5.0 DESIGN FEATURES

5.1 Site

The Nine Mile Point Nuclear Station and James A. Fitzpatrick Nuclear Power Plant site comprising approximately 1500 acres, is located on the shores of Lake Ontario, about seven miles northeast of Oswego, New York. An exclusion distance of nearly 4000 feet is provided between the Station and the nearest site boundary to the west, a mile to the boundary on the east, and a mile and a half to the southern site boundary (as described in the Sixth Supplement of the FSAR).

Figure 5.1-1 is a Site Boundary Map of Nine Mile Point which allows the identification of gaseous and liquid waste release points. Figure 5.1-1 also defines the unrestricted area within the site boundary that is accessible (except for fenced areas) to member of the public.

5.2 Reactor

The reactor core consists of no more than 532 fuel assemblies containing enriched uranium dioxide pellets clad in Zircaloy-2. The core excess reactivity will be controlled by movable control rods and burnable poisons. The core will be cooled by circulation of water internally and external to the pressure vessel through recirculation loops.

5.3 (Deleted)

5.4 (Deleted)

5.5 Storage of Unirradiated and Spent Fuel

Unirradiated fuel assemblies will normally be stored in critically safe new fuel storage racks in the reactor building storage vault. Even when flooded with water, the resultant k_{eff} is less than 0.95. Fresh fuel may also be stored in shipping containers. The unirradiated fuel storage vault is designed and shall be maintained with a storage capacity limited to no more than 200 fuel assemblies.

1066 spent fuel assemblies with up to 15.6 grams (3.0 weight percent) of Uranium-235 per axial centimeters of assembly can be stored in non-poison flux trap racks in the north half of the spent fuel pool. 1710 spent fuel assemblies with up to 18.13 grams (3.75 weight percent) of Uranium-235 per axial centimeters of assembly can be stored in Boraflex racks in the south half of the pool. These racks have been designed to maintain a k_{eff} less than 0.95 under conditions of optimum water moderation. The north and south half of the pool are analyzed to store 1840 and 2246 fuel assemblies, respectively, using racks containing the neutron absorber material Boral. The Boral racks will maintain a k_{eff} of less than 0.95 under abnormal and accident conditions. The spent fuel stored in the Boral racks must have a peak lattice enrichment of 4.6 % or less and the k-inf in the standard cold core geometry must be less than or equal to 1.31.

5.6 (Deleted)