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IEEE Standard Criteria for the Periodic Testing of Nuclear Power Generating Station Safety Systems

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Sponsor

**Nuclear Power Engineering Committee of the
IEEE Power Engineering Society**

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Foreword

(This foreword is not a part of IEEE Std 338-1977, Criteria for the Periodic Testing of Nuclear Power Generating Station Safety Systems.)

This standard provides criteria and requirements supplementary to those in IEEE Std 603-1977, Criteria for Safety Systems for Nuclear Power Generating Stations, IEEE Std 279-1971 (ANSI N42.7-1972), Criteria for Protection Systems for Nuclear Power Generating Stations, and IEEE Std 308-1974, Criteria for Class 1E Power Systems for Nuclear Power Generating Stations, for the development of periodic testing programs for protection and power systems in commercial nuclear power generating stations. Development of these criteria and requirements is based on the prerequisite that the protection and power systems are testable in accordance with IEEE Std 603-1977, IEEE Std 279-1971, IEEE Std 308-1974, and on the following:

(1) Station protection systems and Class 1E power systems must, during the life of the station, be repeatedly tested to assess the operational availability of the systems.

(2) Development and application of testing procedures and equipment must be consistent with safety system criteria IEEE Std 603-1977, protection system criteria IEEE Std 279-1971, and Class 1E power system criteria IEEE Std 308-1974.

(3) Procedures for verification and documentation of failures should be such that reliability confidence levels are enhanced.

The Institute of Electrical and Electronics Engineers has developed these proposed criteria to provide guidance in the development of the procedures and equipment for, and documentation of, periodic testing of nuclear power generating station protection and power systems. Each applicant for a construction permit or an operating license for a nuclear facility is required to develop these items to comply with the Atomic Energy Commission's Code of Federal Regulations, Part 50.

Adherence to these proposed criteria will not of itself suffice for assuring the public health and safety because it is the integrated performance of the structures, the fluid systems, the instrumentation, and the electric systems of the station that limits the consequences of accidents. On the other hand, failure to meet these requirements may be an indication of system inadequacy. Each applicant has the responsibility to assure himself and others that this integrated performance is adequate.

During development of this standard, it was evident that detailed information relating to system and component failure rate data is not readily available. Specific concern was expressed that failure rates have not been established throughout industry. In view of this and other expressed concerns such as testing of sensor response time and additional design criteria for automatic testing, the IEEE will maintain this standard current with the state of the technology. Comments are invited on this standard as are suggestions for additional material. These should be addressed to:

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This standard was prepared by Subcommittee 3, Operations, Surveillance and Testing, of the IEEE Nuclear Power Engineering Committee. At the time of approval for ballot, working members of the subcommittee were:

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