

# American Nuclear Society

**managerial, administrative, and quality assurance controls for the operational phase of nuclear power plants**

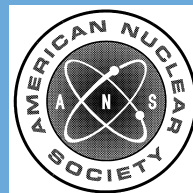
**an American National Standard**

**REAFFIRMED**

**April 4, 2017**

**ANSI/ANS-3.2-2012 (R2017)**

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**American National Standard  
Managerial, Administrative, and Quality  
Assurance Controls for the Operational  
Phase of Nuclear Power Plants**

Secretariat  
**American Nuclear Society**

Prepared by the  
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Comments on this standard are encouraged and should be sent to Society Headquarters.

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## Foreword

(This Foreword is not a part of American National Standard “Managerial, Administrative, and Quality Assurance Controls for the Operational Phase of Nuclear Power Plants,” ANSI/ANS-3.2-2012.)

Preparation of the first edition of this standard commenced in 1969 prior to the establishment of formal quality assurance requirements for the operation of nuclear power plants. Historically, the administrative controls section of Facility Operating License Technical Specifications had contained provisions for meeting many of the requirements that subsequently became identified with quality assurance (i.e., the managerial and administrative controls that assure that the quality designed into the facility is maintained) during operation. It was the original intent of the standard to define administrative controls for this purpose. The subcommittee that developed the initial version of this standard had a membership whose experience was primarily in power reactor operation, and it developed a document that would provide guidance for administrative controls over activities associated with the operation of nuclear power plants. At the same time, ASME Subcommittee N45.2, Nuclear Quality Assurance Standards, was developing quality assurance standards related to design, construction, and operation of nuclear facilities.

The U.S. Nuclear Regulatory Commission (NRC) issued its Safety Guide 33 [now Regulatory Guide 1.33, Rev. 2, “Quality Assurance Program Requirements (Operation)” (Feb. 1978) (RG 1.33)], endorsing Draft 8 of ANS-3.2 (which later became ANSI N18.7-1972, “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants”) and ANSI/ASME N45.2-1971, “Quality Assurance Program Requirements for Nuclear Power Plants.” Because of this dual endorsement, the two committees attempted to develop a single standard. The result of that effort was ANSI N18.7-1976, which was later redesignated ANS-3.2, i.e., ANSI N18.7-1976 (ANS-3.2), “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants,” which was subsequently endorsed by RG 1.33 for use by nuclear power plants during the operation phase.

Following the Three Mile Island Unit 2 accident in 1979, the American Nuclear Society (ANS) revised ANSI N18.7-1976 (ANS-3.2) to incorporate the administrative “lessons learned” into the standard and published it as ANSI/ANS-3.2-1982, “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants,” to clearly focus ANSI/ANS-3.2-1982 on operational and administrative quality controls. At the same time, ASME issued ANSI/ASME NQA-1-1979, “Quality Assurance Program Requirements for Nuclear Power Plants,” to focus clearly on design and construction applications of quality assurance. ANSI/ANS-3.2-1982 and ANSI/ASME NQA-1-1979 superseded several of the ANSI/ASME N45.2 standards, which had previously been incorporated by reference into ANSI N18.7-1976 (ANS-3.2).

ANSI/ASME NQA-1-1983 and ANSI/ASME NQA-1a-1983 Addenda, “Quality Assurance Program Requirements for Nuclear Power Plants,” were subsequent revisions of ANSI/ASME NQA-1-1979 and were endorsed by Regulatory Guide 1.28, Rev. 3, “Quality Assurance Program Requirements (Design and Construction)” (Aug. 1985). The ANS-3.2 editions were never endorsed by the NRC through a revision to RG 1.33, and the industry continued to utilize ANSI N18.7-1976 (ANS-3.2) as the endorsed standard.

Since ANSI/ANS-3.2-1982 was published, the industry moved progressively closer to an all-operating reactor environment in the 1980s and 1990s with little design and construction activities during that time. ANSI/ANS-3.2-1988, “Administrative

Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants,” recognized this fact and incorporated many changes to emphasize operational aspects and performance-based quality assurance techniques. ANSI/ANS-3.2-1994, “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants,” continued the strong emphasis on this approach. Again, ANSI/ANS-3.2-1982, ANSI/ANS-3.2-1988, and ANSI/ANS-3.2-1994 were not endorsed through a revision to RG 1.33, and existing power plants chose differing paths to revise the requirements of existing quality standards that were endorsed by the NRC.

Since there were few new quality assurance initiatives actively being pursued in the late 1990s, a decision was made in 1999 to reaffirm ANSI/ANS-3.2-1994. As efforts within the nuclear industry continue to redefine the approach to quality assurance, including changes to enhance the efficiency and effectiveness of implementing 10 CFR 50, Appendix B (*Code of Federal Regulations*, Title 10, “Energy,” Part 50, “Domestic Licensing of Production and Utilization Facilities,” Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants”), in nuclear plant operations, maintenance, and supporting activities, the ANS-3.2 Working Group continued to work with the industry to develop revisions of this standard.

ANSI/ANS-3.2-2006, “Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants,” was a revision that changed ANS-3.2 to be more in line with the formatting of ANSI/ANS NQA-1-1994, “Quality Assurance Program for Nuclear Facilities,” and 10 CFR 50, Appendix B. It was apparent that many of the requirements from ANSI/ANS NQA-1-1994 were duplicated in ANSI/ANS-3.2-2006. The working group modified the standard to provide the proper emphasis on the difference between design/construction and operations/administration but did not fully remove all duplication. Again, ANSI/ANS-3.2-2006 was not endorsed through a revision to RG 1.33.

Over the years many of the operating plants have shifted from utilizing ANSI/ASME N45.2-1971 to various versions of ANSI/ASME NQA-1. While the revisions to ANSI N18.7-1976 (ANS-3.2) were ongoing, RG 1.33 was not revised, and the industry continued to utilize ANSI N18.7-1976 (ANS-3.2). Over the years many utilities utilized the NRC license and quality assurance program change process to apply alternate approaches to implement the guidance contained in RG 1.33.

With the advent of utilities planning and licensing new facilities, there became a need to develop license applications that committed to the latest endorsed versions of the existing standards. In preparing for licensing of new facilities, it became apparent that the basic quality assurance requirements that were referred to in ANSI N18.7-1976 (ANS-3.2) were outdated and current criteria had been incorporated into ASME NQA-1. The NRC revised Regulatory Guide 1.28, Rev. 4, “Quality Assurance Program Criteria (Design and Construction)” (June 2010), to endorse ANSI/ASME NQA-1-2008 and NQA-1a-2009 Addenda, “Quality Assurance Requirements for Nuclear Facility Applications.” To ensure that there was no duplication of the requirements contained in ANSI/ASME NQA-1-2008 and NQA-1a-2009 Addenda and to ensure that the managerial and administrative controls necessary for the safe operation of the plant received the needed focus, the working group developed a major revision to the standard that separated the quality assurance controls from the managerial and administrative controls. Since the combination of ANSI/ASME NQA-1-2008 and NQA-1a-2009 Addenda and ANSI/ANS-3.2-2012, “Managerial, Administrative, and Quality Assurance Controls for the Operational Phase of Nuclear Power Plants,” provides

the quality assurance requirements and the managerial controls necessary for safe operation of nuclear facilities, the working group continued with the objective to have ANS-3.2 supplement NQA-1 for operating plants. This industry guidance was fully coordinated with the ASME NQA-1 Standards Committee.

ANSI/ANS-3.2-2012 continues to be based on the philosophy that the assurance of quality is the responsibility of the individual performing the task, thus assuring that quality is achieved and is not the sole responsibility of the formally established quality assurance organizational group. Therefore, this standard focuses on the managerial and administrative controls that support this philosophy.

This standard might reference documents and other standards that have been superseded or withdrawn at the time the standard is applied. A statement has been included in the references section that provides guidance on the use of references.

This standard does not incorporate the concepts of generating risk-informed insights, performance-based requirements, or a graded approach to quality assurance. The user is advised that one or more of these techniques could enhance the application of this standard.

This revised standard was prepared by the ANS-3.2 Working Group and reviewed by the ANS-21 Subcommittee and the ANS Nuclear Facility Standards Committee (NFSC). At the time of the revision, the membership of the ANS-3.2 Working Group was the following:

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C. L. Eldridge (Vice Chair), *Furgo William Lettis & Associates*

M. Harvey, *Nuclear Energy Institute*  
M. Hayse, *Exelon*  
M. Janus, *Progress Energy*  
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# Managerial, Administrative, and Quality Assurance Controls for the Operational Phase of Nuclear Power Plants

## 1 Scope, applicability, and purpose

### 1.1 Scope and applicability

This standard provides requirements and recommendations for managerial and administrative controls to ensure that activities associated with operating a nuclear power plant are carried out without undue risk to the health and safety of the public.

This standard provides requirements for implementing managerial and administrative controls consistent with requirements of 10 CFR 50, Appendix B [1].<sup>1)</sup>

This standard is not specifically intended for application to test, mobile, or experimental reactors, nor reactors not subject to U.S. Nuclear Regulatory Commission (NRC) licensing. Although this standard is based on NRC requirements, the approach is applicable with modifications to reflect the regulatory requirements in the country of application. Applicable sections of this standard may be used in those cases for activities similar to those addressed herein.

### 1.2 Purpose

This standard contains requirements for managerial and administrative controls for nuclear power plants during the operational phase of plant life. This phase is generally considered to commence prior to initial fuel loading at a time identified by the owner organization. Certain initial construction activities may extend past fuel loading, and certain operational activities may take place prior to fuel loading. The owner organization is expected to identify those activities that are included in these overlapping time periods and are ex-

pected to specify whether the activities are to be considered as operational or as construction activities. This phase continues until the operating license is withdrawn.

The managerial and administrative controls of this standard promote safe, reliable, and efficient plant operation. This standard may be applied to other activities consistent with the degree to which those activities affect plant reliability. In keeping with this intent, the provisions in this standard may be applied to operational activities other than those specified in the scope, consistent with the degree to which those activities affect these functions; compliance with regulations specifying radiation dose and contamination criteria; or plant reliability. Applicable portions of this standard may also be used for activities at reactors specifically excluded in the scope.

This standard is intended to be implemented together with the applicable elements of ANSI/ASME NQA-1-2008 and NQA-1a-2009 Addenda [2]. ANSI/ASME NQA-1-2008 and NQA-1a-2009 Addenda is the standard that provides the appropriate quality assurance requirements for all phases. This standard provides the managerial and administrative requirements needed to assure safe operation of a facility.

## 2 Definitions

The terms defined in ANSI/ASME NQA-1-2008 and NQA-1a-2009 Addenda apply to this standard and are not duplicated herein.

**experiments:** performance of those plant operations executed under controlled conditions in order to establish characteristics or values not previously known.

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<sup>1)</sup>Numbers in brackets refer to corresponding numbers in Sec. 4, "References."