

1.0 DEFINITIONS

DEFINED TERMS

1.1 The DEFINED TERMS of this section appear in capitalized type and are applicable throughout these Technical Specifications.

THERMAL POWER

1.2 THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

RATED THERMAL POWER

1.3 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3411 MWt.

OPERATIONAL MODE

1.4 An OPERATIONAL MODE shall correspond to any one inclusive combination of core reactivity condition, power level and average reactor coolant temperature specified in Table 1.1.

ACTION

1.5 ACTION shall be those additional requirements specified as corollary statements to each principle specification and shall be part of the specifications.

OPERABLE - OPERABILITY

1.6 A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).

*On August 14, 1981 and August 17, 1981 the following safety-related cabinets, motor control centers, and switchgear were discovered to have inadequate seismic support: (a) 600V motor control centers, Unit 2 only numbers MCC-2-AM-A and B, (b) 1 KV Switchgear Busses/Cabinets numbers T11 A,B,C, and D for Unit 1 and T21 A,B,C, and D for Unit 2, and (c) 600V Switchgear Buses/Cabinets numbers 11 A,B,C and D for Unit 1 and 21 A,B,C, and D for Unit 2. The above equipment shall be declared operable providing the following restrictions are met:

D. C. COOK - UNIT 2

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Donald C. Cook Nuclear Plant Unit No. 2
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TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTSNOTATION

NOTE 1: Overtemperature $\Delta T \leq \Delta T_0 \left[K_1 - K_2 \left(\frac{1 + \tau_1 S}{1 + \tau_2 S} \right) (T - T') + K_3 (P - P') - f_1(\Delta I) \right]$

where: ΔT_0 = Indicated ΔT at RATED THERMAL POWER

T = Average temperature, °F

T' = Indicated T_{avg} at RATED THERMAL POWER $\leq 574.0^\circ\text{F}$

P = Pressurizer pressure, psig

P' = 2235 psig (indicated RCS nominal operating pressure)

$\frac{1 + \tau_1 S}{1 + \tau_2 S}$ = The function generated by the lead-lag controller for T_{avg} dynamic compensation

τ_1 & τ_2 = Time constants utilized in the lead-lag controller for T_{avg} $\tau_1 = 33$ secs, $\tau_2 = 4$ secs.

S = Laplace transform operator

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTSNOTATION (Continued)

Note 2: Overpower $\Delta T \leq \Delta T_0 [K_4 - K_5 \left(\frac{\tau_3 S}{1 + \tau_3 S} \right) T - K_6 (T - T'') - f_2(\Delta I)]$

where: ΔT_0 = Indicated ΔT at rated power

T = Average temperature, °F

T'' = Indicated T_{avg} at RATED THERMAL POWER $\leq 574.0^\circ\text{F}$

K_4 = 1.078

K_5 = 0.02/°F for increasing average temperature and 0 for decreasing average temperature

K_6 = 0.00197 for $T > T''$; $K_6 = 0$ for $T \leq T''$

$\frac{\tau_3 S}{1 + \tau_3 S}$ = The function generated by the rate lag controller for T_{avg} dynamic compensation

τ_3 = Time constant utilized in the rate lag controller for T_{avg}
 $\tau_3 = 10$ secs.

S = Laplace transform operator

$f_2(\Delta I)$ = 0 for all ΔI

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than 4 percent.

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- a. In accordance with the code requirements specified in Section 4.1.6 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
- b. For a pressure of 2485 psig, and
- c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total contained volume of the reactor coolant system is 12,612 ± 100 cubic feet at a nominal T_{avg} of 70°F.

5.5 EMERGENCY CORE COOLING SYSTEMS

5.51 The emergency core cooling systems are designed and shall be maintained in accordance with the original design provisions contained in Section 6.2 of the FSAR with allowance for normal degradation pursuant to the applicable Surveillance Requirements.

5.6 FUEL STORAGE

CRITICALITY - SPENT FUEL

5.6.1.1: The spent fuel storage racks are designed and shall be maintained with:

- a. A k_{eff} equivalent to less than 0.95 when flooded with unborated water,
- b. A nominal 10.5 inch center-to-center distance between fuel assemblies placed in the storage racks.

5.6.1.2 Fuel stored in the spent fuel storage racks shall have a nominal fuel assembly enrichment as follows:

<u>Fuel Type</u>	<u>Description</u>	<u>Maximum Nominal Fuel Assembly Enrichment Wt. % ^{235}U</u>
I	Westinghouse 15 x 15	3.50
II	Exxon 15 x 15	3.50
III	Westinghouse 17 x 17	3.50
IV	Exxon 17 x 17	3.84

CRITICALITY - NEW FUEL

5.6.2 The new fuel pit storage racks are designed and shall be maintained with a nominal 21 inch center-to-center distance between new fuel assemblies such that k_{eff} will not exceed 0.98 when Fuel Types I, II, III and IV (as defined in Section 5.6.1.2) are placed in the pit and aqueous foam moderation is assumed.

DESIGN FEATURES

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor core shall contain 193 fuel assemblies with each fuel assembly containing 264 fuel rods clad with Zircaloy -4. Each fuel rod shall have a nominal active fuel length of 144 inches and contain a maximum total weight of 1983 grams uranium. The initial core loading shall have a maximum enrichment of 3.3 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum nominal enrichment of 3.84 weight percent U-235.

CONTROL ROD ASSEMBLIES

5.3.2 The reactor core shall contain 53 full length and no part length control rod assemblies. The full length control rod assemblies shall contain a nominal 142 inches of absorber material. The nominal values of absorber material shall be 80 percent silver, 15 percent indium and 5 percent cadmium. All control rods shall be clad with stainless steel tubing.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The reactor coolant system is designed and shall be maintained:

- a. In accordance with the code requirements specified in Section 4.1.6 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements.
- b. For a pressure of 2435 psig, and
- c. For a temperature of 550°F, except for the pressurizer which is 620°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is $12,612 \pm 100$ cubic feet as a nominal T_{avg} of 70°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY - SPENT FUEL

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

- a. A K_{eff} equivalent to less than 0.95 when flooded with unborated water,
- b. A nominal 10.5 inch center-to-center distance between fuel assemblies, placed in the storage racks.

5.6.1.2 Fuel stored in the spent fuel storage racks shall have a nominal fuel assembly enrichment as follows:

<u>Fuel Type</u>	<u>Description</u>	Maximum Nominal Fuel Assembly Enrichment
		Wt. % ^{235}U
I	Westinghouse 15 x 15	3.50
II	Exxon 15 x 15	3.50
III	Westinghouse 17 x 17	3.50
IV	Exxon 17 x 17	3.84

CRITICALITY - NEW FUEL

5.6.2 The new fuel pit storage racks are designed and shall be maintained with a nominal 21 inch center-to-center distance between new fuel assemblies such that K_{eff} will not exceed 0.98 when Fuel Types I, II, III and IV (as defined in Section 5.6.1.2) are placed in the pit and aqueous foam moderation is assumed.