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# IEEE Trial-Use Standard Criteria for Post Accident Monitoring Instrumentation for Nuclear Power Generating Stations

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***Draft American National Standard***

**IEEE Trial-Use Standard Criteria for  
Post Accident Monitoring Instrumentation for  
Nuclear Power Generating Stations**

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 497-1977, Trial-Use Criteria for Post Accident Monitoring Instrumentation for Nuclear Power Generating Stations.)

The protection of nuclear power plants following a design basis event is provided automatically by the protection systems as defined by IEEE Std 279-1971 (ANSI N42.7-1972), Criteria for Protection Systems for Nuclear Power Generating Stations, and by required specified manual actions. Following the automatic initiation of the protection systems, the operator has the responsibility of bringing the nuclear power plant to and maintaining it in a safe condition. The operator requires specific information to assist him in fulfilling this role. The scope of this document is limited to the design criteria for the monitoring display instrumentation required by the operator during the post accident period.

The variables used in post accident monitoring should be chosen such that the operator will be allowed sufficient time to evaluate the trends, make reasoned judgments, and complete required manual actions. Although not required by this standard, an operator action sequence plan may be prepared to identify specific operator actions under specified conditions. This operator action sequence plan may be developed at the time of actual system design to determine which instruments are required. It could also be used to determine if sufficient time exists to check out and replace malfunctioning equipment, or to make available outside resources without adverse effects on plant safety or operating personnel.

The presence and need for the operator in performing safety functions during the post accident plant conditions impose different requirements than those used during normal plant operations. In many cases, redundant safety systems are employed. As a result of the accident, the reactor is usually shut down. The accident may cause system responses to be different than during normal conditions. The post accident plant characteristics and conditions that permit a manual operation (time to evaluate and take action) will be reflected in requirements for instrument reliability and response, removal for test, calibration and repair, in the failure analysis, etc.

The criteria in this document will also address certain information display channels pertinent to generating station safety (Section 4.20, IEEE Std 279-1971). The amount of instrumentation to be provided should be that minimum required by the operator during the post accident period. It does not include instrumentation used only for monitoring individual equipment operation (maintenance, degradation) or that which might be desirable to complement the post accident monitoring instrumentation.

It is the position of IEEE/NPEC that post accident monitoring instrumentation does not necessarily fit the definition of Class 1E and that IEEE Std 497-1977 shall delineate the requirements and stand on its own.

Subcommittee 6 recognizes the need for additional work in the following areas:

(1) Methods for the development of the specific design basis information required for post accident monitoring instrumentation.

(2) Guidance in the classification of post accident monitoring instrumentation.

Members of Working Group SC6.1 participating in the generation of these criteria at the time of final NPEC approval were:

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