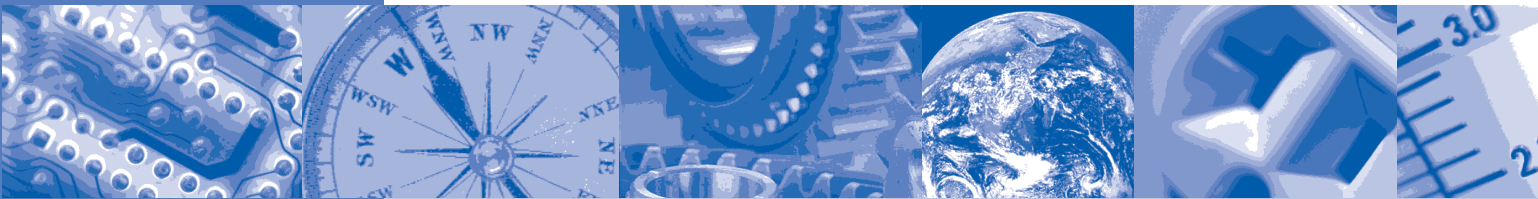


**ANSI/ISA–S67.14.01–2000**



**Qualifications and Certification  
of Instrumentation and Control  
Technicians in Nuclear Facilities**



**Approved 15 February 2000**

ANSI/ISA–S67.14.01–2000  
Qualifications and Certification of Instrumentation and Control Technicians  
in Nuclear Facilities

ISBN: 1-55617-721-6

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## Preface

This preface, as well as all footnotes and annexes, is included for information purposes and is not part of ISA-S67.14.01.

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The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards. The Department is further aware of the benefits to USA users of ISA standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavor to introduce SI-acceptable metric units in all new and revised standards, recommended practices, and technical reports to the greatest extent possible. *Standard for Use of the International System of Units (SI): The Modern Metric System*, published by the American Society for Testing & Materials as IEEE/ASTM SI 10-97, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

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The purpose of this standard is to provide the nuclear industry with bases for certifying the qualifications of instrumentation and control technicians who work on facility equipment that is important to safety, in order to help reduce the possibility that unqualified personnel could perform improper maintenance on such equipment. It is intended solely as a recommendation for functional organization, and offers a structured basis for certification of instrument and control technicians in each specific facility where they might be used.

It describes four (4) technician categories or levels, which are intended as functional descriptions of typical skill proficiency and competency levels identified at numerous facilities as well as empirically in job analysis. These are essentially points of reference for application of this standard to a specific facility situation. No specific number of categories, levels, or classifications are required by this standard since each facility has its own organizational structure and the information contained in this standard is not intended to change existing organizational arrangements.

This standard also recognizes that each plant or company needs a certification program, procedure, and/or plan to cross-reference the relationship between the facility job descriptions/categories and the four (4) functional levels. The key to this cross-reference is the existence of a good representative job description of each type of technician at a facility.

This standard can be used independently in circumstances where no equivalent, formally accredited program exists, and it may also be used to enhance formally accredited programs. It is not intended, however, to set forth qualifications, which differ according to the individual job descriptions in each organization. For example, the "Typical knowledge and skills list" included as annex A is meant to be a guideline only.

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## 1 Scope

This standard identifies the criteria for certification of instrumentation and control technicians at nuclear facilities. These criteria address qualifications based on education, experience, training, and job performance. Many nuclear facilities maintain formally accredited training and qualification programs, as described in 10 CFR 50.120 (Training and Qualification of Nuclear Power Plant Personnel). Facilities maintaining such programs may be considered to fully meet the provisions of this standard.

## 2 Purpose

The purpose of this standard is to provide the nuclear industry with bases for certifying the qualifications of instrumentation and control technicians who work on equipment that is important to safety, where formally accredited programs, as described in 10 CFR 50.120, are not maintained.

## 3 Definitions

### 3.1 control loop:

two or more devices processing a single variable that may provide an input signal to a control system.

### 3.2 control system:

a system in which deliberate guidance or manipulation is used to achieve a prescribed value of a variable (see ANSI/ISA-S51.1-1979 (R1993)).

### 3.3 device:

an apparatus for performing a prescribed function (see ANSI/ISA-S51.1-1979 (R1993)).

### 3.4 direction:

having the person who is qualified to perform the task physically present when the task is performed or in continuous communication with the person performing the task.

### 3.5 experience:

applicable work in design, construction, pre-operational and start-up testing activities, operation, maintenance, on-site activities, or technical services. Observation of others performing work in the above areas is not experience. This experience can be obtained during start-up or operations in a nuclear facility, in fossil power plants, in other industries, or in the military.

### 3.6 group leader:

the person in the highest level of functional supervision whose responsibilities are oriented solely toward instrumentation and control.

### 3.7 important to safety:

those structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public (see 10 CFR Part 50, Appendix A).

### 3.8 instrumentation:

a collection of instruments or their application for the purpose of observation, measurement, or control (see ANSI/ISA-S51.1-1979 (R1993)).

### 3.9 knowledge:

familiarity with theory and concepts, and detailed understanding of job-related topics.