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IEEE Trial-Use Guide for the Application of the Single-Failure Criterion to Nuclear Power Generating Station Protection Systems

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**IEEE Trial-Use Guide for the
Application of the Single-Failure Criterion to
Nuclear Power Generating Station Protection Systems**

Sponsor
**Joint Committee on Nuclear Power Standards
of the
IEEE Nuclear Science Group
and the
IEEE Power Engineering Society**

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Comments on this Trial-use Standard are welcomed and should be addressed to:
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After a trial-use period of approximately one year, the Group responsible for this document will prepare a revision and submit it to the Standards Committee for approval as a full-status standard.

Foreword

(This Foreword is not a part of IEEE Std 379-1972, Trial-Use Guide for the Application of the Single-Failure Criterion to Nuclear Power Generating Station Protection Systems.)

This document provides guidance in the application of the single-failure criterion to nuclear power generating station protection systems. The single-failure criterion as documented in IEEE Std 279-1971, Criteria for Protection Systems for Nuclear Power Generating Stations, Section 4.2, is in concise form. The purpose of this guide is to interpret the single-failure criterion and to provide an orderly procedure for analyzing designs for compliance with the criterion.

Although this guide was written for the application of the single-failure criterion to protection systems, the principles expressed are equally applicable to Class IE electric systems. It is intended that future revisions to this document will include guidance on the application of the single-failure criterion to Class IE electric systems.

The IEEE has developed these criteria to provide guidance in the determination of the design features, minimum conditions of operation, and the surveillance requirements related to the protection systems of the nuclear facility. Each applicant for a construction permit or an operating license for a nuclear facility in the United States is required to develop these items to comply with the Atomic Energy Commission's Code on Federal Regulations, Part 50.

Adherence to these criteria may not 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 establishes the consequences of accidents. 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.

The IEEE will maintain this document current with the state of the technology. Comments are invited on this document as are suggestions for additional material. These should be addressed to:

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This document was prepared by Subcommittee 1, Single-Failure Criterion, of the IEEE Joint Committee on Nuclear Power Standards. At the time of approval for ballot, the members of the Subcommittee were:

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The subcommittee expresses its thanks to C. S. Walker, a former member of the subcommittee, for his contributions.

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