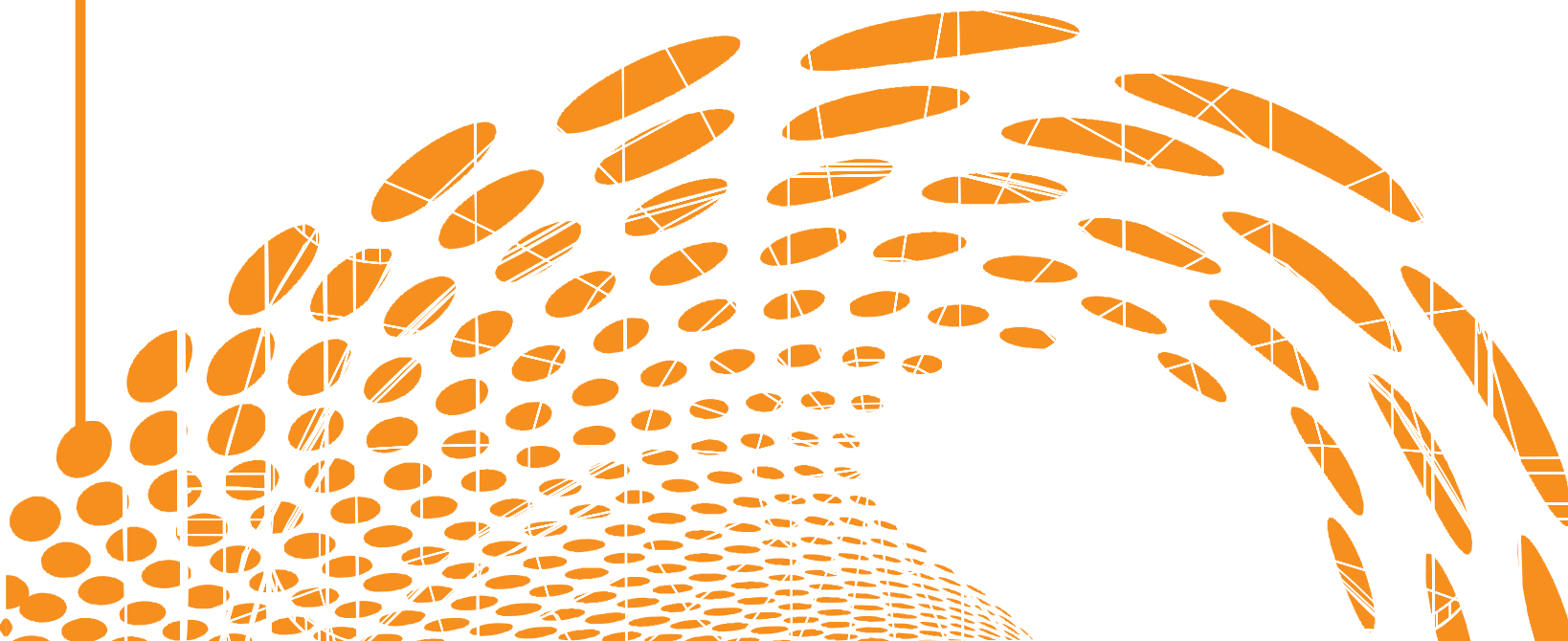
ASME STANDARDS TECHNOLOGY, LLC

STP-NU-061-1

Comprehensive Evaluation of the NSQ-100 Nuclear Safety and Quality Management System Requirements



STP-NU-061-1

COMPREHENSIVE EVALUATION OF THE NSQ-100 NUCLEAR SAFETY AND QUALITY MANAGEMENT SYSTEM REQUIREMENTS

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Date of Issuance: June 30, 2015

This report was prepared as an account of work sponsored by ASME Nuclear Codes and Standards and ASME Standards Technology, LLC (ASME ST-LLC).

ASME Standards Technology, LLC
Two Park Avenue, New York, NY 10016-5990

ISBN No. 978-0-7918-6907-9

Summary of Changes
June 2015

STP-NU-061-1

COMPREHENSIVE EVALUATION OF THE NSQ-100 NUCLEAR SAFETY AND QUALITY MANAGEMENT SYSTEM REQUIREMENTS OF ASME NQA-1

The following changes have been made to the first revision of STP-NU-061.

Annex A

ASME NQA-1–2012
General change to all 18 NQA sections lead pages, from "100 Basic" to "100 General"

Page 13 Requirement 1, 201 General (c) quality achievement is verified by those not directly responsible for performing the work

Page 15-20 Requirement 2, 100 General deletion of "The program shall identify the activities and items to which it applies."

Page 24 Requirement 3 revise first paragraph "The design shall be defined, controlled, and verified."

Page 30 Requirement 3 500 Design Verification, revise and add to (a) paragraph "This verification may be performed by the originator's supervisor, provided *(1)* the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or *(2)* the supervisor is the only individual in the organization competent to perform the verification. Cursory supervisory reviews do not satisfy the intent of this Standard."

Page 62 Requirement 12 303 Control delete paragraph "Methods and frequency of checking accuracy shall be defined in procedures."

Annex B

ASME NQA-1 2012
General change to all 18 NQA sections lead pages, from "100 Basic" to "100 General"

Page 82 Requirement 1, 201 General (c) quality achievement is verified by those not directly responsible for performing the work

Page 84 Requirement 2, 100 General deletion of "The program shall identify the activities and items to which it applies."

Page 92 Requirement 3 100 General revise first paragraph "The design shall be defined, controlled, and verified."

Page 98 Requirement 3 500 Design Verification, revise and add to (a) paragraph "This verification may be performed by the originator's supervisor, provided *(1)* the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or *(2)* the supervisor is the only individual in the organization competent to perform the verification. Cursory supervisory reviews do not satisfy the intent of this Standard."

Annex C

ASME Section III

Page 149-150 NCA-4134.2 Subparagraph (c) revised

Page 189-190 NCA-4134.6 revised

Page 232 NCA-4134.17 New subpara. (e) added; former subpara. (e) redesignated as (f)

ASME NQA-1 2012
General change to all 18 NQA sections lead pages, from "100 Basic" to "100 General"

Page 147 Requirement 1, 201 General (c) quality achievement is verified by those not directly responsible for performing the work

Page 149-152 Requirement 2, 100 General deletion of "The program shall identify the activities and items to which it applies."

Page 162 Requirement 3 100 General revise first paragraph "The design shall be defined, controlled, and verified."

Page 169 Requirement 3 500 Design Verification, revise and add to (a) paragraph "This verification may be performed by the originator's supervisor, provided *(1)* the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or *(2)* the supervisor is the only individual in the organization competent to perform the verification. Cursory supervisory reviews do not satisfy the intent of this Standard."

Page 219 Requirement 12 303 Control delete paragraph "Methods and frequency of checking accuracy shall be defined in procedures."

Page 229 Requirement 17, SubSection 100 General delete 4th paragraph "The term records, used throughout this section, is to be interpreted as quality assurance records"

Annex D

ASME Section III NCA 2013, Subsections 3850

Page 245	NCA-3853.1 Subparagraph (d)
Page 250	NCA-3853.3 First sentence revised
Page 251-252	NCA-3855.5 (1) Subparagraphs (a), (a)(1), and (a)(3) revised; New subpara. (a)(4) added and subsequent subparagraph redesignated
Page 256-257	NCA-3856.3 Subparagraphs (c) and (e) revised

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FOREWORD

This technical report was developed to comprehensively evaluate the NSQ-100 document and its related guidance documents against the corresponding ASME products. Comparisons were made of the various corresponding documents of ASME and the Nuclear Quality Standard Association (NQSA). The report discusses the competitive strengths and weaknesses of the NSQ-100 products compared to the corresponding ASME products.

Established in 1880, the American Society of Mechanical Engineers (ASME) is a professional not-for-profit organization with more than 135,000 members and volunteers promoting the art, science and practice of mechanical and multidisciplinary engineering and allied sciences. ASME develops codes and standards that enhance public safety, and provides lifelong learning and technical exchange opportunities benefiting the engineering and technology community. Visit www.asme.org for more information.

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ABSTRACT

This technical report revision summarizes the assessment that was performed addressing the competitive strengths and weaknesses of NQSA products compared to the corresponding ASME products. The products compared during this assessment were the NSQ-100 document "Nuclear Safety and Quality Management System Requirements", Revision 0 with an issue date of December 2011 [1] and the corresponding ASME Standards; NQA-1 "Quality Assurance Requirements for Nuclear Facility Application Edition 2012" [2] and "ASME Section III Rules for Construction of Nuclear Facility Components-Subsection NCA — General Requirements for Division 1 and Division 2 Edition 2013" [3].

ABBREVIATIONS AND ACRONYMS

AREVA	French public multinational industrial conglomerate
ASME	American Society of Mechanical Engineers
ASME ST-LLC	ASME Standards Technology, LLC
AFCEN	French Association for the rules governing the Design, Construction and Operating Supervision of the Equipment Items for Electro Nuclear Boilers
Bureau Veritas	Multinational Company providing conformity assessment, certification and consulting services to industry, government and individuals
DOE	US Department of Energy
IAEA	International Atomic Energy Agency
ISO	International Organization for Standardization
NQSA	Nuclear Quality Standard Association
NRC	US Nuclear Regulatory Commission
QSC	Quality Systems Certificate
SGS	Société Générale de Surveillance, a multinational Company headquartered in Geneva, Switzerland which provides inspection, verification, testing and certification services

1 PURPOSE AND SCOPE

A number of concerns were voiced in the USA, Europe and Asia concerning how the NSQ-100 document was to be used by construction and engineering companies, regulators, standard developing organizations, vendors and suppliers. These concerns ranged from the validity of the document as a standard, how this new standard was to be used, its certification and accreditation activity, and the replacement of existing standards that have formed the basis of a large majority of new nuclear construction and existing nuclear plant replacements globally. This technical report provides the reader with results of an evaluation and assessment of the NSQ-100 "Nuclear Safety and Quality Management System Requirements".

2 NQSA ORGANIZATIONAL SUPPORT STRUCTURE

The NSQ-100 document was developed and issued by NQSA, a nonprofit organization jointly launched by AREVA Corporation and Bureau Veritas SA in January 2011 with the stated goal of promoting the application of the NSQ-100 standard and setting a nuclear oriented supplier evaluation process. The NSQ-100 document was issued as a draft document in June 2011 and a Revision 0 was released in December 2011.

AREVA Corporation is a stockholder company, funded in large part by the Commissariat à l'Énergie Nucléaire (CEA) and the French government budget process, and has global subsidiaries with major centers in France, Germany and North America. Bureau Veritas is an international testing, inspection and certification organization based in Paris, France. The newest member of the NQSA organization is Société Générale de Surveillance (SGS), which is a leading inspection, verification, testing, and certification company based in Geneva, Switzerland with global offices as well.

The NQSA organization's website, http://www.nqsa.org/nsq100-standard/nsq100.html explains its purpose in developing the NSQ-100 document as such: "A new environment generates new needs and calls for a new standard. In 2011, the NQSA (Nuclear Quality Standard Association) – open to all major nuclear utilities, nuclear engineers and manufacturers - responded to the nuclear supply chain challenges in terms of quality and safety by creating and promoting a new standard: NSQ-100". It goes on to say that the "NSQ-100 – is a new standard based upon ISO 9001:2008 and two other major nuclear quality standards IAEA GS-R-3:2006 and ASME NQA-1-2008 (and addenda 2009). NSQ-100 standard is also complemented with a correspondence matrix to GS-R-3 standard called NSQ-110 and eight (8) application guides. NSQ-100 aims to provide high quality and reduce costs and supply chain delivery time".

3 DIFFERENCES OF STANDARD DEVELOPMENT ORGANIZATIONS

The primary difference between the development of the NSQ-100 document from NQSA and its corresponding ASME document NQA-1 is that the two organizations developed their documents from two different viewpoints. The ASME is not funded by, reporting to or a part of any U.S. Governmental Agency. The ASME organization standards development function is a total volunteer-based effort. It is a global organization with functional chapters, student associations and industrial partners from over 100 nations, providing the expert knowledge and experience necessary to develop the ASME Codes and Standards over the past 125 years.

The NSQ-100 document was developed within the membership of the NQSA organization. This document was not developed using a broad base of global expert knowledge and experience such as the consensus process used historically in ASME's document development.

The ASME Codes and Standards are developed using a broad base of industrial companies, manufacturing and construction companies, regulators, engineering and inspection organizations and private consultants from the global user base. The ASME meetings are open to public involvement and active participation. There are over 500 standards developed by ASME that are being used in over 100 countries and ASME also administers over 40 US Technical Advisory Groups (TAGs) for the ISO development process.

In addition to the developing groups, the ASME standards were initially intended to be used by private organizations, including manufacturers and facility licensees, with independent governmental oversight and regulation by the US Nuclear Regulatory Commission (NRC). For the commercial operation of US nuclear generating facilities, the governmental regulatory objective is safety and the responsibility for operation efficiency resides with the commercial owner. The US commercial nuclear generating facilities have created or used industry wide organizations, such as Institute of Nuclear Power Operations (INPO), Electric Power Research Institute (EPRI) and the Nuclear Energy Institute (NEI), to self-impose quality management processes and common solutions to improve the safety and efficiency of nuclear generating facility operation. This non-regulated approach to implementing quality management processes by the utilities for their customers and investors has resulted in operating efficiencies exceeding 90% and an unparalleled safety record.

In recent years the ASME standards have been used at facilities operated by the US government. When the US government through the Department of Energy (DOE) has facility operational responsibility, they have included quality management processes for the facility in their DOE regulations to support the use of the NQA-1 Standard. Most DOE facilities are not regulated by the NRC and do not receive the same level of oversight as an NRC-regulated commercial facility thus it allows facility management to self-impose their selected quality management processes.

4 IMPORTANT DIFFERENCE IN FOCUS OF REVIEWED DOCUMENTS

The ASME NQA-1 approach applies Quality Assurance requirements to activities (activity focus) that could affect the quality of nuclear material applications and of structures, systems and components of nuclear facilities. Quality assurance requirements are used to develop a Quality Assurance program necessary to achieve safe, reliable and efficient utilization of nuclear energy and management and processing of radioactive material.

The NQSA NSQ-100 document is a process approach (process focus) to achieve the objectives, and continual improvement of the management system and its processes to preclude a negative impact on safety.

The process and the activity approach have their strengths and weaknesses which are continually debated by both sides. There are international standards in use today by the nuclear industry that are process approach based. The first is the ISO 9001:2008 Standard which is a Quality Management System Standard and it is used by companies to manage the quality of their product from inception of marketing idea through reaching the market place and gauging customer satisfaction [4]. This standard is also a business model for many corporations to provide a disciplined approach to the development of their product. The second standard in use is the IAEA GS-R-3 Management System Standard which uses an integrated management system approach and the integration of safety, health, environmental, security, quality and economic elements of the management system to ensure that safety is properly taken into account in all activities [5]. Both of these standards have some criteria activities but do not provide the level of detail of the NQA-1 Standard to establish requirements and acceptance criteria for the activities affecting quality.

5 EVALUATION RESULTS

There were two main tasks that formed the basis of the evaluation and the assessment of NSQ-100. The first task was designated Task A and its purpose was to develop a side-by-side comparison as defined below:

Task A: A comprehensive review of the NSQ-100 document and its related guidance documents to be conducted and comparisons of the NSQ program's similarities and differences with ASME's corresponding standard NQA-1 were developed and also noted in these comparisons were any identical wording from the NQA-1 document being used.

This comparison was developed and the results are shown in Annex A. In reviewing the work performed by the NSQ-100 developers it was apparent from the beginning that the writers performed a "cut and paste" activity using the various documents discussed previously. The writers appeared to add and subtract content from the other documents without any regard for out-of-sequence paragraph numbering or being consistent with paragraph content. This lifting of content is very apparent when you scan through the NSQ-100 document. As an example on page 10 of 27, paragraphs 5.1 "Management Commitment" and 5.3 "Quality policy" are direct copies of ISO 9001:2008 with added requirements in paragraph 5.1 of (f) and (g) and in paragraph 5.3 an added requirement (f). If you read the NSQ-100 document you will find no requirements (a)-(e) in paragraph 5.1 or in paragraph 5.3 of NSQ-100, but they are there in the ISO 9001 document. Another example is in NSQ-100, paragraph 6.2.2. "Competence, qualification, training and awareness", where you have the same type of cut and paste editing. These editing conditions exist throughout the NSQ-100 document.

In reviewing the NQA-1-2012 Standard, as part of this revision, and NSQ-100 (Annex A) there are several places where the wording was added into NSQ-100 to attempt to meet the NQA-1 requirements. For example paragraph 7.3.5. "Design and development verification" in Annex A it was noted the additional wording was very close to the NQA-1 wording. Other examples in Annex A are paragraph 7.3.7 "Control of design and development changes", paragraph 7.4.2.1 Content of the procurement documents and also 7.4.2.1 "Content of the procurement documents" on that same page. There were several cases of actual wording from the NQA-1 Standard being used. Examples of those can be found in Annex A, paragraph 4.2.3 "Control of documents" and on 7.5.1.3 "Inspection and surveillance activities", 7.6 "Control of monitoring and measuring equipment", and 8.2.2 "Internal audit".

It is the opinion of this reviewer that the amount of wording being used from the NQA-1 Standard is minor compared to the complete copying of the ISO 9001 and GS-R-3 documents that make up the bulk of the NSQ-100 Document. The bigger concern is the attempt by the NQSA organization to use the NSQ-100 document as an alternate to the reviewed standards, ISO 9001:2008, IAEA GS-R-3 and NQA-1. The use of these three documents for nuclear regulated activities has been reviewed by several standard development organizations such as ASME, IAEA and several nuclear regulators. Several documents have been issued by these organizations to document the limited uses of ISO 9001:2008 or IAEA GS-R-3 to meet the nuclear safety needs of these regulators and there would be limited use unless additional requirements were implemented, see references [6]-[10].

Task B: To the extent that NSQ-100 and other NSQ documents describe the NSQ certification program, comparisons of the program's similarities and differences with ASME's corresponding conformity assessment programs were also developed. These comparisons were organized into three parts: (1) a comparison against ASME Section III equipment (N-type certificates) and (2) a comparison against ASME Section III material organizations (QSCs); and (3) a comparison against the new NQA-1 certification program.

These comparisons were developed and the results are shown in Annexes B, C and D. At the time of this evaluation the NSQ-100 document did not have a certification program that has been made public by the NQSA organization. The three comparisons of the ASME certification programs were done to demonstrate the current certification program within the ASME. The ASME "N" type certificate and the "QSC" certificate programs have been in use for over 30 years. The NQA-1 certificate program is new and began in 2012.

6 SUMMARY OF EVALUATION AND ASSESSMENT RESULTS

The NSQ-100 document appears to be a document intended to be used initially as an internal document for NQSA member companies to use with their supplier base but its intended use may be a broader one. The requirements of the various standards that are used as references within NSQ-100 have been grouped into a minimum set of key requirements, with its application guides, that are in addition to the ISO 9001 Standard that is used as the base document. The RCC-M documents use a similar approach, using the ISO 9001 document as a base, then for nuclear application the RCC-M writers supplemented the ISO 9001 clauses with additional requirements to meet, in their opinion, nuclear safety requirements [11]. As previously pointed out in the Task A evaluation results section, the use of the ISO 9001 document for nuclear safety related activity has its pitfalls and is discussed in more detail in references [7], [8] and [10].

In a larger context, the NSQ-100 document is another attempt to combine a quality criteria standard like NQA-1 with quality management process standards. All the above cited standards have some combination of criteria or process controls, but most have a predominate view. Initially, the NSQ-100 document was developed not as a consensus standard of the nuclear industry, but an attempt by member organizations of NSQA to select quality criteria and process controls applicable or important to their scope and purpose with the hope of one day implementing its own certification program.

REFERENCES

[1] NSQ-100 document "Nuclear Safety and Quality Management System Requirements" Rev. 2011.

[2] NQA-1:2012 "Quality Assurance Requirements for Nuclear Facility Application Edition 2012.

[3] ASME Section III "Rules for Construction of Nuclear Facility Components-Subsection NCA — General Requirements for Division 1 and Division 2" Edition 2013.

[4] ISO 9001:2008 "Quality Management Systems-Requirements".

[5] IAEA GS-R-3:2006 Safety Standard "The Management System for Facilities and Activities".

[6] IAEA Safety Reports Series No.70 "Management System Standards: Comparison between IAEA GS-R-3 and ASME NQA-1-2008 and NQA-1a-2009 Addenda".

[7] IAEA Safety Reports Series No. 69 "Management System Standards: Comparison between IAEA GS-R-3 and ISO 9001:2008".

[8] ASME NQA-1 Part IV, SUBPART 4.3 Application Guidance on the Use of the ISO 9001:2008 Quality Management Systems Standard for Compliance with NQA-1–2008, Part 1 With the NQA-1a-2009 Addenda.

[9] ASME NQA-1 Part IV, SUBPART 4.7 Application Guide on the Comparison of NQA-1-2008, With the NQA-1a-2009 Addenda and the International Atomic Energy Agency (IAEA) Safety Standard GS-R-3, 2006-STI/PUB/1252.

[10] U.S. NRC SECY-03-0117- "Approaches for Adopting More Widely Accepted International Quality Standards".

[11] RCC-M "Design and Construction Rules for Mechanical Equipment of PWR Nuclear Islands".

ANNEX A

NQA-1-2012 AND NSQ-100 COMPARISON

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**Similarities And Differences**	**NQA-1 Wording Used**
REQUIREMENT 1 Organization	**Scope**		
100 GENERAL	**1.1 General**		
Responsibilities for the establishment and implementation of the quality assurance program shall be defined. The organizational structure, functional responsibilities, levels of authority, and lines of communications for activities affecting quality shall be documented.	This document is intended for any organization which supplies product or services within nuclear industry. It is emphasized that the requirements specified in this document are complementary (not alternative) to contractual and applicable statutory and regulatory requirements. Should there be a conflict between the requirements of this document and applicable statutory or regulatory requirements, the latter shall take precedence.		
	4.1.1. Nuclear safety culture		
	The organization shall promote and support a strong safety culture by: - ensuring a common understanding of the key aspects of safety culture within the organization, - providing the means by which the organization supports individuals and teams in carrying out their tasks safely and successfully, taking into account the interaction between individuals, technology and the organization, - reinforcing a learning and questioning attitude at all levels of the organization, - providing the means by which the organization continually seeks to develop and improve its safety culture.		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**Similarities And Differences**	**NQA-1 Wording Used**
REQUIREMENT 1 Organization	**Scope**		
200 STRUCTURE AND RESPONSIBILITY			
201 General	**4.1.2. Classification of product**		
The organizational structure and responsibility assignments shall be such that:	The organization shall break down the product classification in order to identify items or activities important for safety or important for the final quality of the product. Classification of items or activities important for safety shall be based on analysis of consequences of their potential failure or malfunction on the nuclear safety function of the product. The classification shall be submitted to the customer for acceptance. The classification procedure shall be documented and records related to an item or activity shall be maintained.		
	4.1.3. Grading the application of quality requirements		
	For classified items or activities, the associated quality management level, surveillance level and documentation requirements shall be graded in accordance with the classification of the item or activity. The organization shall justify and document the method used to define the above relevant requirements.		
	4.2. Documentation requirements		
	4.2.1. General		
	The organization shall ensure that personnel have access to, and are aware of, relevant quality		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**Similarities And Differences**	**NQA-1 Wording Used**
REQUIREMENT 1 Organization	**Scope**		
	management system documentation and changes. Documentation shall be provided to the personnel in an appropriate language for its understanding.		
	5. MANAGEMENT RESPONSIBILITY		
201 General	**5.1. Management commitment**		
(a) senior management establishes overall expectations for effective implementation of the quality assurance program and is responsible for obtaining the desired end result;	Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by: f) ensuring a common understanding of the key aspects of safety culture within the organization, g) providing the means by which the organization continually seeks to develop and improve its safety culture.		
(b) quality is achieved and maintained by those assigned responsibility for performing work;			
	5.2. Customer focus		
	Top management shall ensure that product conformity and on-time delivery performance are measured and that appropriate action is taken, if planned results are not, or will not be, achieved, while, at the same time, ensuring that safety is not compromised.		
	5.5.2. Management representative Top management shall appoint a		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**Similarities And Differences**	**NQA-1 Wording Used**
REQUIREMENT 1 Organization	**Scope**		
	member of the organization's management who, irrespective of other responsibilities, shall have responsibility and authority that includes: b) reporting directly to top management on the performance of the quality management system and any need for improvement, d) the organizational independence to resolve quality management issues.		
(c) quality achievement is verified by those not directly responsible for performing the work			
(d) those responsible for assuring that an appropriate quality assurance program has been established and those verifying activities affecting quality have sufficient authority, direct access to responsible levels of management, organizational freedom, and access to work to perform this function, including sufficient independence from cost and schedule when opposed to safety function considerations. These verification functions include the following: (1) identifying quality problems; (2) initiating, recommending, or providing solutions to quality problems through designated channels; (3) verifying implementation of solutions; and (4) assuring that further processing, delivery, installation, or use is			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**Similarities And Differences**	**NQA-1 Wording Used**
REQUIREMENT 1 Organization	**Scope**		
controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.			
202 Delegation of Work			
The individual(s) or organization(s) responsible for establishing and executing a quality assurance program under this Standard may delegate any or all of the work to others but shall retain responsibility therefore.			
300 INTERFACE CONTROL	**5.5. Responsibility, authority and communication**		
	5.5.1. Responsibility and authority		
Where more than one organization is involved in the execution of activities, the responsibilities, interfaces, and authority of each organization shall be clearly defined and documented.	The organization shall retain overall responsibility for the management system when an external organization is involved in the work of developing all or part of the management system.		
The external interfaces between organizations and the internal interfaces between organizational units, and changes thereto, shall be documented.			
	5.5.4. Communication with Regulatory Bodies		
	With regards to the safety related product issues, the organization shall ensure that appropriate processes are defined in liaison with the customer to address any communication from nuclear safety Regulatory Bodies.		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 Quality Assurance Program			
100 GENERAL			
(a) A documented quality assurance program shall be planned, implemented, and maintained in accordance with this Part (Part I), or portions thereof.			
	4.2.2. Quality manual		
	The organization shall specify in a controlled document (quality manual, quality assurance program or a plan) the organizational, documentary and technical provisions to meet the requirements of this document and to address the nuclear safety aspects. If not covered by this document, the quality assurance program or plan shall consider additional quality requirements coming from the contract, the applicable regulations, codes and standards.		
The program shall provide control over activities affecting quality to an extent consistent with their importance.			
	5.3. Quality policy		
	Top management shall ensure that the quality policy: f) is appropriate to safety aspects related to the product.		
	8.2.1. Customer satisfaction		
The program shall include monitoring activities against acceptance criteria	Information to be monitored and used for the evaluation of customer		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 Quality Assurance Program			
in a manner sufficient to provide assurance that the activities affecting quality are performed satisfactorily.	satisfaction shall include, but is not limited to, product conformity, on-time delivery performance, customer complaints, corrective action requests and implementation of safety culture The organization shall develop and implement plans for customer satisfaction improvement that address deficiencies identified by these evaluations, and assess the effectiveness of the results.		
The program shall be established at the earliest time consistent with the schedule for accomplishing the activities.			
	5.4. Planning		
	5.4.2. Quality management system planning		
The program shall provide for the planning and accomplishment of activities affecting quality under suitably controlled conditions.	NOTE: Organizational changes shall be evaluated and classified according to their importance to safety and each change shall be justified. The implementation of such changes should be planned, controlled, communicated, monitored and recorded to ensure that nuclear safety is not compromised.		
Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 Quality Assurance Program			
assurance that prerequisites for the given activity have been satisfied.			
The program shall provide for any special controls, processes, test equipment, tools, and skills to attain the required quality of activities and items and for verification of that quality.			
The organization shall establish and implement processes to detect and correct quality problems.			
(b) The program shall provide for indoctrination, training, and qualification as necessary of personnel performing or managing activities affecting quality to assure that suitable proficiency is achieved and maintained.			
	5.6.2. Review input		
(c)Management shall regularly assess the adequacy and effective implementation of the quality assurance program.	Lessons learned from other organizations shall be also taken into account.		
	6.4. Work environment		
	NOTE: The term "work environment" refers to working conditions including radiation safety.		
	7.1. Planning of product realization		
	The organization shall determine, as appropriate: a) quality objectives and requirements for the product, which		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 **Quality Assurance Program**			
	may include aspects such as: - product performances, - nuclear safety, - reliability, availability and maintainability, - producibility and inspectability during and after manufacture, - health and safety aspects during set-up, operating and maintenance phases, - when contractually required, environmental aspects of parts and materials used in the product, and - when contractually required, safety and environmental aspects during retrieval. e) management of product change, f) commissioning program, if applicable, and g) when contractually required, resources to support the operating and maintenance of the product. **NOTE 1**: A document specifying the processes of the quality management system (including the product realization processes) and the resources to be applied to a specific product, project or contract can be referred to as a project quality plan. **NOTE 2**: Product change means any product change or any modification in production processes which may affect its quality or performances.		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 **Quality Assurance Program**			
	7.1.1. Project management		
	As appropriate to the organization and the product, the organization shall plan and manage product realization in a structured and controlled manner to meet requirements at acceptable risk, within resource and schedule constraints, complemented, if applicable, with health and safety, environmental, security and economic considerations.		
	7.1.2. Risk management		
	The organization shall develop a project risk management, related to the achievement of applicable requirements. This includes, as appropriate to the organization and the product: a) definition of risk criteria (e.g. likelihood, consequences, risk acceptance), b) identification, assessment and communication of risks throughout product realization including supply chain, c) identification, imple-mentation and management of actions to mitigate risks that exceed the defined risk acceptance criteria.		
	7.2.2. Review of requirements related to the product		
	The organization shall review the requirements related to the product. This review shall be conducted prior		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 **Quality Assurance Program**			
	to the organization's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and shall ensure that: d) manufacturing feasibility has been investigated and confirmed, e) all risks are considered for: - the respect of all safety functions of the product (including mechanical, electrical, instrumentation and command aspects), - manufacturing, erection, testing and commissioning of the product.		
	7.2.3. Customer communication The organization shall determine and implement effective arrangements for communicating with customers in relation to: a) product information, including nuclear safety aspects, b) when required, management of communication with nuclear Regulatory Bodies. The organization shall be able to communicate necessary information, in particular, and compulsorily, those related to nuclear safety issues, including data, in a customer-specified language and format (e.g. computer aided design data, electronic data exchange).		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 Quality Assurance Program			
200 INDOCTRINATION AND TRAINING	**6. RESOURCE MANAGEMENT**		
Indoctrination and training shall be commensurate with scope, complexity, importance of the activities, and the education, experience, and proficiency of the person.	**6.1. Provision of resources** Information and knowledge of the organization shall be managed as a resource.		
201 Indoctrination	**6.2.1. General**		
Personnel performing or managing activities affecting quality shall receive indoctrination in their job responsibilities and authority that includes general criteria, technical objectives, requirements of applicable codes and standards, regulatory commitments, company procedures, and quality assurance program requirements.	Personnel involved in the realization of the product shall be trained on the importance of their tasks and of the eventual consequences on the nuclear safety of any malfunction or error in their activities.		
202 Training			
The need for a formal training program for personnel performing or managing activities affecting quality shall be determined.	**6.2.2. Competence, qualification, training and awareness** The organization shall: b) where applicable, provide training or take other actions, as maintenance of proficiency, to achieve the necessary competence, f) assess the adequacy of the personnel with the expected or required competence.		
Training shall be provided, if needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, or job responsibilities. On-the-job	The organization shall designate activities that require qualification of personnel and the minimum requirements for such personnel. Provisions shall be taken to define		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 Quality Assurance Program			
training shall be used if direct hands-on applications or experience is needed to achieve and maintain proficiency.	competent personnel able to elaborate, verify and approve documents issued in foreign languages. A list of these personnel shall be established and maintained. A documented procedure shall be defined for qualification of such personnel.		
300 QUALIFICATION REQUIREMENTS	**8.2.2. Internal audit**		
The responsible organization shall designate those activities that require qualification of personnel and the minimum requirements for such personnel.	The organization shall qualify auditors according to a documented procedure including qualification criteria. The organization shall maintain and periodically review auditor qualification. Records of qualification shall be maintained.		
The responsible organization shall establish written procedures for the qualification of personnel, and for the assurance that only those personnel who meet the requirements are permitted to perform these activities. Specific qualification requirements for personnel per- forming nondestructive examination inspection and tests to verify quality and auditing are specified in parts. 301 through 304 of this Requirement.			
301 Nondestructive Examination (NDE)	**NO CORRESPONDING REQUIREMENT**		
302 Inspection and Test	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 2 Quality Assurance Program			
303 Lead Auditor	**NO CORRESPONDING REQUIREMENT**		
303.2 Training	**NO CORRESPONDING REQUIREMENT**		
303.3 Audit Participation	**NO CORRESPONDING REQUIREMENT**		
303.4 Examination	**NO CORRESPONDING REQUIREMENT**		
303.5 Maintenance of Proficiency	**NO CORRESPONDING REQUIREMENT**		
303.6 Requalification	**NO CORRESPONDING REQUIREMENT**		
304 Auditors	**NO CORRESPONDING REQUIREMENT**		
305 Technical Specialists	**NO CORRESPONDING REQUIREMENT**		
400 RECORDS OF QUALIFICATION	**NO CORRESPONDING REQUIREMENT**		
500 RECORDS	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
100 GENERAL	**7.3.1. Design and development planning**		
The design shall be defined, controlled, and verified.	During the design and development planning, the organization shall determine and document: d) the design interfaces. Where appropriate, the organization shall divide the design and development effort into distinct activities and, for each activity, define the tasks, necessary resources, responsibilities, design content, input and output data and planning constraints. The different design and development tasks to be carried out shall be based on the nuclear safety and functional objectives of the product in accordance with customer, legal, statutory and regulatory requirements. Design and development planning shall consider the ability to produce, inspect, install, test and maintain the product.		
Design inputs shall be specified on a timely basis and translated into design documents.			
Design interfaces shall be identified and controlled.			
Design adequacy shall be verified by individuals other than those who designed the item or computer program.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
Design changes shall be governed by control measures commensurate with those applied to the original design.			
200 DESIGN INPUT	**7.3.2. Design and development inputs**		
Applicable design inputs shall be identified and documented, and their selection reviewed and approved.	Inputs relating to product requirements shall be determined, translated into design documents and records maintained (see 4.2.5). These inputs shall include: a) functional and performance requirements including nuclear safety requirements e) risk identified for the product Design and Development inputs shall include a description of hardware and the specifications addressing interfaces between hardware and software.		
The design input shall be specified to the level of detail necessary to permit the design activities to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating design changes.			
300 DESIGN PROCESS			
(a)The responsible design organization shall prescribe and document the design activities to the level of detail necessary to permit the design process to be carried out in a correct manner, and to permit verification that the design meets requirements.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
Design documents shall support facility design, construction, and operation. Appropriate quality standards shall be identified and documented, and their selection reviewed and approved.			
	7.3.3. Design and development outputs		
(b) The design methods, materials, parts, equipment, and processes that are essential to the function of the items shall be selected and reviewed for suitability of application.	Design and development outputs shall: d) specify the characteristics of the product that are essential for its safe and proper use (to be included in Instructions of use), and e) specify, for IFS items or activities, any critical characteristics translated into technical specifications.		
Applicable information derived from experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel.	**NOTE 1**: Information for production and service provision shall at least include details for the manufacture, test, installation, operating, maintenance and preservation of product. **NOTE 2**: Configuration management shall identify and document characteristics of the software and ensure that consistency is maintained.		
(c) The final design shall:			
(1) be relatable to the design input by documentation in sufficient detail to permit design verification;	The organization shall define the data required to allow the product to be identified, manufactured, inspected, used and maintained, including at least:		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
	- the software configuration management.		
(2) specify required inspections and tests and include or reference appropriate acceptance criteria; and			
(3) identify assemblies and/or components that are part of the item being designed.	- the drawings, part lists and specifications necessary to define the configuration and the design features of the product, - the material, process, manufacturing and assembly data needed to ensure conformity of the product, and		
When such an assembly or component part is a commercial grade item, the characteristics of the item to be verified for acceptance and the acceptance criteria for those characteristics shall meet the requirements of Part II, SubPart 2.14, Quality Assurance Requirements for Commercial Grade Items and Services.			
Characteristics to be verified are those which provide reasonable assurance that the item will perform its intended safety function.			
If a commercial grade item, prior to its installation, is modified or selected by special inspection and/or testing to requirements that are more restrictive than the Supplier's published product description, the component part shall be represented as different from the commercial grade item in a manner			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
traceable to a documented definition of the difference.			
400 DESIGN ANALYSES			
Design analyses shall be sufficiently detailed such that a person technically qualified in the subject can review and understand the analyses and verify the adequacy of the results without recourse to the originator.			
401 Use of Computer Programs	**7.3.1. Design and development planning**		
To the extent required in para. 401(a) and (b) of this Requirement, computer program acceptability shall be pre-verified or the results verified with the design analysis for each application.	In case of computation or computerized models, the organization shall demonstrate that those are verified within their scope and validated. Individuals using the above shall be competent. Methods and means used for design verification and their combinations shall be defined prior to design and development realization. The software design and development stages shall be organized throughout the life cycle including the main four following processes: - Specification, - General and detail design, - Coding, - Integration and tests. If tests are used for any design & development purposes, provisions of 7.3.8 shall be respected		
Pre-verified computer programs shall be controlled in accordance with the requirements of this Standard.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
(a) The computer program shall be verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed.			
(b) The encoded mathematical model shall be shown to produce a valid solution to the physical problem associated with the particular application.			
402 Documentation of Design Analysis			
Documentation of design analyses shall include the following:			
(a) the objective of the analyses;			
(b) design inputs and their sources;			
(c) results of literature searches or other applicable background data;			
(d) assumptions and indication of those assumptions that must be verified as the design proceeds;			
(e) identification of any computer calculation, including identification of the computer type, computer program name, and revision, inputs, outputs, evidence of or reference to computer program verification, and the bases (of reference thereto) supporting application of the computer program to the specific physical problem; and			
(f) review and approval.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
500 DESIGN VERIFICATION	**7.3.5. Design and development verification**		
(a) The responsible design organization shall identify and document the particular design verification method(s) used.	The methods used for design verification shall be identified and documented. Design verification shall be performed by any competent person or group, clearly indicated and other than those who performed the original design of the product or participated to related design activities.	Similar language with NQA-1 section 500 Design Verification	The methods used for design verification shall be identified and documented.
The results of design verification shall be documented with the identification of the verifier clearly indicated.			
Design verification shall be performed by any competent individual(s) or group(s) other than those who performed the original design but who may be from the same organization. This verification may be performed by the originator's supervisor, provided (1) the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or (2) the supervisor is the only individual in the organization competent to perform the verification.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
Cursory supervisory reviews do not satisfy the intent of this Standard.			
(b) Design verification shall be performed prior to releasing the design for procurement, manufacture, construction, or use by another design organization except where this timing cannot be met, such as when insufficient data exist.			
In those cases, the unverified portion of the design shall be identified and controlled.			
In all cases the design verification shall be completed prior to relying upon the component, system, structure, or computer program to perform its function.			
(c) If the design is modified to resolve verification findings, the modified design shall be verified prior to release for use.			
(d) Extent of Design Verification.			
The extent of the design verification shall be a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proved designs.			
Where the design has been subjected to a verification process in accordance with this Part (Part I), the verification process need not be duplicated for identical designs.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
However, the applicability of standardized or previously proven designs, with respect to meeting pertinent design inputs, shall be verified for each application.			
Known problems affecting the standard or previously proved designs and their effects on other features shall be considered.			
The original design and associated verification documentation shall be referenced in records of subsequent application of the design.			
501 Methods			
Acceptable verification methods include, but are not limited to, any one or a combination of the following: (a) design reviews (b) alternate calculations (c) qualification testing			
501.1 Design Reviews	**7.3.4. Design and development review**		
Design reviews shall provide assurance that the final design is correct and satisfactory by addressing, where applicable, paras. 501.1(a) through (g) of this Requirement.	At suitable stages, systematic reviews of design and development shall be performed in accordance with planned arrangements: c) to authorize progress to the next stage. Reviews shall be documented and detailed in such a manner that no ambiguity or misunderstanding may occur.		
(a)Were the design inputs correctly selected?			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
(b) Are assumptions necessary to perform the design activity adequately described and reasonable?			
Where necessary, are the assumptions identified for subsequent reverifications when the detailed design activities are completed?			
(c)Were appropriate design methods and computer programs used?			
(d) Were the design inputs correctly incorporated into the design?			
(e) Is the design output reasonable compared to design inputs?			
(f) Are the necessary design inputs for interfacing organizations specified in the design documents or in supporting procedures or instructions?			
(g) Have suitable materials, parts, processes, and inspection and testing criteria been specified?			
501.2 Alternate Calculations	**NO CORRESPONDING REQUIREMENT**		
501.3 Qualification Tests	**7.3.8. Design and development verification and validation testing**		
Testing shall demonstrate adequacy of performance under conditions that simulate the most adverse design conditions.	Where tests are necessary for verification and validation of the design, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following: a) test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions,		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
	parameters to be recorded and relevant acceptance criteria, b) test procedures describe the method of operation, the performance of the test and the recording of the results, c) the correct configuration of the product is submitted for the test, d) the requirements of the test plan and the test procedures are observed, and e) the acceptance criteria are met. For software, testing methods to be implemented are: - unit testing, to check software compliance with detailed design inputs, - integration testing, to check software compliance with general design inputs, - system testing, to check that overall software complies with specifications. Any requirement of the software specification shall be validated by a test and testing conditions shall include normal and downgraded conditions		
Operating modes and environmental conditions shall be considered in determining the most adverse conditions			
Where the test is intended to verify only specific design features, the other features of the design shall be verified by other means.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
When tests are being performed on models or mockups, scaling laws shall be established and verified.			
The results of model test work shall be subject to error analysis, where applicable, prior to use in the final design.			
	7.3.6. Design and development validation NOTE: If required, the design and development validation may involve inspections or reviews from independent parties. Such demonstration shall be recorded		
600 CHANGE CONTROL	**7.3.7. Control of design and development changes**		
(a) Changes to design inputs, final designs, field changes, and temporary and permanent modifications to operating facilities shall be justified and subject to design control measures commensurate with those applied to the original design.	Design and development changes shall be identified, justified, records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of design and development changes shall include evaluation of the effect of the changes on classification, constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained. The personnel or group approving the design and development changes must be authorized, competent in the field of concern and have	Similar language to NQA-1 section 600 Change Control	Design and development changes shall be identified, justified, records maintained.

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
	knowledge of the requirements and the intent of the original design.		
These measures shall include evaluation of effects of those changes on the overall design and on any analyses upon which the design is based.			
The evaluation shall include facility configurations that occur during operation, maintenance, test, surveillance, and inspection activities.			
Changes shall be approved by the same affected groups or organizations which reviewed and approved the original design documents. When the organization originally responsible for review and approval of the original design documents is no longer responsible, then the owner or his designee shall have responsibility or designate a new responsible design organization.			
The design organization approving the change shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.			
(b) When a design change is approved other than by revision to the affected design documents, measures shall be established to incorporate the change into these documents, where such incorporation is appropriate.			
(c) Where a significant design change is necessary because of an incorrect			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
design, the design process and verification procedure shall be reviewed and modified as necessary.			
601 Configuration Management of Operating Facilities	**7.1.3. Configuration Management**		
Procedures implementing configuration management requirements shall be established and documented at the earliest practical time prior to facility operation.			
These procedures shall include the responsibilities and authority of the organizations whose functions affect the configuration of the facility including activities such as operations, design, maintenance, construction, licensing, and procurement.			
601.1 Configuration management requirements shall include measures to ensure changes that may affect the approved configuration are recognized and processed.	When applicable, the organization shall establish, implement and maintain a configuration management process that includes, as appropriate to the product: a) configuration management planning, b) configuration identification, c) change control, d) configuration status accounting, e) configuration audit		
601.2 The configuration shall be established and approved at the earliest practical time prior to initial operation of the facility and maintained for the life of the facility.			
601.3 The configuration shall include, as applicable, characteristics derived			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
from regulatory requirements and commitments, calculations and analyses, design inputs, installation and test requirements, supplier manuals and instructions, operating and maintenance requirements, and other applicable sources.			
601.4 Interface controls shall include the integration of activities of organizations that can affect the approved configuration.			
601.5 Documentation shall identify the design bases and the approved configuration for the approved modes of operation.			
601.6 Measures shall be established and implemented to assure that proposed changes to the configuration are evaluated for their conformance to the design bases.			
601.7 The implementation sequence for approved configuration changes shall be reviewed to determine that the configuration conforms to the design bases.			
601.8 Approval by the design authority shall be required prior to implementation of a change to the design bases.			
601.9 The configuration of the facility shall be documented in drawings, specifications, procedures, and other documents that reflect the operational status of the facility.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
The process utilized to control the current revision and issuance of these documents shall take into account the use of the document and the need for revision in support of operation.			
700 INTERFACE CONTROL	**NO CORRESPONDING REQUIREMENT**		
800 SOFTWARE DESIGN CONTROL	**NO CORRESPONDING REQUIREMENT**		
801 Software Design Process	**NO CORRESPONDING REQUIREMENT**		
801.1 Identification of Software Design Requirements.	**NO CORRESPONDING REQUIREMENT**		
801.2 Software Design	**NO CORRESPONDING REQUIREMENT**		
801.3 Implementation of the Software Design	**NO CORRESPONDING REQUIREMENT**		
801.4 Software Design Verification	**NO CORRESPONDING REQUIREMENT**		
802 Software Configuration Management	**7.3.7. Control of design and development changes**		
Software configuration management includes, but is not limited to, configuration identification, change control, and status control.			
Configuration items shall be maintained under configuration management until the software is retired.	Software changes management shall ensure the integrity, i.e. only validated changes are incorporated. Software changes verification shall include regression testing.		
802.1 Configuration Identification	**NO CORRESPONDING REQUIREMENT**		
802.2 Configuration Change Control	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 3 Design Control			
802.3 Configuration Status Control	**NO CORRESPONDING REQUIREMENT**		
900 DOCUMENTATION AND RECORDS	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 4 Procurement Document Control			
100 GENERAL			
Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services.			
To the extent necessary, procurement documents shall require Suppliers to have a quality assurance program consistent with the applicable requirements of this Standard.			
200 CONTENT OF THE PROCUREMENT DOCUMENTS			
Procurement documents issued at all tiers of procurement shall include provisions for the following, as deemed necessary by the Purchaser.			
201 Scope of Work	**7.4.2.1. Content of the procurement documents**		
Procurement documents shall include a statement of the scope of the work to be performed by the Supplier.	Purchasing information shall describe the product to be purchased and its corresponding scope of work, including, where appropriate: - flow down to the supply chain the relevant requirements including customer requirements, i) records retention requirements		
202 Technical Requirements	**7.4.2.1. Content of the procurement documents**		
Technical requirements shall be specified in the procurement documents.	d) technical requirements : identification, revision and, if appropriate, status of specifications, drawings, codes, standards, regulations, process requirements,		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 4 Procurement Document Control			
	and other relevant technical data		
These requirements shall be specified, as appropriate by reference to specific drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto that describe the items or services to be furnished.			
	7.4.2.1. Content of the procurement documents		
The procurement documents shall identify appropriate test, inspection, and acceptance criteria for determining acceptability of the item or service.	e) requirements for design, test, inspection and surveillance (including instructions and acceptance criteria) for determining acceptance of the product and, as applicable, critical characteristics		
203 Quality Assurance Program Requirements	**7.4.2.1. Content of the procurement documents**		
Quality assurance program requirements shall be specified in the procurement documents.	c) quality management system requirements consistent with nuclear safety classification and/or impact on final quality of the product		
These requirements shall be consistent with importance and/or complexity of the item or service being procured.			
The procurement documents shall require the Supplier to incorporate appropriate quality assurance program requirements in subtier procurement documents.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 4 Procurement Document Control			
204 Right of Access	**7.4.2.1. Content of the procurement documents**		
The procurement documents shall provide for access to the Supplier's and subtier Supplier's facilities and records for surveillance, inspection, or audit by the Purchaser, its designated representative, and others authorized by the Purchaser.	j) right of access by the organization, their customers, third party organizations, Regulatory Bodies, and/ or their respective representatives, to the applicable areas of all facilities, at any level of the supply chain, involved in the order and to all applicable records.		
205 Documentation Requirements	**7.4.2.1. Content of the procurement documents**		
The procurement documents shall identify the documentation required to be submitted for information, review, or approval by the Purchaser.	f) identification of the documentation that the supplier has to submit for information, review or approval	Similar language to NQA-1 section 205 Documentation Requirements	identification of the documentation that the supplier has to submit for information, review or approval
The time of submittal shall also be established.			
When the Purchaser requires the Supplier to maintain specific records, the retention times and disposition requirements shall be prescribed.			
206 Nonconformances	**7.4.2.1. Content of the procurement documents**		
The procurement documents shall specify the Purchaser's requirements for the Supplier's reporting of nonconformances.	h) requirements regarding the need for the supplier to: - notify the organization of nonconforming product, - obtain organization approval for nonconforming product disposition		
207 Spare and Replacement Parts	**7.4.2.1. Content of the procurement documents**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 4 Procurement Document Control			
The procurement documents shall specify the Supplier's requirements to identify spare and replacement parts or assemblies and the related data required for ordering these parts or assemblies.	g) requirements to identify spare parts and the related data required for ordering these spare parts	Similar language to NQA-1 section 207 Spare and Replacement Parts	requirements to identify spare parts and the related data required for ordering these spare parts
300 Procurement Document Review	**7.4.2.2. Procurement document review**		
A review of the procurement documents, and changes thereto, shall be made and documented prior to award to assure that documents transmitted to prospective Supplier(s) include appropriate provisions to assure that items or services will meet the specified requirements.	The organization shall ensure by a review of the procurement document, the adequacy of specified purchase requirements prior to their communication to the supplier. Procurement document review shall be performed by competent personnel, other than those who issued the procurement document, and recorded.		
Technical or quality assurance program changes made as a result of bid evaluations or negotiations shall be incorporated into the procurement documents prior to their issuance to the Supplier.	h) requirements regarding the need for the supplier to: - notify the organization of changes in product and/or process, changes of suppliers, changes of manufacturing facility location and, where required, obtain organization approval		
Procurement document review shall be performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents.			
400 Procurement Document Changes	**7.4.2.3. Procurement document changes**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 4 **Procurement Document Control**			
Procurement document changes affecting the technical or quality assurance program requirements shall be subject to the same degree of control as utilized in the preparation of the original documents.	Procurement document changes affecting the technical or quality requirements shall be subject to the same process and control as utilized in the preparation of the original documents	Similar language to NQA-1 section 400 Procurement Document Changes	Procurement document changes affecting the technical or quality requirements shall be subject to the same process and control as utilized in the preparation of the original documents

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 5 **Instructions, Procedures, and Drawings**			
100 BASIC	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 6 Document Control			
100 GENERAL	**4.2.3. Control of documents**		
The preparation, issue, and change of documents that specify quality requirements or prescribe activities affecting quality such as instructions, procedures, and drawings shall be controlled to assure that correct documents are being employed.	The preparation, issue, and change of documents that specify product quality requirements or prescribe activities affecting product quality such as instructions, procedures, and drawings shall be verified and approved for release by authorized personnel.	Similar language to NQA-1 section 100 Basic	The preparation, issue, and change of documents that specify product quality requirements or prescribe activities affecting product quality such as instructions, procedures, and drawings shall be verified and approved for release by authorized personnel.
Such documents, including changes thereto, shall be reviewed for adequacy and approved for release by authorized personnel.	Changes to documents shall be reviewed, recorded and shall be subject to the same level of approval as the documents themselves.		
200 DOCUMENT CONTROL			
The following controls shall be applied to documents and changes thereto:			
(a) the identification of controlled documents;			
(b) the specified distribution of controlled documents for use at the appropriate location;			
(c) the identification of individuals responsible for the preparation, review, approval, and distribution of controlled documents;	The individual who performs the verification must be other than those who have prepared, issued or changed the document.	Similar language to NQA-1 section 200 DOCUMENT CONTROL	The individual who performs the verification must be other than those who have prepared, issued or changed the document.
(d) the review of controlled documents for adequacy, completeness, and approval prior to distribution; and			
(e) a method to ensure the correct documents are being used.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 6 Document Control			
300 DOCUMENT CHANGES	**NO CORRESPONDING REQUIREMENT**		
301 Major Changes	**NO CORRESPONDING REQUIREMENT**		
302 Minor Changes	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 7 Control of Purchased Items and Services			
100 GENERAL			
The procurement of items and services shall be controlled to assure conformance with specified requirements.			
Such control shall provide for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the Supplier, source inspection, audit, and examination of items or services upon delivery or completion.			
200 SUPPLIER EVALUATION AND SELECTION	**7.4.1. Purchasing process**		
Prior to award of a contract, the Purchaser shall evaluate the Supplier's capability to provide items or services in accordance with the requirements of the procurement documents.	The organization shall be responsible for the conformity of all products purchased from suppliers, including product from sources defined by the customer. Anyone involved in the supply chain shall take the required measures in the purchasing data to ensure that the customer's requirements are transmitted to the suppliers. Furthermore, the supplier at every level of the supply chain has to verify that requirements have been taken into account and implemented in order to ensure the product acceptance.		
Supplier evaluation and selection and the results therefrom shall be	The organization shall evaluate and select suppliers, based on their		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 7 Control of Purchased Items and Services			
documented and shall include one or more of the following:	ability to supply product in accordance with the organization's requirements (at least, taking into account technical, quality and safety aspects), and: a) define the process, responsibilities and authority for: - the approval status decision, - the change of the approval status. b) define the necessary actions to implement in case of selection of commercial grade item supplier. c) periodically review supplier performance; the results of these reviews shall be used as a basis for establishing the monitoring level to be implemented, and d) maintain a register of approved suppliers. When a supplier does not meet applicable requirements of this document, partial or complete substitution by the organization quality system to the supplier's one shall be ensured. Information of this substitution shall be made available up to the Contractor.		
(a) Supplier's history of providing an identical or similar product that performs satisfactorily in actual use. The Supplier's history shall reflect current capability.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 7 Control of Purchased Items and Services			
(b) Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.			
(c) Supplier's technical and quality capability as determined by a direct evaluation of the facilities, personnel, and the implementation of the Supplier's quality assurance program.			
300 BID EVALUATION	**NO CORRESPONDING REQUIREMENT**		
400 CONTROL OF SUPPLIER-GENERATED DOCUMENTS	**NO CORRESPONDING REQUIREMENT**		
500 ACCEPTANCE OF ITEM OR SERVICE			
501 General			
Prior to offering the item or service for acceptance, the Supplier shall verify that the item or service being furnished complies with the procurement requirements. The extent of the verification activities by the Purchaser shall be a function of the relative importance, complexity, and quantity of the item or services procured and the Supplier's quality performance.	**7.4.3. Verification of purchased product** Any verification activity shall be planned, documented and recorded. **NOTE**: Customer verification activities performed at any level of the supply chain should not be used by the organization or the supplier as evidence of effective monitoring of quality and does not absolve the organization or the supplier of their responsibility to provide acceptable product compliant with all requirements. Organization, customer, licensee, third party organizations, Regulatory Bodies, and/or their respective representatives, may		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 7 Control of Purchased Items and Services			
	reserve the right to verify throughout the supply chain that products and quality management system comply with specified purchasing requirements.		
Where required by code, regulation, or contract requirement, documentary evidence that items conform to procurement requirements shall be available at the nuclear facility site prior to installation or use.			
502 Methods of Acceptance	**NO CORRESPONDING REQUIREMENT**		
503 Certificate of Conformance	**NO CORRESPONDING REQUIREMENT**		
504 Source Verification	**NO CORRESPONDING REQUIREMENT**		
505 Receiving Inspection	**NO CORRESPONDING REQUIREMENT**		
506 Post-installation Testing	**NO CORRESPONDING REQUIREMENT**		
507 Acceptance of Services Only	**NO CORRESPONDING REQUIREMENT**		
600 Control of Supplier Non-conformances	**NO CORRESPONDING REQUIREMENT**		
700 COMMERCIAL GRADE ITEMS	**NO CORRESPONDING REQUIREMENT**		
800 RECORDS	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 8 Identification and Control of Items			
100 GENERAL	**7.5.3. Identification and traceability**		
Controls shall be established to assure that only correct and accepted items are used or installed.	IFS items or activities are subject to an identification. The associated documentation shall be clearly identified and linked to the products without ambiguity. When acceptance authority media are used (e.g.stamps, electronic signatures, passwords), the organization shall establish appropriate controls for the media.		
Identification shall be maintained on the items or in documents traceable to the items, or in a manner that assures that identification is established and maintained.			
200 IDENTIFICATION METHODS	**NO CORRESPONDING REQUIREMENT**		
201 Item Identification	**NO CORRESPONDING REQUIREMENT**		
202 Physical Identification	**NO CORRESPONDING REQUIREMENT**		
300 SPECIFIC REQUIREMENTS	**NO CORRESPONDING REQUIREMENT**		
301 Identification and Traceability of Items	**NO CORRESPONDING REQUIREMENT**		
302 Limited Life Items	**NO CORRESPONDING REQUIREMENT**		
303 Maintaining Identification of Stored Items	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 9 Control of Special Processes			
100 GENERAL	**7.5.1. Control of production and service provision**		
	The organization shall plan and carry out production and service provision under controlled conditions.		
Special processes that control or verify quality, such as those used in welding, heat treating, and nondestructive examination, shall be performed by qualified personnel using qualified procedures in accordance with specified requirements.	Controlled conditions shall include, as applicable: c) the use of suitable equipment, **NOTE**: Suitable equipment can include product specific tools (e.g., jigs, fixtures, molds) and computer program. g) evidence that all production, inspection and/or surveillance operations have been completed as planned, or as otherwise documented and authorized. Planning shall consider, as appropriate: - establishing, implementing and maintaining appropriate processes to manage IFS items or activities, including process monitoring where critical characteristics have been identified, - identifying in-process inspection points when adequate verification of conformance cannot be performed at later stages of realization, and - special processes		
	7.5.1.1. Control of production process changes Personnel authorized to approve changes to production processes shall be identified. The organization shall control and document changes affecting processes, production equipment, tools or computer programs.		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 9 **Control of Special Processes**			
	The results of changes to production processes shall be assessed to confirm that the desired effect has been achieved without adverse effects to product conformity.		
	7.5.2. Validation of processes for production and service provision The organization shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement and, as a consequence, deficiencies become apparent only after the product is in use or the service has been delivered. NOTE: These processes are often referred to as special processes.		
	7.2. Customer-related processes		
	7.2.1. Determination of requirements related to the product The organization shall determine: c) statutory and regulatory requirements, including nuclear safety aspects, applicable to the product. The supplier has to establish a documented list of items and activities classified as IFS or important for the final quality of the product, and determine the associated quality management level, surveillance level and documentation requirements. **NOTE 2**: Nuclear safety aspects concern the safety culture, the graded approach, IFS items and activities, and the implementation of applicable		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 9 Control of Special Processes			
	construction codes and standards.		
200 Process Control			
201 Special Processes			
Special processes shall be controlled by instructions, procedures, drawings, checklists, travelers, or other appropriate means.			
Special process instructions shall include or reference procedure, personnel, and equipment qualification requirements.			
Conditions necessary for accomplishment of the process shall be included.			
These conditions shall include proper equipment, controlled parameters of the process, specified environment, and calibration requirements.	**7.5.1.2. Control of production equipment, tools and computer programs** Production equipment, tools and computer programs used to automate and control/monitor product realization processes, shall be validated prior to release for production and shall be maintained. Storage requirements, including periodic preservation/condition checks, shall be defined for production equipment or tooling in storage.		
202 Acceptance Criteria			
The requirements of applicable codes and standards, including acceptance criteria for the process, shall be specified or referenced in procedures or instructions.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 9 Control of Special Processes			
203 Special Requirements			
For special processes not covered by existing codes and standards or where quality requirements specified exceed those of existing codes or standards, the necessary requirements for qualifications of personnel, procedures, or equipment shall be specified or referenced in procedures or instructions.			
300 RESPONSIBILITY			
It is the responsibility of the organization performing the special process to adhere to the approved procedures and processes.			
	8.2.3. Monitoring and measurement of processes In the event of process nonconformity, the organization shall: a) take appropriate action to correct the nonconforming process, b) evaluate whether the process nonconformity has resulted in product nonconformity, c) determine if the process nonconformity is limited to a specific case or whether it could have affected other processes or products, and d) identify and control any nonconforming product		
	8.2.4. Monitoring and measurement of product Measurement requirements for product acceptance shall be documented and shall include: a) criteria for acceptance and/or		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 9 **Control of Special Processes**			
	rejection, b) where, in the sequence measurement and testing, operations are to be performed, c) required records of the measurement results (as a minimum, indication of acceptance or rejection), and d) any specific measurement instruments required and any specific instructions associated with their use. When IFS items or activities have been identified, the organization shall ensure that these items or activities are inspected by any clearly indicated competent personnel other than those who performed the activity. The organization shall ensure that all documents required to accompany the product are present at delivery.		
400 RECORDS			
Records shall be maintained as appropriate for the currently qualified personnel, processes, and equipment of each special process.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 10 Inspection			
100 GENERAL	**7.5.1.3. Inspection and surveillance activities**		
Inspections required to verify conformance of an item or activity to specified requirements or continued acceptability of items in service shall be planned and executed.	The organization shall ensure the provisions for inspection and surveillance activities have been taken into account.		
Characteristics subject to inspection and inspection methods shall be specified.	The methods used for inspection and surveillance shall be defined.		
Inspection results shall be documented.			
Inspection for acceptance shall be performed by qualified persons other than those who performed or directly supervised the work being inspected.	These activities shall be planned and performed by competent personnel other than those who carried out the work.		
200 INSPECTION REQUIREMENTS			
Inspection requirements and acceptance criteria shall include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization.			
300 INSPECTION HOLD POINTS			
If mandatory inspection hold points are required beyond which work shall not proceed without the specific consent of the designated representative, the specific hold points shall be indicated in appropriate documents.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 10 Inspection			
Consent to waive specified hold points shall be recorded prior to continuation of work beyond designated hold point.			
400 INSPECTION PLANNING			
401 Planning			
Characteristics to be inspected, methods of inspection, and acceptance criteria shall be identified during the inspection planning process.	These activities shall be planned and performed by competent personnel other than those who carried out the work.		
402 Sampling	**NO CORRESPONDING REQUIREMENT**		
500 IN-PROCESS INSPECTION	**NO CORRESPONDING REQUIREMENT**		
600 FINAL INSPECTIONS	**NO CORRESPONDING REQUIREMENT**		
601 Resolution of Nonconformances	**NO CORRESPONDING REQUIREMENT**		
602 Inspection Requirements	**NO CORRESPONDING REQUIREMENT**		
603 Modifications, Repairs, or Replacements	**NO CORRESPONDING REQUIREMENT**		
604 Acceptance	**NO CORRESPONDING REQUIREMENT**		
700 Inspections During Operations	**NO CORRESPONDING REQUIREMENT**		
800 RECORDS	**7.5.1.3. Inspection and surveillance activities**		
Appropriate records shall be established, maintained, and, as a minimum, identify the following:	Appropriate records shall be established, maintained and, as a minimum, identify the following:	Similar language to NQA-1 section 800 RECORDS	Appropriate records shall be established, maintained and, as a minimum, identify the following:
(a) item inspected;	- item inspected,		- item inspected,
(b) date of inspection;	- date of inspection or surveillance		- date of inspection or surveillance

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 10 Inspection			
(c) inspector;	- identification of personnel who performs the inspection or surveillance		- identification of personnel who performs the inspection or surveillance
(d) type of observation;	- activity surveyed, - statements' details,		- activity surveyed, - statements' details,
(e) results or acceptability; and	- results or acceptability,		- results or acceptability,
(f) reference to information on action taken in connection with nonconformances.	- if necessary, follow up actions.		- if necessary, follow up actions.

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 11 Test Control			
100 GENERAL	**NO CORRESPONDING REQUIREMENT**		
200 TEST REQUIREMENTS	**NO CORRESPONDING REQUIREMENT**		
300 TEST PROCEDURES (OTHER THAN FOR COMPUTER PROGRAMS)	**NO CORRESPONDING REQUIREMENT**		
400 COMPUTER PROGRAM TEST PROCEDURES	**NO CORRESPONDING REQUIREMENT**		
500 TEST RESULTS	**NO CORRESPONDING REQUIREMENT**		
600 TEST RECORDS	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 12 Control of Measuring and Test Equipment			
100 GENERAL	**7.6. Control of monitoring and measuring equipment**		
Tools, gages, instruments, and other measuring and test equipment used for activities affecting quality shall be controlled, calibrated at specified periods, adjusted, and maintained to required accuracy limits.	The organization shall maintain a register of the monitoring and measuring equipment and define the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.		
200 SELECTION	**7.6. Control of monitoring and measuring equipment**		
Selection of measuring and test equipment shall be based on the type, range, accuracy, and tolerance needed to accomplish the required measurements for determining conformance to specified requirements.	Selection of measuring and test equipment shall be based at least on their measuring range and measurement accuracy having regard to the tolerance specified.	Similar language to NQA-1 section 200 SELECTION	Selection of measuring and test equipment shall be based at least on their measuring range and measurement accuracy having regard to the tolerance specified.
300 CALIBRATION AND CONTROL	**7.6. Control of monitoring and measuring equipment**		
301 Calibration			
Measuring and test equipment shall be calibrated at prescribed time periods or usage and whenever the accuracy of the equipment is suspect.			
Calibration shall be against and traceable to certified equipment or reference standards having known valid relationships to nationally recognized standards, or to international standards known to be	Calibration /verification method shall be based against standards. Where no such standard exists the basis for calibration/verification shall be defined.	Similar language to NQA-1 section 301 CALIBRATION	Calibration /verification method shall be based against standards. Where no such standard exists the basis for calibration/verification shall be defined.

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 12 Control of Measuring and Test Equipment			
equivalent and verified to corresponding nationally recognized standards.			
Where no such standards exist, the basis for calibration shall be defined.			
302 Reference Standards	**NO CORRESPONDING REQUIREMENT**		
303 Control	**7.6. Control of monitoring and measuring equipment**		
Calibration procedures shall identify or reference required accuracy and shall define methods and frequency of checking accuracy.	The organization shall maintain a register of the monitoring and measuring equipment and define the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.		
The calibration method and interval of calibration shall be based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions affecting performance.			
Measuring and test equipment, which is overdue for calibration or found to be out- of- calibration, shall be tagged and/ or segregated, or removed from service, and not used until it has been recalibrated.	In order to avoid use of monitoring and measuring equipment, which are non-conform or requiring calibration/verification, the organization shall: - Implement and maintain a process for the recall of such equipment, - Identify and/or segregate or remove from service such equipment.		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 12 Control of Measuring and Test Equipment			
Measuring or test equipment consistently found to be out of calibration shall be repaired or replaced.			
303.1 Application			
Measuring and test equipment shall be traceable to its application and use.			
303.2 Corrective Action	**NO CORRESPONDING REQUIREMENT**		
303.3 Handling and Storage	**NO CORRESPONDING REQUIREMENT**		
Measuring and test equipment shall be properly handled and stored to maintain accuracy.			
303.4 Environmental Controls	**7.6. Control of monitoring and measuring equipment**		
Measuring and test equipment shall be used and calibrated in environments that are controlled to the extent necessary to ensure that the required accuracy and precision are maintained.	The organization shall ensure that environmental conditions are suitable for the calibration, inspection, measurement and testing being carried out.	Similar language to NQA-1 section 303.4 Environmental Controls	The organization shall ensure that environmental conditions are suitable for the calibration, inspection, measurement and testing being carried out.
303.5 Pre-calibration Checks	**NO CORRESPONDING REQUIREMENT**		
303.6 Status Indication	**NO CORRESPONDING REQUIREMENT**		
304 Commercial Devices	**NO CORRESPONDING REQUIREMENT**		
400 RECORDS	**NO CORRESPONDING REQUIREMENT**		
402 Reports and Certificates	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 13 Handling, Storage, and Shipping			
100 GENERAL			
Handling, storage, cleaning, packaging, shipping, and preservation of items shall be controlled to prevent damage or loss and to minimize deterioration.			
	7.5.5. Preservation of product		
	Preservation of product shall also include, where applicable, in accordance with product specifications and applicable statutory and regulatory requirements, provisions for: a) limiting the access to the product to avoid undue intervention, b) cleaning, c) prevention, detection and removal of foreign objects, d) special handling for sensitive products or hazardous materials, and e) marking and labeling including safety warnings.		
	7.5.6. Post-delivery support		
	As applicable, post-delivery support shall be provided for: a) collection and analysis of in-service data, b) actions to be taken, including investigation and reporting, when problems are detected after delivery, c) control and updating of technical documentation, d) approval, control and use of repair schemes, and		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 13 Handling, Storage, and Shipping			
	e) inspection required for off-site work (e.g., organization's work undertaken at the customer's facilities).		
These activities shall be conducted in accordance with established work and inspection instructions, drawings, specifications, shipment instructions, or other pertinent documents or procedures specified for use in conducting the activity.			
200 SPECIAL REQUIREMENTS	**NO CORRESPONDING REQUIREMENT**		
300 PROCEDURES	**NO CORRESPONDING REQUIREMENT**		
400 TOOLS AND EQUIPMENT	**NO CORRESPONDING REQUIREMENT**		
500 OPERATORS	**NO CORRESPONDING REQUIREMENT**		
600 MARKING OR LABELING	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 14 Inspection, Test, and Operating Status			
100 GENERAL	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 15 Control of Nonconforming Items			
100 GENERAL	**8.3. Control of nonconforming product**		
Items that do not conform to specified requirements shall be controlled to prevent inadvertent installation or use	**NOTE**: The term "nonconforming product" includes nonconforming product returned by a customer. The following way may be used by the organization to deal with nonconforming product: e) by taking actions necessary to contain the effect of the nonconformity on other processes or products. When the characteristics of the product along the supply chain are not conforming with specified requirements, a nonconformity shall be reported.		
Controls shall provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations.	Products and processes that do not conform to the specified requirements shall be timely identified, segregated, controlled, recorded and reported to an appropriate level of management within the organization. Nonconformity shall be timely reported in compliance with the customer requirements.		
200 IDENTIFICATION	**NO CORRESPONDING REQUIREMENT**		
300 SEGREGATION	**NO CORRESPONDING REQUIREMENT**		
400 DISPOSITION	**NO CORRESPONDING REQUIREMENT**		
401 Control			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 15 Control of Nonconforming Items			
403 Personnel	**NO CORRESPONDING REQUIREMENT**		
404 Disposition			
A disposition, such as use-as-is, reject, repair, or rework of nonconforming items shall be made and documented.	Where applicable, justifications of use-as-is or provisions for repair shall be submitted to customer for approval. Product intended for scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.		
Technical justification for the acceptability of a nonconforming item dispositioned repair or use-as-is shall be documented.			
Nonconformances to design requirements dispositioned use-as-is or repair shall be subject to design control measures commensurate with those applied to the original design.			
Required as-built records shall reflect the use-as-is or repair condition.			
405 Reexamination	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 16 Corrective Action			
100 GENERAL			
Conditions adverse to quality shall be identified promptly and corrected as soon as practicable.	**8.5.2. Corrective action** A documented procedure shall be established to define requirements for: g) flowing down corrective action requirements to a supplier when it is determined that the supplier is responsible for the nonconformity, h) determining specific actions, where timely and/or effective corrective actions are not achieved, and i) determining if additional nonconforming product exists, based on the causes of the nonconformity and taking further action when required. Records shall be maintained to demonstrate the completion of any stage of corrective action procedure.		
In the case of a significant condition adverse to quality, the cause of the condition shall be determined and corrective action taken to preclude recurrence.			
The identification, cause, and corrective action for significant conditions adverse to quality shall be documented and reported to appropriate levels of management.			
Completion of corrective actions shall be verified.			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 16 Corrective Action			
	8.5.3. Preventive action A documented procedure shall be established to define requirements for: f) providing provisions of adequate resources for improvement plans. The potential nonconformities shall be determined using also: - feedback from other organizations, - through the use of technical advance and research, - sharing of knowledge and experience, - through the use of techniques that identify best practices.		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 17 Quality Assurance Records			
100 GENERAL	**4.2.4. Control of records**		
The control of quality assurance records shall be established consistent with the schedule for accomplishing work activity. Quality assurance records shall furnish documentary evidence that items or activities meet specified quality requirements.	The documented procedure shall define the method for controlling records that are created by and/or retained by suppliers.		
Quality assurance records shall be identified, generated, authenticated, and maintained, and their final disposition specified.			
Record control requirements and responsibilities for these activities shall be documented.			
The term records, used throughout this section, are to be interpreted as quality assurance records.			
200 GENERATION OF RECORDS	**NO CORRESPONDING REQUIREMENT**		
300 AUTHENTICATION OF RECORDS	**NO CORRESPONDING REQUIREMENT**		
400 CLASSIFICATION	**NO CORRESPONDING REQUIREMENT**		
401 Lifetime Records	**NO CORRESPONDING REQUIREMENT**		
402 Nonpermanent Records	**NO CORRESPONDING REQUIREMENT**		
500 Receipt Control of Records	**NO CORRESPONDING REQUIREMENT**		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 17 Quality Assurance Records			
600 STORAGE	**NO CORRESPONDING REQUIREMENT**		
700 Retention	**NO CORRESPONDING REQUIREMENT**		
800 MAINTENANCE RECORDS			
(a) Records shall be protected from damage or loss.			
(b) Record controls shall provide for retrievability within planned retrieval times based upon the record type or content.	Retention time must be in accordance with legal or customer requirements.		
(c) The methods for record changes shall be documented.			
(d) Provisions shall be established to ensure that no unacceptable degradation of the electronic record media occurs during the established retention period.			
(e) Provisions shall be made to ensure that the records remain retrievable after hardware, software, or technology changes.			
(f) Provisions shall be established to ensure the following when records are duplicated or transferred to the same media or to a different media for the purposes of maintenance or storage:			
(1) duplication or transfer is appropriately authorized			
(2) record content, legibility, and retrievability are maintained			

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 18 Audits			
100 GENERAL			
Audits shall be performed to verify compliance to quality assurance program requirements, verify that performance criteria are met and to determine the effectiveness of the program.	**8.2.2. Internal audit** Planned arrangements for internal audit shall include specific quality assurance programs or plans.		
These audits shall be performed in accordance with written procedures or checklists by personnel who do not have direct responsibility for performing the activities being audited.			
Audit results shall be documented and reported to and reviewed by responsible management			
Follow-up action shall be taken where indicated.			
200 SCHEDULING	**8.2.2. Internal audit**		
Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities, based on the status and importance of the activity.	Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities including safety culture.	Similar language to NQA-1 section 200 SCHEDULING	Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities including safety culture.
Scheduled audits shall be supplemented by additional audits of specific subjects when necessary to provide adequate coverage.			
300 PREPARATION			
301 Audit Plan	**NO CORRESPONDING REQUIREMENT**		
302 Personnel	**8.2.2. Internal audit**		
Audit personnel shall have sufficient authority and organizational freedom	Auditors shall not audit their own work and shall be appointed by		

NQA-1-2012 and NSQ-100 Comparison			
NQA-1-2012	**NSQ-100**	**SIMILARITIES AND DIFFERENCES**	**NQA-1 Wording Used**
REQUIREMENT 18 Audits			
to make the audit process meaningful and effective.	personnel independent of the audited activity.		
303 Selection of Audit Team	**NO CORRESPONDING REQUIREMENT**		
400 PERFORMANCE	**NO CORRESPONDING REQUIREMENT**		
500 REPORTING	**NO CORRESPONDING REQUIREMENT**		
600 RESPONSE	**NO CORRESPONDING REQUIREMENT**		
700 FOLLOW-UP ACTION	**NO CORRESPONDING REQUIREMENT**		
800 RECORDS	**NO CORRESPONDING REQUIREMENT**		

ANNEX B

NQA-1-2012 AND NSQ-100 CERTIFICATION COMPARISON

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
	An organization desiring an NQA-1 Quality Program Certificate shall complete an application on forms issued by ASME.		The NQSA procedure specifies the general requirements, based on NF EN ISO/CEI 17011, to qualify Certification Bodies (CB) to authorize NSQ-100 certificates. This procedure also defines the granting, monitoring, extending, suspending and withdrawal the CB qualification by the NQSA organization. The Certification Bodies (CB) qualifies or certify the products, services and suppliers at all levels of the supply chain. The Certification Bodies (CB) function would be similar to the ASME "N" type certificate holder role.
	For initial certification, an internal audit of the Quality Assurance Program in its entirety shall have been conducted in accordance with NQA-1, Part I, Requirement 18.		Each CERTIFICATION BODY (CB) has to make a written application to NQSA. The "application form for CERTIFICATION BODY" and all documents associated are submitted with the application. Uncompleted applications won't be taken into account. A NQSA board decision (only industrial members) is needed to begin the qualification process of the CB.
	ASME will arrange for an audit for new issuance or an audit for renewal of the organization's Quality Program for the scope of activities at the location(s) listed on the application.		After NQSA Board approval on the application, the NQSA Certification Committee will appoint an assessment team consisting of a lead assessor and, when needed, a suitable number of assessors.

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
	Issuance of a Quality Program Certificate is based upon ASME's evaluation of the ASME audit report and payment of outstanding invoices.		
	ASME Audits ASME Audit Teams are established for: audits for new issuance, renewal audits, interim audits, and audits for cause. ASME audits are announced audits. Audits are a planned and documented activity performed by an ASME Audit Team to determine by investigation, examination, review, and evaluation of objective evidence the adequacy of the Quality Assurance Program and its effectiveness and compliance with established procedures, instructions, drawings, and other applicable documents as described in the Quality Assurance Manual.		The task of the assessment team is to review the CB's documents and to conduct the on-site assessment of the main or head office. The assessment of the conformity services of the CB will be conducted at least at the premises of the CB from which the key activities are performed and, where relevant, will perform witnessing at other selected locations where CB operates, to gather objective evidence that in the applicable scope the CB is competent and conforms to this procedure.
	Audits for New Issuance and Renewal Audits. All elements of the Quality Assurance Program are audited. The Audit Team may identify audit findings in the adequacy of the Quality Assurance Manual in meeting the NQA-1 standard and in the demonstration and implementation of the Quality Assurance Program.		

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
	The size and makeup of the audit team and length of the audit will be determined by ASME based on performance and the type of audit. A Pre-assessment Questionnaire for audits for issuance and renewal audits shall be completed by the organization and will be used as a guide for ASME to determine the size and makeup of the team and the length of the audit.		The lead assessor prepares the on-site assessment by sending an audit plan to NSQA Certification Committee and to the CB. The assessment team will mainly check that all relevant information and evidence gathered during documents and records review. The on-site assessment will be conducted in according with Guidelines NF EN ISO 19011 and must include: - Reviewing the adequacy and compliance with the requirements - Verifying the application of these procedures; - Reviewing the adequacy of the CB organization to provide the services subject to its application; - Assessing the performance of the control staff and auditors of the CB to perform NSQ-100 certification within Nuclear supplier organization.
	The audited organization shall be provided with a copy of the audit report when ASME has completed its evaluation of the audit report and a decision made as to the issuance, suspension, withdrawal, or withholding of the certificate. The certificate is valid for a three year period. The certificate shall identify the name of the organization, the location(s) covered, the NQA-1		The qualification is decided by the NQSA Board based on the assessment information. NQSA will provide a qualification certificate to the CB. This qualification certificate will identify the scope and the qualification will be approved for 5 years. A surveillance on-site assessment will be performed no later than 12 months from the date of initial qualification.

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
	Standard edition/addenda year, and the scope of activity.		The NSQ-100 certification is based on ISO 9001 and shall be coordinate with the ISO 9001 certification cycle.
			The NSQ-100 certification requires the organization to define a coordinator to manage the international NSQ-100 certification scheme to: - Ensure that in all locations within the CB qualification scope have implemented a system based on the general requirement of ISO 17021 following the accreditation requirement of their country and NQSA requirements for NSQ-100 certification.
			A transfer of certification can occur when a client certified by another CB chooses to switch to a new CB. Certification transfer can be realized in the middle of a cycle, if the certification process is in a good shape (no major nonconformities pending). The NSQ-100 certificate remains valid without modifying the expiry date. Certifications under suspension or withdrawal or having open major nonconformities are not eligible for this transfer process and shall be considered as new certifications, requiring a full system audit. The NSQ-100 certification transfer is allowed only between the CB under

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
			agreement with NQSA.
100 BASIC		**1.1 General**	
Responsibilities for the establishment and implementation of the quality assurance program shall be defined. The organizational structure, functional responsibilities, levels of authority, and lines of communications for activities affecting quality shall be documented.		This document is intended for any organization which supplies product or services within nuclear industry. It is emphasized that the requirements specified in this document are complementary (not alternative) to contractual and applicable statutory and regulatory requirements. Should there be a conflict between the requirements of this document and applicable statutory or regulatory requirements, the latter shall take precedence.	
		4.1.1. Nuclear safety culture	
		The organization shall promote and support a strong safety culture by: - ensuring a common understanding of the key aspects of safety culture within the organization, - providing the means by which the organization supports individuals and teams in carrying out their tasks safely and successfully, taking into account the interaction between individuals, technology and the organization, - reinforcing a learning and questioning attitude at all levels of the organization, - providing the means by which the organization continually seeks to	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
		develop and improve its safety culture.	
200 STRUCTURE AND RESPONSIBILITY		**4.1.2. Classification of product**	
201 General		The organization shall break down the product classification in order to identify items or activities important for safety or important for the final quality of the product. Classification of items or activities important for safety shall be based on analysis of consequences of their potential failure or malfunction on the nuclear safety function of the product. The classification shall be submitted to the customer for acceptance. The classification procedure shall be documented and records related to an item or activity shall be maintained.	
The organizational structure and responsibility assignments shall be such that:			
		4.1.3. Grading the application of quality requirements	
		For classified items or activities, the associated quality management level, surveillance level and documentation requirements shall be graded in accordance with the classification of the item or activity. The organization shall justify and document the method used to define the above relevant requirements.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
		4.2. Documentation requirements	
		4.2.1. General	
		The organization shall ensure that personnel have access to, and are aware of, relevant quality management system documentation and changes. Documentation shall be provided to the personnel in an appropriate language for its understanding.	
		5. MANAGEMENT RESPONSIBILITY	
201 General		**5.1. Management commitment**	
(a) senior management establishes overall expectations for effective implementation of the quality assurance program and is responsible for obtaining the desired end result;		Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by: f) ensuring a common understanding of the key aspects of safety culture within the organization, g) providing the means by which the organization continually seeks to develop and improve its safety culture.	
(b) quality is achieved and maintained by those assigned responsibility for performing work;			
		5.2. Customer focus	
		Top management shall ensure that product conformity and on-time delivery performance are measured	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
		and that appropriate action is taken, if planned results are not, or will not be, achieved, while, at the same time, ensuring that safety is not compromised.	
		5.5.2. Management representative Top management shall appoint a member of the organization's management who, irrespective of other responsibilities, shall have responsibility and authority that includes: b) reporting directly to top management on the performance of the quality management system and any need for improvement,	
		d) the organizational independence to resolve quality management issues.	
(c) quality achievement is verified by those not directly responsible for performing the work; and			
(d) those responsible for assuring that an appropriate quality assurance program has been established and those verifying activities affecting quality have sufficient authority, direct access to responsible levels of management, organizational freedom, and access to work to perform this function, including sufficient independence from cost and schedule when opposed to safety function considerations. These verification functions include the following:			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
(1) identifying quality problems; (2) initiating, recommending, or providing solutions to quality problems through designated channels; (3) verifying implementation of solutions; and (4) assuring that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.			
202 Delegation of Work			
The individual(s) or organization(s) responsible for establishing and executing a quality assurance program under this Standard may delegate any or all of the work to others but shall retain responsibility therefore.			
300 INTERFACE CONTROL		**5.5. Responsibility, authority and communication**	
		5.5.1. Responsibility and authority	
Where more than one organization is involved in the execution of activities, the responsibilities, interfaces, and authority of each organization shall be clearly defined and documented.		The organization shall retain overall responsibility for the management system when an external organization is involved in the work of developing all or part of the management system.	
The external interfaces between organizations and the internal interfaces between organizational units, and changes thereto, shall be documented.			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 1 Organization	**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR NQA CERTIFICATION**	**Scope**	**NQSA Procedure- General requirements Qualification process for Certification Bodies - Issued June 2013**
		5.5.4. Communication with Regulatory Bodies	
		With regards to the safety related product issues, the organization shall ensure that appropriate processes are defined in liaison with the customer to address any communication from nuclear safety Regulatory Bodies.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 Quality Assurance Program			
100 BASIC			
(a) A documented quality assurance program shall be planned, implemented, and maintained in accordance with this Part (Part I), or portions thereof.			
		4.2.2. Quality manual	
		The organization shall specify in a controlled document (quality manual, quality assurance program or a plan) the organizational, documentary and technical provisions to meet the requirements of this document and to address the nuclear safety aspects. If not covered by this document, the quality assurance program or plan shall consider additional quality requirements coming from the	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 **Quality Assurance Program**			
		contract, the applicable regulations, codes and standards.	
The program shall provide control over activities affecting quality to an extent consistent with their importance.			
		5.3. Quality policy	
		Top management shall ensure that the quality policy: f) is appropriate to safety aspects related to the product.	
		8.2.1. Customer satisfaction	
The program shall include monitoring activities against acceptance criteria in a manner sufficient to provide assurance that the activities affecting quality are performed satisfactorily.		Information to be monitored and used for the evaluation of customer satisfaction shall include, but is not limited to, product conformity, on-time delivery performance, customer complaints, corrective action requests and implementation of safety culture. The organization shall develop and implement plans for customer satisfaction improvement that address deficiencies identified by these evaluations, and assess the effectiveness of the results.	
The program shall be established at the earliest time consistent with the schedule for accomplishing the activities.			
		5.4. Planning	
		5.4.2. Quality management system planning	
The program shall provide for the planning and accomplishment of		**NOTE**: Organizational changes shall be evaluated and classified according to their importance to safety and each	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 Quality Assurance Program			
activities affecting quality under suitably controlled conditions.		change shall be justified. The implementation of such changes should be planned, controlled, communicated, monitored and recorded to ensure that nuclear safety is not compromised.	
Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the given activity have been satisfied.			
The program shall provide for any special controls, processes, test equipment, tools, and skills to attain the required quality of activities and items and for verification of that quality.			
The organization shall establish and implement processes to detect and correct quality problems.			
(b) The program shall provide for indoctrination, training, and qualification as necessary of personnel performing or managing activities affecting quality to assure that suitable proficiency is achieved and maintained.			
		5.6.2. Review input	
(c) Management shall regularly assess the adequacy and effective implementation of the quality assurance program.		Lessons learned from other organizations shall be also taken into account.	
		6.4. Work environment	
		NOTE: The term "work	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 **Quality Assurance Program**			
		environment" refers to working conditions including radiation safety.	
		7.1. Planning of product realization	
		The organization shall determine, as appropriate: a) quality objectives and requirements for the product, which may include aspects such as: - product performances, - nuclear safety, - reliability, availability and maintainability, - producibility and inspectability during and after manufacture, - health and safety aspects during set-up, operating and maintenance phases, - when contractually required, environmental aspects of parts and materials used in the product, and - when contractually required, safety and environmental aspects during retrieval. e) management of product change, f) commissioning program, if applicable, and g) when contractually required, resources to support the operating and maintenance of the product. **NOTE 1**: A document specifying the processes of the quality management system (including the product realization processes) and the resources to be applied to a specific product, project or contract can be referred to as a project quality plan.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 **Quality Assurance Program**			
		NOTE 2: Product change means any product change or any modification in production processes which may affect its quality or performances.	
		7.1.1. Project management	
		As appropriate to the organization and the product, the organization shall plan and manage product realization in a structured and controlled manner to meet requirements at acceptable risk, within resource and schedule constraints, complemented, if applicable, with health and safety, environmental, security and economic considerations.	
		7.1.2. Risk management	
		The organization shall develop a project risk management, related to the achievement of applicable requirements. This includes, as appropriate to the organization and the product: a) definition of risk criteria (e.g. likelihood, consequences, risk acceptance), b) identification, assessment and communication of risks throughout product realization including supply chain, c) identification, implementation and management of actions to mitigate risks that exceed the defined risk acceptance criteria.	
		7.2.2. Review of requirements related to the product	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 **Quality Assurance Program**			
		The organization shall review the requirements related to the product. This review shall be conducted prior to the organization's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and shall ensure that: d) manufacturing feasibility has been investigated and confirmed, e) all risks are considered for: - the respect of all safety functions of the product (including mechanical, electrical, instrumentation and command aspects), - manufacturing, erection, testing and commissioning of the product.	
		7.2.3. Customer communication The organization shall determine and implement effective arrangements for communicating with customers in relation to: a) product information, including nuclear safety aspects, b) when required, management of communication with nuclear Regulatory Bodies. The organization shall be able to communicate necessary information, in particular, and compulsorily, those related to nuclear safety issues, including data, in a customer-specified language and format (e.g. computer aided design data, electronic data exchange).	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 **Quality Assurance Program**			
200 INDOCTRINATION AND TRAINING		**6. RESOURCE MANAGEMENT**	
Indoctrination and training shall be commensurate with scope, complexity, importance of the activities, and the education, experience, and proficiency of the person.		**6.1. Provision of resources** Information and knowledge of the organization shall be managed as a resource.	
201 Indoctrination		**6.2.1. General**	
Personnel performing or managing activities affecting quality shall receive indoctrination in their job responsibilities and authority that includes general criteria, technical objectives, requirements of applicable codes and standards, regulatory commitments, company procedures, and quality assurance program requirements.		Personnel involved in the realization of the product shall be trained on the importance of their tasks and of the eventual consequences on the nuclear safety of any malfunction or error in their activities.	
202 Training			
The need for a formal training program for personnel performing or managing activities affecting quality shall be determined.		**6.2.2. Competence, qualification, training and awareness** The organization shall: b) where applicable, provide training or take other actions, as maintenance of proficiency, to achieve the necessary competence, f) assess the adequacy of the personnel with the expected or required competence.	
Training shall be provided, if needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, or job responsibilities. On-the-job training shall be used if direct hands-		The organization shall designate activities that require qualification of personnel and the minimum requirements for such personnel. Provisions shall be taken to define competent personnel able to	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 Quality Assurance Program			
on applications or experience is needed to achieve and maintain proficiency.		elaborate, verify and approve documents issued in foreign languages. A list of these personnel shall be established and maintained. A documented procedure shall be defined for qualification of such personnel.	
300 QUALIFICATION REQUIREMENTS		**8.2.2. Internal audit**	
The responsible organization shall designate those activities that require qualification of personnel and the minimum requirements for such personnel.		The organization shall qualify auditors according to a documented procedure including qualification criteria. The organization shall maintain and periodically review auditor qualification. Records of qualification shall be maintained	
The responsible organization shall establish written procedures for the qualification of personnel, and for the assurance that only those personnel who meet the requirements are permitted to perform these activities.			
301 Nondestructive Examination (NDE)		**NO CORRESPONDING REQUIREMENT**	
302 Inspection and Test		**NO CORRESPONDING REQUIREMENT**	
303 Lead Auditor		**NO CORRESPONDING REQUIREMENT**	
303.2 Training		**NO CORRESPONDING REQUIREMENT**	
303.3 Audit Participation		**NO CORRESPONDING REQUIREMENT**	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 2 Quality Assurance Program			
303.4 Examination		**NO CORRESPONDING REQUIREMENT**	
303.5 Maintenance of Proficiency		**NO CORRESPONDING REQUIREMENT**	
303.6 Requalification		**NO CORRESPONDING REQUIREMENT**	
304 Auditors		**NO CORRESPONDING REQUIREMENT**	
305 Technical Specialists		**NO CORRESPONDING REQUIREMENT**	
400 RECORDS OF QUALIFICATION		**NO CORRESPONDING REQUIREMENT**	
500 RECORDS		**NO CORRESPONDING REQUIREMENT**	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 3 Design Control			
100 BASIC		**7.3.1. Design and development planning**	
The design shall be defined, controlled, and verified.		During the design and development planning, the organization shall determine and document: d) the design interfaces. Where appropriate, the organization shall divide the design and development effort into distinct activities and, for each activity, define the tasks, necessary resources, responsibilities, design content, input and output data and planning constraints. The different design and	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 3 **Design Control**			
		development tasks to be carried out shall be based on the nuclear safety and functional objectives of the product in accordance with customer, legal, statutory and regulatory requirements. Design and development planning shall consider the ability to produce, inspect, install, test and maintain the product.	
Design inputs shall be specified on a timely basis and translated into design documents.			
Design interfaces shall be identified and controlled.			
Design adequacy shall be verified by individuals other than those who designed the item or computer program.			
Design changes shall be governed by control measures commensurate with those applied to the original design.			
200 DESIGN INPUT		**7.3.2. Design and development inputs**	
Applicable design inputs shall be identified and documented, and their selection reviewed and approved.		Inputs relating to product requirements shall be determined, translated into design documents and records maintained (see 4.2.5). These inputs shall include: a) functional and performance requirements including nuclear safety requirements e) risk identified for the product Design and Development inputs shall include a description of hardware and the specifications addressing	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 3 Design Control			
		interfaces between hardware and software.	
The design input shall be specified to the level of detail necessary to permit the design activities to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating design changes.			
300 DESIGN PROCESS			
(a)The responsible design organization shall prescribe and document the design activities to the level of detail necessary to permit the design process to be carried out in a correct manner, and to permit verification that the design meets requirements.			
Design documents shall support facility design, construction, and operation. Appropriate quality standards shall be identified and documented, and their selection reviewed and approved.			
		7.3.3. Design and development outputs	
(b) The design methods, materials, parts, equipment, and processes that are essential to the function of the items shall be selected and reviewed for suitability of application.		Design and development outputs shall: d) specify the characteristics of the product that are essential for its safe and proper use (to be included in Instructions of use), and e) specify, for IFS items or activities, any critical characteristics translated into technical specifications.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 3 Design Control			
Applicable information derived from experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel.		**NOTE 1**: Information for production and service provision shall at least include details for the manufacture, test, installation, operating, maintenance and preservation of product. **NOTE 2**: Configuration management shall identify and document characteristics of the software and ensure that consistency is maintained.	
(c) The final design shall:			
(1) be relatable to the design input by documentation in sufficient detail to permit design verification;		The organization shall define the data required to allow the product to be identified, manufactured, inspected, used and maintained, including at least: - the software configuration management.	
(2) specify required inspections and tests and include or reference appropriate acceptance criteria; and			
(3) identify assemblies and/or components that are part of the item being designed.		- the drawings, part lists and specifications necessary to define the configuration and the design features of the product, - the material, process, manufacturing and assembly data needed to ensure conformity of the product, and	
When such an assembly or component part is a commercial grade item, the characteristics of the item to be verified for acceptance and the acceptance criteria for those characteristics shall meet the requirements of Part II, SubPart 2.14, Quality Assurance Requirements for			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 3 Design Control			
Commercial Grade Items and Services.			
Characteristics to be verified are those which provide reasonable assurance that the item will perform its intended safety function.			
If a commercial grade item, prior to its installation, is modified or selected by special inspection and/or testing to requirements that are more restrictive than the Supplier's published product description, the component part shall be represented as different from the commercial grade item in a manner traceable to a documented definition of the difference.			
400 DESIGN ANALYSES			
Design analyses shall be sufficiently detailed such that a person technically qualified in the subject can review and understand the analyses and verify the adequacy of the results without recourse to the originator.			
401 Use of Computer Programs		**7.3.1. Design and development planning**	
To the extent required in para. 401(a) and (b) of this Requirement, computer program acceptability shall be pre-verified or the results verified with the design analysis for each application.		In case of computation or computerized models, the organization shall demonstrate that those are verified within their scope and validated. Individuals using the above shall be competent. Methods and means used for design verification and their combinations shall be defined prior to design and development realization. The software design and development	

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		stages shall be organized throughout the life cycle including the main four following processes: - Specification, - General and detail design, - Coding, - Integration and tests. If tests are used for any design & development purposes, provisions of 7.3.8 shall be respected	
Pre-verified computer programs shall be controlled in accordance with the requirements of this Standard.			
(a) The computer program shall be verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed.			
(b) The encoded mathematical model shall be shown to produce a valid solution to the physical problem associated with the particular application.			
402 Documentation of Design Analysis			
Documentation of design analyses shall include the following:			
(a) the objective of the analyses;			
(b) design inputs and their sources;			
(c) results of literature searches or other applicable background data;			
(d) assumptions and indication of those assumptions that must be verified as the design proceeds;			

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(e) identification of any computer calculation, including identification of the computer type, computer program name, and revision, inputs, outputs, evidence of or reference to computer program verification, and the bases (of reference thereto) supporting application of the computer program to the specific physical problem; and			
(f) review and approval.			
500 DESIGN VERIFICATION		**7.3.5. Design and development verification**	
(a) The responsible design organization shall identify and document the particular design verification method(s) used. This verification may be performed by the originator's supervisor, provided (1) the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or (2) the supervisor is the only individual in the organization competent to perform the verification. Cursory supervisory reviews do not satisfy the intent of this Standard.		The methods used for design verification shall be identified and documented. Design verification shall be performed by any competent person or group, clearly indicated and other than those who performed the original design of the product or participated to related design activities.	
The results of design verification shall be documented with the identification of the verifier clearly indicated.			
Design verification shall be performed by any competent			

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individual(s) or group(s) other than those who performed the original design but who may be from the same organization.			
(b) Design verification shall be performed prior to releasing the design for procurement, manufacture, construction, or use by another design organization except where this timing cannot be met, such as when insufficient data exist.			
In those cases, the unverified portion of the design shall be identified and controlled.			
In all cases the design verification shall be completed prior to relying upon the component, system, structure, or computer program to perform its function.			
(c) If the design is modified to resolve verification findings, the modified design shall be verified prior to release for use.			
(d) Extent of Design Verification.			
The extent of the design verification shall be a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proved designs.			
Where the design has been subjected to a verification process in accordance with this Part (Part I), the verification process need not be duplicated for identical designs.			

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However, the applicability of standardized or previously proven designs, with respect to meeting pertinent design inputs, shall be verified for each application.			
Known problems affecting the standard or previously proved designs and their effects on other features shall be considered.			
The original design and associated verification documentation shall be referenced in records of subsequent application of the design.			
501 Methods			
Acceptable verification methods include, but are not limited to, any one or a combination of the following: (a) design reviews (b) alternate calculations (c) qualification testing			
501.1 Design Reviews.		**7.3.4. Design and development review**	
Design reviews shall provide assurance that the final design is correct and satisfactory by addressing, where applicable, paras. 501.1(a) through (g) of this Requirement.		At suitable stages, systematic reviews of design and development shall be performed in accordance with planned arrangements: c) to authorize progress to the next stage. Reviews shall be documented and detailed in such a manner that no ambiguity or misunderstanding may occur.	
(a)Were the design inputs correctly selected?			

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(b) Are assumptions necessary to perform the design activity adequately described and reasonable?			
Where necessary, are the assumptions identified for subsequent reverifications when the detailed design activities are completed?			
(c)Were appropriate design methods and computer programs used?			
(d) Were the design inputs correctly incorporated into the design?			
(e) Is the design output reasonable compared to design inputs?			
(f) Are the necessary design inputs for interfacing organizations specified in the design documents or in supporting procedures or instructions?			
(g) Have suitable materials, parts, processes, and inspection and testing criteria been specified?			
501.2 Alternate Calculations.		**NO CORRESPONDING REQUIREMENT**	
501.3 Qualification Tests		**7.3.8. Design and development verification and validation testing**	
Testing shall demonstrate adequacy of performance under conditions that simulate the most adverse design conditions.		Where tests are necessary for verification and validation of the design, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following: a) test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions, parameters to be recorded and relevant	

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		acceptance criteria, b) test procedures describe the method of operation, the performance of the test and the recording of the results, c) the correct configuration of the product is submitted for the test, d) the requirements of the test plan and the test procedures are observed, and e) the acceptance criteria are met. For software, testing methods to be implemented are: - unit testing, to check software compliance with detailed design inputs, - integration testing, to check software compliance with general design inputs, - system testing, to check that overall software complies with specifications. Any requirement of the software specification shall be validated by a test and testing conditions shall include normal and downgraded conditions	
Operating modes and environmental conditions shall be considered in determining the most adverse conditions			
Where the test is intended to verify only specific design features, the other features of the design shall be verified by other means.			

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When tests are being performed on models or mockups, scaling laws shall be established and verified.			
The results of model test work shall be subject to error analysis, where applicable, prior to use in the final design.			
		7.3.6. Design and development validation NOTE: If required, the design and development validation may involve inspections or reviews from independent parties. Such demonstration shall be recorded.	
600 CHANGE CONTROL		**7.3.7. Control of design and development changes**	
(a) Changes to design inputs, final designs, field changes, and temporary and permanent modifications to operating facilities shall be justified and subject to design control measures commensurate with those applied to the original design.		Design and development changes shall be identified, justified, records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of design and development changes shall include evaluation of the effect of the changes on classification, constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained. The personnel or group approving the design and development changes must be authorized, competent in the field of concern and have knowledge of the requirements and the intent of	

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		the original design.	
These measures shall include evaluation of effects of those changes on the overall design and on any analyses upon which the design is based.			
The evaluation shall include facility configurations that occur during operation, maintenance, test, surveillance, and inspection activities.			
Changes shall be approved by the same affected groups or organizations which reviewed and approved the original design documents. When the organization originally responsible for review and approval of the original design documents is no longer responsible, then the owner or his designee shall have responsibility or designate a new responsible design organization.			
The design organization approving the change shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.			
(b) When a design change is approved other than by revision to the affected design documents, measures shall be established to incorporate the change into these documents, where such incorporation is appropriate.			
(c) Where a significant design change is necessary because of an incorrect design, the design process and			

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verification procedure shall be reviewed and modified as necessary.			
601 Configuration Management of Operating Facilities		**7.1.3. Configuration Management**	
Procedures implementing configuration management requirements shall be established and documented at the earliest practical time prior to facility operation.	.		
These procedures shall include the responsibilities and authority of the organizations whose functions affect the configuration of the facility including activities such as operations, design, maintenance, construction, licensing, and procurement.			
601.1 Configuration management requirements shall include measures to ensure changes that may affect the approved configuration are recognized and processed.		When applicable, the organization shall establish, implement and maintain a configuration management process that includes, as appropriate to the product: a) configuration management planning, b) configuration identification, c) change control, d) configuration status accounting, e) configuration audit	
601.2 The configuration shall be established and approved at the earliest practical time prior to initial operation of the facility and maintained for the life of the facility.			
601.3 The configuration shall include, as applicable, characteristics derived from regulatory requirements and			

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commitments, calculations and analyses, design inputs, installation and test requirements, supplier manuals and instructions, operating and maintenance requirements, and other applicable sources.			
601.4 Interface controls shall include the integration of activities of organizations that can affect the approved configuration.			
601.5 Documentation shall identify the design bases and the approved configuration for the approved modes of operation.			
601.6 Measures shall be established and implemented to assure that proposed changes to the configuration are evaluated for their conformance to the design bases.			
601.7 The implementation sequence for approved configuration changes shall be reviewed to determine that the configuration conforms to the design bases.			
601.8 Approval by the design authority shall be required prior to implementation of a change to the design bases.			
601.9 The configuration of the facility shall be documented in drawings, specifications, procedures, and other documents that reflect the operational status of the facility.			
The process utilized to control the current revision and issuance of these			

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documents shall take into account the use of the document and the need for revision in support of operation.			
700 INTERFACE CONTROL		**NO CORRESPONDING REQUIREMENT**	
800 SOFTWARE DESIGN CONTROL		**NO CORRESPONDING REQUIREMENT**	
801 Software Design Process		**NO CORRESPONDING REQUIREMENT**	
801.1 Identification of Software Design Requirements.		**NO CORRESPONDING REQUIREMENT**	
801.2 Software Design		**NO CORRESPONDING REQUIREMENT**	
801.3 Implementation of the Software Design		**NO CORRESPONDING REQUIREMENT**	
801.4 Software Design Verification		**NO CORRESPONDING REQUIREMENT**	
802 Software Configuration Management		**7.3.7. Control of design and development changes**	
Software configuration management includes, but is not limited to, configuration identification, change control, and status control.			
Configuration items shall be maintained under configuration management until the software is retired.		Software changes management shall ensure the integrity, i.e. only validated changes are incorporated. Software changes verification shall include regression testing.	
802.1 Configuration Identification		**NO CORRESPONDING REQUIREMENT**	
802.2 Configuration Change Control		**NO CORRESPONDING REQUIREMENT**	
802.3 Configuration Status Control		**NO CORRESPONDING REQUIREMENT**	

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900 DOCUMENTATION AND RECORDS		**NO CORRESPONDING REQUIREMENT**	

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REQUIREMENT 4 Procurement Document Control			
100 BASIC			
Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services.			
To the extent necessary, procurement documents shall require Suppliers to have a quality assurance program consistent with the applicable requirements of this Standard.			
200 CONTENT OF THE PROCUREMENT DOCUMENTS			
Procurement documents issued at all tiers of procurement shall include provisions for the following, as deemed necessary by the Purchaser.			
201 Scope of Work		**7.4.2.1. Content of the procurement documents**	
Procurement documents shall include a statement of the scope of the work to be performed by the Supplier.		Purchasing information shall describe the product to be purchased and its corresponding scope of work, including, where appropriate: - flow down to the supply chain the relevant requirements including customer requirements, i) records retention requirements, and	
202 Technical Requirements		**7.4.2.1. Content of the procurement documents**	
Technical requirements shall be specified in the procurement documents.		d) technical requirements: identification, revision and, if appropriate, status of specifications, drawings, codes, standards, regulations, process requirements, and other relevant technical data	

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These requirements shall be specified, as appropriate by reference to specific drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto that describe the items or services to be furnished.			
		7.4.2.1. Content of the procurement documents	
The procurement documents shall identify appropriate test, inspection, and acceptance criteria for determining acceptability of the item or service.		e) requirements for design, test, inspection and surveillance (including instructions and acceptance criteria) for determining acceptance of the product and, as applicable, critical characteristics,	
203 Quality Assurance Program Requirements		**7.4.2.1. Content of the procurement documents**	
Quality assurance program requirements shall be specified in the procurement documents.		c) quality management system requirements consistent with nuclear safety classification and/or impact on final quality of the product,	
These requirements shall be consistent with importance and/or complexity of the item or service being procured.			
The procurement documents shall require the Supplier to incorporate appropriate quality assurance program requirements in subtier procurement documents.			
204 Right of Access		**7.4.2.1. Content of the procurement documents**	
The procurement documents shall provide for access to the Supplier's and subtier Supplier's facilities and		j) right of access by the organization, their customers, third party organizations, Regulatory Bodies,	

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REQUIREMENT 4 Procurement Document Control			
records for surveillance, inspection, or audit by the Purchaser, its designated representative, and others authorized by the Purchaser.		and/ or their respective representatives, to the applicable areas of all facilities, at any level of the supply chain, involved in the order and to all applicable records.	
205 Documentation Requirements		**7.4.2.1. Content of the procurement documents**	
The procurement documents shall identify the documentation required to be submitted for information, review, or approval by the Purchaser.		f) identification of the documentation that the supplier has to submit for information, review or approval,	
The time of submittal shall also be established.			
When the Purchaser requires the Supplier to maintain specific records, the retention times and disposition requirements shall be prescribed.			
206 Nonconformances		**7.4.2.1. Content of the procurement documents**	
The procurement documents shall specify the Purchaser's requirements for the Supplier's reporting of nonconformances.		h) requirements regarding the need for the supplier to: - notify the organization of nonconforming product, - obtain organization approval for nonconforming product disposition	
207 Spare and Replacement Parts		**7.4.2.1. Content of the procurement documents**	
The procurement documents shall specify the Supplier's requirements to identify spare and replacement parts or assemblies and the related data required for ordering these parts or assemblies.		g) requirements to identify spare parts and the related data required for ordering these spare parts,	
300 Procurement Document Review		**7.4.2.2. Procurement document review**	

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REQUIREMENT 4 Procurement Document Control			
A review of the procurement documents, and changes thereto, shall be made and documented prior to award to assure that documents transmitted to prospective Supplier(s) include appropriate provisions to assure that items or services will meet the specified requirements.		The organization shall ensure by a review of the procurement document, the adequacy of specified purchase requirements prior to their communication to the supplier. Procurement document review shall be performed by competent personnel personnel, other than those who issued the procurement document, and recorded.	
Technical or quality assurance program changes made as a result of bid evaluations or negotiations shall be incorporated into the procurement documents prior to their issuance to the Supplier.		h) requirements regarding the need for the supplier to: - notify the organization of changes in product and/or process, changes of suppliers, changes of manufacturing facility location and, where required, obtain organization approval	
Procurement document review shall be performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents.			
400 Procurement Document Changes		**7.4.2.3. Procurement document changes**	
Procurement document changes affecting the technical or quality assurance program requirements shall be subject to the same degree of control as utilized in the preparation of the original documents.		Procurement document changes affecting the technical or quality requirements shall be subject to the same process and control as utilized in the preparation of the original documents	

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REQUIREMENT 5 Instructions, Procedures, and Drawings			
100 BASIC		**NO CORRESPONDING REQUIREMENT**	

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REQUIREMENT 6 Document Control			
100 BASIC		**4.2.3. Control of documents**	
The preparation, issue, and change of documents that specify quality requirements or prescribe activities affecting quality such as instructions, procedures, and drawings shall be controlled to assure that correct documents are being employed.		The preparation, issue, and change of documents that specify product quality requirements or prescribe activities affecting product quality such as instructions, procedures, and drawings shall be verified and approved for release by authorized personnel.	
Such documents, including changes thereto, shall be reviewed for adequacy and approved for release by authorized personnel.		Changes to documents shall be reviewed, recorded and shall be subject to the same level of approval as the documents themselves.	
200 DOCUMENT CONTROL			
The following controls shall be applied to documents and changes thereto:			
(a) the identification of controlled documents;			
(b) the specified distribution of controlled documents for use at the appropriate location;			
(c) the identification of individuals responsible for the preparation, review, approval, and distribution of controlled documents;		The individual who performs the verification must be other than those who have prepared, issued or changed the document.	

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REQUIREMENT 6 Document Control			
(d) the review of controlled documents for adequacy, completeness, and approval prior to distribution; and			
(e) a method to ensure the correct documents are being used.			
300 DOCUMENT CHANGES		**NO CORRESPONDING REQUIREMENT**	
301 Major Changes		**NO CORRESPONDING REQUIREMENT**	
302 Minor Changes		**NO CORRESPONDING REQUIREMENT**	

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REQUIREMENT 7 Control of Purchased Items and Services			
100 BASIC			
The procurement of items and services shall be controlled to assure conformance with specified requirements.			
Such control shall provide for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the Supplier, source inspection, audit, and examination of items or services upon delivery or completion.			
200 SUPPLIER EVALUATION AND SELECTION		**7.4.1. Purchasing process**	
Prior to award of a contract, the Purchaser shall evaluate the Supplier's capability to provide items or services in accordance with the requirements of the procurement documents.		The organization shall be responsible for the conformity of all products purchased from suppliers, including product from sources defined by the customer. Anyone involved in the supply chain shall take the required measures in the purchasing data to ensure that the customer's requirements are transmitted to the suppliers. Furthermore, the supplier at every level of the supply chain has to verify that requirements have been taken into account and implemented in order to ensure the product acceptance.	
Supplier evaluation and selection and the results therefrom shall be documented and shall include one or more of the following:		The organization shall evaluate and select suppliers, based on their ability to supply product in accordance with the organization's requirements (at	

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REQUIREMENT 7 **Control of Purchased Items and Services**			
		least, taking into account technical, quality and safety aspects), and: a) define the process, responsibilities and authority for: - the approval status decision, - the change of the approval status. b) define the necessary actions to implement in case of selection of commercial grade item supplier. c) periodically review supplier performance; the results of these reviews shall be used as a basis for establishing the monitoring level to be implemented, and d) maintain a register of approved suppliers. When a supplier does not meet applicable requirements of this document, partial or complete substitution by the organization quality system to the supplier's one shall be ensured. Information of this substitution shall be made available up to the Contractor.	
(a) Supplier's history of providing an identical or similar product that performs satisfactorily in actual use. The Supplier's history shall reflect current capability.			
(b) Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.			
(c) Supplier's technical and quality capability as determined by a direct evaluation of the facilities, personnel,			

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REQUIREMENT 7 Control of Purchased Items and Services			
and the implementation of the Supplier's quality assurance program.			
300 BID EVALUATION		**NO CORRESPONDING REQUIREMENT**	
400 CONTROL OF SUPPLIER-GENERATED DOCUMENTS		**NO CORRESPONDING REQUIREMENT**	
500 ACCEPTANCE OF ITEM OR SERVICE			
501 General			
Prior to offering the item or service for acceptance, the Supplier shall verify that the item or service being furnished complies with the procurement requirements. The extent of the verification activities by the Purchaser shall be a function of the relative importance, complexity, and quantity of the item or services procured and the Supplier's quality performance.		**7.4.3. Verification of purchased product** Any verification activity shall be planned, documented and recorded. **NOTE**: Customer verification activities performed at any level of the supply chain should not be used by the organization or the supplier as evidence of effective monitoring of quality and does not absolve the organization or the supplier of their responsibility to provide acceptable product compliant with all requirements. Organization, customer, licensee, third party organizations, Regulatory Bodies, and/or their respective representatives, may reserve the right to verify throughout the supply chain that products and quality management system comply with specified purchasing requirements.	
Where required by code, regulation, or contract requirement, documentary evidence that items conform to procurement requirements shall be			

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REQUIREMENT 7 Control of Purchased Items and Services			
available at the nuclear facility site prior to installation or use.			
502 Methods of Acceptance		**NO CORRESPONDING REQUIREMENT**	
503 Certificate of Conformance		**NO CORRESPONDING REQUIREMENT**	
504 Source Verification		**NO CORRESPONDING REQUIREMENT**	
505 Receiving Inspection		**NO CORRESPONDING REQUIREMENT**	
506 Post-installation Testing		**NO CORRESPONDING REQUIREMENT**	
507 Acceptance of Services Only		**NO CORRESPONDING REQUIREMENT**	
600 Control of Supplier Non-conformances		**NO CORRESPONDING REQUIREMENT**	
700 COMMERCIAL GRADE ITEMS		**NO CORRESPONDING REQUIREMENT**	
800 RECORDS		**NO CORRESPONDING REQUIREMENT**	

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REQUIREMENT 8 Identification and Control of Items			
100 BASIC		**7.5.3. Identification and traceability**	
Controls shall be established to assure that only correct and accepted items are used or installed.		IFS items or activities are subject to an identification. The associated documentation shall be clearly identified and linked to the products without ambiguity. When acceptance authority media are used (e.g. stamps, electronic signatures, passwords), the organization shall establish appropriate controls for the media.	
Identification shall be maintained on the items or in documents traceable to the items, or in a manner that assures that identification is established and maintained.			
200 IDENTIFICATION METHODS		**NO CORRESPONDING REQUIREMENT**	
201 Item Identification		**NO CORRESPONDING REQUIREMENT**	
202 Physical Identification		**NO CORRESPONDING REQUIREMENT**	
300 SPECIFIC REQUIREMENTS		**NO CORRESPONDING REQUIREMENT**	
301 Identification and Traceability of Items		**NO CORRESPONDING REQUIREMENT**	
302 Limited Life Items		**NO CORRESPONDING REQUIREMENT**	
303 Maintaining Identification of Stored Items		**NO CORRESPONDING REQUIREMENT**	

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REQUIREMENT 9 **Control of Special Processes**			
100 BASIC		**7.5.1. Control of production and service provision**	
		The organization shall plan and carry out production and service provision under controlled conditions.	
Special processes that control or verify quality, such as those used in welding, heat treating, and nondestructive examination, shall be performed by qualified personnel using qualified procedures in accordance with specified requirements.		Controlled conditions shall include, as applicable: c) the use of suitable equipment, **NOTE:** Suitable equipment can include product specific tools (e.g., jigs, fixtures, molds) and computer program. g) evidence that all production, inspection and/or surveillance operations have been completed as planned, or as otherwise documented and authorized. Planning shall consider, as appropriate: - establishing, implementing and maintaining appropriate processes to manage IFS items or activities, including process monitoring where critical characteristics have been identified, - identifying in-process inspection points when adequate verification of conformance cannot be performed at later stages of realization, and - special processes	
		7.5.1.1. Control of production process changes	
		Personnel authorized to approve changes to production processes shall be identified. The organization shall control and	

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REQUIREMENT 9 **Control of Special Processes**			
		document changes affecting processes, production equipment, tools or computer programs. The results of changes to production processes shall be assessed to confirm that the desired effect has been achieved without adverse effects to product conformity.	
		7.5.2. Validation of processes for production and service provision The organization shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement and, as a consequence, deficiencies become apparent only after the product is in use or the service has been delivered. NOTE: These processes are often referred to as special processes.	
		7.2. Customer-related processes	
		7.2.1. Determination of requirements related to the product The organization shall determine: c) statutory and regulatory requirements, including nuclear safety aspects, applicable to the product. The supplier has to establish a documented list of items and activities classified as IFS or important for the final quality of the product, and determine the associated quality management level, surveillance level and documentation	

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REQUIREMENT 9 **Control of Special Processes**			
		requirements. **NOTE 2**: Nuclear safety aspects concern the safety culture, the graded approach, IFS items and activities, and the implementation of applicable construction codes and standards.	
200 Process Control			
201 Special Processes			
Special processes shall be controlled by instructions, procedures, drawings, checklists, travelers, or other appropriate means.			
Special process instructions shall include or reference procedure, personnel, and equipment qualification requirements.			
Conditions necessary for accomplishment of the process shall be included.			
These conditions shall include proper equipment, controlled parameters of the process, specified environment, and calibration requirements.		**7.5.1.2. Control of production equipment, tools and computer programs** Production equipment, tools and computer programs used to automate and control/monitor product realization processes, shall be validated prior to release for production and shall be maintained. Storage requirements, including periodic preservation/condition checks, shall be defined for production equipment or tooling in storage.	
202 Acceptance Criteria			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 9 Control of Special Processes			
The requirements of applicable codes and standards, including acceptance criteria for the process, shall be specified or referenced in procedures or instructions.			
203 Special Requirements			
For special processes not covered by existing codes and standards or where quality requirements specified exceed those of existing codes or standards, the necessary requirements for qualifications of personnel, procedures, or equipment shall be specified or referenced in procedures or instructions.			
300 RESPONSIBILITY			
It is the responsibility of the organization performing the special process to adhere to the approved procedures and processes.			
		8.2.3. Monitoring and measurement of processes	
		In the event of process nonconformity, the organization shall: a) take appropriate action to correct the nonconforming process, b) evaluate whether the process nonconformity has resulted in product nonconformity, c) determine if the process nonconformity is limited to a specific case or whether it could have affected other processes or products, and d) identify and control any nonconforming product.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 9 **Control of Special Processes**			
		8.2.4. Monitoring and measurement of product	
		Measurement requirements for product acceptance shall be documented and shall include: a) criteria for acceptance and/or rejection, b) where, in the sequence measurement and testing, operations are to be performed, c) required records of the measurement results (as a minimum, indication of acceptance or rejection), d) any specific measurement instruments required and any specific instructions associated with their use. When IFS items or activities have been identified, the organization shall ensure that these items or activities are inspected by any clearly indicated competent personnel other than those who performed the activity. The organization shall ensure that all documents required to accompany the product are present at delivery.	
400 RECORDS			
Records shall be maintained as appropriate for the currently qualified personnel, processes, and equipment of each special process.			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 10 Inspection			
100 BASIC		**7.5.1.3. Inspection and surveillance activities**	
Inspections required to verify conformance of an item or activity to specified requirements or continued acceptability of items in service shall be planned and executed.		The organization shall ensure the provisions for inspection and surveillance activities have been taken into account.	
Characteristics subject to inspection and inspection methods shall be specified.		The methods used for inspection and surveillance shall be defined.	
Inspection results shall be documented.			
Inspection for acceptance shall be performed by qualified persons other than those who performed or directly supervised the work being inspected.		These activities shall be planned and performed by competent personnel other than those who carried out the work.	
200 INSPECTION REQUIREMENTS			
Inspection requirements and acceptance criteria shall include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization.			
300 INSPECTION HOLD POINTS			
If mandatory inspection hold points are required beyond which work shall not proceed without the specific consent of the designated representative, the specific hold points shall be indicated in appropriate documents.			
Consent to waive specified hold points shall be recorded prior to			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 10 Inspection			
continuation of work beyond the designated hold point.			
400 INSPECTION PLANNING			
401 Planning			
Characteristics to be inspected, methods of inspection, and acceptance criteria shall be identified during the inspection planning process.		These activities shall be planned and performed by competent personnel other than those who carried out the work.	
402 Sampling		**NO CORRESPONDING REQUIREMENT**	
500 IN-PROCESS INSPECTION		**NO CORRESPONDING REQUIREMENT**	
600 FINAL INSPECTIONS		**NO CORRESPONDING REQUIREMENT**	
601 Resolution of Nonconformances		**NO CORRESPONDING REQUIREMENT**	
602 Inspection Requirements		**NO CORRESPONDING REQUIREMENT**	
603 Modifications, Repairs, or Replacements		**NO CORRESPONDING REQUIREMENT**	
604 Acceptance		**NO CORRESPONDING REQUIREMENT**	
700 Inspections During Operations		**NO CORRESPONDING REQUIREMENT**	
800 RECORDS		**7.5.1.3. Inspection and surveillance activities**	
Appropriate records shall be established, maintained, and, as a minimum, identify the following:		Appropriate records shall be established, maintained and, as a minimum, identify the following:	
(a) item inspected;		- item inspected,	
(b) date of inspection;		- date of inspection or surveillance	
(c) inspector;		- identification of personnel who performs the inspection or surveillance	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 10 Inspection			
(d) type of observation;		- activity surveyed, - statements' details,	
(e) results or acceptability; and		- results or acceptability,	
(f) reference to information on action taken in connection with nonconformances.		- if necessary, follow up actions.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 11 Test Control			
100 BASIC		**NO CORRESPONDING REQUIREMENT**	
200 TEST REQUIREMENTS		**NO CORRESPONDING REQUIREMENT**	
300 TEST PROCEDURES (OTHER THAN FOR COMPUTER PROGRAMS)		**NO CORRESPONDING REQUIREMENT**	
400 COMPUTER PROGRAM TEST PROCEDURES		**NO CORRESPONDING REQUIREMENT**	
500 TEST RESULTS		**NO CORRESPONDING REQUIREMENT**	
600 TEST RECORDS		**NO CORRESPONDING REQUIREMENT**	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 12 Control of Measuring and Test Equipment			
100 BASIC		**7.6. Control of monitoring and measuring equipment**	
Tools, gages, instruments, and other measuring and test equipment used for activities affecting quality shall be controlled, calibrated at specified periods, adjusted, and maintained to required accuracy limits.		The organization shall maintain a register of the monitoring and measuring equipment and define the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.	
200 SELECTION		**7.6. Control of monitoring and measuring equipment**	
Selection of measuring and test equipment shall be based on the type, range, accuracy, and tolerance needed to accomplish the required measurements for determining conformance to specified requirements.		Selection of measuring and test equipment shall be based at least on their measuring range and measurement accuracy having regard to the tolerance specified.	
300 CALIBRATION AND CONTROL		**7.6. Control of monitoring and measuring equipment**	
301 Calibration			
Measuring and test equipment shall be calibrated at prescribed time periods or usage and whenever the accuracy of the equipment is suspect.			
Calibration shall be against and traceable to certified equipment or reference standards having known valid relationships to nationally recognized standards, or to international standards known to be equivalent and verified to		Calibration /verification method shall be based against standards. Where no such standard exists the basis for calibration/verification shall be defined.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 12 Control of Measuring and Test Equipment			
corresponding nationally recognized standards.			
Where no such standards exist, the basis for calibration shall be defined.			
302 Reference Standards		**NO CORRESPONDING REQUIREMENT**	
303 Control		**7.6. Control of monitoring and measuring equipment**	
Calibration procedures shall identify or reference required accuracy and shall define methods and frequency of checking accuracy.		The organization shall maintain a register of the monitoring and measuring equipment and define the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.	
Methods and frequency of checking accuracy shall be defined in procedures.			
The calibration method and interval of calibration shall be based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions affecting performance.			
Measuring and test equipment, which is overdue for calibration or found to be out- of- calibration, shall be tagged and/ or segregated, or removed from service, and not used until it has been recalibrated.		In order to avoid use of monitoring and measuring equipment, which are non-conform or requiring calibration/verification, the organization shall: - Implement and maintain a process for the recall of such equipment, - Identify and/or segregate or remove	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 12 Control of Measuring and Test Equipment			
		from service such equipment.	
Measuring or test equipment consistently found to be out of calibration shall be repaired or replaced.			
303.1 Application			
Measuring and test equipment shall be traceable to its application and use.			
303.2 Corrective Action		**NO CORRESPONDING REQUIREMENT**	
303.3 Handling and Storage		**NO CORRESPONDING REQUIREMENT**	
Measuring and test equipment shall be properly handled and stored to maintain accuracy.			
303.4 Environmental Controls		**7.6. Control of monitoring and measuring equipment**	
Measuring and test equipment shall be used and calibrated in environments that are controlled to the extent necessary to ensure that the required accuracy and precision are maintained.		The organization shall ensure that environmental conditions are suitable for the calibration, inspection, measurement and testing being carried out.	
303.5 Pre-calibration Checks		**NO CORRESPONDING REQUIREMENT**	
303.6 Status Indication		**NO CORRESPONDING REQUIREMENT**	
304 Commercial Devices		**NO CORRESPONDING REQUIREMENT**	
400 RECORDS		**NO CORRESPONDING REQUIREMENT**	
402 Reports and Certificates		**NO CORRESPONDING REQUIREMENT**	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 13 Handling, Storage, and Shipping			
100 BASIC			
Handling, storage, cleaning, packaging, shipping, and preservation of items shall be controlled to prevent damage or loss and to minimize deterioration.			
		7.5.5. Preservation of product	
		Preservation of product shall also include, where applicable, in accordance with product specifications and applicable statutory and regulatory requirements, provisions for: a) limiting the access to the product to avoid undue intervention, b) cleaning, c) prevention, detection and removal of foreign objects, d) special handling for sensitive products or hazardous materials, and e) marking and labeling including safety warnings.	
		7.5.6. Post-delivery support	
		As applicable, post-delivery support shall be provided for: a) collection and analysis of in-service data, b) actions to be taken, including investigation and reporting, when problems are detected after delivery, c) control and updating of technical documentation, d) approval, control and use of repair schemes, and e) inspection required for off-site work (e.g., organization's work undertaken at the customer's facilities).	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 13 Handling, Storage, and Shipping			
These activities shall be conducted in accordance with established work and inspection instructions, drawings, specifications, shipment instructions, or other pertinent documents or procedures specified for use in conducting the activity.			
200 SPECIAL REQUIREMENTS		**NO CORRESPONDING REQUIREMENT**	
300 PROCEDURES		**NO CORRESPONDING REQUIREMENT**	
400 TOOLS AND EQUIPMENT		**NO CORRESPONDING REQUIREMENT**	
500 OPERATORS		**NO CORRESPONDING REQUIREMENT**	
600 MARKING OR LABELING		**NO CORRESPONDING REQUIREMENT**	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 14 Inspection, Test, and Operating Status			
100 BASIC		**NO CORRESPONDING REQUIREMENT**	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 15 Control of Nonconforming Items			
100 BASIC		**8.3. Control of nonconforming product**	
Items that do not conform to specified requirements shall be controlled to prevent inadvertent installation or use		**NOTE**: The term "nonconforming product" includes nonconforming product returned by a customer. The following way may be used by the organization to deal with nonconforming product: e) by taking actions necessary to contain the effect of the nonconformity on other processes or products. When the characteristics of the product along the supply chain are not conforming to specified requirements, a nonconformity shall be reported.	
Controls shall provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations.		Products and processes that do not conform to the specified requirements shall be timely identified, segregated, controlled, recorded and reported to an appropriate level of management within the organization.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 15 **Control of Nonconforming Items**			
		Nonconformity shall be timely reported in compliance with the customer requirements.	
200 IDENTIFICATION		**NO CORRESPONDING REQUIREMENT**	
300 SEGREGATION		**NO CORRESPONDING REQUIREMENT**	
400 DISPOSITION		**NO CORRESPONDING REQUIREMENT**	
401 Control			
403 Personnel		**NO CORRESPONDING REQUIREMENT**	
404 Disposition			
A disposition, such as use-as-is, reject, repair, or rework of nonconforming items shall be made and documented.		Where applicable, justifications of use-as-is or provisions for repair shall be submitted to customer for approval. Product intended for scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.	
Technical justification for the acceptability of a nonconforming item dispositioned repair or use-as-is shall be documented.			
Nonconformances to design requirements dispositioned use-as-is or repair shall be subject to design control measures commensurate with those applied to the original design.			
Required as-built records shall reflect the use-as-is or repair condition.			
405 Reexamination		**NO CORRESPONDING REQUIREMENT**	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 16 Corrective Action			
100 BASIC			
Conditions adverse to quality shall be identified promptly and corrected as soon as practicable.		**8.5.2. Corrective action** A documented procedure shall be established to define requirements for: g) flowing down corrective action requirements to a supplier when it is determined that the supplier is responsible for the nonconformity, h) determining specific actions, where timely and/or effective corrective actions are not achieved, and i) determining if additional nonconforming product exists, based on the causes of the nonconformity and taking further action when required. Records shall be maintained to demonstrate the completion of any stage of corrective action procedure.	
In the case of a significant condition adverse to quality, the cause of the condition shall be determined and corrective action taken to preclude recurrence.			
The identification, cause, and corrective action for significant conditions adverse to quality shall be documented and reported to appropriate levels of management.			
Completion of corrective actions shall be verified.			
		8.5.3. Preventive action A documented procedure shall be established to define requirements for: f) providing provisions of adequate resources for improvement plans.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 16 **Corrective Action**			
		The potential nonconformities shall be determined using also: - feedback from other organizations, - through the use of technical advance and research, - sharing of knowledge and experience, - through the use of techniques that identify best practices.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 17 Quality Assurance Records			
100 BASIC		**4.2.4. Control of records**	
The control of quality assurance records shall be established consistent with the schedule for accomplishing work activity. Quality assurance records shall furnish documentary evidence that items or activities meet specified quality requirements.		The documented procedure shall define the method for controlling records that are created by and/or retained by suppliers.	
Quality assurance records shall be identified, generated, authenticated, and maintained, and their final disposition specified.			
Record control requirements and responsibilities for these activities shall be documented.			
The term records, used throughout this section, are to be interpreted as quality assurance records.			
200 GENERATION OF RECORDS		**NO CORRESPONDING REQUIREMENT**	
300 AUTHENTICATION OF RECORDS		**NO CORRESPONDING REQUIREMENT**	
400 CLASSIFICATION		**NO CORRESPONDING REQUIREMENT**	
401 Lifetime Records		**NO CORRESPONDING REQUIREMENT**	
402 Nonpermanent Records		**NO CORRESPONDING REQUIREMENT**	
500 Receipt Control of Records		**NO CORRESPONDING REQUIREMENT**	
600 STORAGE			
700 RETENTION			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 17 Quality Assurance Records			
800 MAINTENANCE RECORDS		**NO CORRESPONDING REQUIREMENT**	
(a) Records shall be protected from damage or loss.		**NO CORRESPONDING REQUIREMENT**	
(b) Record controls shall provide for retrievability within planned retrieval times based upon the record type or content.		Retention time must be in accordance with legal or customer requirements.	
(c) The methods for record changes shall be documented.			
(d) Provisions shall be established to ensure that no unacceptable degradation of the electronic record media occurs during the established retention period.			
(e) Provisions shall be made to ensure that the records remain retrievable after hardware, software, or technology changes.			
(f) Provisions shall be established to ensure the following when records are duplicated or transferred to the same media or to a different media for the purposes of maintenance or storage:			
(1) duplication or transfer is appropriately authorized			
(2) record content, legibility, and retrievability are maintained			

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 18 Audits			
100 BASIC			
Audits shall be performed to verify compliance to quality assurance program requirements, verify that performance criteria are met and to determine the effectiveness of the program.		**8.2.2. Internal audit** Planned arrangements for internal audit shall include specific quality assurance programs or plans.	
These audits shall be performed in accordance with written procedures or checklists by personnel who do not have direct responsibility for performing the activities being audited.			
Audit results shall be documented and reported to and reviewed by responsible management			
Follow-up action shall be taken where indicated.			
200 SCHEDULING		**8.2.2. Internal audit**	
Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities, based on the status and importance of the activity.		Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities including safety culture.	
Scheduled audits shall be supplemented by additional audits of specific subjects when necessary to provide adequate coverage.			
300 PREPARATION		**NO CORRESPONDING REQUIREMENT**	
301 Audit Plan			
302 Personnel		**8.2.2. Internal audit**	
Audit personnel shall have sufficient authority and organizational freedom to make the audit process meaningful and effective.		Auditors shall not audit their own work and shall be appointed by personnel independent of the audited activity.	

NQA-1-2009a/NSQ-100 Certification Comparison			
NQA-1-2012	**NQA Certification Program**	**NSQ-100**	**NSQ-100 Certification Program**
REQUIREMENT 18 Audits			
303 Selection of Audit Team		**NO CORRESPONDING REQUIREMENT**	
400 PERFORMANCE		**NO CORRESPONDING REQUIREMENT**	
500 REPORTING		**NO CORRESPONDING REQUIREMENT**	
600 RESPONSE		**NO CORRESPONDING REQUIREMENT**	
700 FOLLOW-UP ACTION		**NO CORRESPONDING REQUIREMENT**	
800 RECORDS		**NO CORRESPONDING REQUIREMENT**	

ANNEX C

CERTIFICATION REQUIREMENTS BETWEEN SECTION III NCA 4100 AND NSQ-100

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
NO COMPARABLE CERTIFICATION PROGRAM EXISTS			**ASME SURVEY REVIEW OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR "N" TYPE CERTIFICATE**
			Applicants applying for initial issue or renewal of an ASME Certificate of Authorization will have an ASME survey performed to verify implementation of your Quality Assurance Program.
			Applicants for ASME Certificates of Authorization, ASME Certificates of Accreditation and ASME Quality System Certificates will address in their Quality Assurance Manual all applicable control requirements of the Code as defined below. The Quality Assurance Manual must contain the controls for implementing the Quality Assurance Program. Those activities to be performed under the scope of the Applicant's Certificate of Authorization/Accreditation are required to be addressed in the Quality Assurance Manual.
			The survey will cover the Quality Assurance Manual and its implementation. The NCA sections below outline the requirements of NCA-4100, which establish a Quality Assurance Program.
			The ASME policies and Operating Procedures require the Survey Team to make a full review of the Applicants

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
			Quality Assurance Manual/Quality System Manual prior to visiting the Applicants facilities. The review is performed by the full Survey Team on the first day of the Survey.
			The Initial issue or renewal of the ASME Certificate requires an applicant to demonstrate implementation of its Quality Assurance Program to an ASME Survey Team.
			All demonstrations shall be to the most restrictive class and demonstrate the Applicants knowledge of the Code requirements, i.e. Applicants applying for Class 1, 2, & 3, the demonstration item should be based on Class 1 Code requirements. Demonstrations will include, any type of Code activity on items intended to be produced under the ASME Certificate.
			The purpose of the demonstration is to allow the Applicant to provide evidence of their knowledge and requirements of each Certificate and scope they are requesting. All elements of the Program must be demonstrated.
			The demonstration survey will be conducted in five phases or segments as follows:
			1. Manual Review: Shall be performed by the Survey Team and observers authorized by ASME only, on the first day of the survey.
			2. Entrance Meeting / Facility Tour:

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
			Will be held on the second day. The entrance meeting will provide the Applicant and the Survey Team an opportunity to: introduce themselves, review the Certificates and Scopes applied for, and to establish the survey agenda.
			3. Implementation: The Applicant is expected to demonstrate the implementation of the Program on Code work, a demonstration item(s), or a combination or both
			4. Team Closed Meeting: This meeting will be held at the Applicant„s facilities prior to the exit meeting. This meeting will be attended only by the Survey Team and observers authorized by ASME. During this meeting the Survey Team will review the results of the survey and vote on the recommendation that the team will present to the Committee on Nuclear Certification (CNC).
			5. Exit Meeting: This meeting will be held with the Applicants management and will review the results of the survey. The Survey Teams recommendation to the Committee on Nuclear Certification (CNC) will be made known.
	SURVEY REVIEW CRITERIA OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR "N" TYPE	**SURVEY REVIEW CRITERIA OF THE APPLICANTS QUALITY ASSURANCE MANUAL FOR "N" TYPE CERTIFICATE**	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
	CERTIFICATE		
	NCA-4134.1 ORGANIZATION ADDITIONAL REQUIREMENTS	**REQUIREMENT 1 ORGANIZATION**	
	NCA-4134.1 Organization		
	The provisions of NQA-1, Requirement 1 shall apply.		
1.1 General		**100 Basic**	
This document is intended for any organization which supplies product or services within nuclear industry. It is emphasized that the requirements specified in this document are complementary (not alternative) to contractual and applicable statutory and regulatory requirements. Should there be a conflict between the requirements of this document and applicable statutory or regulatory requirements, the latter shall take precedence.		Responsibilities for the establishment and implementation of the quality assurance program shall be defined. The organizational structure, functional responsibilities, levels of authority, and lines of communications for activities affecting quality shall be documented.	
1.1 General		**200 STRUCTURE AND RESPONSIBILITY**	
This document is intended for any organization which supplies product or services within nuclear industry. It is emphasized that the requirements specified in this document are complementary (not alternative) to contractual		**201 General**	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
and applicable statutory and regulatory requirements. Should there be a conflict between the requirements of this document and applicable statutory or regulatory requirements, the latter shall take precedence.			
5.1. Management commitment		The organizational structure and responsibility assignments shall be such that	
Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by: f) ensuring a common understanding of the key aspects of safety culture within the organization, g) providing the means by which the organization continually seeks to develop and improve its safety culture.		(a) senior management establishes overall expectations for effective implementation of the quality assurance program and is responsible for obtaining the desired end result	
		(b) quality is achieved and maintained by those assigned responsibility for performing work	
d) the organizational independence to resolve quality management issues.		(c) quality achievement is verified by those not directly responsible for performing the work	
		(d) those responsible for assuring that an appropriate quality assurance program has been established and those	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		verifying activities affecting quality have sufficient authority, direct access to responsible levels of management, organizational freedom, and access to work to perform this function, including sufficient independence from cost and schedule when opposed to safety function considerations. These verification functions include the following: (1) identifying quality problems (2) initiating, recommending, or providing solutions to quality problems through designated channels (3) verifying implementation of solutions (4) assuring that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.	
		202 Delegation of Work	
		The individual (s) or organization (s) responsible for establishing and executing a quality assurance program under this Standard may delegate any or all of the work to others but shall retain responsibility therefor.	
5.5.1. Responsibility and authority		**300 INTERFACE CONTROL**	
The organization shall retain overall responsibility for the management system when an external organization is involved			

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
in the work of developing all or part of the management system.			
		Where more than one organization is involved in the execution of activities, the responsibilities, interfaces, and authority of each organization shall be clearly defined and documented.	
		The external interfaces between organizations and the internal interfaces between organizational units, and changes thereto, shall be documented.	
	NCA-4134.2 QUALITY ASSURANCE PROGRAM	**REQUIREMENT 2 QUALITY ASSURANCE PROGRAM**	
4.2.2. Quality manual		**100 BASIC**	
The organization shall specify in a controlled document (quality manual, quality assurance program or a plan) the organizational, documentary and technical provisions to meet the requirements of this document and to address the nuclear safety aspects. If not covered by this document, the quality assurance program or plan shall consider additional quality requirements coming from the contract, the applicable regulations, codes and standards.	(a) The provisions of NQA-1, Requirement 2 shall apply and the system used to meet these requirements shall be described in the Quality Assurance Manual. The Quality Assurance Manual shall also include a statement of policy and authority indicating management support. The specific responsibilities of the quality assurance organization of the Certificate Holder shall also include the review of written procedures and monitoring of the activities concerned with the Quality Assurance Program as covered in this Article. (c) The controls used in the Quality Assurance Program shall be	(a) A documented quality assurance program shall be planned, implemented, and maintained in accordance with this Part (Part I), or portions thereof.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
	documented in the Quality Assurance Manual. The Program need not be in the same format or sequential arrangement as the requirements in this Article, as long as all applicable requirements of this Article have been covered. A copy, including all changes that are made, shall be made available to the Inspector. The Certificate Holder shall make available to the Inspector such drawings and process sheets as are necessary to make the Quality Assurance Program intelligible. (d) The Certificate Holder shall be responsible for advising its Authorized Inspection Agency of any changes that are proposed to be made to the Quality Assurance Manual, and shall have acceptance of the Authorized Inspection Agency's Authorized Nuclear Inspector Supervisor before putting such changes into effect. The Certificate Holder shall be responsible for promptly notifying the Inspector of such accepted changes, including evidence of acceptance by the Authorized Inspection Agency, and for simultaneously reconciling copies of the Quality Assurance Manual.		

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		The program shall provide control over activities affecting quality to an extent consistent with their importance.	
		The program shall provide control over activities affecting quality to an extent consistent with their importance.	
8.2.1. Customer satisfaction Information to be monitored and used for the evaluation of customer satisfaction shall include, but is not limited to, product conformity, on-time delivery performance, customer complaints, corrective action requests and implementation of safety culture. The organization shall develop and implement plans for customer satisfaction improvement that address deficiencies identified by these evaluations, and assess the effectiveness of the results.		The program shall include monitoring activities against acceptance criteria in a manner sufficient to provide assurance that the activities affecting quality are performed satisfactorily.	
		The program shall be established at the earliest time consistent with the schedule for accomplishing the activities.	
5.4.2. Quality management system planning NOTE: Organizational changes shall be evaluated and classified according to their importance to safety and each change shall be justified.		The program shall provide for the planning and accomplishment of activities affecting quality under suitably controlled conditions.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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The implementation of such changes should be planned, controlled, communicated, monitored and recorded to ensure that nuclear safety is not compromised.			
		Controlled conditions include the use of appropriate equipment, suitable environmental conditions for accomplishing the activity, and assurance that prerequisites for the given activity have been satisfied.	
		The program shall provide for any special controls, processes, test equipment, tools, and skills to attain the required quality of activities and items and for verification of that quality.	
		The organization shall establish and implement processes to detect and correct quality problems.	
		(b) The program shall provide for indoctrination, training, and qualification as necessary of personnel performing or managing activities affecting quality to ensure that suitable proficiency is achieved and maintained.	
		(c) Management shall regularly assess the adequacy and effective implementation of the quality assurance program.	
6. RESOURCE MANAGEMENT		**200 INDOCTRINATION AND TRAINING**	
6.1. Provision of resources		Indoctrination and training shall be commensurate with scope, complexity,	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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Information and knowledge of the organization shall be managed as a resource.		importance of the activities, and the education, experience, and proficiency of the person.	
6.2.1. General		**201 Indoctrination**	
Personnel involved in the realization of the product shall be trained on the importance of their tasks and of the eventual consequences on the nuclear safety of any malfunction or error in their activities.		Personnel performing or managing activities affecting quality shall receive indoctrination in their job responsibilities and authority that includes general criteria, technical objectives, requirements of applicable codes and standards, regulatory commitments, company procedures, and quality assurance program requirements.	
6.2.2. Competence, qualification, training and awareness		**202 Training**	
The organization shall: b) where applicable, provide training or take other actions, as maintenance of proficiency, to achieve the necessary competence, f) assess the adequacy of the personnel with the expected or required competence.		The need for a formal training program for personnel performing or managing activities affecting quality shall be determined.	
The organization shall designate activities that require qualification of personnel and the minimum requirements for such personnel. Provisions shall be taken to define competent personnel able to elaborate, verify and approve documents		Training shall be provided, if needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, or job responsibilities.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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issued in foreign languages. A list of these personnel shall be established and maintained. A documented procedure shall be defined for qualification of such personnel.			
		On-the-job training shall be used if direct hands-on applications or experience is needed to achieve and maintain proficiency.	
8.2.2. Internal audit		**300 Qualification Requirements**	
The organization shall qualify auditors according to a documented procedure including qualification criteria. The organization shall maintain and periodically review auditor qualification. Records of qualification shall be maintained		The responsible organization shall designate those activities that require qualification of personnel and the minimum requirements for such personnel.	
		The responsible organization shall establish written procedures for the qualification of personnel, and for the assurance that only those personnel who meet the requirements are permitted to perform these activities..	
		Specific qualification requirements for personnel performing nondestructive examination inspection and tests to verify quality and auditing are specified in paragraphs 301 through 304 of this Requirement.	
		301 Nondestructive Examination (NDE)	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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	(b) In lieu of paragraph 301, Requirement 2, the qualification of nondestructive examination personnel shall be as required by NB/NC/ND/NE/NF/NG/NH-5520.	This section specifies requirements for the qualification of personnel who perform radiographic (RT), magnetic particle (MP), ultrasonic (UT), liquid penetrant (PT), electromagnetic (ET), neutron radiographic (NR), leak testing (LT), acoustic emission (AE), and visual testing (VT) to verify conformance to the specified requirements.	
		The American Society of Nondestructive Testing (ASNT) Recommended Practices or Standards provide acceptable qualification requirements for NDE personnel. Applicable Codes and Standards or design criteria controlling the qualification of NDE personnel shall be utilized to establish the applicable ASNT qualification requirement and edition or to specify an equivalent alternative requirement.	
		302 Inspection and Test	
		The initial capabilities of a candidate shall be determined by an evaluation of the candidate's education, experience, training, and either test results or capability demonstration.	
		The job performance of inspection and test personnel shall be reevaluated at periodic intervals not to exceed 3 years. Reevaluation shall be by evidence of continued satisfactory performance or redetermination of capability in	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		accordance with the requirements of section 200 of this Requirement.	
		If during this evaluation or at any other time, it is determined by the responsible organization that the capabilities of an individual are not in accordance with the qualification requirements specified for the job, that person shall be removed from that activity until such time as the required capability has been demonstrated.	
		Any person who has not performed inspection or testing activities in the qualified area for a period of 1 year shall be reevaluated.	
		303 Lead Auditor	
		303 Lead Auditor	
		The Lead Auditor organizes and directs audits, reports audit findings, and evaluates corrective action.	
		An individual shall meet the requirements of paras. 303.1 through 303.6 of this Requirement prior to being designated a Lead Auditor.	
		303.1 Communication Skills	
		The prospective Lead Auditor shall be capable of communicating effectively, both in writing and orally.	
		These skills shall be attested to in writing by the Lead Auditor's employer.	
		303.2 Training	
		Prospective Lead Auditors shall receive training to the extent necessary to assure auditing competence including	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		(a) knowledge and understanding of this Standard and other nuclear-related codes, standards, regulations, and regulatory guides, as applicable	
		(b) general structure of quality assurance programs as a whole and applicable elements as defined in this Standard	
		(c) auditing techniques of examining, questioning, evaluating, and reporting; methods of identifying and following up on corrective action items; and closing out audit findings	
		(d) planning audits of activities affecting quality	
		(e) on-the-job training to include applicable elements of the audit program	
		303.3 Audit Participation	
		Prospective Lead Auditors shall participate in a minimum of five quality assurance audits within a period of time not to exceed 3 years prior to the date of qualification, one audit of which shall be a nuclear quality assurance audit within the year prior to qualification.	
		Participation in independent assessments including team assessment activities such as operations readiness reviews and regulatory inspections/surveys may be used to satisfy up to four of the five required quality assurance audits, provided that the activities can demonstrate the	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		following: (a) independence from the functional areas being assessed (b) planning that establishes the scope of the activities and associated evaluation criteria (c) performance by technically qualified and experienced personnel (d) results that are documented and reported to management (e) appropriate corrective action initiated and tracked to resolution Such participation shall be subject to review and acceptance by the organization responsible for quality assurance audits and/or the certifying authority prior to their use for qualification.	
		303.4 Examination	
		Prospective Lead Auditors shall pass an examination that shall evaluate comprehension of and ability to apply the body of knowledge identified above.	
		The examination may be oral, written, practical, or any combination thereof.	
		303.5 Maintenance of Proficiency	
		Lead Auditors shall maintain their proficiency through one or more of the following: (a) regular and active participation in the audit process (b) review and study of codes, standards, procedures, instructions, and other documents related to quality	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		assurance program and program auditing (c) participation in training program(s)	
		Based on annual assessment, management may extend the qualification, require retraining, or require requalification.	
		303.6 Requalification	
		Lead Auditors who fail to maintain their proficiency for a period of 2 years or more shall require requalification.	
		Requalification shall include retraining in accordance with the requirements of para. 303.2 of this Requirement, reexamination in accordance with para. 303.4 of this Requirement, and participation as an Auditor in at least one nuclear quality assurance audit.	
		304 Auditors	
		Auditors are participants in an audit.	
		Auditors shall have, or be given, appropriate training or orientation to develop their competence for performing audits.	
		Competence of personnel for performance of the various auditing functions shall be developed by one or more of the following methods:	
		(a) orientation to provide a working knowledge and understanding of this Standard and the auditing organization's procedures for implementing audits and reporting results.	
		(b) general and specialized training in	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		audit performance where the general training shall include fundamentals, objectives, characteristics, organization, performance, and results of quality auditing and the specialized training shall include methods of examining, questioning, evaluating, and documenting specific audit items and methods of closing out audit findings.	
		(c) on-the-job training, guidance, and counseling under the direct supervision of a Lead Auditor.	
		Such training shall include planning, performing, reporting, and follow-up action involved in conducting audits.	
		305 Technical Specialists	
		The responsible auditing organization shall establish the qualifications and requirements for use of technical specialists to accomplish the auditing of quality assurance programs.	
		400 RECORDS OF QUALIFICATION	
		(a) The qualification of inspection, test, and Lead Auditor personnel shall be certified in writing and include the following information:	
		(1) employer's name	
		(2) identification of person being certified	
		(3) activities certified to perform	
		(4) basis of qualification	
		(a) education, experience, indoctrination, and training	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		(b) test results, where applicable	
		(c) capability demonstration results	
		(5) results of periodic evaluation	
		(6) results of physical examinations, when required	
		(7) signature of employer ís designated representative who is responsible for such certification	
		(8) date of certification or recertification and certification expiration	
		(b) The responsible organization shall identify any special physical characteristics needed in the performance of each activity, including the need for initial and subsequent physical examination.	
		The employer may delegate qualification examination activities to an independent certifying agency, but shall retain responsibility for conformance of the examination and its administration.	
		Integrity of the examination shall be maintained by the employer or certifying agency through appropriate confidentiality of files and, where applicable, proctoring of examinations.	
		Copies of the objective evidence regarding the type(s) and content of the examination(s) shall be retained by the employer in accordance with the requirements of section 500 of this Requirement.	
		500 RECORDS	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		Records of the implementation for indoctrination and training may take the form of attendance sheets, training logs, or personnel training records.	
		Records of indoctrination and training shall include one or more of the following:	
		(a) attendance sheets (b) training logs (c) personnel training records	
		The employer shall establish and maintain records for indoctrination and training; Auditor and Lead Auditor qualification and requalification; and inspection and test personnel qualification and requalification.	
	NCA-4134.3 DESIGN CONTROL	**REQUIREMENT 3 DESIGN CONTROL**	
7.3.1. Design and development planning		**100 BASIC**	
During the design and development planning, the organization shall determine and document: d) the design interfaces. Where appropriate, the organization shall divide the design and development effort into distinct activities and, for each activity, define the tasks, necessary resources, responsibilities, design content, input and output data and planning constraints.	(a) The provisions of NQA-1, Requirement 3 shall apply.	The design shall be defined, controlled, and verified.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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The different design and development tasks to be carried out shall be based on the nuclear safety and functional objectives of the product in accordance with customer, legal, statutory and regulatory requirements. Design and development planning shall consider the ability to produce, inspect, install, test and maintain the product.			
	(b) Measures shall be established to ensure that applicable requirements of the Design Specifications and of this Section for items are correctly translated into specifications, drawings, procedures, and instructions.	Design inputs shall be specified on a timely basis and translated into design documents.	
		Design interfaces shall be identified and controlled.	
	(c) Design documents shall be verified for adequacy and compliance with the Design Specification and this Section.	Design adequacy shall be verified by individuals other than those who designed the item or computer program.	
		Design changes shall be governed by control measures commensurate with those applied to the original design.	
7.3.2. Design and development inputs		**200 DESIGN INPUT**	
Inputs relating to product requirements shall be determined, translated into design documents and records		Applicable design inputs shall be identified and documented, and their selection reviewed and approved.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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maintained (see 4.2.5). These inputs shall include: a) functional and performance requirements including nuclear safety requirements e) risk identified for the product Design and Development inputs shall include a description of hardware and the specifications addressing interfaces between hardware and software.			
		The design input shall be specified to the level of detail necessary to permit the design activities to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating design changes.	
		300 DESIGN PROCESS	
		(a) The responsible design organization shall pre-scribe and document the design activities to the level of detail necessary to permit the design process to be carried out in a correct manner, and to permit verification that the design meets requirements.	
		Design documents shall support facility design, construction, and operation. Appropriate quality standards shall be identified and documented, and their selection reviewed and approved.	
Design and development outputs shall:		(b) The design methods, materials, parts, equipment, and processes that are	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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d) specify the characteristics of the product that are essential for its safe and proper use (to be included in Instructions of use), and e) specify, for IFS items or activities, any critical characteristics translated into technical specifications.		essential to the function of the items shall be selected and reviewed for suitability of application.	
NOTE 1: Information for production and service provision shall at least include details for the manufacture, test, installation, operating, maintenance and preservation of product. NOTE 2: Configuration management shall identify and document characteristics of the software and ensure that consistency is maintained.		Applicable information derived from experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel.	
		(c) The final design shall	
The organization shall define the data required to allow the product to be identified, manufactured, inspected, used and maintained, including at least: - the software configuration management.		(1) be relatable to the design input by documentation in sufficient detail to permit design verification.	
		(2) specify required inspections and tests and include or reference appropriate acceptance criteria.	
- the drawings, part lists and		(3) identify assemblies and/or	

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specifications necessary to define the configuration and the design features of the product, - the material, process, manufacturing and assembly data needed to ensure conformity of the product,		components that are part of the item being designed.	
		When such an assembly or component part is a commercial grade item, the critical characteristics of the item to be verified for acceptance and the acceptance criteria for those characteristics meet the requirements of Part II, Subpart 2.14, Quality Assurance Requirements for Commercial Grade Items and Services	
		Critical characteristics to be verified are those that provide reasonable assurance that the item will perform its intended safety function.	
		If a commercial grade item, prior to its installation, is modified or selected by special inspection and/or testing to requirements that are more restrictive than the Supplier ’s published product description, the component part shall be represented as different from the commercial grade item in a manner traceable to a documented definition of the difference.	
		400 DESIGN ANALYSES	
		Design analyses shall be sufficiently detailed such that a person technically qualified in the subject can review and	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		understand the analyses and verify the adequacy of the results without recourse to the originator.	
7.3.1. Design and development planning		**401 Use of Computer Programs**	
In case of computation or computerized models, the organization shall demonstrate that those are verified within their scope and validated. Individuals using the above shall be competent. Methods and means used for design verification and their combinations shall be defined prior to design and development realization. The software design and development stages shall be organized throughout the life cycle including the main four following processes:		To the extent required in paras. 401(a) and (b) of this Requirement, computer program acceptability shall be pre-verified or the results verified with the design analysis for each application.	
- Specification, - General and detail design, - Coding, - Integration and tests. If tests are used for any design & development purposes, provisions of 7.3.8 shall be respected			
		Pre-verified computer programs shall be controlled in accordance with the requirements of this Standard.	
		(a) The computer program shall be	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed.	
		(b) The encoded mathematical model shall be shown to produce a valid solution to the physical problem associated with the particular application.	
		402 Documentation of Design Analysis	
		Documentation of design analyses shall include the following:	
		(a) the objective of the analyses	
		(b) design inputs and their sources	
		(c) results of literature searches or other applicable background data	
		(d) assumptions and indication of those assumptions that must be verified as the design proceeds	
		(e) identification of any computer calculation, including identification of the computer type, computer program name, and revision, inputs, outputs, evidence of or reference to computer program verification, and the bases (of reference thereto) supporting application of the computer program to the specific physical problem	
		(f) review and approval	
7.3.5. Design and development verification		**500 DESIGN VERIFICATION**	
The methods used for design verification shall be identified		(a) The responsible design organization shall identify and document the	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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and documented. Design verification shall be performed by any competent person or group, clearly indicated and other than those who performed the original design of the product or participated to related design activities.		particular design verification method(s) used.	
		The results of design verification shall be documented with the identification of the verifier clearly indicated.	
		Design verification shall be performed by any competent individual(s) or group(s) other than those who performed the original design but who may be from the same organization.	
		This verification may be performed by the originator's supervisor, provided (1) the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or (2) the supervisor is the only individual in the organization competent to perform the verification.	
		Cursory supervisory reviews do not satisfy the intent of this Standard.	
		(b) Design verification shall be performed prior to releasing the design for procurement, manufacture, construction, or use by another design	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		organization, except where this timing cannot be met, such as when insufficient data exist.	
		In those cases, the unverified portion of the design shall be identified and controlled.	
		In all cases the design verification shall be completed prior to relying upon the component, system, structure, or computer program to perform its function.	
		(c) If the design is modified to resolve verification findings, the modified design shall be verified prior to release or use.	
		(d) Extent of Design Verification.	
		The extent of the design verification shall be a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proved designs.	
		Where the design has been subjected to a verification process in accordance with this Part (Part I), the verification process need not be duplicated for identical designs.	
		However, the applicability of standardized or previously proven designs, with respect to meeting pertinent design inputs, shall be verified for each application.	
		Known problems affecting the standard or previously proved designs and their	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		effects on other features shall be considered.	
		The original design and associated verification documentation shall be referenced in records of subsequent application of the design.	
7.3.4. Design and development review		**501 Methods**	
At suitable stages, systematic reviews of design and development shall be performed in accordance with planned arrangements: c) to authorize progress to the next stage. Reviews shall be documented and detailed in such a manner that no ambiguity or misunderstanding may occur.		Acceptable verification methods include, but are not limited to, any one or a combination of the following: (a) design reviews (b) alternate calculations (c) qualification testing	
		501.1 Design Reviews	
		Design reviews shall provide assurance that the final design is correct and satisfactory by addressing, where applicable, paras. 501.1(a) through (g) of this Requirement.	
		(a) Were the design inputs correctly selected?	
		(b) Are assumptions necessary to perform the design activity adequately described and reasonable?	
		Where necessary, are the assumptions identified for subsequent re-verifications when the detailed design activities are completed?	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		(c) Were appropriate design methods and computer programs used?	
		(d) Were the design inputs correctly incorporated into the design?	
		(e) Is the design output reasonable compared to design inputs?	
		(f) Are the necessary design inputs for interfacing organizations specified in the design documents or in supporting procedures or instructions?	
		(g) Have suitable materials, parts, processes, and inspection and testing criteria been specified?	
		501.2 Alternate Calculations.	
		Alternate calculations shall use alternate methods to verify correctness of the original calculations or analyses.	
		The appropriateness of assumptions; input data used; and the computer program, its associated computer hardware and system software, or other calculation method used shall also be reviewed.	
7.3.8. Design and development verification and validation testing		**501.3 Qualification Tests**	
Where tests are necessary for verification and validation of the design, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following: a) test plans or specifications identify the product being tested		Testing shall demonstrate adequacy of performance under conditions that simulate the most adverse design conditions.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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and the resources being used, define test objectives and conditions, parameters to be recorded and relevant acceptance criteria, b) test procedures describe the method of operation, the performance of the test and the recording of the results, c) the correct configuration of the product is submitted for the test, d) the requirements of the test plan and the test procedures are observed, and e) the acceptance criteria are met. For software, testing methods to be implemented are: - unit testing, to check software compliance with detailed design inputs, - integration testing, to check software compliance with general design inputs, - system testing, to check that overall software complies with specifications. Any requirement of the software specification shall be validated by a test and testing conditions shall include normal and downgraded conditions			
		Operating modes and environmental conditions shall be considered in	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		determining the most adverse conditions.	
		Where the test is intended to verify only specific design features, the other features of the design shall be verified by other means.	
		When tests are being performed on models or mockups, scaling laws shall be established and verified.	
		The results of model test work shall be subject to error analysis, where applicable, prior to use in the final design.	
7.3.8. Design and development verification and validation testing		**600 CHANGE CONTROL**	
Where tests are necessary for verification and validation of the design, these tests shall be planned, controlled, reviewed and documented to ensure and prove the following: a) test plans or specifications identify the product being tested and the resources being used, define test objectives and conditions, parameters to be recorded and relevant acceptance criteria, b) test procedures describe the method of operation, the performance of the test and the recording of the results, c) the correct configuration of		(a) Changes to design inputs, final designs, field changes, and temporary and permanent modifications to operating facilities shall be justified and subject to design control measures commensurate with those applied to the original design.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
the product is submitted for the test, d) the requirements of the test plan and the test procedures are observed, and e) the acceptance criteria are met. For software, testing methods to be implemented are: - unit testing, to check software compliance with detailed design inputs, - integration testing, to check software compliance with general design inputs, - system testing, to check that overall software complies with specifications. Any requirement of the software specification shall be validated by a test and testing conditions shall include normal and downgraded conditions			
		These measures shall include evaluation of effects of those changes on the overall design and on any analysis upon which the design is based.	
		The evaluation shall include facility configurations that occur during operation, maintenance, test, surveillance, and inspection activities.	
		Changes shall be approved by the same affected groups or organizations that reviewed and approved the original	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		design documents. When the organization originally responsible for review and approval of the original design documents is no longer responsible, the owner or his designee shall have responsibility or designate a new responsible organization.	
		The design organization approving the change shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.	
		(b) When a design change is approved other than by revision to the affected design documents, measures shall be established to incorporate the change into these documents, where such incorporation is appropriate.	
		(c) Where a significant design change is necessary because of an incorrect design, the design process and verification procedure shall be reviewed and modified as necessary.	
	(d) Paragraph 601 " Configuration Management of Operating Facilities" is not applicable	**601 Configuration Management of Operating Facilities**	
		Procedures implementing configuration management requirements shall be established and documented at the earliest practical time prior to facility operation.	
		These procedures shall include the responsibilities and authority of the	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		organizations whose functions affect the configuration of the facility including activities such as operations, design, maintenance, construction, licensing, and procurement.	
7.1.3. Configuration Management When applicable, the organization shall establish, implement and maintain a configuration management process that includes, as appropriate to the product: a) configuration management planning, b) configuration identification, c) change control, d) configuration status accounting, and e) configuration audit		601.1 Configuration management requirements shall include measures to ensure changes that may affect the approved configuration are recognized and processed.	
		601.2 The configuration shall be established and approved at the earliest practical time prior to initial operation of the facility, and maintained for the life of the facility.	
		601.3 The configuration shall include, as applicable, characteristics derived from regulatory requirements and commitments, calculations and analyses, design inputs, installation and test requirements, supplier manuals and instructions, operating and maintenance requirements, and other applicable sources.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		601.4 Interface controls shall include the integration of activities of organizations that can affect the approved configuration.	
		601.5 Documentation shall identify the design bases and the approved configuration for the approved modes of operation.	
		601.6 Measures shall be established and implemented to ensure that proposed changes to the configuration are evaluated for their conformance to the design bases.	
		601.7 The implementation sequence for approved configuration changes shall be reviewed to determine that the configuration conforms to the design bases.	
		601.8 Approval by the design authority shall be required prior to implementation of a change to the design bases.	
		601.9 The configuration of the facility shall be documented in drawings, specifications, procedures, and other documents that reflect the operational status of the facility.	
		The process used to control the current revision and issuance of these documents shall take into account the use of the document and the need for revision in support of operation.	
		700 INTERFACE CONTROL	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		Interface controls shall include assignment of responsibility and establishment of procedures among participating design organizations for review, approval, release, distribution, and revision of documents involving design interfaces.	
		Design information transmitted across interfaces shall identify the status of the design information or document provided, and identify incomplete items that require further evaluation, review, or approval.	
		Where it is necessary to initially transmit design information orally or by other informal means, the transmittal shall be confirmed promptly by a controlled document.	
		800 SOFTWARE DESIGN CONTROL	
		The requirements of section 800 apply to computer software design control and shall be used instead of section 200, Design Input; section 300, Design Process; section 500, Design Verification; and section 600, Change Control. Part II, Subpart 2.7, Quality Assurance Requirements for Computer Software for Nuclear Facility Applications, provides work practice requirements to implement the requirements of this paragraph.[1]	
		[1] Regulatory Guides 1.152, Criteria for Use of Computers in Safety Systems of	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		Nuclear Power Plants, and 1.168, Verification, Validation, Reviews, and Audits for Digital Computer Software Used in Safety Systems of Nuclear Power Plants, provide guidance for nuclear power plant licensees and their suppliers on acceptable methods and techniques.	
		801 Software Design Process	
		The software design process shall be documented, approved by the responsible design organization, and controlled.	
		This process shall include the activities described in paras. 801.1 through 801.5 of this Requirement.	
		801.1 Identification of Software Design Requirements.	
		Software design requirements shall be identified and documented and their selection reviewed and approved.	
		The software requirements shall identify the operating system, function, interfaces, performance requirements, installation considerations, design inputs, and any design constraints of the computer program.	
		801.2 Software Design	
		The software design shall be documented and shall define the computational sequence necessary to meet the software requirements.	
		The documentation shall include, as applicable, numerical methods,	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		mathematical models, physical models, control flow, control logic, data flow, process flow, data structures, process structures, and the applicable relationships between data structures and process structures.	
		This documentation may be combined with the documentation of the software design requirements, or the computer program listings resulting from implementation of the software design.	
		801.3 Implementation of the Software Design	
		The software design shall be translated into computer program(s) using the programming organization's or design organization's programming standards and conventions. Organization ís programming standards and conventions.	
		801.4 Software Design Verification	
		Software design verification shall be performed by a competent individual(s) or group(s) other than those who developed and documented the original design, but who may be from the same organization.	
		This verification may be performed by the originator's supervisor, provided	
		(a) the supervisor did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design, or	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		(b) the supervisor is the only individual in the organization competent to perform the verification.	
		Cursory supervisory reviews do not satisfy the intent of this Standard.	
		The results of verification shall be documented with the identification of the verifier indicated.	
		Software verification methods shall include any one or a combination of design reviews, alternate calculations, and tests performed during computer program development.	
		The extent of verification and the methods chosen are a function of the complexity of the software, the degree of standardization, the similarity with previously proved software, and the importance to safety.	
		801.5 Computer Program Testing.	
		Computer program testing shall be performed and shall be in accordance with Requirement 11.	
		802 Software Configuration Management	
		Software configuration management includes, but is not limited to configuration identification, change control, and status control.	
7.3.7. Control of design and development changes Software changes management shall ensure the integrity, i.e. only validated changes are		Configuration items shall be maintained under configuration management until the software is retired.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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incorporated. Software changes verification shall include regression testing.			
		802.1 Configuration Identification	
		A software baseline shall be established at the completion of each activity of the software design process.	
		Approved changes created subsequent to a baseline shall be added to the baseline.	
		A baseline shall define the most recently approved software configuration.	
		A labeling system for configuration items shall be implemented that	
		(a) uniquely identifies each configuration item	
		(b) identifies changes to configuration items by revision	
		(c) provides the ability to uniquely identify each configuration of the revised software available for use	
		802.2 Configuration Change Control	
		Changes to software shall be formally documented.	
		The documentation shall include	
		(a) a description of the change	
		(b) the rationale for the change	
		(c) the identification of affected software baselines	
		The change shall be formally evaluated and approved by the organization responsible for the original design, unless an alternate organization has	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		been given the authority to approve the changes.	
		Only authorized changes shall be made to software baselines.	
		Appropriate verification activities shall be performed for the change.	
		The change shall be appropriately reflected in documentation, and traceability of the change to the software design requirement shall be maintained.	
		Appropriate acceptance testing shall be performed for the change.	
		802.3 Configuration Status Control	
		The status of configuration items resulting from software design shall be maintained current.	
		Configuration item changes shall be controlled until they are incorporated into the approved product baseline.	
		The controls shall include a process for maintaining the status of changes that are proposed and approved, but not implemented.	
		The controls shall also provide for notification of this information to affected organizations.	
		900 DOCUMENTATION AND RECORDS	
		Design documentation and records shall include not only final design documents, such as drawings and specifications, and revisions to those documents, but also documentation that	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		identifies the important steps in the design process, including sources of design inputs that support the final design.	
	NCA-4134.4 PROCUREMENT DOCUMENT CONTROL	**REQUIREMENT 4 PROCUREMENT DOCUMENT CONTROL**	
		100 BASIC	
	The provisions of NQA-1, Requirement 4 shall apply, except that procurement documents shall require suppliers to provide a Quality Assurance Program consistent with the applicable requirements of this Section.	Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services.	
		To the extent necessary, procurement documents shall require Suppliers to have a quality assurance program consistent with the applicable requirements of this Standard.	
		200 CONTENT OF THE PROCUREMENT DOCUMENTS	
		Procurement documents issued at all tiers of procurement shall include provisions for the following, as deemed necessary by the Purchaser.	
7.4.2.1. Content of the procurement documents		**201 Scope of Work**	
Purchasing information shall describe the product to be purchased and its corresponding scope of work, including, where appropriate: - flow down to the supply chain		Procurement documents shall include a statement of the scope of the work to be performed by the Supplier.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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the relevant requirements including customer requirements, i) records retention requirements,			
7.4.2.1. Content of the procurement documents		**202 Technical Requirements**	
d) technical requirements : identification, revision and, if appropriate, status of specifications, drawings, codes, standards, regulations, process requirements, and other relevant technical data		Technical requirements shall be specified in the procurement documents.	
		These requirements shall be specified, as appropriate by reference to specific drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto that describe the items or services to be furnished.	
7.4.2.1. Content of the procurement documents e) requirements for design, test, inspection and surveillance (including instructions and acceptance criteria) for determining acceptance of the product and, as applicable, critical characteristics,		The procurement documents shall identify appropriate test, inspection, and acceptance criteria for determining acceptability of the item or service.	
7.4.2.1. Content of the procurement documents		**203 Quality Assurance Program Requirements**	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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c) quality management system requirements consistent with nuclear safety classification and/or impact on final quality of the product,		Quality assurance program requirements shall be specified in the procurement documents.	
		These requirements shall be consistent with importance and/ or complexity of the item or service being procured.	
		The procurement documents shall require the Supplier to incorporate appropriate quality assurance program requirements in subtier procurement documents.	
7.4.2.1. Content of the procurement documents		**204 Right of Access**	
j) right of access by the organization, their customers, third party organizations, Regulatory Bodies, and/ or their respective representatives, to the applicable areas of all facilities, at any level of the supply chain, involved in the order and to all applicable records.		The procurement documents shall provide for access to the Supplier‘s and subtier Supplier’s facilities and records for surveillance, inspection, or audit by the Purchaser, its designated representative, and others authorized by the Purchaser.	
7.4.2.1. Content of the procurement documents		**205 Documentation Requirements**	
f) identification of the documentation that the supplier has to submit for information, review or approval,		The procurement documents shall identify the documentation required to be submitted for information, review, or approval by the Purchaser.	
		The time of submittal shall also be established.	
		When the Purchaser requires the Supplier to maintain specific records,	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		the retention times and disposition requirements shall be prescribed.	
7.4.2.1. Content of the procurement documents		**206 Nonconformances**	
h) requirements regarding the need for the supplier to: - notify the organization of nonconforming product, - obtain organization approval for nonconforming product disposition		The procurement documents shall specify the Purchaser's requirements for the Supplier's reporting of nonconformances.	
7.4.2.1. Content of the procurement documents		**207 Spare and Replacement Parts**	
g) requirements to identify spare parts and the related data required for ordering these spare parts		The procurement documents shall specify the Supplier's requirements to identify spare and replacement parts or assemblies and the related data required for ordering these parts or assemblies.	
7.4.2.2. Procurement document review		**300 Procurement Document Review**	
The organization shall ensure by a review of the procurement document, the adequacy of specified purchase requirements prior to their communication to the supplier. Procurement document review shall be performed by competent personnel personnel, other than those who issued the procurement document, and recorded.		A review of the procurement documents, and changes thereto, shall be made and documented prior to award to assure that documents transmitted to prospective Supplier(s) include appropriate provisions to assure that items or services will meet the specified requirements.	
h) requirements regarding the need for the supplier to:		Technical or quality assurance program changes made as a result of bid	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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- notify the organization of changes in product and/or process, changes of suppliers, changes of manufacturing facility location and, where required, obtain organization approval		evaluations or negotiations shall be incorporated into the procurement documents prior to their issuance to the Supplier.	
		Procurement document review shall be performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents.	
7.4.2.3. Procurement document changes		**400 PROCUREMENT DOCUMENT CHANGES**	
Procurement document changes affecting the technical or quality requirements shall be subject to the same process and control as utilized in the preparation of the original documents		Procurement document changes affecting the technical or quality assurance program requirements shall be subject to the same degree of control as utilized in the preparation of the original documents.	
	NCA-4134.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS	**REQUIREMENT 5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS**	
		100 BASIC	
	The provisions of NQA-1, Requirement 5 shall apply.	Activities affecting quality and services shall be prescribed by and performed in accordance with documented instructions, procedures, or drawings that include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		accomplished.	
		The activity shall be described to a level of detail commensurate with the complexity of the activity and the need to assure consistent and acceptable results.	
		The need for, and level of detail in, written procedures or instructions shall be determined based upon complexity of the task, the significance of the item or activity, work environment, and worker proficiency and capability (education, training, experience).	
	NCA-4134.6 DOCUMENT CONTROL	**REQUIREMENT 6 DOCUMENT CONTROL**	
4.2.3. Control of documents		**100 BASIC**	
The preparation, issue, and change of documents that specify product quality requirements or prescribe activities affecting product quality such as instructions, procedures, and drawings shall be verified and approved for release by authorized personnel.	The provisions of NQA-1, Requirement 6 shall apply.	The preparation, issue, and change of documents that specify quality requirements or prescribe activities affecting quality such as instructions, procedures, and drawings shall be controlled to ensure that correct documents are being employed.	
Changes to documents shall be reviewed, recorded and shall be subject to the same level of approval as the documents themselves.		Such documents, including changes thereto, shall be reviewed for adequacy and approved for release by authorized personnel.	
		200 DOCUMENT CONTROL	
		The following controls shall be applied to documents and changes thereto:	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		(a) the identification of controlled documents	
		(b) the specified distribution of controlled documents for use at the appropriate location	
The individual who performs the verification must be other than those who have prepared, issued or changed the document.		(c) the identification of individuals responsible for the preparation, review, approval, and distribution of con-trolled documents	
		(d) the review of controlled documents for completeness, and approval prior to distribution	
	If electronic controls are used, the Certificate Holder shall describe the review, approval, and control process to assure correct documents are being used at the location where the activity is performed.	(e) a method to ensure the correct documents are being used	
		300 DOCUMENT CHANGES	
		301 Major Changes	
		Changes to documents, other than those defined as minor changes, are considered major changes and shall be reviewed and approved by the same organizations that performed the original review and approval unless other organizations are specifically designated.	
		The reviewing organization shall have access to pertinent background data or information upon which to base their approval.	
		302 Minor Changes	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		Minor changes to documents, such as inconsequential editorial corrections, shall not require that the revised documents receive the same review and approval as the original documents.	
		To avoid a possible omission of a required review, the type of minor changes that do not require such a review and approval and the persons who can authorize such a decision shall be clearly delineated.	
	NCA-4134.7 CONTROL OF PURCHASED ITEMS AND SERVICES	**REQUIREMENT 7 CONTROL OF PURCHASED ITEMS AND SERVICES**	
		100 BASIC	
	The provisions of NQA-1, Requirement 7, shall apply	The procurement of items and services shall be controlled to ensure conformance with specified requirements.	
		Such control shall provide for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the Supplier, source inspection, audit, and examination of items or services upon delivery or completion.	
7.4.1. Purchasing process		**200 SUPPLIER EVALUATION AND SELECTION**	
The organization shall be responsible for the conformity of all products purchased from suppliers, including product from sources defined by the customer.		Prior to award of a contract, the Purchaser shall evaluate the Supplier's capability to provide items or services in accordance with the requirements of the procurement documents.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
Anyone involved in the supply chain shall take the required measures in the purchasing data to ensure that the customer's requirements are transmitted to the suppliers. Furthermore, the supplier at every level of the supply chain has to verify that requirements have been taken into account and implemented in order to ensure the product acceptance.			
The organization shall evaluate and select suppliers, based on their ability to supply product in accordance with the organization's requirements (at least, taking into account technical, quality and safety aspects), and: a) define the process, responsibilities and authority for: - the approval status decision, - the change of the approval status. b) define the necessary actions to implement in case of selection of commercial grade item supplier. c) periodically review supplier performance; the results of these reviews shall be used as a basis for establishing the monitoring level to be		Supplier evaluation and selection and the results there from shall be documented and shall include one or more of the following:	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
implemented, and d) maintain a register of approved suppliers. When a supplier does not meet applicable requirements of this document, partial or complete substitution by the organization quality system to the supplier's one shall be ensured. Information of this substitution shall be made available up to the Contractor.			
		(a) Supplier's history of providing an identical or similar product that performs satisfactorily in actual use. The Supplier's history shall reflect current capability.	
		(b) Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.	
		(c) Supplier's technical and quality capability as determined by a direct evaluation of the facilities, personnel, and the implementation of the Supplier's quality assurance program.	
		300 BID EVALUATION	
	(b) In paragraph 300 "Bid Evaluation", the decision to perform bid evaluation for materials to confirm conformance to procurement documents shall remain the responsibility of the Certificate Holder	If bids are solicited, the bid evaluation shall include a determination of the Supplier's capability to conform to the technical and quality assurance requirements.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		Prior to the award of the contract, the Purchaser shall resolve or obtain commitments to resolve unacceptable technical and quality assurance conditions resulting from the bid evaluation.	
		400 CONTROL OF SUPPLIER-GENERATED DOCUMENTS	
		Controls shall be implemented to ensure that the submittal and evaluation of Supplier-generated documents and changes are accomplished in accordance with the procurement document requirements.	
		These controls shall provide for the acquisition, processing, and recorded evaluation of the quality assurance, technical, inspection, and test documentation or data against acceptance criteria.	
		500 ACCEPTANCE OF ITEM OR SERVICE	
		501 General	
7.4.3. Verification of purchased product Any verification activity shall be planned, documented and recorded. **NOTE**: Customer verification activities performed at any level of the supply chain should not be used by the organization or the supplier as evidence of effective monitoring of quality		Prior to offering the item or service for acceptance, the Supplier shall verify that the item or service being furnished complies with the procurement requirements.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
and does not absolve the organization or the supplier of their responsibility to provide acceptable product compliant with all requirements. Organization, customer, licensee, third party organizations, Regulatory Bodies, and/or their respective representatives, may reserve the right to verify throughout the supply chain that products and quality management system comply with specified purchasing requirements.			
		The extent of the verification activities by the Purchaser shall be a function of the relative importance, complexity, and quantity of the item or services procured and the Supplier's quality performance.	
		Where required by code, regulation, or contract requirement, documentary evidence that items conform to procurement requirements shall be available at the nuclear facility site prior to installation or use.	
		502 Methods of Acceptance	
		Purchaser methods used to accept an item or service from a Supplier shall be a Supplier Certificate of Conformance, source verification, receiving inspection, or post-installation test at the nuclear facility site, or a combination of these methods.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		503 Certificate of Conformance	
	(c) In paragraph 503 "Certificate of Conformance, changes, waivers, or deviations are not acceptable unless they meet the requirements of this Section (d) paragraph 503, (c) "Certificate of Conformance" the resolution of nonconformances shall be in conformance with the requirements of this Section, (e) documentary evidence that items conform to the requirements of this Section shall be available at the con-struction or installation site before use or installation. Requirements for documentary evidence are satisfied for material when the applicable rules of NCA-3800 and NCA-3900 for material certification are met. For stamped items, the requirements are satisfied by a Data Report.	When a Certificate of Conformance is used, the mini-mum criteria of paras. 503(a) through (f) of this Requirement shall be met.	
		(a) The certificate shall identify the purchased material or equipment, such as by the purchase order number.	
		(b) The certificate shall identify the specific procurement requirements met by the purchased material or equipment, such as codes, standards, and other specifications.	
		This may be accomplished by including a list of the specific requirements or by providing, on-site, a copy of the purchase order and the procurement	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		specifications or drawings, together with a suitable certificate.	
		The procurement requirements identified shall include any approved changes, waivers, or deviations applicable to the subject material or equipment.	
		(c) The certificate shall identify any procurement requirements that have not been met, together with an explanation and the means for resolving the nonconformances.	
		(d) The certificate shall be signed or otherwise authenticated by a person who is responsible for this quality assurance function and whose function and position are described in the Purchaser's or Supplier's quality assurance program.	
		(e) The certification system, including the procedures to be followed in filling out a certificate and the administrative procedures for review and approval of the certificates, shall be described in the Purchaser's or Supplier's quality assurance program.	
		(f) Means shall be provided to verify the validity of Supplier certificates and the effectiveness of the certification system, such as during the performance of audits of the Supplier or independent inspection or test of the items.	
		Such verification shall be conducted by the Purchaser at intervals commensurate	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		with the Supplier's past quality performance.	
		504 Source Verification	
		When source verification is used, it shall be performed at intervals consistent with the importance and complexity of the item or service, and shall include monitoring, witnessing, or observing selected activities.	
		Source verification shall be implemented in accordance with plans to perform inspections, examinations, or tests at predetermined points.	
		Upon Purchaser acceptance of source verification, documented evidence of acceptance shall be furnished to the receiving destination of the item, to the Purchaser, and to the Supplier.	
		505 Receiving Inspection	
		When receiving inspection is used, purchased items shall be inspected as necessary to verify conformance to specified requirements, taking into account source verification and audit activities and the demonstrated quality performance of the Supplier.	
		Receiving inspection shall verify by objective evidence such features as:	
		(a) configuration	
		(b) identification	
		(c) dimensional, physical, and other characteristics	
		(d) freedom from shipping damage	
		(e) cleanliness	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		Receiving inspection shall be coordinated with review of Supplier documentation when procurement documents require such documentation to be furnished prior to receiving inspection.	
		506 Post-installation Testing	
		When post-installation testing is used, post-installation test requirements and acceptance documentation shall be mutually established by the Purchaser and Supplier.	
		507 Acceptance of Services Only	
	a) In paragraph 507 "Acceptance of Services Only" it is not applicable to the procurement of Authorized Inspection Agency services as required in NCA-8130	In cases involving procurement of services only, such as third-party inspection; engineering and consulting services; auditing; and installation, repair, overhaul, or maintenance work, the Purchaser shall accept the service by any or all of the following methods:	
		(a) technical verification of data produced	
		(b) surveillance and/ or audit of the activity	
		(c) review of objective evidence for conformance to the procurement document requirements	
		600 CONTROL OF SUPPLIER NONCONFORMANCES	
		Methods for control and disposition of Supplier nonconformances for items and services that do not meet procurement document requirements shall include paras. 600(a) through (e)	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		of this Requirement:	
		(a) evaluation of nonconforming items.	
		(b) submittal of nonconformance notice to Purchaser by Supplier as directed by the Purchaser.	
		These submittals shall include Supplier-recommended disposition (e.g., use as-is or repair) and technical justification.	
		Nonconformances to the procurement requirements or Purchaser-approved documents, which consist of one or more of the following, shall be submitted to the Purchaser for approval of the recommended disposition:	
		(1) technical or material requirement is violated	
		(2) requirement in Supplier documents, which has been approved by the Purchaser, is violated	
		(3) nonconformance cannot be corrected by continuation of the original manufacturing process or by rework	
		(4) the item does not conform to the original requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired	
		(c) Purchaser disposition of Supplier recommendation.	
		(d) verification of the implementation of the disposition.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		(e) maintenance of records of Supplier-submitted nonconformances.	
		700 COMMERCIAL GRADE ITEMS AND SERVICES	
		701 General	
		When commercial grade items or services are utilized, the requirements of Part II, Subpart 2.14, Quality Assurance Requirements for Commercial Grade Items and Services shall apply and are an acceptable alternative to sections 200 through 600 of this Requirement, except that Supplier evaluation and selection, where determined necessary by the Purchaser, shall be in accordance with section 200 of this Requirement.	
		800 RECORDS	
		Records shall be established and maintained to indicate the performance of the following functions: (a) supplier evaluation and selection (b) acceptance of items or services (c) supplier nonconformances to procurement document requirements, including their evaluation and disposition.	
	NCA-4134.8 IDENTIFICATION AND CONTROL OF ITEMS	**REQUIREMENT 8 IDENTIFICATION AND CONTROL OF ITEMS**	
7.5.3. Identification and traceability		**100 BASIC**	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
IFS items or activities are subject to an identification. The associated documentation shall be clearly identified and linked to the products without ambiguity. When acceptance authority media are used (e.g. stamps, electronic signatures, passwords), the organization shall establish appropriate controls for the media.	(a) The provisions of NQA-1, Requirement 8 shall apply. (b) Welding and brazing materials for all Classes of construction shall be controlled. (c) All characteristics required to be reported by the material specifications and by this Section shall appear on checklists, and each such characteristic shall be examined by accepted procedures as required and the results recorded. Characteristics included on Certified Material Test Reports or Certificates of Compliance need not be duplicated in the checklists. Checklists shall provide for a record that the Certified Material Test Reports and Certificates of Compliance have been received, reviewed, and found acceptable. When the results of the examination or test procedure conducted by the Certificate Holder are necessary to show compliance with material specification or other requirements, the checklists shall show the required range of values. The checklists shall include spaces for: inclusion of document number and revision to which examination or tests were made; a signature, initials, or stamp; the date of the examination performed by the Certificate Holder's representative;	Controls shall be established to assure that only correct and accepted items are used or installed.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
	an Authorized Nuclear Inspector's signature, initials, or stamp; and the date on which those activities were witnessed.		
		Identification shall be maintained on the items or in documents traceable to the items, or in a manner which assures that identification is established and maintained.	
		200 IDENTIFICATION METHODS	
		201 Item Identification	
		Items of production (batch, lot, component, part) shall be identified from the initial receipt and fabrication of items up to and including installation and use.	
		This identification shall relate an item to an applicable design or other pertinent specifying document.	
		202 Physical Identification	
		Physical identification shall be used to the maximum extent possible.	
		Where physical identification on the item is either impractical or insufficient, physical separation, procedural control, or other appropriate means shall be employed.	
		Identification markings shall be applied using materials and methods that provide a clear and legible identification and do not degrade the function or service life of the item.	
		Markings shall be transferred to each part of an identified item when	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		subdivided and shall not be obliterated or hidden by surface treatment or coating unless other means of identification are substituted.	
		300 SPECIFIC REQUIREMENTS	
		301 Identification and Traceability of Items	
		When codes, standards, or specifications include specific identification or traceability requirements (such as identification or traceability of the item to applicable specification and grade of material; heat, batch, lot, part, or serial number; or specified inspection, test, or other records), the program shall provide such identification and traceability control.	
		302 Limited Life Items	
		Items having limited calendar or operating life or cycles shall be identified and controlled to preclude use of items whose shelf life or operating life has expired.	
		303 Maintaining Identification of Stored Items	
		Provisions shall be made for the control of item identification consistent with the planned duration and conditions of storage, such as	
		(a) provisions for maintenance or replacement of markings and identification records due to damage during handling or aging	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		(b) protection of identifications on items subject to excessive deterioration due to environmental exposure	
		(c) provisions for updating existing plant records	
	NCA-4134.9 CONTROL OF PROCESSES	**REQUIREMENT 9 CONTROL OF SPECIAL PROCESSES**	
7.5.1. Control of production and service provision		**100 BASIC**	
The organization shall plan and carry out production and service provision under controlled conditions.			
Controlled conditions shall include, as applicable: c) the use of suitable equipment, **NOTE**: Suitable equipment can include product specific tools (e.g., jigs, fixtures, molds) and computer program. g) evidence that all production, inspection and/or surveillance operations have been completed as planned, or as otherwise documented and authorized. Planning shall consider, as appropriate: - establishing, implementing and maintaining appropriate processes to manage IFS items or activities, including process monitoring where critical characteristics have been	(a) The provisions of NQA-1, Requirement 9 shall apply. (b) The Certificate Holder shall prepare instructions, procedures, drawings, checklists, travelers, or other appropriate documents, including the document numbers and revisions to which the process conforms, with space provided for reporting results of completion of specific operations at checkpoints of fabrication, manufacture, or installation. The documents shall include space for: a signature, initials, or stamp; the date that the activity was performed by the Certificate Holder's representative; the Authorized Nuclear Inspector's signature, initials, or stamp; and the date on which those activities were	Special processes that control or verify quality, such as those used in welding, heat treating, and nondestructive examination, shall be performed by qualified personnel using qualified procedures in accordance with specified requirements.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
identified, - identifying in-process inspection points when adequate verification of conformance cannot be performed at later stages of realization, - special processes	witnessed.		
		200 PROCESS CONTROL	
		201 Special Processes	
		Special processes shall be controlled by instructions, procedures, drawings, checklists, travelers, or other appropriate means.	
		Special process instructions shall include or reference procedure, personnel, and equipment qualification requirements.	
		Conditions necessary for accomplishment of the process shall be included.	
7.5.1.2. Control of production equipment, tools and computer programs Production equipment, tools and computer programs used to automate and control/monitor product realization processes, shall be validated prior to release for production and shall be maintained. Storage requirements, including periodic preservation/condition checks, shall be defined for production equipment or tooling		These conditions shall include proper equipment, controlled parameters of the process, specified environment, and calibration requirements.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
in storage.			
		202 Acceptance Criteria	
		The requirements of applicable codes and standards, including acceptance criteria for the process, shall be specified or referenced in procedures or instructions.	
		203 Special Requirements	
		For special processes not covered by existing codes and standards or where quality requirements specified exceed those of existing codes or standards, the necessary requirements for qualifications of personnel, procedures, or equipment shall be specified or referenced in procedures or instructions.	
		300 RESPONSIBILITY	
		It is the responsibility of the organization performing the special process to adhere to the approved procedures and processes.	
		400 RECORDS	
		Records shall be maintained as appropriate for the currently qualified personnel, processes, and equipment of each special process.	
	NCA-4134.10 INSPECTION	**REQUIREMENT 10 INSPECTION**	
7.5.1.3. Inspection and surveillance activities		**100 BASIC**	
The organization shall ensure the provisions for inspection	(a) The provisions of NQA-1, Requirement 10 shall apply, except	Inspections required to verify conformance of an item or activity to	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
and surveillance activities have been taken into account.	for paragraph 700, "Inspections During Operations." (b) The Certificate Holder shall prepare process sheets, travelers, or checklists, including the document numbers and revision to which the examination or test is to be performed, with space provided for recording results of examinations and tests. The documents shall include space for: a signature, initials, or stamp; the date that the activity was performed by the Certificate Holder's representative; the Authorized Nuclear Inspector's signature, initials, or stamp; and the date on which those activities were witnessed. The examination checklist for construction of items shall be filled in and completed by the Certificate Holder who applies the appropriate Code Symbol Stamp to the item.	specified requirements or continued acceptability of items in service shall be planned and executed.	
The methods used for inspection and surveillance shall be defined.		Characteristics subject to inspection and inspection methods shall be specified.	
		Inspection results shall be documented.	
These activities shall be planned and performed by competent personnel other than those who carried out the work.		Inspection for acceptance shall be performed by qualified persons other than those who performed or directly supervised the work being inspected.	
		200 INSPECTION REQUIREMENTS	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		Inspection requirements and acceptance criteria shall include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization.	
		300 INSPECTION HOLD POINTS	
	(c) Mandatory hold points at which witnessing is required by the Certificate Holder's representative or the Authorized Nuclear Inspector shall be indicated in the controlling documents (NCA-4134.9). Work shall not proceed beyond mandatory hold points without the consent of the Certificate Holder's representative or the Authorized Nuclear Inspector, as appropriate.	If mandatory inspection hold points are required beyond which work shall not proceed without the specific consent of the designated representative, the specific hold points shall be indicated in appropriate documents.	
		Consent to waive specified hold points shall be recorded prior to continuation of work beyond the designated hold point.	
		400 INSPECTION PLANNING	
		401 Planning	
These activities shall be planned and performed by competent personnel other than those who carried out the work.		Characteristics to be inspected, methods of inspection, and acceptance criteria shall be identified during the inspection planning process.	
		402 Sampling	
		Sampling procedures, when used, shall be based upon standard statistical methods with engineering approval.	
		500 IN-PROCESS INSPECTION	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		Inspection of items under construction or otherwise in process shall be performed as necessary to verify quality.	
		If inspection of processed items is impossible or disadvantageous, indirect control by monitoring of processing methods, equipment, and personnel shall be provided.	
		Process monitoring shall be performed by qualified personnel or qualified automated means.	
		Both inspection and process monitoring shall be provided when control is inadequate without both.	
		600 FINAL INSPECTIONS	
		601 Resolution of Nonconformances	
		Final inspections shall include a records review of the results and resolution of nonconformances identified by prior inspections.	
		602 Inspection Requirements	
		Completed items shall be inspected for completeness, markings, calibration, adjustments, protection from damage, or other characteristics as required to verify the quality and conformance of the item to specified requirements.	
		603 Modifications, Repairs, or Replacements	
		Any modifications, repairs, or replacements of items performed subsequent to final inspection shall	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		require reinspection or retest, as appropriate, to verify accept-ability.	
		604 Acceptance	
		The acceptance of the item shall be approved by authorized personnel.	
		700 INSPECTIONS DURING OPERATIONS	
		Periodic inspections (e.g., in-service inspections) or surveillances of structures, systems, or components shall be planned and executed to assure the continued performance of their required functions.	
7.5.1.3. Inspection and surveillance activities		**800 RECORDS**	
Appropriate records shall be established, maintained and, as a minimum, identify the following:		Appropriate records shall be established, maintained, and, as a minimum, identify the following:	
- item inspected,		(a) item inspected	
- date of inspection or surveillance		(b) date of inspection	
- identification of personnel who performs the inspection or surveillance		(c) inspector	
- activity surveyed, - statements' details,		(d) type of observation	
- results or acceptability,		(e) results or acceptability	
- if necessary, follow up actions.		(f) reference to information on action taken in connection with 0.1nonconformances	
	NCA-4134.11 TEST CONTROL	**REQUIREMENT 11 TEST CONTROL**	
		100 BASIC	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
	The provisions of NQA-l, Requirement 11 shall apply.	Tests required to collect data such as for siting or design input, to verify conformance of an item or computer program to specified requirements, or to demonstrate satisfactory performance for service shall be planned and executed.	
		Characteristics to be tested and test methods to be employed shall be specified.	
		Test results shall be documented and their conformance with test requirements and acceptance criteria shall be evaluated	
		200 TEST REQUIREMENTS	
		(a) Test requirements and acceptance criteria shall be provided or approved by the responsible design organization. Required tests (other than for computer programs), including, as appropriate, prototype qualification tests, production tests, proof tests prior to installation, construction tests, preoperational tests, and operational tests shall be controlled. Computer program tests including, as appropriate, software design verification, factory acceptance tests, site acceptance tests, and in-use tests shall be controlled. Required tests shall be controlled under appropriate environmental conditions using the tools and equipment necessary to conduct the test in a manner to fulfill test requirements and acceptance	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		criteria. The tests performed shall obtain the necessary data with sufficient accuracy for evaluation and acceptance.	
		(b) Test requirements and acceptance criteria shall be based upon specified requirements contained in applicable design documents, or other pertinent technical documents that provide approved requirements.	
		(c) If temporary changes to the approved configuration of a facility are required for testing purposes, approval by the design authority is required prior to performing the test.	
		(d) Test requirements and acceptance criteria for computer programs shall be provided by the organization responsible for the use of the computer program and shall include the following, as applicable. (1) Software design verification testing shall demonstrate the capability of the computer program(s) to provide valid results for test problems encompassing the range of documented permitted usage. (2) Computer program acceptance testing shall consist of the process of exercising or evaluating a system or system component by manual or automated means to ensure that it satisfies the specified requirements and to identify differences between expected and actual results in the operating	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		environment. (3) In-use computer programs testing shall demonstrate required performance over the range of operation of the controlled function or process.	
		300 TEST PROCEDURES (OTHER THAN FOR COMPUTER PROGRAMS)	
		(a)Test procedures shall include or reference the test configuration and test objectives. Test procedures shall also include provisions for assuring that prerequisites and suitable environmental conditions are met, adequate instrumentation is available and used, appropriate tests and equipment are used, and necessary monitoring is performed.	
		Prerequisites shall include the following, as applicable: (1) calibrated instrumentation (2) appropriate equipment (3) trained personnel (4) condition of test equipment and the item to be tested (5) suitable environmental conditions (6) provisions for data acquisition	
		(b) As an alternative to para. 300(a) of this Requirement, appropriate sections of related documents, such as ASTM methods, Supplier manuals, equipment maintenance instructions, or approved drawings or travelers with acceptance	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		criteria, may be used.	
		Such documents shall include or be supplemented with appropriate criteria from para. 300(a) to assure adequate procedures for the test are used.	
		400 COMPUTER PROGRAM TEST PROCEDURES	
		The requirements of section 400 of Requirement 11 apply, instead of section 300, Test Procedures, to testing of computer programs, and as appropriate, the computer hardware and operating system.	
		(a) Computer program test procedures shall provide for demonstrating the adherence of the computer program to documented requirements.	
		For those computer programs used in design activities, computer program test procedures shall provide for assuring that the computer program produces correct results.	
		For those computer programs used for operational control, computer program test procedures shall provide for demonstrating required performance over the range of operation of the controlled function or process.	
		The procedures shall also provide for evaluating technical adequacy through comparison of test results from alternative methods such as hand calculations, calculations using comparable proven programs, or	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		empirical data and information from technical literature.	
		(b) In-use test procedures shall be developed and documented to permit confirmation of acceptable performance of the computer program in the operating system.	
		In-use test procedures shall be performed after the computer program is installed on a different computer, or when there are significant changes in the operating system.	
		Periodic in- use manual or automatic self- check in-use tests shall be prescribed and performed for those computer programs in which computer program errors, data errors, computer hardware failures, or instrument drift can affect required performance.	
		(c) Test procedures or plans shall specify the following, as applicable: (1) required tests and test sequence (2) required ranges of input parameters (3) identification of the stages at which testing is required (4) criteria for establishing test cases (5) requirements for testing logic branches (6) requirements for hardware integration (7) anticipated output values (8) acceptance criteria (9) reports, records, standard formatting, conventions	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		500 TEST RESULTS	
		Test results shall be documented and maintained. Test results shall be evaluated by a responsible authority to ensure that test requirements have been satisfied.	
		600 TEST RECORDS	
		Test records shall be established and maintained to indicate the ability of the item or computer program to satisfactorily perform its intended function or to meet its documented requirements.	
		Test records vary depending on the test type, purpose, and application, but shall contain the following information, as a minimum, for the specified application identified in paras. 601 and 602.	
		601 Test Records	
		(a) item tested	
		(b) date of test	
		(c) tester or data recorder	
		(d) type of observation	
		(e) results and acceptability	
		(f) action taken in connection with any deviations	
		(g) person evaluating test results	
		602 Computer Program Test Records	
		(a) computer program tested including system software used	
		(b) computer hardware used	
		(c) test equipment and calibrations, where applicable	
		(d) date of test	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		(e) tester or data recorder	
		(f) simulation models used, where applicable	
		(g) test problems	
		(h) results and applicability	
		(i) action taken in connection with any deviations noted	
		(j) person evaluating test results	
		(k) acceptability	
	NCA-4134.12 CONTROL OF MEASURING AND TEST EQUIPMENT	**REQUIREMENT 12 CONTROL OF MEASURING AND TEST EQUIPMENT**	
7.6. Control of monitoring and measuring equipment		**100 BASIC**	
The organization shall maintain a register of the monitoring and measuring equipment and define the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.	(a) The provisions of NQA-l, Requirement 12 shall apply.	Tools, gages, instruments, and other measuring and test equipment used for activities affecting quality shall be controlled, calibrated at specific periods, adjusted, and maintained to required accuracy limits.	
7.6. Control of monitoring and measuring equipment		**200 SELECTION**	
Selection of measuring and test equipment shall be based at least on their measuring range and measurement accuracy having regard to the tolerance specified.		Selection of measuring and test equipment shall be based on the type, range, accuracy, and tolerance needed to accomplish the required measurements for determining conformance to specified requirements.	
		300 CALIBRATION AND CONTROL	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		301 Calibration	
		Measuring and test equipment shall be calibrated, at prescribed times or intervals and whenever the accuracy of the measuring and test equipment is suspect.	
7.6. Control of monitoring and measuring equipment Calibration /verification method shall be based against standards. Where no such standard exists the basis for calibration/verification shall be defined.		Calibration shall be against and traceable to certified equipment or reference standards having known valid relationships to nationally recognized standards, or to international standards known to be equivalent to and verified against corresponding nationally recognized standards.	
		Where no such standards exist, the basis for calibration shall be defined.	
		302 Reference Standards	
		Reference standards shall have a minimum accuracy four times greater than that of the measuring and test equipment being calibrated to ensure that the reference standards contribute no more than one- fourth of the allowable calibration tolerance. Where this 4: 1 ratio cannot be maintained, the basis for selection of the standard in question shall be technically justified.	
7.6. Control of monitoring and measuring equipment		**303 Control**	
The organization shall maintain a register of the monitoring and measuring equipment and define		Calibration procedures shall identify or reference required accuracy and shall	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.		define methods and frequency of checking accuracy.	
		The calibration method and interval of calibration shall be based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions affecting performance.	
In order to avoid use of monitoring and measuring equipment, which are non-conform or requiring calibration/verification, the organization shall: - Implement and maintain a process for the recall of such equipment, - Identify and/or segregate or remove from service such equipment.		Measuring and test equipment, which is overdue for calibration or found to be out- of- calibration, shall be tagged and/ or segregated, or removed from service, and not used until it has been recalibrated.	
		Measuring or test equipment consistently found to be out-of-calibration shall be repaired or replaced.	
		303.1 Application	
		Measuring and test equipment shall be traceable to its application and use.	
		303.2 Corrective Action	
		When measuring and test equipment is lost, damaged, or found to be out- of-calibration, the validity of previous	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		measurement, inspection, or test results, and the acceptability of items previously inspected or tested shall be evaluated. This evaluation shall be from at least the last acceptable calibration of the M& TE. The evaluation and resulting actions shall be commensurate with the significance of the condition.	
	(b) The Certificate Holder may perform periodic checks on equipment to determine that calibration is maintained. When periodic checking is used, discrepancies need only be resolved to the prior check, provided the discrepancy is discovered by the periodic check. The methods and frequency of periodic checking, when used, shall be included in the Certificate Holder's Quality Assurance Program.		
		303.3 Handling and Storage	
		Measuring and test equipment shall be properly handled and stored to maintain accuracy.	
7.6. Control of monitoring and measuring equipment		**303.4 Environmental Controls**	
The organization shall ensure that environmental conditions are suitable for the calibration, inspection, measurement and testing being carried out.		Measuring and test equipment shall be used and calibrated in environments that are controlled to the extent necessary to ensure that the required accuracy and precision are maintained.	
		303.5 Pre-calibration Checks	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		Measuring and test equipment and reference standards submitted for calibration shall be checked and the results recorded before any required adjustments or repairs are made.	
		303.6 Status Indication	
		Measuring and test equipment shall be suitably marked, tagged, labeled, or otherwise identified to indicate calibration status and establish traceability to calibration records.	
		304 Commercial Devices	
		Calibration and control measures are not required for commercial equipment such as rulers, tape measures, levels, etc., if such equipment provides the required accuracy.	
		400 RECORDS	
		401 General	
		Records shall be established and maintained to indicate calibration status and the capability of measuring and test equipment to satisfactorily perform its intended function.	
		402 Reports and Certificates	
		Calibration reports and certificates reporting the results of calibrations shall include the information and data necessary for interpretation of the calibration results and verification of conformance to applicable requirements.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
	NCA-4134.13 HANDLING, STORAGE, AND SHIPPING	**REQUIREMENT 13 HANDLING, STORAGE, AND SHIPPING**	
		100 BASIC	
	The provisions of NQA-l, Requirement 13 shall apply.	Handling, storage, cleaning, packaging, shipping, and preservation of items shall be controlled to prevent damage or loss and to minimize deterioration.	
		These activities shall be conducted in accordance with established work and inspection instructions, drawings, specifications, shipment instructions, or other pertinent documents or procedures specified for use in conducting the activity.	
		200 SPECIAL REQUIREMENTS	
		When required, special equipment (such as containers, shock absorbers, and accelerometers) and special protective environments (such as inert gas atmosphere, specific moisture content levels, and temperature levels) shall be specified and provided and their existence verified.	
		300 PROCEDURES	
		When required for critical, sensitive, perishable, or high-value items, specific procedures for handling, storage, packaging, shipping, and preservation shall be used.	
		400 TOOLS AND EQUIPMENT	
		Special handling tools and equipment shall be utilized and controlled where	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		necessary to ensure safe and adequate handling.	
		Special handling tools and equipment shall be inspected and tested in accordance with procedures at specified time intervals or prior to use.	
		500 OPERATORS	
		Operators of special handling and lifting equipment shall be experienced or trained in the use of the equipment.	
		600 MARKING OR LABELING	
		Marking or labeling shall be utilized as necessary to adequately maintain and preserve the item, including indication of the presence of special environments or the need for special controls.	
	NCA-4134.14 INSPECTION AND TEST STATUS	**REQUIREMENT 14 INSPECTION, TEST, AND OPERATING STATUS**	
		100 BASIC	
	The provisions of NQA-1, Requirement 14, shall apply for inspections and tests, but not for operating status.	The status of inspection and test activities shall be identified either on the items or in documents traceable to the items where it is necessary to ensure that required inspections and tests are performed and to ensure that items which have not passed the required inspections and tests are not inadvertently installed, used, or operated.	
		Status shall be maintained through indicators, such as physical location and tags, markings, shop travelers, stamps,	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		inspection records, or other suitable means.	
		The authority for application and removal of tags, markings, labels, and stamps shall be specified.	
		Status indicators shall also provide for indicating the operating status of systems and components of the nuclear facility, such as by tagging valves and switches, to prevent inadvertent operation.	
	NCA-4134.15 CONTROL OF NONCONFORMING ITEMS	**REQUIREMENT 15 CONTROL OF NONCONFORMING ITEMS**	
8.3. Control of nonconforming product		**100 BASIC**	
NOTE: The term "nonconforming product" includes nonconforming product returned by a customer. The following way may be used by the organization to deal with nonconforming product: e) by taking actions necessary to contain the effect of the nonconformity on other processes or products. When the characteristics of the product along the supply chain are not conforming with specified requirements, a nonconformity shall be reported.	The provisions of NQA-1, Requirement 15 shall apply, except that the definition of repair given in this Section shall apply in lieu of repair and rework given in NQA-l.	Items that do not conform to specified requirements shall be controlled to prevent inadvertent installation or use.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
Products and processes that do not conform to the specified requirements shall be timely identified, segregated, controlled, recorded and reported to an appropriate level of management within the organization. Nonconformity shall be timely reported in compliance with the customer requirements.		Controls shall provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations.	
		200 IDENTIFICATION	
		Nonconforming items shall be identified by legible marking, tagging, or other methods not detrimental to the item, on either the item, the container, or the package containing the item.	
		300 SEGREGATION	
		(a) Nonconforming items shall be segregated, when practical, by placing them in a clearly identified and designated hold area until properly dispositioned.	
		(b) When segregation is impractical or impossible due to physical conditions such as size, weight, or access limitations, other precautions shall be employed to preclude inadvertent use of a nonconforming item.	
		400 DISPOSITION	
		401 Control	
		Nonconforming items shall be evaluated and recommended dispositions shall be proposed.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		Further processing, delivery, installation, or use of a nonconforming item shall be controlled pending the evaluation and an approved disposition by authorized personnel.	
		402 Responsibility and Authority	
		The responsibility and authority for the evaluation and disposition of nonconforming items shall be defined.	
		Responsibility for the control of further processing, delivery, installation, or use of nonconforming items shall be designated in writing.	
		403 Personnel	
		Personnel performing evaluations to determine a disposition shall have (a) demonstrated competence in the specific area they are evaluating (b) an adequate understanding of the requirements (c) access to pertinent background information	
		404 Disposition	
Where applicable, justifications of use-as-is or provisions for repair shall be submitted to customer for approval. Product intended for scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.		A disposition, such as use- as- is, reject, repair, or rework of nonconforming items shall be made and documented.	
		Technical justification for the acceptability of a nonconforming item	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		dispositioned repair or use- as- is shall be documented.	
		Nonconformances to design requirements dispositioned use-as-is or repair shall be subject to design control measures commensurate with those applied to the original design.	
		Required as- built records shall reflect the use- as- is or repair condition.	
		405 Reexamination	
		Reworked items shall be reexamined in accordance with applicable procedures and with the original acceptance criteria. Repaired items shall be reexamined in accordance with applicable procedures and with the original acceptance criteria unless the disposition has established alternate acceptance criteria.	
	NCA-4134.16 CORRECTIVE ACTION	**REQUIREMENT 16 CORRECTIVE ACTION**	
8.5.2. Corrective action		**100 BASIC**	
A documented procedure shall be established to define requirements for: g) flowing down corrective action requirements to a supplier when it is determined that the supplier is responsible for the nonconformity, h) determining specific actions, where timely and/or effective corrective actions are not achieved, and	(a) The provisions of NQA-1, Requirement 16, shall apply. (b) The requirements shall also extend to the performance of the subcontractor's corrective action measures.	Conditions adverse to quality shall be identified promptly and corrected as soon as practicable.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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i) determining if additional nonconforming product exists, based on the causes of the nonconformity and taking further action when required. Records shall be maintained to demonstrate the completion of any stage of corrective action procedure.			
		In the case of a significant condition adverse to quality, the cause of the condition shall be determined and corrective action taken to preclude recurrence.	
		The identification, cause, and corrective action for significant conditions adverse to quality shall be documented and reported to appropriate levels of management.	
		Completion of corrective actions shall be verified.	
	NCA-4134.17 QUALITY ASSURANCE RECORDS	**REQUIREMENT 17 QUALITY ASSURANCE RECORDS**	
4.2.4. Control of Records		**100 BASIC**	
The documented procedure shall define the method for controlling records that are created by and/or retained by suppliers.	(a) General. The provisions of NQA-1, Requirement 17 shall apply, except that the requirements of paragraph 400 “Classification”, paragraph 500 “Receipt Control of	The control of quality assurance records shall be established consistently with the schedule for accomplishing work activities.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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	Records", and paragraph 600 "Storage" are not applicable. Such records shall be classified and maintained as required by this Section.		
	(c) Reproduction of Radiographs. Radiographs may be reproduced provided the following requirements are met: (1) the reproduction process shall be subject to the Owner's approval; (2) when radiographs are reproduced for either an Owner or Certificate Holder, the Quality Assurance Pro-gram of the Certificate Holder responsible for the reproduction process shall include a system for controlling and monitoring the accuracy of the process so that the image, when reproduced to its original size, will provide the same information retrieval capability as the original radiograph; (3) procedures shall contain applicable requirements pertaining to exposure, scanning, focusing, contrast, resolution, and distinguishing film artifacts that might appear as material discontinuities in the reproduced image.	Quality assurance records shall furnish documentary evidence that items or activities meet specified quality requirements.	
		Quality assurance records shall be identified, generated, authenticated, and	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		maintained, and their final disposition specified.	
	(b) Records Index. The records shall be indexed. The records and the indices thereto shall be accessible to the Owner, Owner's designee, and Authorized Nuclear Inspector.	Record control requirements and responsibilities for these activities shall be documented.	
		200 GENERATION OF RECORDS	
		(a) Records shall be legible. (b) Records shall be traceable to associated items and activities and accurately reflect the work accomplished or information required.	
		(c) Records to be generated, supplied, or maintained shall be specified in applicable documents, such as design specifications, procurement documents, test procedures, and operational procedures.	
		300 AUTHENTICATION OF RECORDS	
		(a) Documents shall be considered valid records only if stamped, initialed, or signed and dated by authorized personnel or otherwise authenticated.	
		Corrections to documents shall be reviewed and approved by the responsible individual from the originating or authorized organization.	
		(b) Electronic documents shall be authenticated with comparable information as in para. 300(a), as appropriate:	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		(1) with identification on the media; or	
		(2) with authentication information contained within or linked to the document itself.	
		400 CLASSIFICATION	
		Records shall be classified as lifetime or nonpermanent and maintained by the Owner, or authorized agent, in accordance with the criteria given in paras. 401 and 402 of this Requirement and consistent with applicable regulatory requirements.	
		401 Lifetime Records	
	(d) Lifetime Records. For Classes 1, 2, CS, MC, and CC, the records listed in Table NCA-4134.17-1 shall be classified as lifetime records. For Class 3, only records 1, 2, 3, 4, 8, 9, 15, and 16 in Table NCA-4134.17-1 shall apply. The Certificate Holder shall be responsible for the retention and maintenance of these records while they are under his control. The Owner shall be responsible for retention and maintenance of those records that are transferred to them.	401.1 Lifetime records are those that meet one or more of the following criteria:	
		(a) those which would be of significant value in demonstrating capability for safe operation	
		(b) those which would be of significant value in maintaining, reworking, repairing, replacing, or modifying an item	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		(c) those which would be of significant value in determining the cause of an accident or malfunction of an item	
		(d) those which provide required baseline data for in-service inspections	
		401.2 Lifetime records are required to be maintained by or for the Owner for the life of the particular item while it is installed in the plant or stored for future use.	
		402 Nonpermanent Records	
	(e) Nonpermanent Records. For Classes 1,2, CS, MC, and CC, the records listed in Table NCA-4134.17-2 shall be classified as nonpermanent records. For Class 3, only records 3, 7, and 8 in Table NCA-4134.17-2 shall apply. The Certificate Holder shall be responsible for their retention for the period specified in Table NCA-4134.17-2. In no case need nonpermanent records be retained for longer than 10 years after completion of applicable Code Data Report.	Nonpermanent records are those required to show evidence that an activity was performed in accordance with the applicable requirements but need not be retained for the life of the item because they do not meet the criteria for lifetime records.	
		Nonpermanent records shall be maintained for the identified retention period.	
		500 RECEIPT CONTROL OF RECORDS	
		Each organization responsible for the receipt of records shall designate a	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
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		person or organization responsible for receiving the records.	
		The designee shall be responsible for organizing and implementing receipt controls for permanent and temporary storage. Receipt controls shall provide a method for identifying the records received, receipt and inspection of incoming records, and submittal of records to storage.	
		602 Facility Types	
		There are two equally satisfactory methods of providing storage, single or dual.	
		602.1 Single storage consists of a storage facility, vault, room, or container(s) with a minimum two-hour fire rating. The design and construction of a single storage facility, vault room, or container shall be reviewed for adequacy by a person competent in fire protection or contain a certification or rating from an accredited organization.	
		602.2 Dual facilities, containers, or a combination thereof shall be at locations sufficiently remote from each other to eliminate the chance exposure to a simultaneous hazard. Facilities used for dual storage are not required to satisfy the requirements of para. 602.1, but shall meet the requirements of para. 601.	
		600 STORAGE	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		(a) Records shall be stored at a predetermined location(s) in facilities, containers, or a combination thereof, constructed and maintained in a manner that minimizes the risk of loss, damage, or destruction from	
		(1) natural disasters such as winds, floods, or fires	
		(2) environmental conditions such as high and low temperatures and humidity	
		(3) infestation of insects, mold, or rodents	
		(4) dust or airborne particles	
		(b) Activities detrimental to the records shall be prohibited in the storage area. (c) Access to the processing, storage, and retrieval of records shall be limited to authorized personnel.	
		(d) Provisions shall be made to prevent damage from harmful conditions (such as excessive light, stacking, electromagnetic fields, temperature, and humidity), as applicable to the specific media utilized for record storage	
		603 Temporary Storage	
		When temporary storage of records (such as for processing, review, or use) is required, the storage facility or container shall provide a one-hour fire rating, unless dual storage requirements of para. 602.2 are met.	
		700 RETENTION	
		(a) Record retention periods shall be documented.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		(b) Records shall be maintained for their retention periods.	
		800 MAINTENANCE RECORDS	
		(a) Records shall be protected from damage or loss.	
Retention time must be in accordance with legal or customer requirements.		(b) Record controls shall provide for retrievability within planned retrieval times based upon the record type or content.	
		(c) The methods for record changes shall be documented.	
		(d) Provisions shall be established to ensure that no unacceptable degradation of the electronic record media occurs during the established retention period.	
		(e) Provisions shall be made to ensure that the records remain retrievable after hardware, software, or technology changes.	
		(f) Provisions shall be established to ensure the following when records are duplicated or transferred to the same media or to a different media for the purposes of maintenance or storage:	
		(1) duplication or transfer is appropriately authorized	
		(2) record content, legibility, and retrievability are maintained	
	NCA-4134.18 AUDITS	**REQUIREMENT 18 AUDITS**	
8.2.2. Internal audit		**100 BASIC**	
Planned arrangements for internal audit shall include specific quality assurance	(a) The provisions of NQA-1, Requirement 18 shall apply.	Audits shall be performed to verify compliance to quality assurance program requirements, to verify that	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
programs or plans.	(b) Results of audits shall be made available to the Authorized Nuclear Inspector.	performance criteria are met, and to determine the effectiveness of the program.	
		These audits shall be performed in accordance with written procedures or checklists by personnel who do not have direct responsibility for performing the activities being audited.	
		Audit results shall be documented and reported to and reviewed by responsible management.	
		Follow- up action shall be taken where indicated.	
8.2.2. Internal audit		**200 SCHEDULING**	
Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities including safety culture.	(c) The audit frequency shall be specified in the Certificate Holder's Quality Assurance Manual. The Certificate Holder's audit frequency shall be commensurate with his schedule of activities and shall be such that each ongoing Code activity is audited at least once annually.	Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities, based on the status and importance of the activity.	
		Scheduled audits shall be supplemented by additional audits of specific subjects when necessary to provide adequate coverage.	
		300 PREPARATION	
		301 Audit Plan	
		The auditing organization shall develop an audit plan for each audit.	
		This plan shall identify the audit scope, requirements, audit personnel, activities to be audited, organizations to be notified, applicable documents,	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		schedule, and written procedures or checklists.	
8.2.2. Internal audit		**302 Personnel**	
Auditors shall not audit their own work and shall be appointed by personnel independent of the audited activity.		Audit personnel shall have sufficient authority and organizational freedom to make the audit process meaningful and effective.	
		303 Selection of Audit Team	
		An audit team shall be identified prior to the beginning of each audit.	
		This team shall contain one or more Auditors, one being designated Lead Auditor who organizes and directs the audit. The audit team shall have experience or training commensurate with the scope, complexity, or special nature of the activities to be audited.	
		400 PERFORMANCE	
		Elements selected for audit shall be evaluated against specified requirements.	
		Objective evidence shall be examined to the depth necessary to determine if these elements are being implemented effectively.	
		Conditions requiring prompt corrective action shall be reported immediately to management of the audited organization.	
		500 REPORTING	
		The audit report shall be signed or otherwise endorsed by the Lead Auditor and issued to the audited organization.	

Certification Requirements Between Section III NCA 4100 and NSQ-100			
NSQ 100 Certification Program	**NCA-4134 2013 N, NV, NPT, NS, AND NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction**	**NQA-1-2012 Quality Assurance Requirements for Nuclear Facility Applications**	**N, NV, NPT, NS, and NA Certificate Class 1, 2, 3, MC, CS, and CC Construction Certification Program**
		The contents of the report shall	
		(a) describe the audit scope	
		(b) identify Auditors and persons contacted	
		(c) summarize audit results, including a statement on the effectiveness of the elements audited	
		(d) describe each reported adverse audit finding	
		600 RESPONSE	
		Management of the audited organization or activity shall investigate adverse audit findings, schedule corrective action, including measures to prevent recurrence of significant conditions adverse to quality, and notify the appropriate organization in writing of action taken or planned.	
		Audit responses shall be evaluated by or for the auditing organization.	
		700 FOLLOW-UP ACTION	
		Follow-up action shall be taken to verify that corrective action is accomplished as scheduled.	
		800 RECORDS	
		Audit records shall include audit plans, audit reports, written replies, and the record of completion of corrective action.	

ANNEX D

CERTIFICATION COMPARISON BETWEEN SECTION III NCA 3850 AND NSQ 100

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
NO COMPARABLE CERTIFICATION PROGRAM EXISTS		**SURVEY OF APPLICANTS FOR QUALITY SYSTEM CERTIFICATE (MATERIALS)**
		Applicants applying for initial issue or renewal of an ASME Certificate of Authorization should be aware that the ASME survey will require that implementation of your Quality Assurance Program be demonstrated.
		The survey will cover the Quality System Manual and its implementation. The NCA sections below outline the requirements of NCA-3800/WA-3800, which establish a Quality System Program.
		The ASME policies and Operating Procedures require the Survey Team to make a full review of the Applicants Quality Assurance Manual/Quality System Manual prior to visiting the Applicants facilities. The review is performed by the full Survey Team on the first day of the Survey.
		The Initial issue or renewal of the ASME Quality System Certificate requires an applicant to demonstrate implementation of its Quality System Program to an ASME Survey Team.
		All demonstrations shall be to the most restrictive class and demonstrate the Applicants knowledge of the Code requirements, i.e. Applicants applying for Class 1, 2, & 3, the demonstration item should be based on Class 1 Code requirements. Demonstrations will include any type of Code activity on items intended to be produced under the ASME Certificate.
		The purpose of the demonstration is to allow the Applicant to provide evidence of their knowledge and requirements of each Certificate

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
		and scope they are requesting. All elements of the Program must be demonstrated.
		The demonstration survey will be conducted in five phases or segments as follows:
		1. Manual Review: Shall be performed by the Survey Team and observers authorized by ASME only, on the first day of the survey.
		2. Entrance Meeting / Facility Tour: Will be held on the second day. The entrance meeting will provide the Applicant and the Survey Team an opportunity to: introduce themselves, review the Certificates and Scopes applied for, and to establish the survey agenda.
		3. Implementation: The Applicant is expected to demonstrate the implementation of the Program on Code work, a demonstration item(s), or a combination or both
		4. Team Closed Meeting: This meeting will be held at the Applicant's facilities prior to the exit meeting. This meeting will be attended only by the Survey Team and observers authorized by ASME. During this meeting the Survey Team will review the results of the survey and vote on the recommendation that the team will present to the Committee on Nuclear Certification (CNC).
		5. Exit Meeting: This meeting will be held with the Applicants management and will review the results of the survey. The Survey Teams recommendation to the Committee on Nuclear Certification (CNC) will be made known.
	SURVEY REVIEW CRITERIA OF THE APPLICANTS QUALITY ASSURANCE MANUAL/QUALITY SYSTEM MANUAL FOR QSC CERTIFICATE	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	NCA-3851 RESPONSIBILITY AND ORGANIZATION	
	NCA-3851.1 General	
	(a) The Material Organization shall establish a Quality System Program for the control of quality during manufacture or during other work it proposes to perform, and for the traceability of material or source material under its control. The Program shall be planned, documented, implemented, and maintained in accordance with the requirements of NCA-3850.	
	(b) The establishment of the Program shall include consideration of the technical aspects and provide for planning and accomplishment of activities affecting quality. The Program shall provide for any special controls, processes, test equipment, tools, and skills to attain the required quality and for verification of quality.	
	NCA-3851.2 Scope and Applicability	
	(a) The Quality System Manual shall define the specific activities included in the scope of the work the Material Organization proposes to perform, including any combination of (1) operations performed during the melting and heat analysis, affecting the mechanical properties, conversion from one product form into another product form including applicable dimensional requirements, and certification to the applicable material specification (2) testing, examination, repair, or treatments required by the material specification or the specific applicable material requirements of this Section and certification of the results of such tests, examinations, repairs, or treatments (3) receipt, identification, verification, handling,	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	storage, and shipment of material or source material (4) qualification of Material Organizations permitted by NCA-3820(b), including control of shipments of material from Qualified Material Organizations to parties other than the party performing the qualification (5) approval and control of suppliers of source material or subcontracted services (NCA-3855.3) (6) utilization of unqualified source material (NCA-3855.5)	
	(b) The Program shall include measures to comply with all requirements of this Subarticle, to the extent necessary to assure compliance with the requirements of this Section.	
1.1 General	**NCA-3851.3 Organization**	
This document is intended for any organization which supplies product or services within nuclear industry. It is emphasized that the requirements specified in this document are complementary (not alternative) to contractual and applicable statutory and regulatory requirements. Should there be a conflict between the requirements of this document and applicable statutory or regulatory requirements, the latter shall take precedence.	(a) The organizational structure for executing the Program may take various forms, provided the persons and organizations assigned the quality assurance functions have the required authority and organizational freedom.	
	(c) The organizational structure, functional responsibilities, levels of authority, and lines of communication for activities affecting quality shall be documented. Persons or organizations responsible for assuring that an appropriate Quality System Program has been established and verifying that activities affecting quality have been correctly performed shall have sufficient authority,	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	access to work areas, and organizational freedom to (1) identify quality problems (2) initiate, recommend, or provide solutions to quality problems through designated channels (3) verify implementation of solutions (4) assure that further processing, delivery, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred	
5.1. Management commitment		
Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by: f) ensuring a common understanding of the key aspects of safety culture within the organization, g) providing the means by which the organization continually seeks to develop and improve its safety culture.		
d) the organizational independence to resolve quality management issues.		
	(b) Persons or organizations responsible for defining and measuring the overall effectiveness of the Program shall (1) be designated (2) be sufficiently independent from the pressures of production (3) have direct access to responsible management at a level where appropriate action can be initiated (4) report regularly on the effectiveness of the Program (d) Individuals or groups assigned the responsibility of checking, auditing, or otherwise verifying that production and quality control	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	activities have been correctly performed, shall be independent of the individual or group directly responsible for performing the specific activity. Such persons shall not report directly to the supervisor with immediate responsibility for the work being verified.	
	(e) Management shall regularly review the status and adequacy of the Program.	
5.5.1. Responsibility and authority		
The organization shall retain overall responsibility for the management system when an external organization is involved in the work of developing all or part of the management system.		
4.2.2. Quality manual	**NCA-3853.1 Quality System Manual**	
	(a) The Quality System Program shall be described and summarized in a Quality System Manual that shall be a major basis for demonstration of compliance with the rules of this Section.	
	(b) The Program documented in the Manual shall be implemented by written procedures that are maintained either separately or in the Quality System Manual.	
	(c) Detailed technical procedures and processes, such as those for nondestructive examination, are not considered part of the Manual; however, the controls of such procedures and processes shall be covered by the Manual.	
8.2.1. Customer satisfaction Information to be monitored and used for the evaluation of customer satisfaction shall include, but is not limited to, product conformity, on-time delivery performance, customer complaints, corrective action requests and implementation of safety culture The organization shall develop and implement plans for customer satisfaction improvement that address		

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
deficiencies identified by these evaluations, and assess the effectiveness of the results.		
5.4.2. Quality management system planning NOTE: Organizational changes shall be evaluated and classified according to their importance to safety and each change shall be justified. The implementation of such changes should be planned, controlled, communicated, monitored and recorded to ensure that nuclear safety is not compromised.		
6. RESOURCE MANAGEMENT	**NCA-3852.1 Indoctrination, Training, and Qualification of Personnel**	
6.1. Provision of resources Information and knowledge of the organization shall be managed as a resource.	(a) Measures shall be established to assure that all personnel performing or managing activities affecting quality are indoctrinated and trained. The assignment of personnel shall be at the discretion of the organization's management. Indoctrination and training measures shall reflect the following requirements:	
6.2.1. General		
Personnel involved in the realization of the product shall be trained on the importance of their tasks and of the eventual consequences on the nuclear safety of any malfunction or error in their activities.	(1) Personnel to be indoctrinated or trained shall be identified. (2) The extent of indoctrination and training shall be commensurate with the scope, complexity, and nature of the activity as well as the education, experience, and proficiency of the person. (3) Personnel shall be indoctrinated in the general criteria, applicable codes, standards, company procedures, Quality System Program requirements, job responsibilities and authority as they relate to a particular function.	
6.2.2. Competence, qualification, training and awareness		
The organization shall: b) where applicable, provide training or take other actions, as maintenance of proficiency, to achieve		

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
the necessary competence, f) assess the adequacy of the personnel with the expected or required competence.		
The organization shall designate activities that require qualification of personnel and the minimum requirements for such personnel. Provisions shall be taken to define competent personnel able to elaborate, verify and approve documents issued in foreign languages. A list of these personnel shall be established and maintained. A documented procedure shall be defined for qualification of such personnel.	(4) Training shall be provided, as needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, and job responsibilities.	
8.2.2. Internal audit		
The organization shall qualify auditors according to a documented procedure including qualification criteria. The organization shall maintain and periodically review auditor qualification. Records of qualification shall be maintained		
	(b) All nondestructive examination personnel shall be qualified in accordance with para. NB-/NC-/ND-/ NE-/NF-/NG-5521 of the applicable Subsection.	
	(c) Personnel who lead audits shall be qualified on the basis of education, experience, training, audit participation, and examination in accordance with the organization's Quality System Program.	
	NCA-3852.2 Personnel Records	
	(a) Records shall be maintained of the implementation of indoctrination and training of personnel. Records of indoctrination and training may take the form of attendance sheets, training logs, or personnel training records. (c) Qualification records of personnel who lead audits shall be documented and maintained and shall include education, experience, audit training	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	and examination, and audit participation used as the basis of qualification.	
	(b) Qualification records of all nondestructive examination personnel shall be documented and maintained.	
	NCA-3853 Program Documentation NCA-3853.1 Quality System Manual	
	(a) The Quality System Program shall be described and summarized in a Quality System Manual that shall be a major basis for demonstration of compliance with the rules of this Section. (b) The Program documented in the Manual shall be implemented by written procedures that are maintained either separately or in the Quality System Manual. (c) Detailed technical procedures and processes, such as those for nondestructive examination, are not considered part of the Manual; however, the controls of such procedures and processes shall be covered by the Manual.	
	NCA-3855.4 Procurement Document Control	
	(a) Procurement documents shall include requirements necessary to assure compliance with the requirements of this Section.	
	(b) Except as provided in NCA-3855.5, procurement documents shall require material, source material, or subcontracted services to be furnished in accordance with the applicable requirements of this sub-article.	
7.4.2.1. Content of the procurement documents		
Purchasing information shall describe the product to be purchased and its corresponding scope of work, including, where appropriate: - flow down to the supply chain the relevant requirements including customer requirements, i) records retention requirements		

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
7.4.2.1. Content of the procurement documents		
d) technical requirements : identification, revision and, if appropriate, status of specifications, drawings, codes, standards, regulations, process requirements, and other relevant technical data		
7.4.2.1. Content of the procurement documents e) requirements for design, test, inspection and surveillance (including instructions and acceptance criteria) for determining acceptance of the product and, as applicable, critical characteristics		
7.4.2.1. Content of the procurement documents	(c) Procurement documents shall require approved suppliers to reference the accepted quality system or controls established by the Material Organization or Certificate Holder on documentation that accompanies the source material or services furnished. (d) Procurement documents that specify quality requirements or prescribe activities affecting quality shall be reviewed for adequacy and approved for release by authorized personnel.	
c) quality management system requirements consistent with nuclear safety classification and/or impact on final quality of the product		
7.4.2.1. Content of the procurement documents		
j) right of access by the organization, their customers, third party organizations, Regulatory Bodies, and/ or their respective representatives, to the applicable areas of all facilities, at any level of the supply chain, involved in the order and to all applicable records.		
7.4.2.1. Content of the procurement documents		
f) identification of the documentation that the supplier has to submit for information, review or approval		
7.4.2.1. Content of the procurement documents		

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
h) requirements regarding the need for the supplier to: - notify the organization of nonconforming product, - obtain organization approval for nonconforming product disposition		
7.4.2.1. Content of the procurement documents		
g) requirements to identify spare parts and the related data required for ordering these spare parts,		
7.4.2.2. Procurement document review		
The organization shall ensure by a review of the procurement document, the adequacy of specified purchase requirements prior to their communication to the supplier. Procurement document review shall be performed by competent personnel, other than those who issued the procurement document, and recorded.		
h) requirements regarding the need for the supplier to notify the organization of changes in product and/or process, changes of suppliers, changes of manufacturing facility location and, where required, obtain organization approval		
7.4.2.3. Procurement document changes		
Procurement document changes affecting the technical or quality requirements shall be subject to the same process and control as utilized in the preparation of the original documents		
	NCA·3853.2 Procedures, Instructions, and Drawings	
	(a) Activities affecting quality shall be prescribed by and performed in accordance with documented instructions, procedures, or drawings of a type appropriate to the circumstances. (b) These documents shall include or reference appropriate acceptance criteria for determining that the prescribed activities have been satisfactorily completed.	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	NCA·3853.3 Document Control	
4.2.3. Control of documents		
Changes to documents shall be reviewed, recorded and shall be subject to the same level of approval as the documents themselves.	The preparation, issue, and change of documents that specify quality requirements or prescribe activities affecting quality, such as Quality System Program Manuals, purchase specifications, instructions, procedures, and drawings shall be controlled to assure that the correct documents are being used at the location where the activity is performed. Such documents, including changes thereto, shall be reviewed for adequacy and approved for release by authorized personnel.	
The individual who performs the verification must be other than those who have prepared, issued or changed the document.		
	NCA-3855 Control of Purchased Materials, Source Materials, and Services	
	NCA-3855.1 General	
	(a) Measures shall be established to assure that all purchased material, source material, and subcontracted services conform to the requirements of this Section.	
	(b) Welding material used in the repair of material or source material shall be controlled in accordance with this Section. (c) These measures shall be designed to prevent the use of incorrect or defective material or source material, or materials that have not received the required examinations or tests.	
	NCA-3855.2 Sources of Material, Source Material, and Services	
	(a) Material shall be furnished by a Material Organization [NCA-3820(a) or NCA-3820(b)], or by a Certificate Holder [NCA-3820(c)].	
	(b) Except as provided in NCA-3855.5, source material shall be furnished by a Material	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	Organization, by an approved supplier (NCA-3855.3), or by a Certificate Holder.	
	NCA-3855.5 Utilization of Unqualified Source Material	
	(a) As an alternative to NCA-3855.2(b), when included in its scope of activities as permitted by the provisions of this Subarticle, a Material Organization may accept certification of the requirements of the material specification that must be performed during the melting, heat analysis, and heat treatment of the material, and may use or furnish unqualified source material, provided the requirements of NCA-3855.5(a)(1) through (a)(4) below are met. (1) No welding with filler metal has been performed on the unqualified source material. (2) The Material Organization performs or subcontracts a product analysis to verify the chemical composition of each piece of unqualified source material. (3) The Material Organization performs or subcontracts all other requirements of the material specification on each piece of unqualified source material. Where Certificates of Compliance [NCA-3862.l(g)] are acceptable, testing of each piece is not required. Alternatively, the Material Organization may perform or subcontract all other requirements of the material specification on each heat and lot of unqualified source material provided (a) a Certified Material Test Report is provided with the unqualified source material (b) the unqualified source material is traceable to the Certified Material Test Report (c) procurement documents require that suppliers of unqualified source material establish written procedures for identifying source materials in a	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	manner that provides traceability to the Certified Material Test Report (d) the Material Organization reviews and accepts the supplier's identification and traceability procedures and verifies compliance with the procedures at a frequency commensurate with the schedule of production or procurement, but at least once triennially (e) upon receipt, the Material Organization shall verify by review of objective evidence, that the requirements of the procurement document have been met (4) The provisions of (a)(l) through (a)(3) above are performed in accordance with the Material Organization's Quality System Program. (b) The provisions of (a)(l) through (a)(3) above may be performed by the Certificate Holder in accordance with his Quality Assurance Program.	
	(c) Services including performance and certification of operations, processes, the results of tests, examinations, repairs, or treatments required by the material specification or by this Section shall be furnished by a Material Organization, by an approved supplier, or by a Certificate Holder.	
7.4.1. Purchasing process	**NCA-3855.3 Approval and Control of Suppliers of Source Material and Services**	
The organization shall be responsible for the conformity of all products purchased from suppliers, including product from sources defined by the customer. Anyone involved in the supply chain shall take the required measures in the purchasing data to ensure that the customer’s requirements are transmitted to the suppliers. Furthermore, the supplier at every level of the supply chain has to verify that requirements have	(a) The Material Organization or Certificate Holder shall be responsible for the approval of and control of activities performed by suppliers of source materials and subcontracted services. Such control shall provide for source evaluation and selection, evaluation of objective evidence of quality, audit, and examination of items and services upon delivery, in accordance with requirements documented in the Material Organization's or Certificate Holder's Program.	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
been taken into account and implemented in order to ensure the product acceptance.		
The organization shall evaluate and select suppliers, based on their ability to supply product in accordance with the organization's requirements (at least, taking into account technical, quality and safety aspects), and: a) define the process, responsibilities and authority for: - the approval status decision, - the change of the approval status. b) define the necessary actions to implement in case of selection of commercial grade item supplier. c) periodically review supplier performance; the results of these reviews shall be used as a basis for establishing the monitoring level to be implemented. d) maintain a register of approved suppliers. When a supplier does not meet applicable requirements of this document, partial or complete substitution by the organization quality system to the supplier's one shall be ensured. Information of this substitution shall be made available up to the Contractor.	(b) The Material Organization or Certificate Holder shall be responsible for establishing and verifying that the supplier's controls applicable to the activities performed are adequate by (1) surveying and auditing the supplier's established quality system that is consistent with the requirements of this Subartic1e, or (2) having the supplier perform the activities in accordance with controls established by the Material Organization's or Certificate Holder's Program.	
	(c) As an alternative to survey and audit of suppliers A09 of subcontracted calibration services, a Material Organization or Certificate Holder may accept accreditation by National Voluntary Laboratory Accreditation Program (NVLAP), American Association for Laboratory Accreditation (A2LA), or other accrediting body recognized by NVLAP through the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA), provided the following requirements are met: (1) The accreditation is to ANSI/ISO/IEC 17025:2005, "General Requirements for the Competence of Testing and Calibration Laboratories."	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	(2) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties. (3) The Material Organization or Certificate Holder shall specify through procurement documents that the calibration certificate/report shall include identification of the laboratory equipment/standards used and shall include as-found and as-left data. (4) The Material Organization or Certificate Holder shall be responsible for reviewing objective evidence for conformance to the procurement documents. (5) This activity shall be documented in the Material Organization's or Certificate Holder's Quality Program Manual.	
	(d) The Material Organization or Certificate Holder shall be responsible for assuring that all material and activities conform to all applicable requirements of this Section.	
7.4.3. Verification of purchased product		
Any verification activity shall be planned, documented and recorded. **NOTE**: Customer verification activities performed at any level of the supply chain should not be used by the organization or the supplier as evidence of effective monitoring of quality and does not absolve the organization or the supplier of their responsibility to provide acceptable product compliant with all requirements. Organization, customer, licensee, third party organizations, Regulatory Bodies, and/or their respective representatives, may reserve the right to verify throughout the supply chain that products and quality management system comply with specified purchasing requirements.		

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	NCA-3856 Identification, Marking, and Material Control	
	NCA-3856.1 General	
7.5.3. Identification and traceability	(a) Control shall be established to assure that only correct and accepted material or source material is used. Identification shall be maintained on these materials or on documents traceable to these materials, or in a manner that assures that the identification is established and maintained.	
	(b) Measures shall be established for controlling and identifying material or source material, including that which is partially processed, throughout the manufacturing process, during the performance of tests, examinations, repairs, and treatments, and during receipt, storage, handling, and shipment.	
	(c) Identification marking shall be transferred to all pieces when material or source material is divided.	
	NCA-3856.2 Marking Method	
	Materials and source materials shall be marked by any method acceptable to the purchaser that will not result in harmful contamination or sharp discontinuities and will identify these materials in accordance with the material specification.	
	NCA-3856.3 Identification of Completed Material	
	(a) The identification of completed material shall consist of marking the material with the applicable specification and grade of the material, the heat number or heat code of the material, and any additional marking required by this Section to facilitate traceability of the material to reports of the results of all tests and examinations performed on the material. (b) For those materials where Certificates of Compliance [NCA-3862.l(g)] are allowed, heat-	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	number identification need not be indicated on the material or the certificate. (c) A marking symbol or code may be used that identifies the material, provided such code or symbol is explained in the Certified Material Test Report (NCA-3862.l) or Certificate of Compliance [NCA-3862.l (g)), as applicable. (d) All requirements of the material specification shall be met except where specifically exempted or superseded by a provision of this Section. When special requirements or provisions of this Section conflict with the requirements of the material specification, the material specification and grade number shall be followed with an asterisk (*) to indicate that the material specification has been revised as shown on the material certification. (e) For nonferrous materials manufactured in accordance with material specifications that do not provide for heat identification, the material shall be marked with a symbol or code that identifies the lot, as defined in the material specification, with the Certified Material Test Report. (f) Except as required by the material specification, bolts and nuts 1 in. (25 mm) nominal diameter and smaller and other products where the largest space available for marking is less than 1 in. (25 mm) in anyone direction need not be individually marked, provided they are packed in packages or containers that shall be clearly identified by legible marking to ensure positive identification of the material. The markings on the containers shall identify the material with the Certificate of Compliance [NCA-3862.l(g)] or Certified Material Test Report (NCA-3862.l), as applicable.	
	NCA-3856.4 Welding and Brazing Materials Identification	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	Welding and brazing materials shall be clearly identified by legible marking on the package or container to ensure positive identification of the material. The marking shall include the heat or lot number as applicable, a control marking code that identifies the material with the Certified Material Test Report (NCA-3862.1), and other information such as specification, grade and classification number, Material Organization's name, and trade designation.	
	NCA-3857 Process Control	
7.5.1. Control of production and service provision	**NCA-3857.1 General**	
The organization shall plan and carry out production and service provision under controlled conditions.	Processes affecting quality of materials, source materials, or services shall be controlled. Special processes that control or verify quality, such as those used in welding, heat treating, or nondestructive examination, shall be performed by qualified personnel using qualified procedures in accordance with specific requirements.	
	NCA-3857.2 Manufacturing Process Control	
	Operations shall be performed under a controlled system such as process sheets, shop procedures, checklists, travelers, or equivalent procedures. Measures shall be established to ensure that processes, including heat treatment, are controlled in accordance with the material specification and the rules of this Section.	
	NCA-3857.3 Welding	
	When welding is required in the repair of material or source material, it shall be performed in accordance with procedures and by welders or welding operators qualified in accordance with this Section and Section IX. The qualification of procedures and welders or welding operators shall be documented.	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
7.5.1.2. Control of production equipment, tools and computer programs		
Production equipment, tools and computer programs used to automate and control/monitor product realization processes, shall be validated prior to release for production and shall be maintained. Storage requirements, including periodic preservation/condition checks, shall be defined for production equipment or tooling in storage.		
	NCA-3858 Control of Examinations, Tests, and Nonconforming Material	
	NCA-3858.1 Inspection, Examination, and Test Control	
	(a) Inspections, examinations, and tests shall be established to assure conformance with the requirements of the material specification and this Section.	
7.5.1.3. Inspection and surveillance activities		
The methods used for inspection and surveillance shall be defined.	(b) Inspections or examinations required to verify conformance of material, source material, or an activity to specified requirements shall be planned. Characteristics to be inspected or examined, and inspection or examination methods to be employed, shall be specified. Inspection or examination results shall be documented.	
These activities shall be planned and performed by competent personnel other than those who carried out the work.		
7.5.1.3. Inspection and surveillance activities		
Appropriate records shall be established, maintained and, as a minimum, identify the following:		
- item inspected,		
- date of inspection or surveillance		
- identification of personnel who performs the inspection or surveillance		
- activity surveyed, - statements' details,		

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
- results or acceptability,		
- if necessary, follow up actions.		
	NCA-3858.1 Inspection, Examination, and Test Control	
	(c) Tests required to verify conformance to specified requirements shall be planned. Characteristics to be tested and test methods to be employed shall be specified. Test results shall be documented and their conformance with acceptance criteria shall be evaluated.	
	NCA-3858.2 Control of Measuring and Test Equipment	
7.6. Control of monitoring and measuring equipment		
The organization shall maintain a register of the monitoring and measuring equipment and define the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.	(a) Procedures shall be in effect to assure that tools, gages, instruments, and other measuring and testing devices used to verify compliance with the material specification and this Section are calibrated and properly adjusted at specific periods or use intervals to maintain accuracy within necessary limits. Periodic checks on equipment may be performed to determine that calibration is maintained.	
7.6. Control of monitoring and measuring equipment		
Selection of measuring and test equipment shall be based at least on their measuring range and measurement accuracy having regard to the tolerance specified.		
7.6. Control of monitoring and measuring equipment		
Calibration /verification method shall be based against standards. Where no such standard exists the basis for calibration/verification shall be defined.	(b) Calibration shall be against certified equipment having known valid relationships and documented traceability to nationally recognized standards, where such standards exist. If no known nationally recognized standards exist, the basis for	

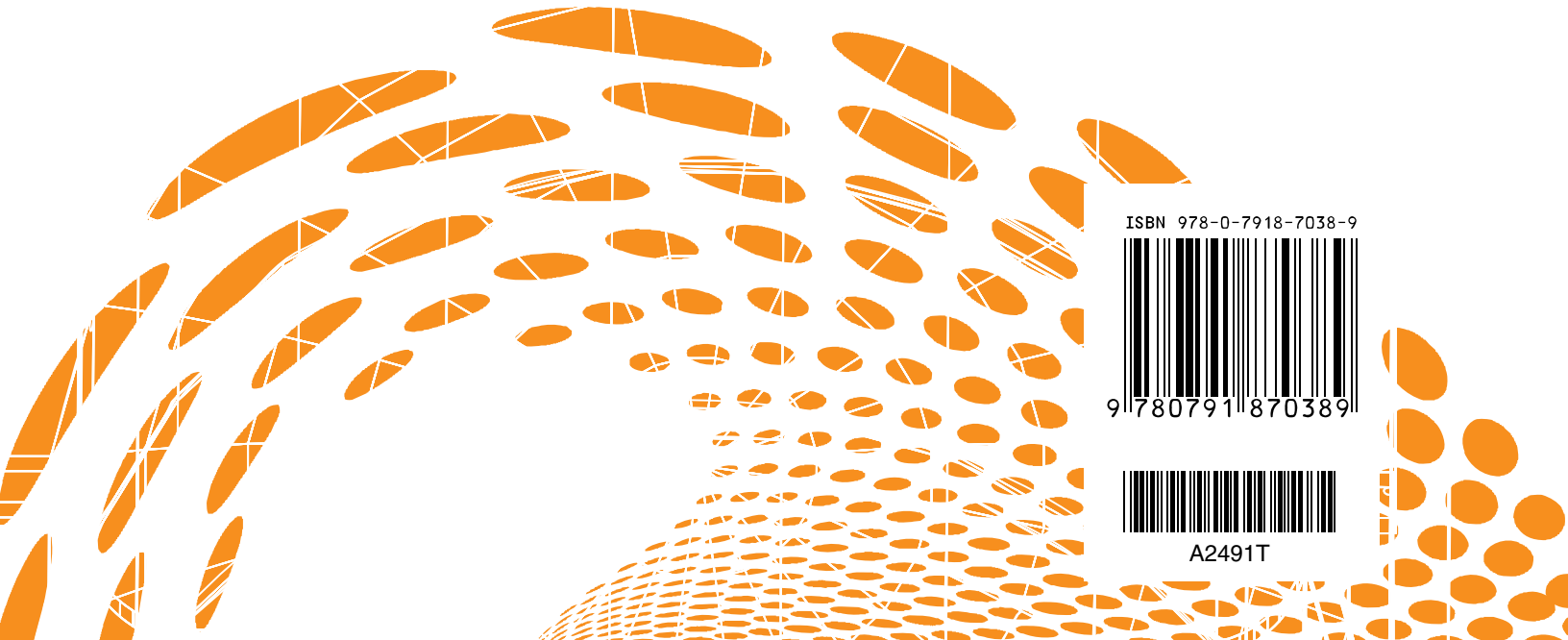
Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	calibration shall be documented.	
7.6. Control of monitoring and measuring equipment		
The organization shall maintain a register of the monitoring and measuring equipment and define the process employed for their calibration/verification including details of equipment type, unique identification, location, frequency of checks, check method and acceptance criteria.		
In order to avoid use of monitoring and measuring equipment, which are non-conform or requiring calibration/verification, the organization shall: - Implement and maintain a process for the recall of such equipment, - Identify and/or segregate or remove from service such equipment.		
	NCA-3858.3 Discrepancies in Measuring or Testing Equipment	
	(a) When discrepancies in excess of tolerances for measuring or testing equipment are found at calibration, appropriate corrective action shall be taken, and material measured or tested since the previous calibration shall be reviewed to determine that all applicable requirements have been met.	
	(b) When periodic checks on equipment are performed to determine that calibration is maintained, potential material or source material discrepancies need only be resolved to the previous check, provided (1) the methods used and frequency of periodic checking are described in calibration procedures, and (2) the calibration discrepancy was found by periodic check.	
7.6. Control of monitoring and measuring equipment		

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
The organization shall ensure that environmental conditions are suitable for the calibration, inspection, measurement and testing being carried out.		
	NCA-3858.2 Control of Measuring and Test Equipment	
	(c) Control measures shall include provisions for measuring and test equipment identification and for determining calibration status by equipment marking or on records traceable to the equipment.	
	NCA-3857.4 Handling, Storage, Shipping, and Preservation	
	Instructions shall be established for handling, storage, shipping, and preservation of material or source material to prevent damage or deterioration.	
	NCA-3858.4 Inspection And Test Status	
	Measures shall be established so that the status and results of any required inspections, examinations, or tests can be determined at any time.	
	Status shall be maintained through indicators such as physical location and tags, marking, shop travelers, stamps, inspection records, or other suitable means.	
	The authority for application and removal of such indicators shall be specified.	
8.3. Control of nonconforming product	**NCA-3858.5 Control of Nonconforming Material**	
NOTE: The term "nonconforming product" includes nonconforming product returned by a customer. The following way may be used by the organization to deal with nonconforming product: e) by taking actions necessary to contain the effect of the nonconformity on other processes or products.	(a) Adequate control measures shall be established to prevent the use of material that does not conform to the requirements of the material specification and this Section.	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
When the characteristics of the product along the supply chain are not conforming with specified requirements, a nonconformity shall be reported.		
Products and processes that do not conform to the specified requirements shall be timely identified, segregated, controlled, recorded and reported to an appropriate level of management within the organization. Nonconformity shall be timely reported in compliance with the customer requirements.	(b) Material or source material with nonconformances shall be identified, segregated when practical, and reviewed for acceptance, rejection, or repair in accordance with documented procedures. The responsibility and authority for the disposition of nonconformances in these materials shall be defined.	
	(d) Measures that control further processing of nonconforming or defective material or source material, pending a decision on its disposition, shall be established and maintained. These control measures shall extend to notification of other affected organizations, as appropriate.	
Where applicable, justifications of use-as-is or provisions for repair shall be submitted to customer for approval. Product intended for scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.		
	(c) Repaired material or source material shall be reexamined in accordance with applicable procedures.	
	NCA-3859.2 Corrective Action	
8.5.2. Corrective action		
A documented procedure shall be established to define requirements for: g) flowing down corrective action requirements to a supplier when it is determined that the supplier is responsible for the nonconformity, h) determining specific actions, where timely and/or effective corrective actions are not achieved, and i) determining if additional nonconforming product exists, based on the causes of the nonconformity and	(a) Measures shall be established to assure that conditions adverse to quality such as failures, malfunctions, deviations, defective material and equipment, non-conformances, and quality system deficiencies, are promptly identified and reported to appropriate levels of management. The measures shall also assure that the cause of conditions adverse to established quality levels be determined and corrected.	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
taking further action when required. Records shall be maintained to demonstrate the completion of any stage of corrective action procedure.	(b) The identification of significant or reoccurring conditions adverse to quality, the cause of condition, and the corrective action taken shall be documented and reported to appropriate levels of management. (c) These requirements shall also extend to the performance of the approved supplier's corrective action measures.	
	NCA-3853.4 Quality Assurance Records	
4.2.4. Control of records		
The documented procedure shall define the method for controlling records that are created by and/or retained by suppliers.		
	Records that furnish documentary evidence of quality shall be specified, prepared, controlled, and maintained. Records shall be legible, identifiable. and retrievable. Records shall be protected against damage, deterioration, or loss. Requirements and responsibilities for record transmittal, distribution, retention, maintenance, and disposition shall be established and documented.	
	NCA-3853.5 Records of Examinations and Tests	
	All characteristics required to be reported by the material specification and this Section shall be verified and the results recorded. Records shall be traceable to the document and revision to which an inspection, examination, or test was performed.	
Retention time must be in accordance with legal or customer requirements.		
	NCA-3859.1 Audits	
8.2.2. Internal audit		
Planned arrangements for internal audit shall include specific quality assurance programs or plans.	(a) Audits shall be performed in accordance with written procedures or checklists by personnel not having direct responsibility in the areas being audited.	

Certification Comparison Section III NCA 3850 and NSQ 100		
NSQ 100 Certification Program	**NCA-3850 2013 Quality System Program Requirements**	**QMS Certification Requirements NCA 3800**
	(d) In addition to audits of Material Organizations and suppliers, a comprehensive system of planned and periodic internal audits shall be carried out to assure compliance with all aspects of the Quality System Program and to determine the effectiveness of the Program. (e) Internal audits shall be performed in accordance with the requirements of (a) through (c) above.	
	(b) Audit results shall be documented by auditing personnel for review by management having responsibility in the area being audited	
	(c) Procedures shall include provisions for documentation of corrective action taken in response to deficiencies. Follow-up action, including re-audit of deficient areas where indicated, shall be taken to verify implementation of such corrective actions.	
8.2.2. Internal audit		
Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities including safety culture.		
8.2.2. Internal audit		
Auditors shall not audit their own work and shall be appointed by personnel independent of the audited activity.		



ISBN 978-0-7918-7038-9

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