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REGULATORY GUIDE

DIRECTORATE OF REGULATORY STANDARDS

REGULATORY GUIDE 1.49

POWER LEVELS OF WATER-COOLED NUCLEAR POWER PLANTS

A. INTRODUCTION

It is the policy of the Atomic Energy Commission to encourage, support, and give priority consideration to activities leading to greater standardization of nuclear power plants. In a statement issued on March 5, 1973, implementing that policy, the Commission stated that the size of all new plants accepted for licensing review (both those proposed for review as standardized plants and those proposed for review in connection with a specific application for a construction permit) would be limited to power levels of less than 3,800 megawatts thermal.

Section 50.34 of 10 CFR Part 50 requires that each application for a construction permit include a summary description and discussion of the facility with special attention to, among other things, the design and operating characteristics at the projected initial licensed power level. Section 50.34 also requires that the application include an analysis and evaluation of the major structures, systems, and components of the facility at the projected initial power level and at the ultimate power level which is contemplated by the applicant. This guide describes acceptable maximum power levels for water-cooled nuclear power plants.

B. DISCUSSION

The power levels of water-cooled nuclear power plants have shown a continual increase from about 600 megawatts electric in 1965 to slightly above 1,300 megawatts electric in 1973. The continual increase in the size of these plants has resulted in plant design modifications and a large expenditure of AEC staff review effort to assure the maintenance of a consistent level of safety. These numerous plant design variations, coupled with the rapidly increasing number of applications, have contributed to the steady growth in the required licensing review time to evaluate such applications. Until sufficient experience is gained with the design, construction, and operation of the larger plants, the size of these plants should be limited to current levels.

C. REGULATORY POSITION

The projected initial licensed power level of a water-cooled nuclear power plant for which a construction permit application is filed pursuant to Section 50.34 of 10 CFR Part 50 should be limited to a reactor core power level of 3,800 megawatts thermal or less. The ultimate power level for which an analysis and evaluation of the major structures, systems, and components is required should be limited to 4,100 megawatts thermal or less.

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