞} will not exceed 0.95 when the storage area is flooded with unborated water~~. The calculated K_{∞} includes ~~a conservative allowance for uncertainties as described in CPC letters of 12/18/78 and 1/12/79~~ appropriate conservatisms described in Siemens Nuclear Power Corporation report EMF-91-1421(P).

b. New fuel may also be stored in shipping containers.

c. The new fuel storage racks are designed as a Class I structure.

assemblies with 216 UO_2 or Gd_2O_3-UO_2 fuel rods or metal rods and a maximum average planar enrichment in the UO_2 or Gd_2O_3-UO_2 fuel rods of 4.20 w/o U_{5-2}^{235} are

5.4.2 Spent Fuel Storage

a. Irradiated fuel bundles will be stored, prior to off-site shipment in the stainless steel-lined spent fuel pool.

b. (Deleted)

c. The spent fuel storage pool and spare (north) tilt pit are divided into two regions identified as Region I and Region II as illustrated in Figure 5.4-1. Region I racks are designed and shall be maintained with a nominal 10.25" center-to-center distance between fuel assemblies with the exception of the single Type E rack which has a nominal 11.25" center-to-center distance between fuel assemblies. The Region I spent fuel storage racks are designed such that fuel having a maximum U-235 ~~loading of 3.27 w/o of U-235~~ enrichment placed in the racks would result in a K_{eff} equivalent to ≤ 0.95 when flooded with unborated water. The K_{eff} of ≤ 0.95 includes a conservative allowance for uncertainties.

d. Region II racks have a 9.17 inch center-to-center spacing. Because of this smaller spacing, strict controls are employed to evaluate burnup of the fuel assembly prior to its placement in Region II cell locations. Upon determination that the fuel assembly meets the burnup requirements of Table 5.4-1, placement in a Region II cell is authorized. These positive controls assure the fuel enrichment limits assumed in the safety analyses will not be exceeded.

e. After installation of the two-region high density spent fuel racks, the maximum loading for fuel assemblies in the spent fuel racks is 3.27 w/o of U-235.

f. The minimum spent fuel pool water boron concentration shall be 1720 ppm. Boron concentration shall be verified at least once monthly.

g. The spent fuel racks are designed as a Class I structure.

h. (Deleted)

i. Storage in Region II of the spent fuel pool and spare (north) tilt pit shall be restricted by burnup and enrichment limits specified in Table 5.4-1.

NOTE: Until needed for fuel storage, one Region II rack in the northeast corner of the spent fuel pool may be removed and replaced with the cask anti-tipping device.

References

FSAR Update Chapter 5
FSAR Update Chapter 9

assembly planar average

4.40

For enrichments above 3.27 w/o U_{235}, the fuel assemblies must contain 216 rods which are either UO_2, Gd_2O_3-UO_2 or solid metal.

ATTACHMENT 3

Consumers Power Company
Palisades Plant
Docket 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
ENRICHMENT IN NEW AND SPENT FUEL STORAGE

SIEMENS NUCLEAR POWER PROPRIETARY REPORT
EMF-91-174(P)

October 28, 1991