ASME NQA-1–2015

(Revision of ASME NQA-1–2012)

Quality Assurance Requirements for Nuclear Facility Applications

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Quality Assurance Requirements for Nuclear Facility Applications

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

Two Park Avenue • New York, NY • 10016 USA

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The next edition of this Standard is scheduled for publication in 2017.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME Web site under the Committee Pages at http://cstools.asme.org/. Interpretations are also included with each edition.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The Committee Pages can be found at http://cstools.asme.org/. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting "Errata" in the "Publication Information" section.

The American Society of Mechanical Engineers
Two Park Avenue, New York, NY 10016-5990

CONTENTS

(A detailed Contents precedes each NQA Part.)

FOREWORD

This Standard is intended to serve the global nuclear industry responsible for the safety and quality of nuclear facilities and activities.

It is intended to be applied to any structure, system, component, activity, or organization that is essential to the safe, reliable, and efficient performance of a nuclear facility and any activities independent of a facility that may affect performance. It is also intended to be applied to all phases of a nuclear facility life cycle and to related activities.

This Standard reflects industry experience and current understanding of the quality assurance requirements necessary to achieve safe, reliable, and efficient utilization of nuclear energy and management and processing of radioactive materials. The Committee on Nuclear Quality Assurance (NQA) actively endorses the growing worldwide movement toward rational, cost-effective quality assurance practices — practices that focus on results. The NQA Committee also maintains liaison with national and international groups that have similar interests in quality to assure consistency and maximum applicability of the Standard in a global setting. Consequently, the NQA Committee has regularly updated and revised the Standard since its first edition was issued in 1979 to improve its utility, effect on nuclear safety, and value to the nuclear industry.

This Standard includes requirements and guidance and is organized in the following four parts:

(a) Part I contains requirements for a Quality Assurance Program for nuclear facility applications.

(b) Part II contains additional quality assurance requirements for the planning and conduct of specific work activities conducted under a Quality Assurance Program developed in accordance with Part I.

(c) Part III contains guidance for implementing the requirements of Parts I and II.

(d) Part IV contains guidance for the application of NQA-1 and comparisons of NQA-1 with other quality requirements.

Early in 1975, the American National Standards Institute (ANSI) assigned overall responsibility for coordination among technical societies and development and maintenance of nuclear power quality assurance standards to the American Society of Mechanical Engineers (ASME). The ASME Committee on NQA was constituted on October 3, 1975, and assumed responsibility for the ANSI/ASME N.45 series documents. Currently, the NQA Committee operates under the ASME requirements for Nuclear Codes and Standards Development Committees.

This Committee initially prepared

ANSI/ASME NQA-1–1979	Quality Assurance Program Requirements for Nuclear Power Plants
ANSI/ASME NQA-2–1983	Quality Assurance Requirements for Nuclear Power Plants
ANSI/ASME NQA-3–1989	Quality Assurance Requirements for High Level Waste Management

For a detailed history of the NQA Committee and evolution of the Standard, go to: http://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=O10500000&Action=16897.

Requests for interpretation or suggestions for improvement of this Standard should be submitted in accordance with the Preparation of Technical Inquiries to the Nuclear Quality Assurance Committee contained in the preface of this Standard.

For a listing of the NQA publication history, refer to the following table:

Historical Listing of NQA Publications

NQA-1			NQA-2			NQA-3		
Editions and Addenda	Designator	Issued	Editions and Addenda	Designator	Issued	Editions and Addenda	Designator	Issued
1st Ed.	**NQA-1–1979**	8/31/1979		...	...		...	...
Add.	NQA-1a–1981	4/30/1981		...	...		...	...
Add.	NQA-1b–1981	1/31/1982		...	...		...	...
2nd Ed.	**NQA-1–1983**	7/1/1983	1st Ed.	**NQA-2–1983**	8/31/1983		...	...
Add.	NQA-1a–1983	12/31/1983	Add.	NQA-2a–1985	10/15/1985		...	...
Add.	NQA-1b–1984	3/15/1985		...	...		...	...
Add.	NQA-1c–1985	12/31/1985		...	...		...	...
3rd Ed.	**NQA-1–1986**	7/1/1986	2nd Ed.	**NQA-2–1986**	7/1/1986		...	...
Add.	NQA-1a–1986	2/15/1987	Add.	NQA-2a–1986	2/15/1987		...	...
Add.	NQA-1b–1987	3/15/1988	Add.	NQA-2b–1987	4/15/1988		...	...
Add.	NQA-1c–1988	2/28/1989	Add.	NQA-2c–1988	2/28/1989		...	...
4th Ed.	**NQA-1–1989**	9/15/1989	3rd Ed.	**NQA-2–1989**	9/30/1989	1st Ed.	**NQA-3–1989**	3/23/1990
Add.	NQA-1a–1989	3/31/1990	Add.	NQA-2a–1990	5/31/1990		...	...
Add.	NQA-1b–1991	4/15/1991	Add.	NQA-2b–1991	5/12/1992		...	...
Add.	NQA-1c–1992	9/30/1992		...	...		...	...
5th Ed.	**NQA-1–1994** [Note (1)]	7/29/1994		...	...		...	...
Add.	NQA-1a–1995	1/19/1996		...	...		...	...
6th Ed.	**NQA-1–1997**	12/31/1997		...	...		...	...
Add.	NQA-1a–1999	5/25/1999		...	...		...	...
7th Ed.	**NQA-1–2000**	5/21/2001		...	...		...	...
Add.	NQA-1a–2002	12/6/2002		...	...		...	...
8th Ed.	**NQA-1–2004**	12/22/2004		...	...		...	...
Add.	NQA-1a–2005	5/3/2006		...	...		...	...
Add.	NQA-1b–2007	6/1/2007		...	...		...	...
9th Ed.	**NQA-1–2008**	3/14/2008		...	...		...	...
Add.	NQA-1a–2009	7/20/2009		...	...		...	...
Add.	NQA-1b–2011	1/4/2011		...	...		...	...
10th Ed.	**NQA-1–2012**	3/15/2013		...	...		...	...
11th Ed.	**NQA-1–2015**	2/20/2015		...	...		...	...

GENERAL NOTE: NQA editions and addenda prior to 1989 were titled ANSI/ASME NQA.

NOTE:

(1) This edition is a consolidation of NQA-1 and NQA-2.

PREPARATION OF TECHNICAL INQUIRIES TO THE NUCLEAR QUALITY ASSURANCE COMMITTEE

INTRODUCTION

The ASME Nuclear Quality Assurance Committee will consider written requests for interpretations and revisions to NQA Standards and develop new requirements or guidance if dictated by technological development. The Committee's activities in this regard are limited strictly to interpretations of the requirements and guidance, or to the consideration of revisions to the present Standard on the basis of new data or technology. As a matter of published policy, ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, specific organizations, individual titles, or activity and, accordingly, inquiries requiring such consideration will be returned. Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

All inquiries that do not provide the information needed for the Committee's full understanding will be returned.

INQUIRY FORMAT

Inquiries shall be limited strictly to interpretations of the requirements and guidance, or to the consideration of revisions to the present Standard on the basis of new data or technology.

Inquiries shall be submitted in the following format:

(a) Scope. The inquiry shall involve a single requirement/guidance or closely related requirements/guidance. An inquiry letter concerning unrelated subjects will be returned.

(b) Background. State the purpose of the inquiry, which would be either to obtain an interpretation of the Standard or to propose consideration of a revision to the present Standard. Provide the information needed for the Committee's understanding of the inquiry concisely, being sure to include reference to the applicable Standard, Edition, Addenda, Requirements, Parts, Subparts, Appendices, paragraphs, figures, and tables. If illustrations are provided, they shall be limited to the scope of the inquiry.

(c) Inquiry Structure

(1) Proposed Question(s). The inquiry shall be stated in a condensed and precise question format, omitting superfluous background information, and, where appropriate, composed in such a way that "yes" or "no" (perhaps with provisos) would be an acceptable reply. The inquiry statement should be technically and editorially correct.

(2) Proposed Reply(ies). State what it is believed that the Standard requires. If, in the inquirer's opinion, a revision to the Standard is needed, recommended wording shall be provided.

(d) Submittal. The inquiry shall be submitted in typewritten form; however, legible, handwritten inquiries will be considered. It shall include the name and mailing address and telephone number of the inquirer and be mailed to the following address:

Secretary
ASME Nuclear Quality Assurance Committee
Nuclear Department
Two Park Avenue
New York, NY 10016-5990

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(As of April 23, 2014)

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INTRODUCTION (15)

This Standard is to be applied to any structure, system, component, activity, or organization that is essential to the safe, reliable, and efficient performance of a nuclear facility and any activities independent of a facility that may affect performance (e.g., transportation of nuclear materials) of those activities. The extent to which this Standard should be applied depends upon the specific type of facility, items, or services involved and the nature, scope, and relative importance of the activity being performed. It is also to be applied to all phases of a nuclear facility life cycle (e.g., siting, design, construction, operation, and decommissioning) and all types of activities (e.g., training, testing, software development or use).

The Standard also applies to activities that could affect the quality of nuclear material applications, structures, systems, and components of nuclear facilities.

Examples of nuclear facilities are those for power generation, spent fuel storage, waste management, fuel reprocessing, nuclear material processing, fuel fabrication, nuclear research, and other related facilities. Examples of activities include siting, designing, procuring, developing or using software, fabricating, constructing, handling, shipping, receiving, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, modifying, and decommissioning.

This Standard is organized in the following four parts:

(a) Part I contains requirements for developing and implementing a Quality Assurance Program for nuclear facility applications.

(b) Part II contains additional quality assurance requirements for the planning and conduct of specific work activities under a Quality Assurance Program developed in accordance with Part I.

(c) Part III contains guidance for implementing the requirements of Parts I and II.

(d) Part IV contains guidance for application of NQA-1 and comparisons of NQA-1 with other quality requirements.

The arrangement of the requirements in Parts I and II and the guidance in Parts III and IV permit the judicious application of the Standard or portions of the Standard. Applicable requirements of Parts I and II are to be implemented to ensure conformance with NQA-1. The application of this Standard, or portions thereof, shall be invoked by written contracts, policies, procedures, specifications, or other appropriate documents.

This Standard reflects industry experience and current understanding of the quality assurance requirements necessary to achieve safe, reliable, and efficient utilization of nuclear energy and management and processing of radioactive materials. The Standard focuses on the achievement of results, emphasizes the role of the individual and line management in the achievement and sustainment of quality, and fosters the application of these requirements in a manner consistent with the relative importance of the item or activity (i.e., a "graded approach").

ASME NQA-1–2015
SUMMARY OF CHANGES

Following approval by the ASME Standards Committee on Nuclear Quality Assurance and ASME, and after public review, ASME NQA-1–2015 was approved by the American National Standards Institute on January 12, 2015.

ASME NQA-1–2015 consists of NQA-1–2012; editorial changes, revisions, and corrections; as well as the following changes identified by a margin note, **(15)**.

Page	*Location*	*Change*
ix	Introduction	Added
4–7	Part I Introduction	Revised in its entirety
9	Part I, Requirement 2, 300	Second paragraph revised
	Part I, Requirement 2, 301	Second word revised
10	Part I, Requirement 2, 303	Revised
11	Part I, Requirement 2, 400	Revised in its entirety
	Part I, Requirement 2, 500	First sentence deleted
12	Part I, Requirement 3, 401	Revised in its entirety
14	Part I, Requirement 3, 800	(1) Revised (2) Sections 801 and 802 deleted
23	Part I, Requirement 11, 200	Subparagraph (d) deleted
	Part I, Requirement 11, 400	Revised in its entirety
24	Part I, Requirement 11, 602	Revised in its entirety
30, 31	Part I, Requirement 17, 601	Spelling of second word corrected in subparagraph (b)
32	Part I, Requirement 18, 200	Revised in its entirety
34–36	Part II Contents	Updated
37	Part II Introduction, 100	Revised
	Part II Introduction, 200	Revised
	Part II Introduction, 300	Revised
39	Part II, Subpart 2.1	Title revised
	Part II, Subpart 2.1, 100	Revised
	Part II, Subpart 2.1, 101	Definitions of *cleaning* and *sensitized corrosion-resistant alloy* revised
41	Part II, Subpart 2.1, 302.1	ASTM designations updated
	Part II, Subpart 2.1, 302.2	ASTM designations updated
42	Part II, Subpart 2.1, 302.4	Subparagraph (d) revised
44–47	Part II, Subpart 2.1, 400	Third paragraph revised
	Part II, Subpart 2.1, 600	Last paragraph revised

Page	*Location*	*Change*
	Part II, Subpart 2.1, 801	First and last paragraphs revised
	Part II, Subpart 2.1, 802	Paragraphs 802.1 and 802.2 revised
	Part II, Subpart 2.1, 1000	Second paragraph revised
63	Part II, Subpart 2.4	Deleted
75	Part II, Subpart 2.7, 100	Footnote 1 added
	Part II, Subpart 2.7, 102	Definition of *change control* added
76–78	Part II, Subpart 2.7, 201	Title revised
	Part II, Subpart 2.7, 202	Title revised
	Part II, Subpart 2.7, 203	Revised in its entirety
	Part II, Subpart 2.7, 302	Revised
	Part II, Subpart 2.7, 400	Sections 400 through 404 revised
102	Part II, Subpart 2.16	Deleted
103	Part II, Subpart 2.18, 201	Subparagraph (c) revised
116, 117	Part III Contents	Updated
118	Part III Introduction, 100	Revised in its entirety
	Part III Introduction, 200	Subparagraph (a) and last paragraph revised
131–134	Part III, Subpart 3.1-3.1, 100	Subparagraph (g) added
	Part III, Subpart 3.1-3.1, 200	(1) Subparagraph (q) revised (2) Subparagraph (ii) added
	Part III, Subpart 3.1-3.1, 300	Subparagraph (a)(11) added
	Part III, Subpart 3.1-3.1, 400	Revised in its entirety
135	Table 401.4	Added
	Part III, Subpart 3.1-3.1, 600	Last paragraph added
144	Part III, Subpart 3.1-7.1, 705	Added
154, 155	Part III, Subpart 3.1-18.1, 204	(1) Added, and remaining paragraphs redesignated (2) Paragraphs 203.1, 203.2, and previous 206 deleted
156	Part III, Subpart 3.1-18.1, 600	Revised in its entirety
	Part III, Subpart 3.1-18.1, 700	Revised in its entirety
157	Part III, Subpart 3.1-18.2	Added
161	Part III, Subpart 3.2-2.7.1	Designation revised
	Part III, Subpart 3.2-2.7.1, Introduction	Spelling of “Subpart” corrected
166–173	Part III, Subpart 3.2-2.7.2	Added
175	Part III, Subpart 3.2-2.14, 300	First paragraph revised

Page	*Location*	*Change*
180	Part III, Subpart 3.2-2.14, 900	Designation of last EPRI report corrected
194–196	Part IV Contents	Updated
197	Part IV Introduction, 100	Revised in its entirety
245–256	Part IV, Subpart 4.1.5	Added
258, 259	Part IV, Subpart 4.2.1, 200	Revised
270	Part IV, Subpart 4.2.3, 404	Last paragraph added
272	Part IV, Subpart 4.2.4, 501	(1) Revised (2) Sections 502 and 503 deleted
281–284	Part IV, Subpart 4.2.7	Added

SPECIAL NOTE:

The interpretations to ASME NQA-1 are included in this edition as a separate section for the user's convenience.

PART I: REQUIREMENTS FOR QUALITY ASSURANCE PROGRAMS FOR NUCLEAR FACILITIES
(FROM FORMER NQA-1)

CONTENTS

(15)

PART I
INTRODUCTION

This Standard reflects industry experience and current understanding of the quality assurance requirements necessary to achieve safe, reliable, and efficient utilization of nuclear energy, and management and processing of radioactive materials. The Standard focuses on the achievement of results, emphasizes the role of the individual and line management in the achievement of quality, and fosters the application of these requirements in a manner consistent with the relative importance of the item or activity.

100 PURPOSE

Part I — this Part — establishes requirements for the development and implementation of a Quality Assurance Program (QAP) for nuclear facility applications. It is arranged by Requirements 1 through 18.

Part II contains additional quality assurance requirements for the planning and conduct of specific work activities under a Quality Assurance Program developed in accordance with Part I. It is arranged by Subparts.

Part III contains guidance for implementing the requirements of Parts I and II. It is arranged by Subparts.

Part IV contains guidance for application of NQA-1 and comparisons of NQA-1 with other quality requirements. It is arranged by Subparts.

200 APPLICABILITY

This Part — Part I — is to be applied using a graded approach to any structure, system, component, activity, or organization that is essential to the safe, reliable, and efficient performance of a nuclear facility and to any activities independent of a facility that may affect performance (e.g., transportation of nuclear materials) of those activities. It is also to be applied using a graded approach to all phases of a nuclear facility life cycle (e.g., siting, design, construction, operation, and decommissioning) and to all types of activities (e.g., training, testing, software development and use). A Quality Assurance Program developed in accordance with Part I is to be applied when implementing Part II requirements.

300 RESPONSIBILITY

The organization invoking this Part shall be responsible for specifying applicable requirements and appropriately relating them to specific items, activities, and services. The organization implementing this Part and applicable Part II requirements shall be responsible for complying with the specific requirements to achieve quality results in compliance with this Standard.

400 TERMS AND DEFINITIONS

The following definitions are provided to assure a uniform understanding of select terms as they are used in this Standard:

acceptance criteria: specified limits placed on the performance, results, or other characteristics of an item, process, or service defined in codes, standards, or other requirement documents.

assessment: an all-inclusive term that may include review, evaluation, inspection, test, check, surveillance, or audit to determine and document whether items, processes, systems, or services meet specified requirements and perform effectively.

audit: a planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

audit, external: an audit of those portions of another organization's quality assurance program not under the direct control or within the organizational structure of the auditing organization.

audit, internal: an audit of those portions of an organization's quality assurance program retained under its direct control and within its organizational structure.

audit finding: a condition adverse to quality identified during an audit requiring follow-up by or for the auditing organization.

Certificate of Conformance: a document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet specified requirements.

certification: the act of determining, verifying, and attesting in writing to the qualifications of personnel, processes, procedures, or items in accordance with specified requirements.