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IEEE Standard for Qualification of Safety-Related Actuators for Nuclear Power Generating Stations and Other Nuclear Facilities

IEEE Power and Energy Society

Developed by the
Nuclear Power Engineering Committee

IEEE Std 382™-2019
(Revision of IEEE Std 382-2006)

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IEEE SA Standards Board

Abstract: Direction for the implementation of the requirements of IEC/IEEE 60780-323 as they apply to the specific features of safety-related actuator qualification are provided. This standard establishes criteria for qualification of safety-related actuators, and actuator components, in Nuclear Power Generating Stations in order to demonstrate their ability to perform their intended safety functions under all required conditions.

Keywords: actuator components, AOV, EMC, HOV, IEEE 382, MOV, nuclear power generating stations, safety-related actuators, SOV

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Introduction

This introduction is not part of IEEE Std 382-2019, IEEE Standard for Qualification of Safety-Related Actuators for Nuclear Power Generating Stations and Other Nuclear Facilities.

IEEE Std 382-2019, a revision of IEEE Std 382-2006, is based on a review of IEEE Std 382-2006, present practices in equipment qualification, as well as, recent updates to mother standards IEC/IEEE 60780-323 and IEEE Std 344™.[1]

The following issues were clarified or changed in this revision:

a) Updated normative references.

b) Updated subclause 4.2, Requirements, Item a) Initial qualification type test to Type test.

c) Updated subclause 6.2, Type test plan to include submergence and EMC testing.

d) Updated subclause 6.3.2, Test sequence and requirements to include EMC testing.

e) Added Clause 10 entitled “EMC Testing”.

f) Revised Clause 16, Seismic simulation testing and Annex B to address seismic testing to higher frequency range for hard rock sites.

g) Updated the bibliography.

[1]Information on references can be found in Part I, Clause 2.

Contents

IEEE Standard for Qualification of Safety-Related Actuators for Nuclear Power Generating Stations and Other Nuclear Facilities

Part I—Process

1. Overview

1.1 Scope

This standard establishes criteria for qualification of safety-related actuators, and actuator components, in Nuclear Power Generating Stations and other Nuclear Facilities in order to demonstrate their ability to perform their intended safety functions.

1.2 Purpose

The purpose of this standard is to provide direction for the implementation of the requirements of IEC/IEEE 60780-323 as they apply to the specific features of safety-related actuator qualification.

1.3 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (shall equals is required to).[1, 2]

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (should equals is recommended that).

[1]The use of the word *must* is deprecated and cannot be used when stating mandatory requirements, *must* is used only to describe unavoidable situations.
[2]The use of *will* is deprecated and cannot be used when stating mandatory requirements, *will* is only used in statements of fact.