ASME BPVC.III.NCA-2015

SECTION III

Rules for Construction of Nuclear Facility Components

2015 ASME Boiler and Pressure Vessel Code

An International Code

Subsection NCA

General Requirements for Division 1 and Division 2

ACI Standard 359-15

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AN INTERNATIONAL CODE

2015 ASME Boiler & Pressure Vessel Code

2015 Edition July 1, 2015

(ACI Standard 359-15)

III

RULES FOR CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS

Subsection NCA

General Requirements for Division 1 and Division 2

ASME Boiler and Pressure Vessel Committee
on Nuclear Power

ACI-ASME Joint Technical Committee

The American Society of Mechanical Engineers

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[*] The 2015 Edition of Section III is the last edition in which Section III, Division 1, Subsection NH, *Class 1 Components in Elevated Temperature Service*, will be published. The requirements located within Subsection NH have been moved to Section III, Division 5, Subsection HB, Subpart B for the elevated temperature construction of Class A components.

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INTERPRETATIONS

Interpretations of the Code have historically been posted in January and July at http://cstools.asme.org/interpretations.cfm. Interpretations issued during the previous two calendar years are included with the publication of the applicable Section of the Code in the 2015 Edition. Interpretations of Section III, Divisions 1 and 2 and Section III Appendices are included with Subsection NCA.

Following the 2015 Edition, interpretations will not be included in editions; they will be issued in real time in ASME's Interpretations Database at http://go.asme.org/Interpretations. Historical BPVC interpretations may also be found in the Database.

CODE CASES

The Boiler and Pressure Vessel Code committees meet regularly to consider proposed additions and revisions to the Code and to formulate Cases to clarify the intent of existing requirements or provide, when the need is urgent, rules for materials or constructions not covered by existing Code rules. Those Cases that have been adopted will appear in the appropriate 2015 Code Cases book: “Boilers and Pressure Vessels” or “Nuclear Components.” Supplements will be sent or made available automatically to the purchasers of the Code Cases books up to the publication of the 2017 Code.

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FOREWORD*

In 1911, The American Society of Mechanical Engineers established the Boiler and Pressure Vessel Committee to formulate standard rules for the construction of steam boilers and other pressure vessels. In 2009, the Boiler and Pressure Vessel Committee was superseded by the following committees:

(a) Committee on Power Boilers (I)

(b) Committee on Materials (II)

(c) Committee on Construction of Nuclear Facility Components (III)

(d) Committee on Heating Boilers (IV)

(e) Committee on Nondestructive Examination (V)

(f) Committee on Pressure Vessels (VIII)

(g) Committee on Welding, Brazing, and Fusing (IX)

(h) Committee on Fiber-Reinforced Plastic Pressure Vessels (X)

(i) Committee on Nuclear Inservice Inspection (XI)

(j) Committee on Transport Tanks (XII)

(k) Technical Oversight Management Committee (TOMC)

Where reference is made to "the Committee" in this Foreword, each of these committees is included individually and collectively.

The Committee's function is to establish rules of safety relating only to pressure integrity, which govern the construction** of boilers, pressure vessels, transport tanks, and nuclear components, and the inservice inspection of nuclear components and transport tanks. The Committee also interprets these rules when questions arise regarding their intent. The technical consistency of the Sections of the Code and coordination of standards development activities of the Committees is supported and guided by the Technical Oversight Management Committee. This Code does not address other safety issues relating to the construction of boilers, pressure vessels, transport tanks, or nuclear components, or the inservice inspection of nuclear components or transport tanks. Users of the Code should refer to the pertinent codes, standards, laws, regulations, or other relevant documents for safety issues other than those relating to pressure integrity. Except for Sections XI and XII, and with a few other exceptions, the rules do not, of practical necessity, reflect the likelihood and consequences of deterioration in service related to specific service fluids or external operating environments. In formulating the rules, the Committee considers the needs of users, manufacturers, and inspectors of pressure vessels. The objective of the rules is to afford reasonably certain protection of life and property, and to provide a margin for deterioration in service to give a reasonably long, safe period of usefulness. Advancements in design and materials and evidence of experience have been recognized.

This Code contains mandatory requirements, specific prohibitions, and nonmandatory guidance for construction activities and inservice inspection and testing activities. The Code does not address all aspects of these activities and those aspects that are not specifically addressed should not be considered prohibited. The Code is not a handbook and cannot replace education, experience, and the use of engineering judgment. The phrase *engineering judgement* refers to technical judgments made by knowledgeable engineers experienced in the application of the Code. Engineering judgments must be consistent with Code philosophy, and such judgments must never be used to overrule mandatory requirements or specific prohibitions of the Code.

The Committee recognizes that tools and techniques used for design and analysis change as technology progresses and expects engineers to use good judgment in the application of these tools. The designer is responsible for complying with Code rules and demonstrating compliance with Code equations when such equations are mandatory. The Code neither requires nor prohibits the use of computers for the design or analysis of components constructed to the

* The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. Therefore, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Code.

** *Construction*, as used in this Foreword, is an all-inclusive term comprising materials, design, fabrication, examination, inspection, testing, certification, and pressure relief.

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requirements of the Code. However, designers and engineers using computer programs for design or analysis are cautioned that they are responsible for all technical assumptions inherent in the programs they use and the application of these programs to their design.

The rules established by the Committee are not to be interpreted as approving, recommending, or endorsing any proprietary or specific design, or as limiting in any way the manufacturer's freedom to choose any method of design or any form of construction that conforms to the Code rules.

The Committee meets regularly to consider revisions of the rules, new rules as dictated by technological development, Code Cases, and requests for interpretations. Only the Committee has the authority to provide official interpretations of this Code. Requests for revisions, new rules, Code Cases, or interpretations shall be addressed to the Secretary in writing and shall give full particulars in order to receive consideration and action (see Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees). Proposed revisions to the Code resulting from inquiries will be presented to the Committee for appropriate action. The action of the Committee becomes effective only after confirmation by ballot of the Committee and approval by ASME. Proposed revisions to the Code approved by the Committee are submitted to the American National Standards Institute (ANSI) and published at http://go.asme.org/BPVCPublicReview to invite comments from all interested persons. After public review and final approval by ASME, revisions are published at regular intervals in Editions of the Code.

The Committee does not rule on whether a component shall or shall not be constructed to the provisions of the Code. The scope of each Section has been established to identify the components and parameters considered by the Committee in formulating the Code rules.

Questions or issues regarding compliance of a specific component with the Code rules are to be directed to the ASME Certificate Holder (Manufacturer). Inquiries concerning the interpretation of the Code are to be directed to the Committee. ASME is to be notified should questions arise concerning improper use of an ASME Certification Mark.

When required by context in this Section, the singular shall be interpreted as the plural, and vice versa, and the feminine, masculine, or neuter gender shall be treated as such other gender as appropriate.

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STATEMENT OF POLICY ON THE USE OF THE CERTIFICATION MARK AND CODE AUTHORIZATION IN ADVERTISING

ASME has established procedures to authorize qualified organizations to perform various activities in accordance with the requirements of the ASME Boiler and Pressure Vessel Code. It is the aim of the Society to provide recognition of organizations so authorized. An organization holding authorization to perform various activities in accordance with the requirements of the Code may state this capability in its advertising literature.

Organizations that are authorized to use the Certification Mark for marking items or constructions that have been constructed and inspected in compliance with the ASME Boiler and Pressure Vessel Code are issued Certificates of Authorization. It is the aim of the Society to maintain the standing of the Certification Mark for the benefit of the users, the enforcement jurisdictions, and the holders of the Certification Mark who comply with all requirements.

Based on these objectives, the following policy has been established on the usage in advertising of facsimiles of the Certification Mark, Certificates of Authorization, and reference to Code construction. The American Society of Mechanical Engineers does not "approve," "certify," "rate," or "endorse" any item, construction, or activity and there shall be no statements or implications that might so indicate. An organization holding the Certification Mark and/or a Certificate of Authorization may state in advertising literature that items, constructions, or activities "are built (produced or performed) or activities conducted in accordance with the requirements of the ASME Boiler and Pressure Vessel Code," or "meet the requirements of the ASME Boiler and Pressure Vessel Code." An ASME corporate logo shall not be used by any organization other than ASME.

The Certification Mark shall be used only for stamping and nameplates as specifically provided in the Code. However, facsimiles may be used for the purpose of fostering the use of such construction. Such usage may be by an association or a society, or by a holder of the Certification Mark who may also use the facsimile in advertising to show that clearly specified items will carry the Certification Mark. General usage is permitted only when all of a manufacturer's items are constructed under the rules.

STATEMENT OF POLICY ON THE USE OF ASME MARKING TO IDENTIFY MANUFACTURED ITEMS

The ASME Boiler and Pressure Vessel Code provides rules for the construction of boilers, pressure vessels, and nuclear components. This includes requirements for materials, design, fabrication, examination, inspection, and stamping. Items constructed in accordance with all of the applicable rules of the Code are identified with the official Certification Mark described in the governing Section of the Code.

Markings such as "ASME," "ASME Standard," or any other marking including "ASME" or the Certification Mark shall not be used on any item that is not constructed in accordance with all of the applicable requirements of the Code.

Items shall not be described on ASME Data Report Forms nor on similar forms referring to ASME that tend to imply that all Code requirements have been met when, in fact, they have not been. Data Report Forms covering items not fully complying with ASME requirements should not refer to ASME or they should clearly identify all exceptions to the ASME requirements.

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(15) SUBMITTAL OF TECHNICAL INQUIRIES TO THE BOILER AND PRESSURE VESSEL STANDARDS COMMITTEES

1 INTRODUCTION

(a) The following information provides guidance to Code users for submitting technical inquiries to the committees. See Guideline on the Approval of New Materials Under the ASME Boiler and Pressure Vessel Code in Section II, Parts C and D for additional requirements for requests involving adding new materials to the Code. Technical inquiries include requests for revisions or additions to the Code rules, requests for Code Cases, and requests for Code Interpretations, as described below.

(1) Code Revisions. Code revisions are considered to accommodate technological developments, address administrative requirements, incorporate Code Cases, or to clarify Code intent.

(2) Code Cases. Code Cases represent alternatives or additions to existing Code rules. Code Cases are written as a question and reply, and are usually intended to be incorporated into the Code at a later date. When used, Code Cases prescribe mandatory requirements in the same sense as the text of the Code. However, users are cautioned that not all jurisdictions or owners automatically accept Code Cases. The most common applications for Code Cases are:

(-a) to permit early implementation of an approved Code revision based on an urgent need

(-b) to permit the use of a new material for Code construction

(-c) to gain experience with new materials or alternative rules prior to incorporation directly into the Code

(3) Code Interpretations. Code Interpretations provide clarification of the meaning of existing rules in the Code, and are also presented in question and reply format. Interpretations do not introduce new requirements. In cases where existing Code text does not fully convey the meaning that was intended, and revision of the rules is required to support an interpretation, an Intent Interpretation will be issued and the Code will be revised.

(b) The Code rules, Code Cases, and Code Interpretations established by the committees are not to be considered as approving, recommending, certifying, or endorsing any proprietary or specific design, or as limiting in any way the freedom of manufacturers, constructors, or owners to choose any method of design or any form of construction that conforms to the Code rules.

(c) Inquiries that do not comply with these provisions or that do not provide sufficient information for a committee's full understanding may result in the request being returned to the inquirer with no action.

2 INQUIRY FORMAT

Submittals to a committee shall include:

(a) Purpose. Specify one of the following:

(1) revision of present Code rules

(2) new or additional Code rules

(3) Code Case

(4) Code Interpretation

(b) Background. Provide the information needed for the committee's understanding of the inquiry, being sure to include reference to the applicable Code Section, Division, edition, addenda (if applicable), paragraphs, figures, and tables. Preferably, provide a copy of the specific referenced portions of the Code.

(c) Presentations. The inquirer may desire or be asked to attend a meeting of the committee to make a formal presentation or to answer questions from the committee members with regard to the inquiry. Attendance at a committee meeting shall be at the expense of the inquirer. The inquirer's attendance or lack of attendance at a meeting shall not be a basis for acceptance or rejection of the inquiry by the committee.

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3 CODE REVISIONS OR ADDITIONS

Requests for Code revisions or additions shall provide the following:

(a) Proposed Revisions or Additions. For revisions, identify the rules of the Code that require revision and submit a copy of the appropriate rules as they appear in the Code, marked up with the proposed revision. For additions, provide the recommended wording referenced to the existing Code rules.

(b) Statement of Need. Provide a brief explanation of the need for the revision or addition.

(c) Background Information. Provide background information to support the revision or addition, including any data or changes in technology that form the basis for the request that will allow the committee to adequately evaluate the proposed revision or addition. Sketches, tables, figures, and graphs should be submitted as appropriate. When applicable, identify any pertinent paragraph in the Code that would be affected by the revision or addition and identify paragraphs in the Code that reference the paragraphs that are to be revised or added.

4 CODE CASES

Requests for Code Cases shall provide a Statement of Need and Background Information similar to that defined in 3(b) and 3(c), respectively, for Code revisions or additions. The urgency of the Code Case (e.g., project underway or imminent, new procedure, etc.) must be defined and it must be confirmed that the request is in connection with equipment that will bear the Certification Mark, with the exception of Section XI applications. The proposed Code Case should identify the Code Section and Division, and be written as a *Question* and a *Reply* in the same format as existing Code Cases. Requests for Code Cases should also indicate the applicable Code editions and addenda (if applicable) to which the proposed Code Case applies.

5 CODE INTERPRETATIONS

(a) Requests for Code Interpretations shall provide the following:

(1) Inquiry. Provide a condensed and precise question, omitting superfluous background information and, when possible, composed in such a way that a "yes" or a "no" *Reply,* with brief provisos if needed, is acceptable. The question should be technically and editorially correct.

(2) Reply. Provide a proposed *Reply* that will clearly and concisely answer the *Inquiry* question. Preferably, the *Reply* should be "yes" or "no," with brief provisos if needed.

(3) Background Information. Provide any background information that will assist the committee in understanding the proposed *Inquiry* and *Reply.*

(b) Requests for Code Interpretations must be limited to an interpretation of a particular requirement in the Code or a Code Case. The committee cannot consider consulting type requests such as the following:

(1) a review of calculations, design drawings, welding qualifications, or descriptions of equipment or parts to determine compliance with Code requirements;

(2) a request for assistance in performing any Code-prescribed functions relating to, but not limited to, material selection, designs, calculations, fabrication, inspection, pressure testing, or installation;

(3) a request seeking the rationale for Code requirements.

6 SUBMITTALS

Submittals to and responses from the committees shall meet the following:

(a) Submittal. Inquiries from Code users shall be in English and preferably be submitted in typewritten form; however, legible handwritten inquiries will also be considered. They shall include the name, address, telephone number, fax number, and e-mail address, if available, of the inquirer and be mailed to the following address:

Secretary
ASME Boiler and Pressure Vessel Committee
Two Park Avenue
New York, NY 10016-5990

As an alternative, inquiries may be submitted via e-mail to: SecretaryBPV@asme.org or via our online tool at http://go.asme.org/InterpretationRequest.

(b) Response. The Secretary of the appropriate committee shall acknowledge receipt of each properly prepared inquiry and shall provide a written response to the inquirer upon completion of the requested action by the committee.

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PERSONNEL
ASME Boiler and Pressure Vessel Standards Committees, Subgroups, and Working Groups

January 1, 2015

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T. P. Pastor, *Chair*
R. W. Barnes, *Vice Chair*
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THE AMERICAN CONCRETE INSTITUTE

The American Concrete Institute was organized in 1905 to provide industry standards in the field of concrete usage. The organization, which was formed as a result of meetings begun during the Engineering Congress at the Louisiana Purchase Exposition in St. Louis in 1904, was initially entitled the National Association of Cement Users. In 1913, the name of the Society was changed to the American Concrete Institute to better fit the actual scope of its activities and aims, which are to further engineering education, scientific investigation, and scientific research by organizing the efforts of its members for a nonprofit, public service in gathering, correlating, and disseminating information for the improvement of the design, construction, manufacture, use, and maintenance of concrete products and structures.

The day-to-day operation of ACI is administered by an Executive Director, under general supervision of its 18-member Board of Direction, which assigns a part of its administrative duties to standing committees, the ACI Standards Board, and various technical committees.

ACI — TECHNICAL ACTIVITIES COMMITTEE

The Technical Activities Committee, which is appointed by the Board of Direction, is responsible for Institute technical publications, review of standards, the technical program at conventions, and continuing studies of technical committees, from which arise recommendations for the activities, and the formation or discharge of these groups. TAC members are selected by the ACI Board to represent ACI's varied interests.

ACI — STANDARDS BOARD

The Standards Board, also appointed by the Board of Direction, is responsible for matters of policy, procedure, and appeal pertaining to ACI Standards. All proposed new standards or revisions to existing standards, including minority reports from sponsoring technical committees, are forwarded to the Standards Board through the Technical Activities Committee. On release by the Standards Board, these are published, and after ratification by letter ballot of the ACI membership at large are then available for public use. The primary functions of the Standards Board are to verify that proper standardization procedures have been followed and to rule on matters of policy as related to standards.

ACI — TECHNICAL AND EDUCATIONAL COMMITTEES

Much of the important work of the American Concrete Institute is performed by technical committees that prepare committee reports and standards. Technical committees, composed of volunteer personnel, develop ACI recommendations in their respective fields. Their work, subject to review and approval by the Board of Direction through the Technical Activities Committee and the Standards Board, forms the basis for Institute Standards.

Educational committees, also composed of volunteer personnel, develop seminars, workshops, curriculum guides, and student manuals to further ACI's involvement in education. Their work, subject to review and approval by the ACI Educational Activities Committee, forms the basis for Institute manuals and training programs.

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(15)

ORGANIZATION OF SECTION III

1 GENERAL

Section III consists of Division 1, Division 2, Division 3, and Division 5. These Divisions are broken down into Subsections and are designated by capital letters preceded by the letter "N" for Division 1, by the letter "C" for Division 2, by the letter "W" for Division 3, and by the letter "H" for Division 5. Each Subsection is published separately, with the exception of those listed for Divisions 2, 3, and 5.

- Subsection NCA — General Requirements for Division 1 and Division 2
- Appendices
- Division 1
  - Subsection NB — Class 1 Components
  - Subsection NC — Class 2 Components
  - Subsection ND — Class 3 Components
  - Subsection NE — Class MC Components
  - Subsection NF — Supports
  - Subsection NG — Core Support Structures
  - Subsection NH — Class 1 Components in Elevated Temperature Service[*]
- Division 2 — Code for Concrete Containments
  - Subsection CC — Concrete Containments
- Division 3 — Containments for Transportation and Storage of Spent Nuclear Fuel and High Level Radioactive Material and Waste
  - Subsection WA — General Requirements for Division 3
  - Subsection WB — Class TC Transportation Containments
  - Subsection WC — Class SC Storage Containments
- Division 5 — High Temperature Reactors
  - Subsection HA — General Requirements
    - Subpart A — Metallic Materials
    - Subpart B — Graphite Materials
    - Subpart C — Composite Materials
  - Subsection HB — Class A Metallic Pressure Boundary Components
    - Subpart A — Low Temperature Service
    - Subpart B — Elevated Temperature Service
  - Subsection HC — Class B Metallic Pressure Boundary Components
    - Subpart A — Low Temperature Service
    - Subpart B — Elevated Temperature Service
  - Subsection HF — Class A and B Metallic Supports
    - Subpart A — Low Temperature Service
  - Subsection HG — Class A Metallic Core Support Structures
    - Subpart A — Low Temperature Service
    - Subpart B — Elevated Temperature Service
  - Subsection HH — Class A Nonmetallic Core Support Structures
    - Subpart A — Graphite Materials
    - Subpart B — Composite Materials

2 SUBSECTIONS

Subsections are divided into Articles, subarticles, paragraphs, and, where necessary, subparagraphs and subsubparagraphs.

[*] The 2015 Edition of Section III is the last edition in which Section III, Division 1, Subsection NH, *Class 1 Components in Elevated Temperature Service*, will be published. The requirements located within Subsection NH have been moved to Section III, Division 5, Subsection HB, Subpart B for the elevated temperature construction of Class A components.

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3 ARTICLES

Articles are designated by the applicable letters indicated above for the Subsections followed by Arabic numbers, such as NB-1000. Where possible, Articles dealing with the same topics are given the same number in each Subsection, except NCA, in accordance with the following general scheme:

Article Number	Title
1000	Introduction or Scope
2000	Material
3000	Design
4000	Fabrication and Installation
5000	Examination
6000	Testing
7000	Overpressure Protection
8000	Nameplates, Stamping With Certification Mark, and Reports

The numbering of Articles and the material contained in the Articles may not, however, be consecutive. Due to the fact that the complete outline may cover phases not applicable to a particular Subsection or Article, the rules have been prepared with some gaps in the numbering.

4 SUBARTICLES

Subarticles are numbered in units of 100, such as NB-1100.

5 SUBSUBARTICLES

Subsubarticles are numbered in units of 10, such as NB-2130, and generally have no text. When a number such as NB-1110 is followed by text, it is considered a paragraph.

6 PARAGRAPHS

Paragraphs are numbered in units of 1, such as NB-2121.

7 SUBPARAGRAPHS

Subparagraphs, when they are *major* subdivisions of a paragraph, are designated by adding a decimal followed by one or more digits to the paragraph number, such as NB-1132.1. When they are *minor* subdivisions of a paragraph, subparagraphs may be designated by lowercase letters in parentheses, such as NB-2121(a).

8 SUBSUBPARAGRAPHS

Subsubparagraphs are designated by adding lowercase letters in parentheses to the *major* subparagraph numbers, such as NB-1132.1(a). When further subdivisions of *minor* subparagraphs are necessary, subsubparagraphs are designated by adding Arabic numerals in parentheses to the subparagraph designation, such as NB-2121(a)(1).

9 REFERENCES

References used within Section III generally fall into one of the following four categories:

(a) References to Other Portions of Section III. When a reference is made to another Article, subarticle, or paragraph, all numbers subsidiary to that reference shall be included. For example, reference to NB-3000 includes all material in Article NB-3000; reference to NB-3200 includes all material in subarticle NB-3200; reference to NB-3230 includes all paragraphs, NB-3231 through NB-3236.

(b) References to Other Sections. Other Sections referred to in Section III are the following:

(1) Section II, Materials. When a requirement for a material, or for the examination or testing of a material, is to be in accordance with a specification such as SA-105, SA-370, or SB-160, the reference is to material specifications in Section II. These references begin with the letter "S."

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(2) Section V, Nondestructive Examination. Section V references begin with the letter "T" and relate to the nondestructive examination of material or welds.

(3) Section IX, Welding and Brazing Qualifications. Section IX references begin with the letter "Q" and relate to welding and brazing requirements.

(4) Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components. When a reference is made to inservice inspection, the rules of Section XI shall apply.

(c) Reference to Specifications and Standards Other Than Published in Code Sections

(1) Specifications for examination methods and acceptance standards to be used in connection with them are published by the American Society for Testing and Materials (ASTM). At the time of publication of Section III, some such specifications were not included in Section II of this Code. A reference to ASTM E94 refers to the specification so designated by and published by ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

(2) Dimensional standards covering products such as valves, flanges, and fittings are sponsored and published by The American Society of Mechanical Engineers and approved by the American National Standards Institute.[**] When a product is to conform to such a standard, for example ASME B16.5, the standard is approved by the American National Standards Institute. The applicable year of issue is that suffixed to its numerical designation in Table NCA-7100-1, for example ASME B16.5-2003. Standards published by The American Society of Mechanical Engineers are available from ASME (https://www.asme.org/).

(3) Dimensional and other types of standards covering products such as valves, flanges, and fittings are also published by the Manufacturers Standardization Society of the Valve and Fittings Industry and are known as Standard Practices. When a product is required by these rules to conform to a Standard Practice, for example MSS SP-100, the Standard Practice referred to is published by the Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS), 127 Park Street, NE, Vienna, VA 22180. The applicable year of issue of such a Standard Practice is that suffixed to its numerical designation in Table NCA-7100-1, for example MSS SP-89-2003.

(4) Specifications for welding and brazing materials are published by the American Welding Society (AWS), 8669 Doral Boulevard, Suite 130, Doral, FL 33166. Specifications of this type are incorporated in Section II and are identified by the AWS designation with the prefix "SF," for example SFA-5.1.

(5) Standards applicable to the design and construction of tanks and flanges are published by the American Petroleum Institute and have designations such as API-605. When documents so designated are referred to in Section III, for example API-605–1988, they are standards published by the American Petroleum Institute and are listed in Table NCA-7100-1.

(d) References to Appendices. Section III uses two types of appendices that are designated as either Section III Appendices or Subsection Appendices. Either of these appendices is further designated as either Mandatory or Nonmandatory for use. Mandatory Appendices are referred to in the Section III rules and contain requirements that must be followed in construction. Nonmandatory Appendices provide additional information or guidance when using Section III.

(1) Section III Appendices are contained in a separate book titled "Appendices." These appendices have the potential for multiple subsection applicability. Mandatory Appendices are designated by a Roman numeral followed, when appropriate, by Arabic numerals to indicate various articles, subarticles, and paragraphs of the appendix, such as II-1500 or XIII-2131. Nonmandatory Appendices are designated by a capital letter followed, when appropriate, by Arabic numerals to indicate various articles, subarticles, and paragraphs of the appendix, such as D-1200 or Y-1440.

(2) Subsection Appendices are specifically applicable to just one subsection and are contained within that subsection. Subsection-specific mandatory and nonmandatory appendices are numbered in the same manner as Section III Appendices, but with a subsection identifier (e.g., NF, NH, D2, etc.) preceding either the Roman numeral or the capital letter for a unique designation. For example, NF-II-1100 or NF-A-1200 would be part of a Subsection NF mandatory or nonmandatory appendix, respectively. For Subsection CC, D2-IV-1120 or D2-D-1330 would be part of a Subsection CC mandatory or nonmandatory appendix, respectively.

(3) It is the intent of this Section that the information provided in both Mandatory and Nonmandatory Appendices may be used to meet the rules of any Division or Subsection. In case of conflict between Appendix rules and Division/Subsection rules, the requirements contained in the Division/Subsection shall govern. Additional guidance on Appendix usage is provided in the front matter of Section III Appendices.

[**] The American National Standards Institute (ANSI) was formerly known as the American Standards Association. Standards approved by the Association were designated by the prefix "ASA" followed by the number of the standard and the year of publication. More recently, the American National Standards Institute was known as the United States of America Standards Institute. Standards were designated by the prefix "USAS" followed by the number of the standard and the year of publication. While the letters of the prefix have changed with the name of the organization, the numbers of the standards have remained unchanged.

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SUMMARY OF CHANGES

After publication of the 2015 Edition, Errata to the BPV Code may be posted on the ASME Web site to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in the BPV Code. Such Errata shall be used on the date posted.

Information regarding Special Notices and Errata is published by ASME at http://go.asme.org/BPVCerrata.

Changes given below are identified on the pages by a margin note, **(15)**, placed next to the affected area.

The Record Numbers listed below are explained in more detail in "List of Changes in Record Number Order" following this Summary of Changes.

Page	*Location*	*Change (Record Number)*
vii	List of Sections	Revised
ix	Foreword	*(1)* Revised *(2)* New footnote added by errata *(13-860)*
xii	Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees	In last line of 6(a), URL revised
xiv	Personnel	Updated
xxxii	Organization of Section III	(1) New footnote added (2) 9(d)(3) added *(13-1032)*
1	NCA-1140	Subparagraphs (a)(2)(-a) through (-c) revised *(12-1961)*
4	NCA-1282	First sentence revised *(13-1820)*
21	NCA-3841	Subparagraph (g) revised and subparagraphs (h) through (j) deleted *(13-1417)*
25	NCA-3855.3	Subparagraph (b)(1) revised *(13-1945)*
25	NCA-3855.5	Subparagraph (a)(3)(-d) revised *(11-256)*
28	NCA-3862.1	Subparagraph (b) revised *(13-291)*
29	NCA-3920	Subparagraph (c) added *(13-1420)*
34	NCA-3970	Subparagraph (g) added *(13-1421)*
39	NCA-4134.2	Subparagraph (b) revised *(14-843)*
42	Table NCA-4134.17-1	*(1)* Record 6. revised *(14-843)* *(2)* General Note revised *(14-843)*
44	NCA-5121	Subparagraph (a) revised *(14-2196)*
47	NCA-5300	Subparagraphs (h) and (j) corrected by errata *(14-1556)*
49	Table NCA-7100-1	Revised in its entirety *(12-503, 14-843, 14-1252)*
51	Table NCA-7100-2	Revised *(12-454, 14-873)*
52	Table NCA-7100-3	Revised and corrected by errata *(12-454, 13-1267, 13-2161, 14-125, 14-514, 14-901)*

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Page	*Location*	*Change (Record Number)*
55	NCA-8151	*(1)* First sentence corrected by errata *(14-1075)* *(2)* New second sentence added *(14-1547)*
61	NCA-8322.1	*(1)* New designator and title added *(12-1930)* *(2)* First paragraph and subparagraph (a) revised *(12-1930)* *(3)* Subparagraph (c) revised *(14-1636)*
61	NCA-8322.2	Added *(12-1930)*
63	NCA-9200	*(1)* Definition for *fabricator (Division 2)* added *(13-1946)* *(2)* Definitions for *fabrication* and *NS Certificate Holder* revised *(13-1820)*

NOTE: Volume 63 of the Interpretations to Section III, Divisions 1 and 2 of the ASME Boiler and Pressure Vessel Code follows the last page of Subsection NCA.

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LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
11-256	Revised NCA-3855.5(a)(3)(-d) to require on-site verification of a supplier's identification and traceability procedure.
12-454	Incorporated acceptance of the ASNT SNT-TC-1A 2011 standard into Tables NCA-7100-2 and NCA-7100-3. The requirement for the near-vision acuity examination is clarified.
12-503	Added instrument valve standard MSS-SP-105 to Table NCA-7100-1.
12-1930	The Code change provides the rules where the N Certificate Holder subcontracts all final assembly and installation activities to an NA Certificate Holder at the field site that holds the appropriate Certificate of Authorization for items not requiring a pressure test. Currently NCA-8322 provides provisions where the N Certificate Holder may apply the Certification Mark with N Designator to a component in the field without having the N Certificate of Authorization extended to a field site for items requiring a pressure test. This record consists of revising NCA-8322 to allow the application of the Certification Mark with N Designator at field sites or other locations for items not requiring pressure test.
12-1961	Clarified how NCA-1140(a)(2)(-a) and (-b) relate to each other.
13-291	Revised NCA-3862.1(b) to clarify requirements for source material heat analysis on CMTRs for welding materials
13-860	In the Foreword, the subtitle has been deleted and replaced with an ANSI disclaimer as a footnote.
13-1032	Added a paragraph to the Organization of Section III, Article 9(d), References to Appendices, to add guidance on the use of Nonmandatory Appendices for Section III.
13-1267	Revised Table NCA-7100-3 to delete the FAS reference and to add the ASTM D8164 reference.
13-1417	Revised NCA-3841(g) to include "any combination of the activities specified in NCA-3851.2(a)(1) through NCA-3851.2(a)(6)." Deleted NCA-3841(h), (i), and (j) as the activities are already included in NCA-3851.2.
13-1420	This revision will add subparagraph (c) to allow a Certificate Holder to furnish nonmetallic materials when stated within the scope of their certificate.
13-1421	This revision will add subparagraph (g) to allow a Certificate Holder to furnish polyethylene materials when stated within the scope of their certificate.
13-1820	Revised text and definitions to clarify responsibilities of NA and NS Certificate Holders with regard to the attachment of supports to building structure.
13-1945	Revised NCA-3855.3(b)(1) to state: “performing triennial audits covering applicable elements of the supplier's established quality system that is consistent with the requirements of this subarticle supplemented by annual evaluations of the supplier's quality system, including a review of the history of conditions adverse to quality, nonconformances, and corrective actions, or”
13-1946	Moved the term "Fabricator" from Section III, Division 2, Mandatory Appendix D2-II to NCA-9200 and updated NCA reference within the definition.
13-2161	Errata correction. See Summary of Changes.
14-125	Corrected typos, titles, and omissions in Table NCA-7100-3. Recently, one change has been made to the proposal file in response to a comment. The comment was “There is an "Editorial Action" phrase located below AWS A5.29 that is floating around. The floating extraneous term "Editorial Action" was removed after the ballot was closed. There has been no change that materially affects the technical content of the proposed code change.
14-514	Updated the list of references in Table NCA-7100-3.
14-843	Revised the existing NH references in Subsection NCA to the proper Division 5 reference of Subsection HB, Subpart B (HBB).
14-873	Added PTC 25 with reference year 2014 to Table NCA-7100-2.
14-901	Updated Table NCA-7100-3 to include additional guidance for testing of sulfates.
14-1075	Errata correction. See Summary of Changes.
14-1252	Table NCA-7100-1 revised to add additional reference standards editions in the "Other Acceptable Editions" column.
14-1547	Revised NCA-8151 per the proposed change.

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Record Number	Change
14-1556	Errata correction. See Summary of Changes.
14-1636	Revised NCA-8322 by adding a new paragraph (d) permitting N-stamping of pumps tested in parts and joined by mechanical means at the location of a subcontractor.
14-2196	Deleted the first sentence of NCA-5121(a). Changed the word "certified" to "accredited" in the second and only remaining sentence of NCA-5121(a).

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CROSS-REFERENCING AND STYLISTIC CHANGES IN THE BOILER AND PRESSURE VESSEL CODE

There have been structural and stylistic changes to BPVC, starting with the 2011 Addenda, that should be noted to aid navigating the contents. The following is an overview of the changes:

Subparagraph Breakdowns/Nested Lists Hierarchy

- First-level breakdowns are designated as (a), (b), (c), etc., as in the past.
- Second-level breakdowns are designated as (1), (2), (3), etc., as in the past.
- Third-level breakdowns are now designated as (-a), (-b), (-c), etc.
- Fourth-level breakdowns are now designated as (-1), (-2), (-3), etc.
- Fifth-level breakdowns are now designated as (+a), (+b), (+c), etc.
- Sixth-level breakdowns are now designated as (+1), (+2), etc.

Footnotes

With the exception of those included in the front matter (roman-numbered pages), all footnotes are treated as endnotes. The endnotes are referenced in numeric order and appear at the end of each BPVC section/subsection.

Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees

Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees has been moved to the front matter. This information now appears in all Boiler Code Sections (except for Code Case books).

Cross-References

It is our intention to establish cross-reference link functionality in the current edition and moving forward. To facilitate this, cross-reference style has changed. Cross-references within a subsection or subarticle will not include the designator/identifier of that subsection/subarticle. Examples follow:

- *(Sub-)Paragraph Cross-References.* The cross-references to subparagraph breakdowns will follow the hierarchy of the designators under which the breakdown appears.
  - If subparagraph (-a) appears in X.1(c)(1) and is referenced in X.1(c)(1), it will be referenced as (-a).
  - If subparagraph (-a) appears in X.1(c)(1) but is referenced in X.1(c)(2), it will be referenced as (1)(-a).
  - If subparagraph (-a) appears in X.1(c)(1) but is referenced in X.1(e)(1), it will be referenced as (c)(1)(-a).
  - If subparagraph (-a) appears in X.1(c)(1) but is referenced in X.2(c)(2), it will be referenced as X.1(c)(1)(-a).
- *Equation Cross-References.* The cross-references to equations will follow the same logic. For example, if eq. (1) appears in X.1(a)(1) but is referenced in X.1(b), it will be referenced as eq. (a)(1)(1). If eq. (1) appears in X.1(a)(1) but is referenced in a different subsection/subarticle/paragraph, it will be referenced as eq. X.1(a)(1)(1).

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ARTICLE NCA-1000
SCOPE OF SECTION III

NCA-1100 GENERAL

NCA-1110 SCOPE[1, 2]

The rules of this Section constitute requirements for the design, construction, stamping, and overpressure protection of items used in nuclear power plants and other nuclear facilities. This Section consists of the following three divisions:

(a) Division 1. Metallic vessels, heat exchangers, storage tanks, piping systems, pumps, valves, core support structures, supports, and similar items.

(b) Division 2. Concrete containment vessels.

(c) Division 3. Metallic containment systems for storage or transportation of spent nuclear fuel and high level radioactive materials and waste.

The General Requirements of Subsection NCA apply to Division 1 and Division 2 only. General Requirements for Division 3 are only in Subsection WA.

Section XI contains rules for inservice inspections of items used in nuclear power plants.

NCA-1120 DEFINITIONS

Definitions of key terms used in Subsection NCA are included in Article NCA-9000.

NCA-1130 LIMITS OF THESE RULES

(a) The rules of this Section provide requirements for new construction and include consideration of mechanical and thermal stresses due to cyclic operation. They do not cover deterioration that may occur in service as a result of environmental effects such as radiation, corrosion, erosion, or instability of the material.[3] These effects shall be taken into account with a view to realizing the design or the specified life of the components and supports. The changes in properties of materials subjected to neutron radiation can be checked periodically by means of material surveillance programs. These rules provide requirements for new construction of concrete containments. They are applicable only to those components that are designed to provide a pressure-retaining or containing barrier. They are not applicable to other concrete structures in the plant, as for example to concrete shield and support structures, except as they directly affect the components.

(b) The rules are not intended to be applicable to valve operators, controllers, position indicators, pump impellers, pump drivers, or other accessories and devices, unless they are pressure-retaining parts or act as core support structures or supports. If such items are in a support load path, the provisions of NF-1100 apply.

(c) The rules of this Section do not apply to instruments, or permanently sealed fluid filled tubing systems furnished with instruments, but do apply to instrument, control, and sampling piping when specified in Design Specifications.

(d) Auxiliary systems for concrete containments that are required to assure functional adequacy of the vessels in accordance with the requirements of the Design Specification, including but not limited to concrete cooling systems, thermal insulation, corrosion protection, leakage monitors, and strain monitoring systems, must be delineated fully by appropriate performance, reliability, and test requirements. These rules are not intended to otherwise be applicable to auxiliary systems.

NCA-1140 USE OF CODE EDITIONS, ADDENDA, AND CASES (15)

(a) See (1) and (2) below:

(1) Under the rules of this Section, the Owner or his designee shall establish the Code Edition and Addenda to be included in the Design Specifications. All items of a nuclear power plant may be constructed to a single Code Edition and Addenda, or each item may be constructed to individually specified Code Editions and Addenda.

(2) In no case shall the Code Edition and Addenda dates established in the Design Specifications be earlier than:

(-a) 3 yr prior to the date that the nuclear power plant construction permit application is docketed, or

(-b) the latest edition and addenda endorsed by the regulatory authority having jurisdiction at the plant site at the time the construction permit application is docketed, or

(-c) the edition and addenda endorsed for a design certified, approved, or licensed by the regulatory authority

(b) Except as permitted in (e) below for materials, Code Editions and Addenda later than those established by (a) above, including any referenced Code Edition and Addenda, may be used by mutual consent of the Owner or his designee and Certificate Holder. For Division 2 design and construction, the consent of the Designer shall also be obtained. Specific provisions within an Edition or

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Addenda later than those established in the Design Specifications may be used, provided that all related requirements are met.

(c) Code Cases are permissible and may be used beginning with the date of approval by the ASME Council (and the American Concrete Institute for Division 2 design and construction). Only Code Cases that are specifically identified as being applicable to this Section may be used.

(d) Code Cases may be used by mutual consent of the Owner or his designee, and the Certificate Holder on or after the date permitted by (c) above. For Division 2 design and construction, the consent of the Designer shall also be obtained.

(e) Materials produced and certified in accordance with Code Editions and Addenda other than the one specified for construction of an item may be used, provided all of the following requirements are satisfied.

(1) The material (NCA-1220) meets the applicable requirements of a material specification permitted by paragraph 2121 of the applicable Subsection of the Section III Edition and Addenda specified for construction.

(2) The material meets all the requirements of Article 2000 of the applicable Subsection of the Section III Edition and Addenda specified for construction.

(3) The material was produced under the provisions of a Quality System Program that had been accepted by the Society or qualified by a party other than the Society (NCA-3820), in accordance with the requirements of the latest Section III Edition and Addenda issued at the time the material was produced. Material exempted from portions of the provisions of NCA-3800 by paragraph 2610 of the applicable Subsection of Section III may be used, provided the requirements of (1) and (2) above are met.

(f) Code Editions, Addenda [including the use of specific provisions of Editions or Addenda permitted by (b) and (e) above], and Cases used shall be reviewed by the Owner or his designee for acceptability to the regulatory and enforcement authorities having jurisdiction at the nuclear power plant site.

(g) Except as otherwise permitted by this Code and stipulated in the Scope of a certificate, the latest Code Edition and Addenda shall become mandatory for Quality System Program (NCA-3800) and Quality Assurance (Article NCA-4000) requirements 6 months after the date of issuance.

NCA-1150 UNITS OF MEASUREMENT

Either U.S. Customary units, SI, or any local customary units may be used to demonstrate compliance with all requirements of this edition (e.g., materials, design, fabrication, examination, inspection, testing, certification, and overpressure protection).

In general, it is expected that a single system of units shall be used for all aspects of design except where unfeasible or impractical. When components are manufactured at different locations where local customary units are different than those used for the general design, the local units may be used for the design and documentation of that component. Similarly, for proprietary components or those uniquely associated with a system of units different than that used for the general design, the alternate units may be used for the design and documentation of that component.

For any single equation, all variables shall be expressed in a single system of units. When separate equations are provided for U.S. Customary and SI units, those equations must be executed using variables in the units associated with the specific equation. Data expressed in other units shall be converted to U.S. Customary or SI units for use in these equations. The result obtained from execution of these equations may be converted to other units.

Production, measurement and test equipment, drawings, welding procedure specifications, welding procedure and performance qualifications, and other fabrication documents may be in U.S. Customary, SI, or local customary units in accordance with the fabricator's practice. When values shown in calculations and analysis, fabrication documents, or measurement and test equipment are in different units, any conversions necessary for verification of Code compliance and to ensure that dimensional consistency is maintained shall be in accordance with the following.

(a) Conversion factors shall be accurate to at least four significant figures.

(b) The results of conversions of units shall be expressed to a minimum of three significant figures.

Conversion of units, using the precision specified above, shall be performed to assure that dimensional consistency is maintained. Conversion factors between U.S. Customary and SI units may be found in Section III Appendices, Nonmandatory Appendix AA, Guidance for the Use of U.S. Customary and SI Units in the ASME Boiler and Pressure Vessel Code. Whenever local customary units are used, the manufacturer shall provide the source of the conversion factors that shall be subject to verification and acceptance by the Authorized Nuclear Inspector.

Material that has been manufactured and certified to either the U.S. Customary or SI material specification (e.g., SA-516M) may be used regardless of the unit system used in design. Standard fittings (e.g., flanges, elbows, etc.) that have been certified to either U.S. Customary units or SI units may be used regardless of the units system used in design.

All entries on a Manufacturer's Data Report and data for Code-required nameplate marking shall be in units consistent with the fabrication drawings for the component using U.S. Customary, SI, or local customary units. It is acceptable to show alternate units parenthetically. Users of this Code are cautioned that the receiving Jurisdiction should be contacted to ensure the units are acceptable.

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NCA-1200 GENERAL REQUIREMENTS FOR ITEMS AND INSTALLATION

NCA-1210 COMPONENTS

Each component of a nuclear power plant shall require a Design Specification (NCA-3250), Design Report (NCA-3350, NCA-3550), and other design documents specified in Article NCA-3000. Data Reports and stamping shall be as required in Article NCA-8000.

NCA-1220 MATERIALS

NCA-1221 Metallic Materials

Metallic materials shall be manufactured to an SA, SB, or SFA Specification,[4] or any other material specification permitted by this Section. Such material shall be manufactured, identified, and certified in accordance with the requirements of this Section. Tubular products and fittings welded with filler metal require Certification Mark with NPT Designator but do not require nameplates.

NCA-1221.1 Metallic Material, ASTM Specification. Metallic materials produced under an ASTM designation may be accepted as complying with the corresponding ASME Specification, provided the ASME Specification is designated as being identical with the ASTM Specification for the grade, class, or type produced and provided that the material is confirmed as complying with the ASTM Specification by a Certified Material Test Report or Certificate of Compliance from the Material Organization. When a material does not have a corresponding ASME Specification, it may be accepted for Section III, Division 2 construction if it is specified in the Design Documents, provided all materials comply with all of the requirements of Article CC-2000 for concrete containments.

NCA-1221.2 Welding Material, AWS Specification. Welding material produced under an AWS designation may be accepted as complying with the corresponding ASME Specification, provided the latter Specification is indicated to be identical with the AWS Specification and provided the welding material is confirmed as complying with the AWS Specification by a Certified Material Test Report or Certification from the Material Organization.

NCA-1222 Nonmetallic Materials — Division 2

NCA-1222.1 Concrete and Grout. Plastic concrete and grout shall be manufactured to material specifications permitted by this Section. Plastic concrete and grout shall be manufactured and identified in accordance with the requirements of this Section.

NCA-1222.2 Concrete and Grout Constituents. The constituents of plastic concrete and grout shall be manufactured to material specifications permitted by this Section. Constituents shall be manufactured and identified in accordance with the requirements of this Section.

NCA-1223 Nonmetallic Materials — Division 1

NCA-1223.1 Polyethylene Compound and Polyethylene Material. Polyethylene compound and polyethylene material shall be manufactured to material specifications permitted by this Section. Polyethylene compound and polyethylene material shall be manufactured and identified in accordance with the requirements of ASTM polyethylene materials standards, Plastics Pipe Institute TR-3 and TR-4 (Table NCA-7100-2), and this Section.

NCA-1223.2 Polyethylene Source Material. Products used for conversion to polyethylene material, including natural compound and pigment concentrate compound, shall be manufactured and identified in accordance with the requirements of ASTM materials standards, Plastics Pipe Institute TR-3 and TR-4 (Table NCA-7100-2), and this Section.

NCA-1230 PARTS, PIPING SUBASSEMBLIES, AND SUPPORTS

NCA-1231 Parts

The Design Specifications (NCA-3250) and Design Report, Load Capacity Data Sheet, or Design Report Summary (NCA-3350, NCA-3550) for components and supports shall apply to the parts of such components and supports. Data Reports and stamping shall be as required in Article NCA-8000.

NCA-1232 Piping Subassemblies

The Design Specifications (NCA-3250) and Design Report (NCA-3551.1) for the piping system shall apply to the piping subassemblies of that system. Data Reports and stamping shall be as required in Article NCA-8000.

NCA-1233 Supports

The Design Conditions for supports shall be included in either the component or piping Design Specifications (NCA-3250) or in a separate Design Specification. A Design Report, Load Capacity Data Sheet, or Design Report Summary (NCA-3551) for each support or group of supports shall be furnished. Certification documents shall be as required by Article NCA-8000.

Section III Appendices, Nonmandatory Appendix CC contains alternative rules for Linear Piping Supports that can be used as an alternative to the requirements of Subsection NCA and Subsection NF when permitted by the Owner's Design Specification.

NCA-1260 APPURTENANCES

The design conditions for appurtenances shall be included in either the component Design Specification (NCA-3250) or in a separate Design Specification. A Design Report (NCA-3553) for each appurtenance or group of identical appurtenances for each component shall be furnished, if not included in the component Design Report. The Owner, directly or through his designee, shall

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be responsible for the overall correlation of the component and appurtenance Design Reports (NCA-3260). Data Reports and stamping shall be as required by Article NCA-8000.

NCA-1270 MISCELLANEOUS ITEMS

NCA-1271 Control Rod Drive Housings

Control rod drive housings attached to a reactor vessel shall be considered in the Design Specification as a part, appurtenance, or as a separate vessel. The rules of Subsection NB shall apply to those portions of the housings forming a pressure-retaining boundary.

NCA-1272 Heater Elements

That portion of heater elements forming a pressure-retaining boundary of a nuclear power system shall be considered in the Design Specification either as a part or an appurtenance.

NCA-1273 Fluid Conditioner and Flow Control Devices Other Than Valves

That portion of fluid conditioners or flow control devices, such as filters, demineralizers, traps, strainers, flow nozzles, flow restrictors, venturis, orifice plates [except orifice plates connecting piping of the same design pressure that are clamped between flanges], eductors, and similar devices that form the pressure boundary, shall be considered as a piping subassembly, part, appurtenance, component, or material in accordance with the rules of this Section.

NCA-1274 Penetration Assemblies

Penetration assemblies shall be considered in the Design Specification to be either parts or appurtenances.

NCA-1275 Rupture Disk Devices

The portion of the rupture disk holder that forms the pressure boundary shall be considered as material, a part, or an appurtenance. The rupture disks are not required to be Code material.

NCA-1280 INSTALLATION

NCA-1281 Activities and Requirements

The requirements pertaining to installation governing materials, fabrication, examination, testing, inspection, stamping, and reporting shall be in accordance with the rules applicable to the classification and type of component involved. When joining components of different classifications, the more restrictive requirements shall govern, except that connections between piping and other components shall be considered part of the piping. Data Reports and stamping shall be as required in Article NCA-8000.

NCA-1282 Support Installation (15)

Installation of supports consists of those activities required to attach supports to the building structure and join parts and materials by welding or mechanical means by the NA Certificate Holder at the location authorized by its Certificate. Attachment of supports to building structure may also be performed during support fabrication by the NS Certificate Holder at the location authorized by its Certificate. The requirements pertaining to installation governing materials, fabrication, examination, inspection, stamping, and reporting shall be in accordance with the rules applicable to the classification and type of support involved.

NCA-1283 Services

Services such as handling, rigging, setting, and temporary bolting and temporary aligning may be performed by organizations who are non-Certificate Holders as provided for in NCA-3125.

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ARTICLE NCA-2000
CLASSIFICATION OF COMPONENTS AND SUPPORTS

NCA-2100 GENERAL REQUIREMENTS

NCA-2110 SCOPE

(a) Division 1 specifies rules for

(1) nuclear power system metal components, parts, and appurtenances

(2) metal containment vessels

(3) supports

(b) Division 2 specifies rules for concrete containments

(c) While providing for several classes of construction (NCA-2120, NCA-2130), this Section does not provide guidance in the selection of a specific classification to fit a component in a given system. Such guidance is derived from systems safety criteria for specific types of nuclear power systems, such as pressurized water reactors, boiling water reactors, or high temperature gas cooled reactors, and may be found in engineering standards or in the requirements of regulatory and enforcement authorities having jurisdiction at the nuclear power plant site.

(d) The Owner of a nuclear power plant shall be responsible for applying system safety criteria to classify the equipment in the nuclear power plant to be constructed in accordance with the rules of this Section (NCA-2120 and NCA-2130). Classification shall be included in the Design Specification.

NCA-2120 PURPOSE OF CLASSIFYING ITEMS OF A NUCLEAR POWER PLANT

Construction rules are specified for items that are designated Code Classes 1, 2, 3, CS, MC, and CC. These Code classes are intended to be applied to the classification of items of a nuclear power system and containment system. Within these systems the Code recognizes the different levels of importance associated with the function of each item as related to the safe operation of the nuclear power plant. The Code classes allow a choice of rules that provide assurance of structural integrity and quality commensurate with the relative importance assigned to the individual items of the nuclear power plant.

NCA-2130 CLASSIFICATIONS AND RULES OF THIS SECTION

NCA-2131 Code Classes and Rules of Division 1

(a) Division 1 provides rules for the construction of items in the following Code classes:

(1) Class 1 — items constructed in accordance with the rules of Subsection NB

(2) Class 2 — items constructed in accordance with the rules of Subsection NC

(3) Class 3 — items constructed in accordance with the rules of Subsection ND

(4) Class MC — metal containment vessels constructed in accordance with the rules of Subsection NE

(5) Class CS — core support structures constructed in accordance with the rules of Subsection NG

(b) Division 1 also provides rules for

(1) supports constructed in accordance with the rules of Subsection NF

(2) internal structures constructed in accordance with the rules of Subsection NG

NCA-2132 Rules of Division 2

Division 2 of this Section provides rules for concrete containments designed and constructed in accordance with the rules of Subsection CC.

NCA-2133 Multiple Code Class Components

(a) Compartments in components consisting of multiple compartments such as heat exchangers may be assigned different Code classes, provided any interactions between compartments produced by service conditions are taken into account and these conditions are specified in the Design Specifications.

(b) Supports for multiple Code class components shall be constructed in accordance with the rules of Subsection NF for the more restrictive class.

NCA-2134 Optional Use of Code Classes

(a) Items classified as Class 2 in their Design Specifications may be constructed and stamped in accordance with the rules of Subsection NB.

(b) Items classified as Class 3 in their Design Specifications may be constructed and stamped in accordance with the rules of Subsection NB or NC.

(c) Containment vessels classified as Class MC in their Design Specification may be constructed and stamped in accordance with the rules of Subsection NB, provided the rules of Article NE-7000 are applied in lieu of the rules of Article NB-7000 for protection against overpressure.

(d) When an item is optionally classified to a higher class, the Design Specifications shall identify the minimum required class as well as the optionally selected higher class.

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(e) Those items designated as parts (Division 1) or appurtenances (Division 1) when used in a Division 2 component, if stamped as parts (Division 1), may be used without further stamping under Division 2 requirements, provided

(1) the Designer identifies the parts to be stamped under Division 1 requirements in the Construction Specification

(2) the Designer separately establishes that the use of such parts satisfies the requirements of the Design Specification, the Construction Specifications, and the Design Drawings

NCA-2135 Code Cases for Division 2 Parts

Parts specified to meet the requirements of Division 1 for material, design, fabrication, and examination may be stamped CC in accordance with Division 2 when used in a Division 2 component (Article CC-1000). For these parts, Division 1 Code Cases that are applicable for material, design, fabrication, and examination may be used for Division 2 construction in accordance with NCA-1140.

NCA-2140 DESIGN BASIS

NCA-2141 Consideration of Plant and System Operating and Test Conditions[5]

(a) Components and supports of a nuclear power system (NCA-1110) may be subjected to plant and system operating and test conditions that are required to be considered in the design and overpressure protection of the components and the design of supports in order to satisfy applicable systems safety criteria. The significance of plant and system operating and test conditions upon design may vary from item to item within a system for a specific operating or test condition experienced by the plant or system. The temperatures, pressures, and mechanical loads to which components and supports are subjected in consequence of plant or system operating and test conditions are referred to in this Section as component or support Design, Service, or Test Loadings.

(b) The definition of plant and system operating and test conditions, and the determination of their significance to the design and operability of components and supports of a nuclear power system, are beyond the scope of this Section. Appropriate guidance for the selection of plant or system operating and test conditions, that may be determined to be of significance in the selection of component or support Design, Service, or Test Loadings, the combinations thereof, and the corresponding acceptable Limits, may be derived from systems safety criteria documents for specific types of nuclear power systems and may be found in the requirements of regulatory and enforcement authorities having jurisdiction at the site.

NCA-2142 Establishment of Design, Service, and Test Loadings and Limits

In the Design Specification, the Owner or his designee shall identify the loadings and combinations of loadings and establish the appropriate Design, Service, and Test Limits for each component or support.

(a) Loadings. The Design, Service, and Test Loadings shall be identified considering all plant or system operating and test conditions anticipated or postulated to occur during the intended service life of the component or support. Service Loadings are not required to be identified for Class 2 and 3 components, Class 2 and 3 component supports, and Class MC supports, when the Design Pressure and Design Mechanical Loads result in stresses of greater magnitude, relative to the allowable stress or stress intensity at the Design Temperature, than would the Service Loadings relative to the allowables for the appropriate Service Level. When this is not the case, and for piping and its supports, Service Loadings shall be identified in the Design Specification. For the Class MC containment vessel, loadings associated with the containment function shall be identified as Design Loadings, except as provided in Article NE-3000.

(b) Limits. The selection of Design, Service, and Test Limits for each item shall be established in accordance with NCA-2142.4. The rules of this Section do not assure operability of components in which mechanical motion is required. The selection of limits for Design, Service, or Test Loadings to assure operability is beyond the scope of this Section. However, the rules of this Section do require operability of pressure relief valves. When assurance of operability is required, it is the responsibility of the Owner to define the appropriate limiting parameters by referring to documents that specify the requirements for operability. Such parameters are outside the scope of this Section [NCA-1130, NCA-2160, and NCA-5210(b)].

NCA-2142.1 Design Loadings. Design Loadings for components and supports shall be in accordance with (a), (b), and (c) below and the additional requirements of the applicable Subsections of this Section.

(a) Design Pressure. The specified internal and external Design Pressure shall not be less than the maximum difference in pressure between the inside and outside of the item, or between any two chambers of a combination unit, that exists under the most severe loadings for which the Level A Service Limits are applicable. The Design Pressure shall include allowances for pressure surges, control system error, and system configuration effects such as static pressure heads.

(b) Design Temperature. The specified Design Temperature shall not be less than the expected maximum mean metal temperature through the thickness of the part considered for which Level A Service Limits are specified. Where a component is heated by trace heating, such as induction coils, jacketing, or by internal heat generation, the effect of such heat input shall be considered in

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establishing the Design Temperature. The Design Temperature shall consider control system error and system configuration effects.

(c) Design Mechanical Loads. The specified Design Mechanical Loads shall be selected so that when combined with the effects of Design Pressure, they produce the highest primary stresses of any coincident combination of loadings for which Level A Service Limits are designated in the Design Specification.

NCA-2142.2 Service Loadings. When the Design Specification or applicable Subsection of this Section requires computations to demonstrate compliance with specified Service Limits, the Design Specification shall provide information from which Service Loadings can be identified (pressure, temperature, mechanical loads, cycles, or transients). The Design Specification shall designate the appropriate Service Limit (NCA-2142.4) to be associated with each Service Loading or combination of Loadings.

NCA-2142.3 Test Loadings.

(a) Test Loadings include pressure tests required by this Section.

(b) Loads due to other types of tests as may be required by the Owner shall be included in the Design Specification.

NCA-2142.4 Design, Service, and Test Limits.

(a) Design Limits. The limits for Design Loadings shall meet the requirements of the appropriate Subsection of this Section.

(b) Service Limits. The Design Specification may designate Service Limits as defined in (1) through (4) below.

(1) Level A Service Limits. Level A Service Limits are those sets of limits that must be satisfied for all Level A Service Loadings identified in the Design Specifications to which the component or support may be subjected in the performance of its specified service function.

(2) Level B Service Limits. Level B Service Limits are those sets of limits that must be satisfied for all Level B Service Loadings identified in the Design Specifications for which these Service Limits are designated. The component or support must withstand these loadings without damage requiring repair.

(3) Level C Service Limits. Level C Service Limits are those sets of limits that must be satisfied for all Level C Service Loadings identified in the Design Specifications for which these Service Limits are designated. These sets of limits permit large deformations in areas of structural discontinuity that may necessitate the removal of the component or support from service for inspection or repair of damage to the component or support. Therefore, the selection of this limit shall be reviewed by the Owner for compatibility with established system safety criteria (NCA-2141).

(4) Level D Service Limits. Level D Service Limits are those sets of limits that must be satisfied for all Level D Service Loadings identified in the Design Specifications for which these Service Limits are designated. These sets of limits permit gross general deformations with some consequent loss of dimensional stability and damage requiring repair, that may require removal of the component or support from service. Therefore, the selection of this limit shall be reviewed by the Owner for compatibility with established system safety criteria (NCA-2141).

(c) Alternative Service Limits. Components or supports may be alternatively designed using more restrictive Service Limits than specified in the Design Specification. For example, Level B Service Limits may be used where Level C Service Limits have been specified.

(d) Test Limits

(1) The limits for Test Loadings shall meet the requirements of the appropriate Subsection of this Section.

(2) The selection of Limits for other tests defined by the Owner [NCA-2142.3(b)] shall be included in the Design Specification.

NCA-2143 Acceptance Criteria

(a) Components and supports shall comply with the design rules established for Design, Service, and Test Loadings in the appropriate Subsections.

(b) It is the responsibility of the Owner to define acceptance criteria for the Service Level Loading for which acceptance criteria are not contained in this Section.

(c) Design documentation shall be completed in accordance with the requirements of the Subsection applicable to the component or support.

NCA-2144 Concrete Containments

Concrete containments, in addition to satisfying the structure design allowables (CC-3400), shall be evaluated for load categories in CC-3200.

NCA-2160 SPECIAL REQUIREMENTS APPLIED TO CODE CLASSES

Contractual arrangements between the Owner and Certificate Holder that specify requirements in addition to or more restrictive than those specified by the rules of this Section for the applicable class of an item may be applied, provided such requirements do not negate any rules of this Section. Such special contractual requirements are beyond the scope of this Section and shall not apply as conditional requirements for Code construction of items.

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ARTICLE NCA-3000
RESPONSIBILITIES AND DUTIES

NCA-3100 GENERAL

NCA-3110 RESPONSIBILITIES VS. LEGAL LIABILITIES

The various parties involved in the construction of a nuclear power plant or items that come under the jurisdiction of this Section have specific responsibilities for complying with these requirements. The responsibilities set forth herein relate only to Code compliance and are not to be construed as involving contractual or legal liabilities.

NCA-3120 CERTIFICATION

NCA-3121 Types of Certificates

Table NCA-8100-1 lists the types of certificates issued by the Society and indicates the responsibilities assumed by each Certificate Holder. Further details of these responsibilities are contained in this Article.

NCA-3125 Subcontracted Services

(a) Services may be subcontracted that are both within and beyond the scope of this Section. There are no requirements for the subcontracting of services beyond the scope of this Section. Services covered by this Section may either be of a type for which the Society issues certificates, or may be of the type for which the Society does not issue a certificate. Subcontracts for activities for which certificates are required shall be made only to Certificate Holders. A Certificate Holder may subcontract to another organization the surveying and auditing of his subcontractors and Material Organizations, but must retain the responsibility for these activities and for the qualification of these subcontractors and Material Organizations.

(b) It is the right of an N Certificate Holder to subcontract stress analysis or complete design of all or a portion of a component. However, the N Certificate Holder is responsible for the design of the component and for the design output documents.

(c) The Quality Assurance Manual shall describe the manner in which the Certificate Holder controls and accepts the responsibility for the subcontracted activities.

NCA-3126 Subcontracted Calibration Services

As an alternative to survey and audit of suppliers of subcontracted services, a Certificate Holder or Material Organization 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:

(a) The accreditation is to ANSI/ISO/IEC 17025:2005, "General Requirements for the Competence of Testing and Calibration Laboratories."

(b) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.

(c) The Certificate Holder or Material Organization 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.

(d) The Certificate Holder or Material Organization shall be responsible for reviewing objective evidence for conformance to the procurement documents.

(e) This activity shall be documented in the Certificate Holder's or Material Organization's Quality Program Manual.

NCA-3130 WELDING[6] AND SUBCONTRACTING DURING CONSTRUCTION

NCA-3131 Welding During Construction

For Divisions 1 and 2, it is required that all shop and field welding during Code construction be done only by a Certificate Holder holding a certificate appropriate to the scope of welding to be performed. A Certificate Holder may engage individuals by contract for their services as welders or welding operators at the site location shown on the certificate, provided conditions of (a) through (g) below are met. This is an acceptable method of complying with Section IX requirements concerning responsibility for welding.

(a) The work to be done by such welders and welding operators is within the scope of the certificate.

(b) The use of such welders and welding operators is contained in the Quality Assurance Program of the Certificate Holder. The Quality Assurance Program (NCA-3462, NCA-3562, NCA-3662, NCA-3685, or NCA-3762) shall include a requirement for direct supervision and direct technical control of the welders and welding operators by the Certificate Holder during such welding operations,

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and this program shall be acceptable to the Certificate Holder's Authorized Inspection Agency (NCA-5121) performing the inspections.

(c) The welding procedures have been properly qualified by the Certificate Holder, and Code responsibility for such procedures is retained by the Certificate Holder.

(d) The welders and welding operators are qualified by the Certificate Holder to perform such procedures.

(e) The Certificate Holder shall have contractual control of the welding operation, including authority to assign or remove welders and welding operators at his discretion.

(f) The Certificate Holder shall be responsible for Code compliance of the completed item or installation including Certification Mark and providing the completed appropriate Data Report Form.

(g) Exceptions to the requirements of this paragraph for furnace brazing operations are specified in NCA-3561(c), NCA-3661(b), and NCA-3761(b).

NCA-3132 Subcontracted Construction Services — Division 2

A Certificate Holder may engage individuals or organizations not holding a certificate to provide subcontracted construction services other than welding at the site location shown on the certificate, provided all of the following conditions are met.

(a) The activities, such as placement of concrete or reinforcing steel, to be performed by subcontracted individuals or organizations are included within the Scope of the certificate of the Certificate Holder, and a description of the subcontracted activities is contained in the Certificate Holder's Quality Assurance Program.

(b) The Quality Assurance Program (NCA-3462, NCA-3662) shall include requirements for direct technical control of such individuals or organizations. Technical control by the Certificate Holder includes controlling the performance of all Code required examinations, inspections, and tests including documentation and record retention. The Quality Assurance Program shall be acceptable to the Society (NCA-8120) and to the Authorized Nuclear Inspector Supervisor (NCA-5122).

(c) The construction procedures have been approved by the Certificate Holder, and Code responsibility for such procedures is retained by the Certificate Holder.

(d) Splicers for sleeve filler metal splices or mechanical reinforcing bar splices are qualified as required by this Section, provided their qualifications are reviewed and approved by the Certificate Holder.

(e) The Certificate Holder shall have contractual control of the construction operation, including authority to assign or remove individuals or organizations at his discretion.

(f) The Certificate Holder shall be responsible for Code compliance of the completed item including Certification Mark and providing the completed, applicable Data Report Form.

(g) Provisions shall be made by the Certificate Holder for the Authorized Inspector to have access to all areas and functions required to perform his duties, including those of procedure development and qualification performed by a subcontractor for the Certificate Holder.

NCA-3200 OWNER'S RESPONSIBILITIES

NCA-3220 CATEGORIES OF THE OWNER'S RESPONSIBILITIES

The responsibilities of the Owner include the requirements of (a) through (u) below

(a) obtaining an Owner's Certificate (NCA-3230)

(b) documenting a Quality Assurance Program (NCA-8140)

(c) obtaining a written agreement with an Authorized Inspection Agency (NCA-3230 and NCA-8130)

(d) certifying and filing of Owner's Data Report (NCA-3280)

(e) establishing the Code Editions, Addenda, and Code Cases to be used in Design Specifications, and determining that they are acceptable to the regulatory and enforcement authorities having jurisdiction at the nuclear power plant site (NCA-1140)

(f) verifying through a review of the required documentation that the Code Editions, Addenda, and Code Cases used for completed components and supports, and materials satisfy NCA-1140 and are acceptable to the regulatory and enforcement authorities

(g) classifying equipment (NCA-2110 and NCA-3253)

(h) designating the Designer, Constructor, and Fabricators for Division 2 construction and verifying through a review of the required documentation that the Designer has fulfilled his responsibilities for Division 2 construction

(i) providing adequate structures, foundations, and auxiliary systems for the items covered by both Divisions of this Section (NCA-3240)

(j) providing and correlating Design Specifications, including establishment of component and system boundaries (NCA-3252)

(k) certifying Design Specifications (NCA-3255)

(l) reviewing Design Reports (NCA-3260)

(m) designating the overpressure protection requirements for each component or system, including the Class of overpressure protection rules assigned to each component or system and the location of the overpressure protection devices[7]

(n) providing and filing the Overpressure Protection Report (NCA-3270) required for the nuclear power system

(o) reviewing and approving the Construction Specification, Design Drawings, and Construction Report for Division 2 construction (Table NCA-3200-1)

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Table NCA-3200-1
Document Distribution for Division 2 Construction

Document	Prepared by	Reviewed by	Certified by	Approved by	Provided to [Note (1)]	Available on Request
Design Specification (NCA-3250)	O	O	O	...	D, C, I, J	...
Construction Specification (NCA-3340)	D	O	D	O	O, C, F, M	I, J
Design Drawings (NCA-3340)	D	O	D	O	O, C, F, M	I, J
Design Report (NCA-3350)	D	O	D	O	O	I, J
Construction procedures [Note (1)] (NCA-3451)	C, F	D	...	D	D, O	I, J
Certified Material Test Reports or Certificates of Compliance [Note (1)] (CC-2130)	M	C, F	M	...	C, F, O	I, J, D
Shop and field drawings [Note (1)] (NCA-3452)	C, F	D	...	D	C, F	I
Construction Report (NCA-3454)	C	O, D	D	O	D, O, J	I, J
Data Report Form C-1 (NCA-8410)	C	...	D, C, I	...	O	I, J
Data Report Form N-2 (NCA-8410)	F	...	F, I	...	C	I, J
Data Report Form N-3 (NCA-8420)	...	O, I	...	J	...	...

Legend:

O — Owner or his designee
D — Designer
C — Constructor
F — Fabricator
M — Material manufacturer
I — Inspector
J — Enforcement authority

NOTE:
(1) Information provided to the indicated participants when required to satisfy their designated responsibilities under this Section. Other information provided only by specific arrangement with the Owner. Participants are required to furnish only such information as is necessary to permit the recipient to perform his duties in conformance with this Section. Other information may be furnished at the discretion of the responsible parties.

(p) making available to the Inspector the documents specified by this Section and those requested by the Inspector to ensure compliance with Code requirements (NCA-5242)

(q) designating Designer's responsibilities with respect to construction surveillance for Division 2 construction (NCA-3252)

(r) providing for the design and arrangement of components to permit accessibility in accordance with Section XI

(s) designating the preservice inspection requirements [NCA-3252(c)]

(t) designating records to be maintained and providing for their maintenance (NCA-3290)

(u) performing other duties as defined throughout this Section

The activities necessary to provide compliance with responsibilities assigned to the Owner by (e) through (u) above may be performed on the Owner's behalf by a designee; however, the responsibility for compliance remains with the Owner. When the Owner assigns any of the responsibilities listed in (e) through (u) above, such assignment shall contain, as a minimum, the name and address of the designee, the responsibilities being assigned, and the applicable nuclear facility or facilities.

NCA-3230 OWNER'S CERTIFICATE

The Owner, after receipt of notification from the regulatory authority that an application for a construction permit or combined license for a specific plant has been docketed, shall obtain an Owner's certificate from the Society for unit(s) docketed concurrently for each site prior to beginning field installation. The information to be supplied by the Owner when making applications is given in forms issued by the Society. A written agreement with an Authorized Inspection Agency (NCA-8130) is required prior to application.

NCA-3240 PROVISION OF ADEQUATE SUPPORTING STRUCTURES

It is the responsibility of the Owner to assure that intervening elements, foundations, and building structures adequate to support the items covered by this Section are provided and to assure that jurisdictional boundary interfaces for Code items are defined and compatible. Loads imposed upon structures outside the scope of this Section by items covered by this Section shall be defined in the Design Specification. Concrete reactor vessels or concrete containments bearing on soil or rock or on

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caissons or piles require an allowable bearing pressure or allowable load per caisson or pile to be determined by the Owner and furnished to the Designer.

NCA-3250 PROVISION OF DESIGN SPECIFICATIONS

NCA-3251 Provision and Correlation

It is the responsibility of the Owner to provide, or cause to be provided, Design Specifications for components, supports, and appurtenances. The Owner, either directly or through his designee, shall be responsible for the proper correlation of all Design Specifications. Separate Design Specifications are not required for parts, piping subassemblies, appurtenances, or supports when they are included in the Design Specification for a component (NCA-1210). However, the applicable data from the component Design Specification (Division 1) or the Construction Specification and Design Drawings (Division 2) shall be provided in sufficient documented detail to form the basis for fabrication in accordance with this Section.

NCA-3252 Contents of Design Specifications[8]

(a) The Design Specifications shall contain sufficient detail to provide a complete basis for Division 1 construction or Division 2 design in accordance with this Section. Such requirements shall not result in construction that fails to conform with the rules of this Section. All Design Specifications shall include (1) through (8) below

(1) the functions and boundaries of the items covered (NCA-3254)

(2) the design requirements [NCA-2110(a) and NCA-2110(b) and NCA-2140] including all required overpressure protection requirements [NCA-3220(m)]

(3) the environmental conditions,[9] including radiation

(4) the Code classification of the items covered (Article NCA-2000)

(5) material requirements including impact test requirements

(6) additional fracture mechanics data for base metal, weld metal, and heat affected zone required to use Section III Appendices, Nonmandatory Appendix G, Figure G-2210-1 in accordance with Section III Appendices, Nonmandatory Appendix G, G-2110(b), when the methods of Section III Appendices, Nonmandatory Appendix G are used to provide protection against nonductile fracture for materials that have specified minimum yield strengths at room temperature greater than 50.0 ksi (345 MPa) but not exceeding 90.0 ksi (620 MPa); where these materials of higher yield strengths are to be used in conditions where radiation may affect the material properties, the effect of radiation on the K_{Ic} curve shall be determined for the material prior to its use in construction

(7) when operability of a component is a requirement, the Design Specification shall make reference to other appropriate documents that specify the operating requirements

(8) the effective Code Edition, Addenda, and Code Cases to be used for construction

(b) A Design Specification shall be provided for each concrete containment serving in a single power generating unit or for multiple concrete containments at the same site. In addition to the requirements of (a) above, the Design Specifications for Division 2 items shall also include (1) through (7) below

(1) design life

(2) corrosion effects

(3) structural acceptance testing requirements (CC-6000)

(4) shielding requirements

(5) construction surveillance required by the Designer

(6) foundation type and allowable loading, if applicable (NCA-3240)

(7) loads from internal structures (NCA-2132)

(c) The Design Specification shall identify those components and/or parts that require a preservice examination and shall include the following:

(1) examination

(-a) Edition and Addenda of Section XI to be used

(-b) category and method, and

(-c) qualifications of personnel, procedures, and equipment

(2) welds

(-a) surface conditioning requirements, and

(-b) identification/marking system to be used

NCA-3253 Classification of Components, Parts, and Appurtenances

The Owner, either directly or through his designee, shall establish the Code classification of the items that comprise the nuclear power plant.

NCA-3254 Boundaries of Jurisdiction

In order to define the boundaries of components with respect to adjacent components, intervening elements, and other structures, the Design Specifications shall include

(a) the locations of each such boundary

(b) the forces, moments, strains, or displacements that are imposed at each such boundary

(c) the structural characteristics of the attached components or structures, whether or not they are within this Section's jurisdiction when such components or structures provide constraints to the movement of components or appurtenances

(d) when the foundation support is constructed as an integral part of the concrete containment, it shall be included within this Section's Division 2 jurisdiction to the extent required by NCA-2132

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NCA-3254.1 Definition of Division 1 Boundaries.

(a) The boundaries for Class 1 components are given in NB-1130.

(b) The boundaries for Class 2 components are given in NC-1130.

(c) The boundaries for Class 3 components are given in ND-1130.

(d) The boundaries for metal containment vessels are given in NE-1132.

(e) The boundaries for supports are given in NF-1130.

(f) The boundaries for core support structures are given in NG-1130.

NCA-3254.2 Definition of Division 2 Boundaries. The Design Specification shall define the boundaries of Division 2 in accordance with the limits defined in CC-1140; it shall also show the external boundaries of the component with respect to its supporting structures. Where the support is constructed as an integral part of the concrete containment, it shall be included within the jurisdiction of Division 2 to the extent required by CC-1140. The Design Specification shall include the specific dimensional location of each boundary, including the boundaries for parts and appurtenances designated to meet the requirements of Division 1.

NCA-3255 Certification of the Design Specifications

The Design Specifications shall be certified to be correct and complete and to be in compliance with the requirements of NCA-3250 by one or more Registered Professional Engineers, competent in the applicable field of design and related nuclear power plant requirements and qualified in accordance with the requirements of Section III Appendices, Mandatory Appendix XXIII. These Registered Professional Engineers are not required to be independent of the organization preparing the Design Specifications. Document distribution for Division 2 construction is shown in Table NCA-3200-1.

NCA-3256 Filing of Design Specifications

(a) The Design Specifications in their entirety shall become a principal document governing design and construction of items. A copy of the Design Specification shall be made available to the Inspector at the manufacturing site before fabrication begins, and a copy shall be filed at the location of the installation and made available to the enforcement authorities having jurisdiction over the plant installation before components or appurtenances are placed in service. In the case of parts, piping subassemblies, appurtenances, and supports, the Design Specifications need not be made available to the Inspector at the fabrication site (NCA-3251). However, the applicable data from the Design Specifications that form the basis for fabrication shall be made available to the Inspector at the fabrication site. Document distribution for Division 2 construction is shown in Table NCA-3200-1.

(b) For pumps and valves 4 in. nominal pipe size (DN 100) and less, for linear supports used as mechanical snubbers, and for standard supports, the Certificate Holder may provide his own Design Specification in accordance with NCA-3252 as a basis for construction. Prior to installation, the Owner or his designee shall be responsible for reconciling the Certificate Holder's Design Specification with his own Design Specification.

NCA-3260 REVIEW OF DESIGN REPORT

(a) The Design Report that the Certificate Holder or the Designer provides shall be reviewed by the Owner or his designee to determine that all the Design and Service Loadings as stated in the Design Specification have been evaluated, and that the acceptance criteria explicitly provided for in this Section, or additional acceptance criteria permitted by this Section when established in the Design Specification, associated with the specified Design and Service Conditions, have been considered. The responsibility for the method of analysis and the accuracy of the Design Report remains with the Certificate Holder or the Designer.

(b) Except as provided for in (c) below, documentation shall be provided by the Owner or his designee to indicate that the review required by (a) above has been conducted. Prior to the stamping of the component, a copy of this documentation shall be attached to the copy of the Design Report that is made available to the Inspector. A copy of this documentation shall be included with the Design Report, that is filed at the location of the installation in accordance with NCA-4134.17 and made available to the regulatory and enforcement authorities having jurisdiction at the site of the nuclear power plant installation. Document distribution for Division 2 construction is shown in Table NCA-3200-1.

(c) When a Certified Design Report Summary (NCA-3551.3) is furnished in lieu of a Design Report (NCA-3551.1), for standard supports, documentation shall be provided by the Owner or the Owner's designee to indicate that the Certified Design Report Summary has been reviewed in accordance with (a) above. Prior to stamping of the component, including piping systems, a copy of this documentation shall be attached to the Certified Design Report Summary that is made available to the Inspector. A copy of this documentation and the Certified Design Report Summary shall be filed at the location of the installation in accordance with NCA-4134.17 and made available to the regulatory and enforcement authorities having jurisdiction at the site of the nuclear power plant.

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NCA-3270 OVERPRESSURE PROTECTION REPORT

NCA-3271 Responsibility and Content

It is the responsibility of the Owner to provide, or cause to be provided, an Overpressure Protection Report for each component or system (NB-7200, NC-7200, ND-7200, or NE-7200).

NCA-3272 Certification of Report

The report shall be certified as specified in NB-7230, NC-7230, ND-7230, or NE-7230.

NCA-3273 Filing of Report

The report shall be filed as specified in NB-7250, NC-7250, ND-7250, or NE-7250.

NCA-3280 OWNER'S DATA REPORT AND FILING

The Owner or his designee shall prepare Form N-3 (Section III Appendices, Mandatory Appendix V).

NCA-3290 OWNER'S RESPONSIBILITY FOR RECORDS

The Owner shall be responsible for designating the records to be maintained (NCA-4134.17). The Owner shall also be responsible for continued maintenance of the records required by this Section and Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, at the power plant site, the Certificate Holder's plant, or other locations determined by the Owner. The Owner shall advise the enforcement authority in writing regarding the location of the records.

NCA-3300 RESPONSIBILITIES OF A DESIGNER — DIVISION 2

NCA-3320 CATEGORIES OF THE DESIGNER'S RESPONSIBILITY

The Designer has the following categories of responsibility:

(a) prepare structural design of the component in conformance with this Section and the Design Specification (NCA-3250)

(b) prepare the Design Drawings and Construction Specification (NCA-3340)

(c) prepare and submit the Design Report (NCA-3350)

(d) surveillance of construction to the extent designated by the Owner in the Design Specification (NCA-3220)

(e) review of construction documents (NCA-3450) as specified in the Construction Specification

(f) establish and maintain a Quality Assurance Program (NCA-4134)

(g) modifications of Design Drawings and Construction Specification (NCA-3370)

(h) certification of the Construction Report (NCA-3380)

(i) document distribution as shown in Table NCA-3200-1

NCA-3340 DESIGN DRAWINGS AND CONSTRUCTION SPECIFICATION

NCA-3341 Design Drawings

The Design Drawings shall contain the following:

(a) concrete and steel liner thickness

(b) size and location of reinforcing steel

(c) size and location of prestressing tendons

(d) size and location of penetrations

(e) all other details necessary to construct the item in accordance with the requirements of the Design Specification, the Construction Specification, and this Section

NCA-3342 Construction Specification

The Construction Specification shall contain the following:

(a) material specifications

(b) material shipping, handling, and storage requirements

(c) inspection requirements

(d) appropriate Code references

(e) requirements for personnel or equipment qualification

(f) material or part examination and testing requirements

(g) acceptance testing requirements

(h) leak testing requirements

(i) requirements for shop drawings

(j) requirements for batching, mixing, placing, and curing concrete

(k) requirements for the fabrication and installation of the prestressing system, reinforcing steel, embedments, and all other parts

(l) identification of parts requiring a Certification Mark

(m) design life for parts and materials where necessary to establish compliance with the Design Specification

(n) construction surveillance to be performed by the Designer as required by the Design Specification

(o) construction documents that require review by the Designer and those that require both review and approval by the Designer — as a minimum, these will include the requirements of Table NCA-3200-1

NCA-3350 DESIGN REPORT

The Designer shall prepare a Design Report in sufficient detail to show that the applicable stress limitations are satisfied when the component is subject to the loading conditions specified in the Design Specification and this Section. The Design Report prepared by the Designer shall contain calculations and sketches substantiating that the design is in accordance with the Design Specification and this Section. Distribution of the Design Report is shown in Table NCA-3200-1.

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NCA-3360 CERTIFICATION OF THE CONSTRUCTION SPECIFICATION, DESIGN DRAWINGS, AND DESIGN REPORT

(a) The Construction Specification, Design Drawings, and Design Report shall be reviewed and certified to be correct and in accordance with the Design Specification and this Section by one or more Registered Professional Engineers competent in the field of design of concrete components and qualified in accordance with the requirements of Section III Appendices, Mandatory Appendix XXIII. These Registered Professional Engineers are not required to be independent of the organization designing the component. Distribution of Construction Specification, Design Drawings, and the Design Report is shown in Table NCA-3200-1.

(b) In order for the Designer to certify the Construction Specification and Design Drawings, it is necessary that the Design Specification has been certified. For the Constructor or Fabricator to do work in accordance with Construction Specifications and Design Drawings, it is necessary that these documents have been certified.

NCA-3370 REVISION OF DESIGN DRAWINGS AND CONSTRUCTION SPECIFICATION

Design Documents issued for use in construction shall be revised to reflect any change in the Design. Changes to Design Documents shall be reviewed and certified in accordance with NCA-3360.

NCA-3380 CERTIFICATION OF CONSTRUCTION REPORT

The Construction Report shall be evaluated by the Designer, who shall certify that the Construction Report conforms to the requirements of Division 2 and the Design Specification. He shall also provide any supplemental analysis needed to substantiate this evaluation. Prior to certification, he shall review the file of as-built, design, shop, and field drawings to establish that the list provided by the Constructor in the Construction Report corresponds to the as-built, design, shop, and field drawings that will be maintained as a file by the Owner. Distribution of the Construction Report is shown in Table NCA-3200-1.

NCA-3400 RESPONSIBILITIES OF AN N CERTIFICATE HOLDER — DIVISION 2

NCA-3420 CATEGORIES OF THE N CERTIFICATE HOLDER'S RESPONSIBILITIES

The N Certificate Holder is responsible for

(a) obtaining an N Certificate (NCA-3430)

(b) constructing the components and parts in accordance with the Design Drawings and Construction Specification(s) and in accordance with this Section

(c) qualification of Metallic Material Organizations (NCA-3800)

(d) qualification of manufacturers of nonmetallic material (NCA-3900)

(e) establishing and maintaining a Quality Assurance Program (NCA-3460)

(f) documenting a Quality Assurance Program (NCA-3462)

(g) filing the Quality Assurance Manual (NCA-3463)

(h) preparing construction procedures (NCA-3451)

(i) preparing shop and field drawings (NCA-3452)

(j) preparing the Construction Report (NCA-3454)

(k) obtaining agreement with an Authorized Inspection Agency (NCA-8130)

(l) Data Reports (NCA-3455)

(m) document distribution as shown in Table NCA-3200-1

(n) structural integrity testing (Article CC-6000)

(o) making available to the Inspector the documents specified by this Section and those requested by him to assure compliance with Code requirements

(p) review of Certified Material Test Reports and Certificates of Compliance for materials (NCA-1220) used by him

(q) preparation, accumulation, control, and protection of required records while in his custody (Tables NCA-4134.17-1 and NCA-4134.17-2)

(r) documentation of review and approval of material used by him as permitted by NCA-1140(e)

NCA-3430 OBTAINING A CERTIFICATE

An N Certificate (NCA-8100) shall be obtained for the construction of any concrete containment intended to be in compliance with the requirements of this Section and to be stamped with a Certification Mark with N Designator.

NCA-3440 COMPLIANCE WITH THIS SECTION

The N Certificate Holder has the responsibility for constructing the concrete containment in accordance with the Design Drawings and Construction Specification and in accordance with this Section. For Division 2 construction, the N Certificate Holder's responsibilities do not include design of the component.

NCA-3450 CONSTRUCTION DOCUMENTS

NCA-3451 Construction Procedures

Construction procedures give sufficient detailed information about the methods of construction and fabrication to enable those reviewing the procedures to determine whether the requirements of the Design Specification, the Construction Specification, and the Design Drawings will be satisfied. Construction procedures will include test procedures to be performed by the Certificate Holder that

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are needed to establish conformance with the requirements of the documents listed in this Article. Distribution of procedures is shown in Table NCA-3200-1.

NCA-3452 Shop and Field Drawings

The Certificate Holder shall provide shop and field drawings. Distribution of shop and field drawings is shown in Table NCA-3200-1.

NCA-3453 Material Documentation

The N Certificate Holder shall assemble records to verify that materials comply with the requirements of this Section and the Construction Specification.

NCA-3454 Contents of the Construction Report

The N Certificate Holder shall provide a Construction Report. The report shall include the following:

(a) a summary of construction progress showing key dates of major construction activities

(b) a complete and detailed record of all containment acceptance testing

(c) a summary of quality control records for components and parts

(d) a list of as-built, design, field, and shop drawings showing the latest revision used for construction and date

(e) a summary of deviations (nonconformances) giving a brief description of the nature of the deviations (nonconformances) and the corrective actions and the date when the corrective actions were taken

(f) distribution and approvals as shown in Table NCA-3200-1

NCA-3455 Data Report

The N Certificate Holder shall certify by signing Form C-1 (Section III Appendices, Mandatory Appendix V) that all details of materials, construction, and workmanship of the component conform to this Section and the Construction Specification. Distribution of the Data Reports is shown in Table NCA-3200-1.

NCA-3460 RESPONSIBILITY FOR QUALITY ASSURANCE

NCA-3461 Scope of Responsibilities for Quality Assurance

(a) The N Certificate Holder shall be responsible for surveying, qualifying, and auditing suppliers of subcontracted services (NCA-3125), including nondestructive examination contractors and Material Organizations. Material Organizations holding a Quality System Certificate (Materials) and Certificate Holders whose scope includes supply or manufacture and supply of material need not be surveyed nor audited for work or material covered by the scope of their certificate. Subcontractors holding an appropriate certificate need not be surveyed nor audited for work within the scope of the subcontractor's certificate.

(b) An N Certificate Holder may qualify vendors of subcontracted services other than those requiring a certificate, such as Material Organization, for another Certificate Holder doing work for that N Certificate Holder. The qualification documentation shall be supplied to the other Certificate Holder prior to their use of the subcontracted service or Material Organization.

NCA-3462 Documentation of Quality Assurance Program

The N Certificate Holder shall be responsible for documenting its Quality Assurance Program (NCA-4134).

NCA-3463 Filing of Quality Assurance Manual

The N Certificate Holder shall file with the Authorized Inspection Agency (NCA-5121) copies of the Quality Assurance Manual. The N Certificate Holder shall keep a copy on file available to the Inspector (NCA-5122).

NCA-3500 RESPONSIBILITIES OF AN N CERTIFICATE HOLDER — DIVISION 1

NCA-3520 CATEGORIES OF THE N CERTIFICATE HOLDER'S RESPONSIBILITIES

The N Certificate Holder's responsibilities include the following:

(a) obtaining an N Certificate (NCA-3530)

(b) compliance with this Section (NCA-3540)

(c) achievement of structural integrity (NCA-3540)

(d) provision of a Design Report (NCA-3550) when one is required including

(1) stress analysis of parts (NCA-3552)

(2) stress analysis of appurtenances (NCA-3553)

(3) reconciliation of Design Drawing changes with Design Report (NCA-3554)

(4) certification of Design Report (NCA-3555)

(5) availability of Design Report and its documentation of review to Inspector (NCA-3557)

(6) provision of Design Report to Owner or his designees for review, and documentation of review (NCA-3556)

(7) filing at the site of installation the Design Report or Certified Design Report Summary

(e) qualification of Material Organizations and suppliers of subcontracted services (NCA-3561)

(f) establishing and maintaining a Quality Assurance Program (NCA-3560 and NCA-3562)

(g) documenting a Quality Assurance Program (NCA-3562)

(h) filing the Quality Assurance Manual (NCA-3563)

(i) Data Reports (NCA-3570)

(j) obtaining an agreement with an Authorized Inspection Agency (NCA-8130)

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(k) making available to the Inspector the documents specified by this Section and those requested by him to assure compliance with Code requirements

(l) review of Certified Material Test Reports and Certificates of Compliance for materials (NCA-1220) used by him

(m) preparation, accumulation, control, and protection of required records while in his custody (NCA-4134.17)

(n) documentation of review and approval of material used by him as permitted by NCA-1140(e)

(o) subcontracting (NCA-3125) for materials, design, fabrication, installation, examination, testing, and inspection. The N Certificate Holder shall retain overall responsibility, including certification and stamping

NCA-3530 OBTAINING A CERTIFICATE

An N Certificate (NCA-8100) shall be obtained for the construction of any item intended to be in compliance with the requirements of this Section and to be stamped with a Certification Mark with N Designator. An N Certificate Holder may do all of the work of an NPT, NS, or NA Certificate Holder at the location shown on his certificate, provided that the scope of work is included in this certificate.

NCA-3540 COMPLIANCE WITH THIS SECTION

The N Certificate Holder has the responsibility for the structural integrity using the Design Specification as a basis of design, complying with this Section, and furnishing a Design Report if required.

NCA-3550 REQUIREMENTS FOR DESIGN OUTPUT DOCUMENTS

NCA-3551 General

The drawings used for construction shall comply with the Design Specifications and the rules of this Section and shall be in agreement with the other design output documents.

NCA-3551.1 Design Report.[10] The drawings used for construction shall be in agreement with the Design Report before it is certified and shall be identified and described in the Design Report. It is the responsibility of the N Certificate Holder to furnish a Design Report for each component and support, except as provided in NCA-3551.2 and NCA-3551.3. The Design Report shall be certified by a Registered Professional Engineer when it is for Class 1 components and supports, Class CS core support structures, Class MC vessels and supports, Class 2 vessels designed to NC-3200 (NC-3131.1), or Class 2 or Class 3 components designed to Service Loadings greater than Design Loadings. A Class 2 Design Report shall be prepared for Class 1 piping NPS 1 (DN 25) or smaller which is designed in accordance with the rules of Subsection NC.

NCA-3551.2 Load Capacity Data Sheet. The Load Capacity Data Sheet shall state the load capacity of the support and identify the tests and calculations used to establish the load capacity. The Load Capacity Data Sheet shall adequately identify the support. The Load Capacity Data Sheet for supports for Class 1 components, Class MC vessels, and Class 2 vessels designed to NC-3200 shall be certified by a Registered Professional Engineer qualified in accordance with the requirements of Section III Appendices, Mandatory Appendix XXIII. The Load Capacity Data Sheet shall specify the organization responsible for retaining the data substantiating the stated load capacity. Such data shall be on file and available for review.

NCA-3551.3 Certified Design Report Summary. For standard supports designed by analysis, a Certified Design Report Summary may be furnished in lieu of a Design Report when the manufacturer of the standard support provides his own Design Specification [NCA-3256(b)]. The Design Report used to justify the Certified Design Report Summary shall be certified by a Registered Professional Engineer. The Certified Design Report Summary shall include (a) through (g) below.

(a) A description or sketch of the standard support including the manufacturer's catalog item number or identification number.

(b) Identification and location of the standard support manufacturer's applicable Design Specification.

(c) Identification and location of the standard support manufacturer's applicable Design Report.

(d) The classification (Class 1, 2, 3, or combination) of the standard support.

(e) A summary of allowable loads, temperatures, and associated Service Level Limits that the designer of the piping system or other component may use in his design.

(f) Applicable Code Edition and Addenda.

(g) Date of Certification.

NCA-3552 Design Output Documents for Parts

When the N Certificate Holder purchases parts from an NPT Certificate Holder, it is the responsibility of the N Certificate Holder to provide or cause to be provided the calculations for the parts and to incorporate them into the design output documents.

NCA-3553 Design Output Documents for Appurtenances

The design output documents for each appurtenance that is to be attached to a completed component shall be provided unless they are already included in the component design output documents.

NCA-3554 Modification of Documents and Reconciliation With Design Report

Any modification of any document used for construction, from the corresponding document used for design analysis, shall be reconciled with the Design Report by

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the person or organization responsible for the design. A revision or addenda to the Design Report shall be prepared and (if required by NCA-3551.1) certified to indicate the basis on which this has been accomplished. All such revised documentation shall be filed with the completed Design Report.

NCA-3555 Certification of Design Report

(a) The Design Report for Class 1 components and supports, Class CS core support structures, Class MC vessels and supports, Class 2 vessels designed to NC-3200 (NC-3131.1), or Class 2 or Class 3 components designed to Service Loadings shall be certified by one or more Registered Professional Engineers competent in the applicable field of design and qualified in accordance with the requirements of Section III Appendices, Mandatory Appendix XXIII. The Design Report shall be certified only after all design requirements of this Section have been met. Such Registered Professional Engineers shall be other than the individuals certifying the Design Specifications (NCA-3255) but are not required by these rules to be independent of the organization holding the certificate.

(b) It is the intent of this Section that the certification of the Design Report shall in no way relieve the N Certificate Holder of the responsibility for the structural integrity of the completed item for the conditions stated in the Design Specifications.

NCA-3556 Submittal of Design Report for Owner Review

The N Certificate Holder shall submit to the Owner or his designee a copy of the completed Design Report for all components and supports for review and documentation of review to the extent required by NCA-3260.

NCA-3557 Availability of Design Report

The N Certificate Holder shall make a copy of the completed Design Report, Load Capacity Data Sheets, Certified Design Report Summaries, and the drawings used for construction available to the Inspector.

NCA-3560 RESPONSIBILITY FOR QUALITY ASSURANCE

NCA-3561 Scope of Responsibilities

(a) The N Certificate Holder shall be responsible for surveying, qualifying, and auditing suppliers of subcontracted services (NCA-3125), including nondestructive examination contractors and Material Organizations. Material Organizations holding Quality System Certificates (Materials), and Certificate Holders whose scope includes supply or manufacture of materials, need not be surveyed nor audited for work or material covered by the scope of their certificate. Subcontractors holding an appropriate Certificate of Authorization need not be surveyed nor audited for work within the scope of the subcontractor's certificate.

(b) An N Certificate Holder may qualify vendors of subcontracted services (NCA-3125) other than those requiring a Certificate of Authorization, such as Material Organization, for another Certificate Holder doing work for that N Certificate Holder. The qualification documentation shall be supplied to the other Certificate Holder prior to their use of the subcontracted service or Material Organization.

(c) An N Certificate Holder may subcontract furnace brazing operations involving uniform heating to an organization not holding a certificate, provided

(1) the work performed is within the scope of activities of the N Certificate Holder's Certificate

(2) the N Certificate Holder's Quality Assurance Program shall provide for the subcontracting of furnace brazing operations, including Authorized Inspection, and these provisions shall be acceptable to the N Certificate Holder's Authorized Inspection Agency

(3) the N Certificate Holder's Quality Assurance Program provides for surveillance by the N Certificate Holder at his subcontractor's facility during the brazing operation

(4) the N Certificate Holder shall be responsible for surveying and accepting the Quality System Programs of the subcontractor

(5) the N Certificate Holder shall assure that the subcontractor uses written procedures and brazing operators that have been qualified as required by the Code

(6) the N Certificate Holder shall be responsible for controlling the quality and for assuring that all materials and parts that are submitted to the Inspector for acceptance, including those brazed by subcontractors, conform to all applicable requirements of this Section

(d) N or NV Certificate Holders may supply replacement material without material supply being shown in the scope of their certificate, provided the following apply:

(1) Supply of replacement material is included in their Quality Assurance Program.

(2) The replacement material conforms to all applicable requirements of this Section.

(3) The replacement material is provided exclusively for incorporation into items originally manufactured or fabricated and furnished by the N or NV Certificate Holders under their certificate.

(4) Certified Material Test Reports or other documentation shall identify that replacement material is intended exclusively for incorporation into items originally manufactured by the N or the NV Certificate Holder.

NCA-3562 Documentation of Quality Assurance Program

The N Certificate Holder shall be responsible for documenting its Quality Assurance Program (NCA-4134).

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NCA-3563 Filing of Quality Assurance Manual

The N Certificate Holder shall file with the Authorized Inspection Agency (NCA-5121) copies of the Quality Assurance Manual. The N Certificate Holder shall keep a copy on file available to the Inspector (NCA-5122).

NCA-3570 DATA REPORT

The N Certificate Holder shall certify compliance with this Section by signing the appropriate Data Report including stamping (Article NCA-8000).

NCA-3600 RESPONSIBILITIES OF AN NPT CERTIFICATE HOLDER

NCA-3620 CATEGORIES OF THE NPT CERTIFICATE HOLDER'S RESPONSIBILITIES

The responsibilities of an NPT Certificate Holder include the following:

(a) obtaining an NPT Certificate (NCA-3630)

(b) compliance with this Section (NCA-3640)

(c) qualification of Material Organizations and suppliers of subcontracted services (NCA-3661)

(d) establishing and maintaining a Quality Assurance Program (NCA-3660)

(e) documenting a Quality Assurance Program (NCA-3662)

(f) filing the Quality Assurance Manual (NCA-3663)

(g) Data Reports (NCA-3670)

(h) contributing information to the Constructor needed for the preparation of the Construction Report for Division 2 construction (NCA-3454)

(i) obtaining agreement with an Authorized Inspection Agency (NCA-8130)

(j) fabricating parts assigned to him in accordance with the Design Drawings, Construction Specification(s), and in accordance with this Section

(k) preparing construction procedures and shop and field drawings

(l) distribution of documents for Division 2 construction as shown in Table NCA-3200-1

(m) making available to the Inspector the documents specified by this Section and those requested by him to assure compliance with Code requirements

(n) review of Certified Material Test Reports and Certificates of Compliance for materials (NCA-1220) used by him

(o) preparation, accumulation, control, and protection of required records while in his custody (NCA-4134.17)

(p) documentation of review and approval of material used by him as permitted by NCA-1140(e)

(q) provision of Design Report (NCA-3650) for appurtenances when not included in the component Design Report

NCA-3630 OBTAINING A CERTIFICATE

An NPT Certificate (NCA-8100) shall be obtained for the construction of any item intended to be in compliance with the requirements of this Section and to be stamped with a Certification Mark with NPT Designator.

NCA-3640 COMPLIANCE WITH THIS SECTION

The NPT Certificate Holder shall have all work performed in accordance with the applicable requirements of this Section.

NCA-3650 DESIGN DOCUMENTS FOR APPURTENANCES

The Design Documents for each appurtenance which is to be attached to a completed component shall be provided unless they are already included in the component Design Documents.

NCA-3660 RESPONSIBILITY FOR QUALITY ASSURANCE

NCA-3661 Scope of Responsibilities

(a) The NPT Certificate Holder shall be responsible for surveying, qualifying, and auditing the Quality System Programs of suppliers of subcontracted services (NCA-3125), including nondestructive examination contractors and Material Organizations. Material Organizations holding a Quality System Certificate (Materials), and Certificate Holders whose scope includes supply or manufacture and supply of materials need not be surveyed nor audited for work or material covered by the scope of their certificate. Subcontractors holding an appropriate Certificate need not be surveyed nor audited by the NPT Certificate Holder for work within the scope of the subcontractor's certificate.

(b) An NPT Certificate Holder may subcontract furnace brazing operations involving uniform heating to an organization not holding a certificate, provided

(1) the work performed is within the scope of activities of the NPT Certificate Holder's Certificate

(2) the NPT Certificate Holder's Quality Assurance Program shall provide for the subcontracting of furnace brazing operations, including Authorized Inspection, and these provisions shall be acceptable to the NPT Certificate Holder's Authorized Inspection Agency

(3) the NPT Certificate Holder's Quality Assurance Program provides for surveillance by the NPT Certificate Holder at his subcontractor's facility during the brazing operation

(4) the NPT Certificate Holder shall be responsible for surveying and accepting the Quality System Programs of the subcontractor

(5) the NPT Certificate Holder shall assure that the subcontractor uses written procedures and brazing operators that have been qualified as required by the Code

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(6) the NPT Certificate Holder shall be responsible for controlling the quality and for assuring that all materials and parts that are submitted to the Inspector for acceptance, including those brazed by subcontractors, conform to all applicable requirements of this Section

NCA-3662 Documentation of Quality Assurance Program

The NPT Certificate Holder shall be responsible for documenting its Quality Assurance Program (NCA-4134).

NCA-3663 Filing of Quality Assurance Program

The NPT Certificate Holder shall file with the Authorized Inspection Agency (NCA-5121) copies of the Quality Assurance Manual. The NPT Certificate Holder shall keep a copy on file available to the Inspector (NCA-5122).

NCA-3670 DATA REPORT

The NPT Certificate Holder shall certify compliance with this Section by signing the appropriate Data Report Form and applying the appropriate stamping (Article NCA-8000).

NCA-3680 RESPONSIBILITIES OF AN NS CERTIFICATE HOLDER

NCA-3681 Categories of the NS Certificate Holder's Responsibilities

The responsibilities of an NS Certificate Holder include the following:

(a) obtaining an NS Certificate (NCA-3682)

(b) compliance with this Section (NCA-3683)

(c) qualification of Material Organizations and suppliers of subcontracted services (NCA-3684)

(d) establishing and maintaining a Quality Assurance Program (NCA-3684)

(e) documenting a Quality Assurance Program (NCA-3685)

(f) filing the Quality Assurance Manual (NCA-3686)

(g) completing an NS-1 Certificate of Conformance (NCA-3687)

(h) compliance with NCA-1230 for supports supplied as parts or supports that are part of the piping subassemblies or component, with the exception that no stamping is required

(i) obtaining agreement with an Authorized Inspection Agency (NCA-8130)

(j) fabricating in accordance with the Design Drawings, Design Specification(s), and this Section

(k) providing a Design Specification for standard supports in accordance with NCA-3256(b) and, when required, preparation of design output documents for standard supports in accordance with NCA-3550

(l) complying with the provisions of design output documents (NCA-3550)

(m) making available to the AIA the documents specified by this Section and those requested by the Authorized Nuclear Inspector Supervisor for the annual audit

(n) review of Certified Material Test Reports and Certificates of Compliance for materials (NCA-1220) used by the NS Certificate Holder

(o) preparation, accumulation, control, and protection of required records in the NS Certificate Holder's custody (NCA-4134.17)

(p) documentation of review and approval of material used by the NS Certificate Holder as permitted by NCA-1140(e)

(q) an NS Certificate Holder may supply supports constructed to previous Boiler Code editions and addenda without stamping and ANI inspection

NCA-3682 Obtaining a Certificate

An NS Certificate (NCA-8100) shall be obtained for the construction of any support intended to be in compliance with the requirements of this Section.

NCA-3683 Compliance With This Section

The NS Certificate Holder shall have all work performed in accordance with the applicable requirements of this Section.

NCA-3684 Scope of Responsibilities

(a) The NS Certificate Holder shall be responsible for surveying, qualifying, and auditing the Quality Systems Programs of suppliers of subcontracted services (NCA-3125), including nondestructive examination contractors and Material Organizations. Material Organizations holding a Quality System Certificate (Materials) and Certificate Holders whose scope includes supply or manufacture and supply of materials need not be surveyed nor audited by the NS Certificate Holder for work or material covered by the scope of their certificate. Subcontractors holding an appropriate certificate need not be surveyed nor audited within the scope of the subcontractor's certificate.

(b) The qualification of organizations not certified by the Society shall be limited to the furnishing of material and subcontracted services to the NS Certificate Holder doing the qualifying.

NCA-3685 Documentation of Quality Assurance Program

The NS Certificate Holder shall be responsible for documenting their Quality Assurance Program (NCA-4134).

NCA-3686 Filing of Quality Assurance Program

The NS Certificate Holder shall file with the Authorized Inspection Agency (NCA-5121) copies of the Quality Assurance Manual. The NS Certificate Holder shall keep a copy on file available to the Authorized Nuclear Inspector Supervisor (NCA-5122).

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NCA-3687 NS-1 Certificate of Conformance

The NS Certificate Holder shall certify compliance with this Section by signing the NS-1 Certificate of Conformance for welded items (Article NCA-8000).

(a) Multiple supports of the same type can be listed by attaching additional sheets to the NS-1 Certificate of Conformance.

(b) The NS-1 Certificate of Conformance shall be forwarded to the Purchaser prior to or with the shipment.

(c) Each welded support shall be traceable to the NS-1 Certificate of Conformance using a permanent marking method that is not detrimental to the support being supplied.

NCA-3689 Certificate of Compliance

For those items not requiring an NS-1 Certificate of Conformance (i.e., non-welded supports), a Certificate of Compliance shall be supplied.

(a) The Certificate of Compliance shall include the Certificate of Authorization number and expiration date. When the Certificate Holder has design responsibility, the Certificate of Compliance shall include the number and revision level of the Design Report, the Certified Design Report Summary, or Load Capacity Data Sheet.

(b) For organizations that are not certificate holders, the Certificate of Compliance shall reference the Quality System Program, revision level, and date to which the work was performed that was approved by the organization to whom the supports are supplied. This shall be considered the manufacturing organization's certification that all activities have been performed in accordance with this Article.

NCA-3700 RESPONSIBILITIES OF AN NA CERTIFICATE HOLDER

NCA-3720 CATEGORIES OF THE NA CERTIFICATE HOLDER'S RESPONSIBILITIES

The NA Certificate Holder's responsibilities include the following:

(a) obtaining an NA Certificate (NCA-3730)

(b) compliance with this Section (NCA-3740)

(c) qualification of Material Organizations and suppliers of subcontracted services (NCA-3761)

(d) establishing and maintaining a Quality Assurance Program (NCA-3760)

(e) documenting the Quality Assurance Manual (NCA-3762)

(f) filing the Quality Assurance Manual (NCA-3763)

(g) Data Reports (NCA-3770)

(h) obtaining an agreement with an Authorized Inspection Agency (NCA-8130)

(i) making available to the Inspector the documents specified by this Section and those requested by him to assure compliance with Code requirements

(j) review of Certified Material Test Reports and Certificates of Compliance for materials (NCA-1220) used by him

(k) preparation, accumulation, control, and protection of required records while in his custody (NCA-4134.17)

(l) documentation of review and approval of material used by him as permitted by NCA-1140(e)

NCA-3730 OBTAINING A CERTIFICATE

An NA Certificate (NCA-8100) shall be obtained for the installation of any item intended to be in compliance with the requirements of this Section and to be stamped with the Certification Mark with NA Designator.

NCA-3740 RESPONSIBILITY FOR COMPLIANCE WITH THIS SECTION

The NA Certificate Holder has responsibility for those activities required to place and attach components to their support structures or join items in accordance with the applicable requirements of this Section.

NCA-3760 RESPONSIBILITY FOR QUALITY ASSURANCE

NCA-3761 Scope of Responsibilities

(a) The NA Certificate Holder shall be responsible for surveying, qualifying, and auditing suppliers of subcontracted services (NCA-3125), including nondestructive examination contractors and Material Organizations. Material Organizations holding a Quality System Certificate (Materials), and Certificate Holders whose scope includes supply or manufacture and supply of materials, need not be surveyed nor audited for work or material covered by the scope of their certificate. Subcontractors holding an appropriate N, NPT, or NA Certificate need not be surveyed nor audited by the NA Certificate Holder for work within the scope of the subcontractor's certificate.

(b) An NA Certificate Holder may subcontract furnace brazing operations involving uniform heating to an organization not holding a certificate, provided

(1) the work performed is within the scope of activities of the NA Certificate Holder's Certificate

(2) the NA Certificate Holder's Quality Assurance Program shall provide for the subcontracting of furnace brazing operations, including Authorized Inspection, and these provisions shall be acceptable to the Authorized Inspection Agency

(3) the NA Certificate Holder's Quality Assurance Program provides for surveillance by the NA Certificate Holder at his subcontractor's facility during the brazing operation

(4) the NA Certificate Holder shall be responsible for surveying and accepting the Quality System Programs of the subcontractor

(5) the NA Certificate Holder shall assure that the subcontractor uses written procedures and brazing operators that have been qualified as required by the Code

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(6) the NA Certificate Holder shall be responsible for controlling the quality and for assuring that all materials and parts that are submitted to the Inspector for acceptance, including those brazed by subcontractors, conform to all applicable requirements of this Section

NCA-3762 Documentation of Quality Assurance Program

The NA Certificate Holder shall be responsible for documenting his Quality Assurance Program (NCA-4134).

NCA-3763 Filing of Quality Assurance Manual

The NA Certificate Holder shall file with his Authorized Inspection Agency (NCA-5121) copies of the Quality Assurance Manual. The NA Certificate Holder shall keep a copy on file available to the Inspector (NCA-5122).

NCA-3770 DATA REPORT

The NA Certificate Holder shall certify compliance with this Section by signing the appropriate Data Report Forms and applying the appropriate stamping (Article NCA-8000).

NCA-3800 METALLIC MATERIAL ORGANIZATION'S QUALITY SYSTEM PROGRAM

NCA-3810 SCOPE AND APPLICABILITY

The requirements of NCA-3800 provide for various entities known as Certificate Holders, Material Organizations (NCA-3820), and approved suppliers (NCA-3855.3). These entities are involved in the performance of operations, processes, and services related to the procurement, manufacture, and supply of material, source material, and unqualified source material as defined in the Glossary (NCA-9200).

NCA-3811 Limitations

The following limitations apply to approved suppliers:

(a) approved suppliers shall not approve other suppliers of materials or services that affect materials

(b) approved suppliers may adopt a limited scope quality system program as approved by the Certificate Holder or Material Organization [NCA-3855.3(b)]

NCA-3812 Exclusions

Material falling within the small products exclusion of NB-/NC-/ND-/NE-/NF-/NG-2610 or material that is allowed by this Section to be furnished with a Certificate of Compliance, is exempted from the requirements of NCA-3800, except

(a) Certified Material Test Reports or Certificates of Compliance shall meet the requirements of NCA-3862.1

(b) for Class 1 construction only, material identification and marking shall meet the requirements of NCA-3856.3

NCA-3820 CERTIFICATION OR QUALIFICATION OF MATERIAL ORGANIZATIONS

(a) A Material Organization shall be certified by obtaining a Quality System Certificate (QSC) issued by the Society verifying the adequacy of the Material Organization's Quality System Program. The certified Material Organization that maintains an ASME Quality System Certificate is also known as a QSC (Quality System Certificate) Holder.

(b) Alternatively, the Certificate Holder (NCA-3461, NCA-3561, NCA-3661, NCA-3681, or NCA-3761) or, when included in its scope of activities, the certified Material Organization [(a)] may qualify Material Organizations not certified by the Society by evaluation of the organization's Quality System Program in accordance with the requirements of NCA-3842.

(c) A Certificate Holder may furnish material when stated in the scope of its certificate. In this case, a Quality System Certificate is not required, nor is the user of the material required to survey, qualify, or audit such a Certificate Holder.

NCA-3830 RESPONSIBILITIES OF MATERIAL ORGANIZATIONS

The Material Organization shall be responsible for establishing, documenting, implementing, and maintaining a Quality System Program in accordance with the requirements of NCA-3850, and as applicable to its scope of activities

(a) establishing and maintaining measures for the traceability of material or source material while under its control (NCA-3856)

(b) controlling quality during manufacture, including control of testing, examination, repair, and treatment of the material or source material (NCA-3857, NCA-3858)

(c) evaluating, qualifying, and auditing Material Organizations (NCA-3842), as provided by NCA-3820(b), except when the party holds a Quality System Certificate that covers the operations performed

(d) approving and controlling operations performed by suppliers of source material and subcontracted services (NCA-3855)

(e) preparing Certified Material Test Reports and Certificates of Compliance (NCA-3860)

(f) shipment of material (NCA-3857.4)

NCA-3840 EVALUATION OF THE PROGRAM

NCA-3841 Evaluation by the Society (15)

(a) The Society, when requested by the applicant on forms issued by the Society, will arrange for a survey of the Material Organization's Quality System Program for the scope of activities at the locations listed on the application. The Program will be evaluated on the basis of its compliance with the applicable material requirements of this Section and the requirements of this subarticle. The Quality System Certificate, that is issued for a 3-year

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period, will describe and specify the scope and limits of work and locations for which the certified Material Organization is qualified and will be subject to a planned audit program by the Society. Not later than 6 months prior to the expiration of the certificate, the certified Material Organization shall apply for a renewal evaluation and for issuance of a new certificate.

(b) The applicant shall supply all information required by forms provided by the Society.

(c) The applicant's Quality System Program shall be accepted by the Society prior to the issuance of a certificate.

(d) A controlled copy of the certified Material Organization's Quality System Manual shall be filed with the Society. The Manual shall be the Society's guide for surveying and auditing the certified Material Organization's continued compliance with the accepted Quality System Program.

(e) The certified Material Organization shall make available for on-site review by the Society any procedures, process sheets, or drawings as are necessary to understand the Program. Detailed technical procedures will not be approved by the Society. The certified Material Organization shall keep a controlled copy of the Manual on file and in a place and manner readily available to the Society's audit team.

(f) The certified Material Organization shall obtain the Society's review and acceptance of proposed revisions to the Quality System Manual prior to implementation.

(g) When the applicant requests that the scope of the Quality System Certificate include any combination of the activities specified in NCA-3851.2(a)(1) through NCA-3851.2(a)(6), the control of these activities shall be included in the Manual and will be reviewed by the Society.

NCA-3842 Evaluation by Parties Other Than the Society

NCA-3842.1 Qualification of Material Organizations.

(a) The qualification of Material Organizations by parties other than the Society shall be limited to the furnishing of source material, material, or subcontracted services to the certified Material Organization or Certificate Holder performing the evaluation, or their designee.

(b) When a Material Organization has been qualified by a certified Material Organization or Certificate Holder, it is not necessary for another party to requalify that organization for materials or services that are to be furnished to the party that performed the evaluation.

NCA-3842.2 Evaluation of the Qualified Material Organization's Program by Certified Material Organizations or Certificate Holders. Evaluation of a Material Organization's Quality System Program by parties other than the Society, as provided by NCA-3820(b), shall be performed in accordance with the requirements of (a) through (i) below.

(a) The Quality System Program shall be surveyed, accepted, and audited by the party performing the evaluation on the basis of its compliance with the applicable material requirements of this Section and the requirements of NCA-3850.

(b) The Quality System Manual (NCA-3853.1) shall be the party's guide for surveying and auditing the qualified Material Organization's continued compliance with the accepted Quality System Program.

(c) The qualified Material Organization shall make available for on-site review by the party performing the evaluation any procedures, process sheets, or drawings as are necessary to understand the Program. The qualified Material Organization shall keep a controlled copy of the Manual on file and in a place and manner readily available to the party performing the audit.

(d) The qualified Material Organization shall notify purchasers of material, source material, or subcontracted services accepting its Program of proposed revisions to its Quality System Manual. The party accepting the Program shall evaluate and accept such revisions prior to the implementation of the revisions on purchased materials or services.

(e) When the qualified Material Organization's scope of activities includes utilization of unqualified source material (NCA-3855.5), this activity shall be included in the Quality System Manual, and shall be reviewed by the party accepting the Program.

(f) When the qualified Material Organization's scope of activities includes approval and control of suppliers (NCA-3855.3), this activity shall be included in the Quality System Manual, and shall be reviewed by the party accepting the Program. During surveys or audits of qualified Material Organizations, the party performing the evaluation shall review objective evidence that the qualified Material Organization's control of suppliers is adequate to assure compliance with the applicable material requirements of this Section.

(g) When the qualified Material Organization's scope of activities includes shipment of material to parties other than the party performing the qualification, control of this activity shall be included in the Quality System Manual and shall be reviewed by the party accepting the Program. During surveys or audits of qualified Material Organizations, the party performing the evaluation shall review objective evidence that the qualified Material Organization's control of shipments is adequate to assure compliance with the applicable material requirements of this Section.

(h) Audits by parties performing evaluations of qualified Material Organizations shall meet the following requirements:

(1) The party performing the evaluation shall include audit frequency in their Manual.

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(2) Audit frequencies shall be commensurate with the schedule of production or procurement, but shall be conducted at least once triennially during the interval in which materials are controlled or services are performed by the Material Organization being evaluated.

(3) Audits shall meet the requirements of NCA-3859.1(a) through NCA-3859.1(c).

(i) The party performing the evaluation shall supplement triennial audits covering all the elements of a previously approved Quality System Program with annual audits or performance assessments documenting the effectiveness of the qualified Material Organization's Quality System Program. Performance assessments shall meet the following requirements:

(1) Assessment frequencies shall be commensurate with the schedule of production or procurement, but shall be conducted at least once annually during the interval in which materials or source materials are controlled, or services are supplied by the Material Organization being evaluated.

(2) Assessments shall include a documented review of the qualified Material Organization's history of conditions adverse to quality, nonconformances, and corrective actions.

(3) Assessments shall include a documented review of periodic testing performed since the last assessment to demonstrate conformance of sample materials to selected requirements of the material specification. Such testing shall be conducted during the period since the last assessment by the party performing the evaluation.

NCA-3850 QUALITY SYSTEM PROGRAM REQUIREMENTS

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, 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.

NCA-3851.3 Organization.

(a) The organizational structure for executing the Program may take various forms, provided the persons and organizations assigned the quality system functions have the required authority and organizational freedom.

(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

(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, 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

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(d) Individuals or groups assigned the responsibility of checking, auditing, or otherwise verifying that production and quality control 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.

NCA-3852 Personnel

NCA-3852.1 Indoctrination, Training, and Qualification of Personnel.

(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:

(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.

(4) Training shall be provided, as needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, and job responsibilities.

(b) All nondestructive examination personnel shall be qualified in accordance with 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.

(b) Qualification records of all nondestructive examination personnel shall be documented and maintained.

(c) Qualification records of personnel who lead audits shall be documented and maintained and shall include education, experience, audit training and examination, and audit participation used as the basis of qualification.

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.

(d) The Quality System Manual may be hard copy or electronic, provided the controls are described to assure approved revisions are made available for use by the Material Organization personnel.

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.

NCA-3853.3 Document Control. The preparation, issue, and change of documents, including electronic 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.

NCA-3853.4 Quality Assurance Records. 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.

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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, qualified source material shall be furnished by a Material Organization, by an approved supplier (NCA-3855.3), or by a Certificate Holder.

(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.

(15) ### NCA-3855.3 Approval and Control of Suppliers of Source Material and Services.

(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.

(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) performing triennial audits covering applicable elements of the supplier's established quality system that is consistent with the requirements of this subarticle supplemented by annual evaluations of the supplier's quality system, including a review of the history of conditions adverse to quality, nonconformances, and corrective actions, 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 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."

(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.

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 subarticle.

(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.

NCA-3855.5 Utilization of Unqualified Source Material. (15)

(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 (1) through (5) below are met.

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(1) No welding with filler metal has been performed on the unqualified source material. The organization that establishes the material form and issues the source material test report shall not perform any welding with filler metal and shall confirm that no welding with filler metal has been performed.

(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. 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 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 performs an on-site verification for 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) Where Certificates of Compliance [NCA-3862.1(g)] are acceptable, testing of each piece for all other requirements of the material specification (3) is not required.

(5) The provisions of (1) through (4) above are performed in accordance with the Material Organization's Quality System Program.

(b) The provisions of (a)(1) through (a)(4) above may be performed by the Certificate Holder in accordance with his Quality Assurance Program.

NCA-3856 Identification, Marking, and Material Control

NCA-3856.1 General.

(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-3862.1(g)] are allowed, heat-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 marking symbol is explained in the Certified Material Test Report (NCA-3862.1) or Certificate of Compliance [NCA-3862.1(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 any one 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-3862.1(g)] or Certified Material Test Report (NCA-3862.1), as applicable.

NCA-3856.4 Welding and Brazing Materials Identification. Welding and brazing materials shall be clearly identified by legible marking on the package or container to ensure positive identification of the material. The

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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

NCA-3857.1 General. 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.

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 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.

(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.

(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.

(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.

(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 calibration shall be documented.

(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-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.

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.

NCA-3858.5 Control of Nonconforming Material.

(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.

(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.

(c) Repaired material or source material shall be reexamined in accordance with applicable procedures.

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(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.

NCA-3859 Audits and Corrective Action

NCA-3859.1 Audits.

(a) Audits shall be performed in accordance with written procedures or checklists by personnel not having direct responsibility in the areas being audited.

(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.

(d) In addition to audits of Material Organizations and suppliers, a comprehensive system of planned internal audits shall be performed at least annually 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 (d) above.

NCA-3859.2 Corrective Action.

(a) Measures shall be established to assure that conditions adverse to quality such as failures, malfunctions, deviations, defective material and equipment, nonconformances, 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.

(b) The identification of significant or recurring 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-3860 CERTIFICATION REQUIREMENTS

NCA-3861 Certification Requirements for Material Organizations

(a) The Material Organization whose scope of activities includes NCA-3830 shall provide a Certified Material Test Report or Certificate of Compliance, as applicable (NCA-3862), for the material.

(1) The certification affirms that contents of the report are correct and accurate and that all test results and operations performed by the Material Organization or its subcontractors are in compliance with the material specification and the specific applicable material requirements of this Section.

(2) Chemical analyses, tests, examinations, and heat treatments required by the material specification that were not performed shall be listed on the Certified Material Test Report or Certificate of Compliance, as applicable, or may be listed on an identified attachment.

(3) When the Material Organization's scope of activities includes product form conversion, the Material Organization shall also certify that the material conforms to the applicable dimensional requirements.

(b) Except where Certificates of Compliance are acceptable [NCA-3862.1(g)], the Material Organization shall transmit all certifications required by NCA-3862.1(b), received from other Material Organizations or approved suppliers in accordance with (a) above, to the purchaser at the time of shipment.

(c) The Certificate Holder shall complete all operations not completed by the Material Organization and shall provide a Certified Material Test Report for all operations performed by him or his approved suppliers. The Certificate Holder shall certify that the contents of the report are correct and accurate and that all test results and operations performed by the Certificate Holder or his approved suppliers are in compliance with the requirements of the material specification and this Section. Alternatively, the Certificate Holder shall provide a Certified Material Test Report for the operations it performed and at least one Certified Material Test Report from each of its approved suppliers for the operations they performed.

NCA-3862 Certification of Material

NCA-3862.1 Material Certification. (15)

(a) The Certified Material Test Report shall include the actual results[11] of all required chemical analyses, tests, and examinations.

(b) When required chemical analyses (including melting mill heat analysis report except as provided in NCA-3855.5), heat treatment, tests, examinations, or repairs are subcontracted, the approved supplier's certification for the operations performed shall be furnished as an identified attachment to the Certified Material Test Report. For welding materials (NCA-1221.2, WA-1223) only, when permitted by the material specification and the rules of this Section [NB/NC/ND/NE/NF/NG-2400, NH-2121(g), CC-2600, WB/WC-2400], the Material Organization or Certificate Holder may provide a chemical analysis of the welding material in lieu of furnishing the melting mill heat analysis. When operations other than chemical analysis, heat treatment, tests, examination, or repairs, that require maintenance of traceability are subcontracted, these operations and the approved suppliers performing them shall be listed on the Certified Material Test Report, or the approved suppliers certification for the operation may be furnished as an attachment to the Certified Material Test Report.

(c) The Certified Material Test Report shall also include a report of all weld repairs performed on the material as required by this Section. Radiographic film required for

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the examination of material repair welds shall be included as a part of the Certified Material Test Report, except for those radiographs required for the testing of welding or brazing materials.

(d) When specific times or temperatures (or temperature ranges) of heat treatments are required by material specifications, they shall be reported. For austenitic stainless steels and high nickel alloys, a statement of the minimum solution annealing temperature is a sufficient statement of heat treatment. When specific times and temperatures (or temperature ranges) are not required by the material specification, a statement of the type of heat treated condition shall be reported. Additionally, the times and temperatures of postweld heat treatments of weld repaired materials as required by the fabrication requirements of this Section shall be reported.

(e) Reporting of actual dimensions and visual examination results is neither required nor prohibited by this paragraph.

(f) Notarization of the Certified Material Test Report is not required.

(g) A Certificate of Compliance with the material specification, grade, class, and heat treated condition, as applicable, may be provided in lieu of a Certified Material Test Report for material NPS $^{3}/_{4}$ (DN 20) and less (pipe, fittings, flanges, materials for valves and tubes except heat exchanger tubes), bolting 1 in. (25 mm) and less, as applicable.

(h) Material identification shall be described in the Certified Material Test Report or Certificate of Compliance, as applicable. Heat or lot traceability to the Certificate of Compliance is not required.

NCA-3862.2 Quality System Program Statement.

(a) When the Material Organization holds a Quality System Certificate, the Material Organization's Quality System Certificate number and expiration date shall be shown on the Certified Material Test Report or Certificate of Compliance, as applicable, or on a certification included with the documentation that accompanies the material.

(b) When the Material Organization has been qualified by a party other than the Society, the revision and date of the applicable written Quality System Program shall be shown on the Certified Material Test Report or Certificate of Compliance, as applicable, or on a certification included with the documentation that accompanies the material.

(c) The inclusion of the Quality System Certificate number and expiration date or reference to revision and date of the applicable written Quality System Program shall be considered the Material Organization's certification that all activities have been performed in accordance with the applicable requirements of this subarticle.

NCA-3900 NONMETALLIC MATERIAL MANUFACTURER'S, CONSTITUENT SUPPLIER'S, AND POLYETHYLENE MATERIAL ORGANIZATION'S QUALITY SYSTEM PROGRAM

NCA-3910 APPLICABILITY

This Subsection sets forth the quality system program requirements for manufacture and supply of nonmetallic material. The rules of NCA-3920 through NCA-3960 are applicable to manufacturers and constituent suppliers of concrete and cement grout. The rules of NCA-3970 are applicable to manufacturers and suppliers of natural compound, pigment concentrate compound, polyethylene compound, and polyethylene material.

NCA-3920 QUALITY SYSTEM CERTIFICATE (NONMETALLIC MATERIALS) (15)

(a) A Nonmetallic Material Manufacturer may obtain a Quality System Certificate (Materials) issued by the Society verifying the adequacy of the Nonmetallic Material Manufacturer's Quality System Program. Alternatively, the Nonmetallic Material Manufacturer shall have his Quality System Program surveyed and qualified by the Constructor or Fabricator of the concrete component.

(b) A Nonmetallic Material Constituent Supplier may obtain a Quality System Certificate (Materials) issued by the Society verifying the adequacy of the Nonmetallic Material Constituent Supplier's Quality System Program. Alternatively, the Nonmetallic Material Constituent Supplier shall have his Quality System Program surveyed and qualified by the Nonmetallic Material Manufacturer of the concrete. Additionally, both the Constructor or Fabricator and the Nonmetallic Material Manufacturer shall be responsible for assuring that the constituents supplied meet the applicable requirements of CC-2100 and CC-2200.

(c) A Constructor or Fabricator may furnish nonmetallic material when stated in the scope of its certificate. In this case, a Quality System Certificate is not required, nor is the user of the nonmetallic material required to survey, qualify, or audit such a Certificate Holder.

NCA-3923 Evaluation for Quality System Certificates

(a) The Society, when requested by the Nonmetallic Material Manufacturer on forms issued by the Society, will arrange for an evaluation of the applicant's Quality System Program. The Program will be evaluated on the basis of its compliance with the applicable material requirements of this Section. The certificate that is issued for a 3-year period will describe and specify the scope and limits of work for which the applicant is qualified and will be subjected to a planned audit program by the Society. Not later than 6 months prior to the expiration

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of the certificate, the Nonmetallic Material Manufacturer shall apply for a renewal evaluation and for the issuance of a new certificate.

(b) The Society, when requested by the Nonmetallic Material Constituent Supplier on forms issued by the Society, will arrange for an evaluation of the applicant's Quality System Program. The Program will be evaluated on the basis of its compliance with the applicable requirements of this Section. The certificate that is issued for a 3-year period will describe and specify the material constituent that the applicant is qualified to supply and will be subject to a planned audit program by the Society. Not later than 6 months prior to the expiration of the certificate, the Nonmetallic Material Constituent Supplier shall apply for a renewal evaluation and for the issuance of a new certificate.

NCA-3950 QUALITY SYSTEM PROGRAM REQUIREMENTS

NCA-3951 General

(a) A Nonmetallic Material Manufacturer or a Nonmetallic Material Constituent Supplier, hereafter referred to as the Material Organization, need not be a Certificate Holder, but their Quality System Program shall conform to the requirements of this subarticle as applicable to the scope of their work.

(b) Material supplied by a Nonmetallic Material Constituent Supplier shall meet all applicable requirements of CC-2100 and CC-2200.

(c) The Material Organization shall establish a written 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 this subarticle.

(d) The Quality System 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 verification of quality.

NCA-3951.1 Scope.

(a) The Quality System Program shall define the specific activities included in the scope of the work the Material Organization proposes to perform, including any of the following:

(1) 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

(2) receipt, identification, verification, handling, storage, and shipment of material or source material

(3) approval and control of suppliers and source material or subcontracted services

(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.

NCA-3951.2 Organization.

(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.

(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

(c) The organizational structure, functional responsibilities, level 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, 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 distribution of a nonconformance, deficiency, or unsatisfactory condition has occurred.

(d) Individuals or groups assigned the responsibility of checking, auditing, or otherwise verifying that production and quality control 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.

NCA-3952 Personnel

NCA-3952.1 Indoctrination, Training, and Qualification of Personnel.

(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:

(1) Personnel to be indoctrinated or trained shall be identified.

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(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.

(4) Training shall be provided, as needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, and job responsibilities.

(5) 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-3952.2 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.

(b) Qualification records of personnel who lead audits shall be documented and maintained and shall include education, experience, audit training and examination, and audit participation used as the basis of qualification.

NCA-3953 Program Documentation

NCA-3953.1 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 are not considered part of the Manual; however, the controls of such procedures and processes shall be covered by the Manual.

NCA-3953.2 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 criteria for determining that the prescribed activities have been satisfactorily completed.

NCA-3953.3 Document Control. 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.

NCA-3953.4 Quality Records. 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-3953.5 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. Certified Material Test Reports shall be prepared by manufacturers, or obtained from material suppliers, as appropriate.

NCA-3954 Control of Purchased Materials, Source Materials, and Services

NCA-3954.1 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) 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-3954.2 Sources of Material, Source Material, and Services.

(a) 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 an approved supplier.

(b) Source materials shall be tested for conformance to applicable requirements either

(1) prior to shipment

(2) upon receipt, prior to use

NCA-3954.3 Approval and Control of Suppliers of Source Material and Services.

(a) The Material Organization 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 Program.

(b) The Material Organization shall be responsible for establishing and verifying that the supplier's controls applicable to the activities performed are adequate by

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surveying and auditing the supplier's established quality system that is consistent with the requirements of this subarticle.

(c) As an alternative to survey and audit of suppliers of subcontracted calibration services, a Material Organization 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, "General Requirements for the Competence of Testing and Calibration Laboratories"

(2) the published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties

(3) the Material Organization 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 shall be responsible for reviewing objective evidence for conformance to the procurement documents

(5) this activity shall be documented in the Material Organization's Quality System Manual

(d) The Material Organization shall be responsible for assuring that all material and activities conform to all applicable requirements of this Section.

NCA-3954.4 Procurement Document Control.

(a) Procurement documents shall include requirements necessary to assure compliance with the requirements of this Section.

(b) Procurement documents shall require material, source material, or subcontracted services to be furnished in accordance with the applicable requirements of this subarticle.

(c) Procurement documents shall require approved suppliers to reference the accepted quality system or controls established by the Material Organization 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.

NCA-3955 Identification, Marking, and Material Control

NCA-3955.1 General.

(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.

NCA-3955.2 Marking Method. Materials and source materials shall be marked by any method acceptable to the purchaser that will not result in harmful contamination and will identify these materials in accordance with the material specification.

NCA-3956 Process Control

NCA-3956.1 General. Processes affecting quality of materials, source materials, or services shall be controlled. Special processes that control or verify quality shall be performed by qualified personnel using qualified procedures in accordance with specific requirements.

NCA-3956.2 Manufacturing Process Control. Operations shall be performed under a controlled system such as process sheets, shop procedures, checklists, travelers, or equivalent procedures. Measurers shall be established to ensure that processes are controlled in accordance with the material specification and the rules of this Section.

NCA-3956.3 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-3957 Control Examinations, Tests, and Nonconforming Material

NCA-3957.1 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.

(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.

(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.

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NCA-3957.2 Control of Measuring and Test Equipment.

(a) Procedures shall be in effect to assure that tools, gages, instruments, and other measuring and test 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.

(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 calibration shall be documented.

(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-3957.3 Discrepancies in Measuring or Test Equipment.

(a) When discrepancies in excess of tolerances for measuring or test 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 the frequency of periodic checking are described in calibration procedures

(2) the calibration discrepancy was found by periodic check

NCA-3957.4 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.

NCA-3957.5 Control of Nonconforming Material.

(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.

(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 nonconformance in these materials shall be defined.

(c) Repaired material or source material shall be reexamined in accordance with applicable procedures.

(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.

NCA-3958 Audits and Corrective Action

NCA-3958.1 Audits.

(a) Audits shall be performed in accordance with written procedures or checklists by personnel not having direct responsibility in the areas being audited.

(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.

(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.

NCA-3958.2 Corrective Action.

(a) Measures shall be established to assure that conditions adverse to quality such as failures, malfunctions, deviations, defective material and equipment, nonconformances, 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.

(b) The identification of significant or recurring conditions adverse to quality, the cause of the 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-3960 RESPONSIBILITY

NCA-3961 Constructor or Fabricator

(a) The Constructor or Fabricator responsible for the placement of nonmetallic materials (plastic concrete) shall assure that the plastic concrete meets the requirements of the Construction Specification, and that tests performed by the manufacturer and supplier of the nonmetallic materials and constituents meet the requirements of Section III, Division 2.

(b) The Constructor or Fabricator shall survey and qualify the Quality System Program of the Nonmetallic Material Manufacturer if he does not obtain a Quality System Certificate (NCA-3923).

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(c) The Constructor or Fabricator shall perform any of the functions required by NCA-3950 that are not performed and he may elect to perform any other Quality Program functions that would normally be the responsibility of the Nonmetallic Material Manufacturer or the Nonmetallic Material Constituent Supplier. He shall assure that nonmetallic material constituents have met applicable requirements of CC-2100 and CC-2200.

(d) The Constructor or Fabricator shall make all necessary provisions so that the Authorized Inspector and his Authorized Inspection Agency can make the inspections necessary to comply with this Code.

(e) The functions performed by the Constructor or Fabricator shall be clearly defined and included in his Quality System Program.

NCA-3962 Nonmetallic Material Manufacturer

(a) The Nonmetallic Material Manufacturer shall have his Quality System Program surveyed and qualified by the Constructor or Fabricator if he does not obtain a Quality System Certificate.

(b) The Nonmetallic Material Manufacturer, using the constituents, shall survey and qualify the Quality System Program(s) of Nonmetallic Material Constituent Suppliers if they do not obtain a Quality System Certificate (NCA-3923) and shall assure that the constituent materials have been tested and have met applicable requirements of CC-2100 and CC-2200.

(c) The functions performed by the Nonmetallic Material Manufacturer shall be clearly defined and included in his Quality System Program.

NCA-3963 Nonmetallic Material Constituent Supplier

(a) The Nonmetallic Material Constituent Supplier shall have his Quality System Program surveyed and qualified by the Nonmetallic Material Manufacturer if he does not obtain a Quality System Certificate.

(b) The Nonmetallic Material Constituent Supplier shall assure that constituent materials have been tested and have met applicable requirements of CC-2100 and CC-2200.

(15) NCA-3970 POLYETHYLENE MATERIAL ORGANIZATION'S QUALITY SYSTEM PROGRAM

(a) The requirements of NCA-3970 provide for various entities known as Certificate Holders and Polyethylene Material Organizations. Performance of operations, processes, and services related to the procurement, manufacture, and supply of polyethylene source material and polyethylene material is limited to these entities. These terms, as well as other terms used in NCA-3970, are defined in the Glossary, Article NCA-9000.

(b) The Polyethylene Material Organization shall obtain a Quality System Certificate issued by the Society verifying the adequacy of the applicant's Quality System Program.

(c) As an alternative to (b), the Polyethylene Material Organization shall have their Quality System Program surveyed and qualified by the holder of an ASME Certificate of Authorization with responsibility for compliance with the rules of this Section.

(d) As an alternative to (b) or (c), the Polyethylene Service Supplier shall have its Quality System Program surveyed and qualified by the Polyethylene Source Material Manufacturer or Polyethylene Material Manufacturer using the services of the Polyethylene Service Supplier.

(e) Subcontracting is restricted as provided in NCA-3973(b)(2).

(f) When requirements of NCA-3800 are invoked, the term "Material Organization" in NCA-3800 shall apply to Polyethylene Material Organization. The term "material" in NCA-3800 shall apply to polyethylene material and polyethylene source material. The term "source material" in NCA-3800 is not applicable.

(g) A Certificate Holder may furnish polyethylene material when stated in the scope of its certificate. In this case, a Quality System Certificate is not required, nor is the user of the polyethylene material required to survey, qualify, or audit such a Certificate Holder.

NCA-3971 Responsibility of Polyethylene Material Organizations

Polyethylene Material Organizations shall be responsible for establishing a Quality System Program in accordance with the requirements of NCA-3972 through NCA-3974, as applicable to the scope of activities performed. Guidance on activities and Quality System Program responsibilities within the scope of a Polyethylene Material Organization may also be found in Section III Appendices, Nonmandatory Appendix DD.

NCA-3971.1 Additional Responsibility of Polyethylene Source Material Manufacturers. The Polyethylene Source Material Manufacturers Quality System Program shall include the following, as a minimum:

(a) establishing and maintaining measures for the traceability of polyethylene source material while under its control

(b) controlling quality during manufacture, including control of testing and examination of polyethylene source material

(c) evaluation of Polyethylene Service Suppliers for calibration, testing, and nondestructive examination in accordance with the requirements of NCA-3972.3

(d) preparing Certificates of Analysis

(e) shipment of polyethylene source material

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NCA-3971.2 Additional Responsibility of the Natural Compound Manufacturer. In addition to the requirements of NCA-3971.1, the Natural Compound Manufacturer shall be responsible for the following:

(a) Providing the required data, including test results from a sample of polyethylene compound, and obtaining a listing for that sample's material designation in accordance with Plastic Pipe Institute standards listed in Table NCA-7100-2.

(b) Issuing the "Natural Compound Manufacturing and Testing Procedure."

(c) Determining pigment concentrate compound that, when combined with natural compound manufactured by the Natural Compound Manufacturer, shall produce polyethylene compound that complies with a material specification permitted by this Section. This shall be done by either of the following:

(1) providing procedures to the Pigment Concentrate Compound Manufacturer for manufacture of pigment concentrate compound

(2) testing pigment concentrate compound provided and identified by the Pigment Concentrate Compound Manufacturer with a specific trade name

(d) Providing documentation to the Polyethylene Compound Manufacturer and Polyethylene Material Manufacturer specifying, by trade name, pigment concentrate compound that shall comply with a material specification permitted by this Section when combined with the natural compound manufactured by the Natural Compound Manufacturer.

(e) Certifying that natural compound is in compliance with this Section and the "Natural Compound Manufacturing and Testing Procedure."

NCA-3971.3 Additional Responsibility of the Pigment Concentrate Compound Manufacturer. In addition to the requirements of NCA-3971.1, the Pigment Concentrate Compound Manufacturer shall be responsible for the following:

(a) Issuing the "Pigment Concentrate Compound Manufacturing and Testing Procedure."

(b) Manufacturing pigment concentrate compound that shall comply with a material specification permitted by this Section when it is combined with natural compound manufactured by the Natural Compound Manufacturer. This shall be done by either of the following:

(1) manufacturing pigment concentrate compound in accordance with procedures provided by the Natural Compound Manufacturer

(2) manufacturing pigment concentrate compound that has been identified, by trade name, as acceptable by the Natural Compound Manufacturer

(c) Certifying that pigment concentrate compound is in compliance with this Section and the "Pigment Concentrate Compound Manufacturing and Testing Procedure."

NCA-3971.4 Additional Responsibility of the Polyethylene Compound Manufacturer. In addition to the requirements of NCA-3971.1, the Polyethylene Compound Manufacturer shall be responsible for the following:

(a) issuing a "Polyethylene Compound Manufacturing and Testing Procedure"

(b) using pigment concentrate compound and natural compound to manufacture polyethylene compound that complies with this Section and a material specification permitted by this Section

(c) manufacturing and testing polyethylene compound in accordance with the "Polyethylene Compound Manufacturing and Testing Procedure"

(d) certifying that polyethylene compound is in compliance with this Section, a material specification permitted by this Section, and the "Polyethylene Compound Manufacturing and Testing Procedure"

NCA-3971.5 Responsibility of Polyethylene Material Manufacturer. The Polyethylene Material Manufacturer's Quality System Program shall include the following, as a minimum:

(a) Establishing and maintaining measures for the traceability of polyethylene source material and polyethylene material while under its control.

(b) Issuing the "Polyethylene Material Manufacturing and Testing Procedure."

(c) Manufacturing polyethylene material that complies with a material specification permitted by this Section. This shall be done by either of the following:

(1) manufacturing polyethylene material using pigment concentrate compound and natural compound as specified by the Natural Compound Manufacturer

(2) manufacturing polyethylene material using polyethylene compound as specified by the Polyethylene Compound Manufacturer

(d) Manufacturing and testing polyethylene material in accordance with this Section, a material specification permitted by this Section, and the "Polyethylene Material Manufacturing and Testing Procedure."

(e) Controlling quality during manufacture, including control of testing, examination, and treatment of polyethylene source material and polyethylene material.

(f) Evaluation of Polyethylene Service Suppliers for calibration, testing, and nondestructive examination in accordance with the requirements of NCA-3972.3.

(g) Preparing Certified Polyethylene Test Reports.

(h) Certifying that all polyethylene material is in compliance with this Section, a specific material specification permitted by this Section, and the "Polyethylene Material Manufacturing and Testing Procedure."

(i) Shipment of polyethylene material.

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NCA-3971.6 Responsibility of Polyethylene Material Supplier. The Polyethylene Material Supplier's Quality System Program shall include the following, as a minimum:

(a) establishing and maintaining measures for the traceability of polyethylene material while under its control, including identification established per NCA-3971.5(a)

(b) shipment of polyethylene material

NCA-3971.7 Responsibility of Polyethylene Service Supplier. The Polyethylene Service Supplier's Quality System Program shall include the following, as a minimum:

(a) establishing and maintaining measures for the traceability of polyethylene source material and polyethylene material while under its control

(b) controlling quality, including control of testing and examination of polyethylene source material and polyethylene material

(c) evaluation of Polyethylene Service Suppliers providing calibration, in accordance with the requirements of NCA-3972.3

NCA-3972 Evaluation of Quality System

NCA-3972.1 Evaluation by the Society.

(a) The Society will arrange for a survey of the applicant's Quality System Program for the scope of activities at the locations listed on the application. The evaluation will be conducted in accordance with the requirements of NCA-3841.

(b) The Quality System Certificate that is issued, for up to a 3-yr period, will describe and specify the scope and limits of work and locations for which the applicant is qualified and will be subjected to a planned audit program by the Society.

NCA-3972.2 Evaluation by ASME Certificate Holders.

(a) Except for evaluation of Polyethylene Service Suppliers, evaluation by parties other than the Society shall be performed by a Holder of a Certificate of Authorization.

(b) NCA-3842.2 applies, except for the following:

(1) The reference in NCA-3842.2(a) to NCA-3850 is changed to NCA-3972 through NCA-3974.

(2) The NCA-3842.2(i) allowance of performance assessments in lieu of annual audits is prohibited.

NCA-3972.3 Evaluation of Polyethylene Service Suppliers by the Polyethylene Source Material Manufacturer or Polyethylene Material Manufacturer.

(a) Evaluation of Polyethylene Service Suppliers may be performed by a Polyethylene Source Material Manufacturer or Polyethylene Material Manufacturer using the service.

(b) NCA-3842.2 applies, except for the following:

(1) The reference in NCA-3842.2(a) to NCA-3850 is changed to NCA-3972 through NCA-3974.

(2) The NCA-3842.2(i) allowance of performance assessments in lieu of annual audits is prohibited.

NCA-3972.4 Evaluation of Polyethylene Service Suppliers Providing Calibration Services by Other Polyethylene Service Suppliers.

(a) Evaluation of Polyethylene Service Suppliers providing calibration services may be performed by Polyethylene Service Suppliers using the calibration service.

(b) NCA-3842.2 applies, except for the following:

(1) The reference in NCA-3842.2(a) to NCA-3850 is changed to NCA-3972 through NCA-3974.

(2) The NCA-3842.2(i) allowance of performance assessments in lieu of annual audits is prohibited.

NCA-3973 Quality Program Requirements

(a) The Polyethylene 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 polyethylene source material and polyethylene material under its control. The controls used in the Quality System Program shall be documented in a Quality System Manual.

(b) The Quality System Program shall be planned, documented, implemented, and maintained in accordance with the requirements of NCA-3850, as applicable to the scope of activities performed except as follows:

(1) NCA-3851.2(a)(6), NCA-3855.1(b), NCA-3855.3(a) and NCA-3855.3(b), NCA-3855.5, NCA-3856.3(b) and NCA-3856.3(e), NCA-3856.4, and NCA-3857.3 do not apply, and those activities are prohibited. Provisions of NCA-3855.3(c) shall be limited to calibration services.

(2) Any subcontracting shall be to Polyethylene Service Suppliers. Subcontracting is allowed for testing, nondestructive examination, and calibration. Subcontracting of operations that affect compliance with the procedures, material property, and design requirements of this Section is prohibited.

(3) Repair is prohibited.

(4) When design of polyethylene material is within the scope of activities, design controls shall comply with the applicable requirements of ASME NQA-1, Quality Assurance Requirements for Nuclear Facilities. The applicable version of NQA-1 shall be in accordance with Table NCA-7100-2.

(5) Audits shall include a review of the implementation of all elements of the Quality System Program at the location of the work and shall be conducted at least annually.

(6) The "approved supplier" mentioned in NCA-3800 is not applicable and not allowed.

(7) Polyethylene Material Organizations are only allowed to qualify Polyethylene Service Suppliers. Polyethylene Service Suppliers are only allowed to qualify other Polyethylene Service Suppliers performing calibration services.

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(8) Polyethylene material shall be permanently marked with the following, as a minimum:

(-a) Polyethylene Material Manufacturer's company name.

(-b) Polyethylene material specification as permitted by this Section.

(-c) Polyethylene compound designation as listed in Plastics Pipe Institute TR-4 (Table NCA-7100-2).

(-d) A lot number defined and described in the Polyethylene Material Manufacturer's Quality System Manual and the Certified Polyethylene Test Report that identifies the following information:

(-1) the polyethylene source material(s)

(-2) the location of manufacture

(-3) the production equipment and personnel or shift

(-4) the date of manufacture

(-e) Markings (-a) through (-d) above may be abbreviated by trademarks or codes, provided the trademarks or codes are defined and described in the Polyethylene Material Manufacturer's Quality System Manual and the Certified Polyethylene Test Report or an identified attachment to the Certified Polyethylene Test Report.

(9) Identification of polyethylene source material shall be by marking the containers or tags attached to the containers and shall include the following, as a minimum:

(-a) Polyethylene Source Material Manufacturer's company name

(-b) Polyethylene source material designation as listed in Plastics Pipe Institute TR-4 (Table NCA-7100-2).

(-c) Location of manufacture.

(-d) Lot number identifying the polyethylene source material.

(-e) Markings (-b) through (-d) above may be abbreviated by a trademark or code on the containers or on tags attached to the containers, provided the trademarks or codes are defined and described in the Polyethylene Material Manufacturer's Quality System Manual and the Certified Polyethylene Test Report or an identified attachment to the Certified Polyethylene Test Report.

(10) Certificates of Compliance are not applicable.

(11) Welding and heat treatment are not applicable.

NCA-3974 Certification Requirements

NCA-3974.1 Certificates of Analysis. The Polyethylene Source Material Manufacturer shall provide a Certificate of Analysis.

(a) The Certificate of Analysis shall include polyethylene source material identification as required by NCA-3973(b)(9), actual test and examination results, and any other required certifications.

(b) A certification shall be included that affirms that contents of the Certificate of Analysis are correct and accurate and that all test results and examinations performed by the organization and its subcontractors are in compliance with this Section and specified requirements.

(c) Required Certificates of Analysis shall be transmitted at the time of shipment.

NCA-3974.2 Certified Polyethylene Test Reports. The Polyethylene Material Manufacturer and Polyethylene Material Supplier shall provide a Certified Polyethylene Test Report for polyethylene material.

(a) The Certified Polyethylene Test Reports shall include polyethylene material identification as required by NCA-3973(b)(8), actual test and examination results, and any other required certifications.

(b) A certification shall be included that affirms that contents of the report are correct and accurate and that all test results and operations performed by the organization and its subcontractors are in compliance with the material specification and the specific applicable requirements of this Section.

(c) The Polyethylene Material Manufacturer shall also certify that the polyethylene material conforms to the applicable dimensional requirements.

(d) The Polyethylene Material Manufacturer and Polyethylene Material Supplier shall transmit all required Certified Polyethylene Test Reports, including Certificates of Analysis from the Polyethylene Source Material Manufacturer, at the time of shipment.

NCA-3974.3 Additional Certification Requirements.

(a) The Certified Polyethylene Test Report shall include the actual results of all required physical and mechanical property tests. A certification that the polyethylene source material used was made from virgin polyethylene, not scrap or regrind polyethylene material, shall also be included.

(b) When required tests or nondestructive examinations are subcontracted, the approved Polyethylene Service Supplier's certification for the operations performed shall be furnished as an identified attachment to the Certified Polyethylene Certified Test Report.

(c) When operations other than tests or nondestructive examinations that require maintenance of traceability are subcontracted, these operations and the approved Polyethylene Service Supplier performing them shall be listed on the Certified Polyethylene Test Report, or the approved Polyethylene Service Supplier's certification for the operation may be furnished as an attachment to the Certified Polyethylene Test Report. Operations that affect design or properties of the polyethylene source material and polyethylene material shall not be performed by Polyethylene Service Suppliers.

(d) Reporting of actual dimensions and visual examination results is required.

(e) Polyethylene material identification shall be described in the Certified Polyethylene Test Report.

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NCA-3974.4 Quality System Program Statement.

(a) When the Polyethylene Material Organization holds a Quality System Certificate, the organization's Quality System Certificate number and expiration date shall be shown on the Certificate of Analysis and Certified Polyethylene Test Report.

(b) When the organization has been qualified by a party other than the Society, the identification, revision, and date of the applicable Quality System Manual shall be shown on the Certificate of Analysis and Certified Polyethylene Test Report.

(c) The inclusion of the Quality System Certificate number and expiration date or reference to identification, revision, and date of the applicable Quality System Manual shall be considered the organization's certification that all activities have been performed in accordance with the applicable requirements of this Section.

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ARTICLE NCA-4000
QUALITY ASSURANCE

NCA-4100 REQUIREMENTS

NCA-4110 SCOPE AND APPLICABILITY

(a) This Article sets forth the requirements for planning, managing, and conducting Quality Assurance Programs for controlling the quality of activities performed under this Section and the rules governing the evaluation of such Programs prior to the issuance of certificates for the construction, fabrication, manufacture, and installation of Class 1, 2, 3, CS, MC, and CC items. The Quality Assurance requirements for Material Organizations (Metallic) for all Classes of construction are provided in NCA-3800. The Quality Assurance requirements for Nonmetallic Material Organizations, Polyethylene Material Organizations, and Constituent Suppliers for all Classes of construction are provided in NCA-3900. Certificate Holders are advised to consult other regulations for Quality Assurance requirements governing activities beyond the scope of this Section.

(b) N-Type Certificate Holders shall comply with the requirements of ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications, Part I,[12] as modified and supplemented in NCA-4120(b) and NCA-4134.

(c) The Quality Assurance Program requirements for an NS Certificate Holder shall comply with NCA-3680 and (b) above. Inspection by an ANI and Certification Mark is not required for supports.

NCA-4120 DEFINITIONS

(a) The definitions in Article NCA-9000 shall apply.

(b) The terms and definitions of NQA-1 shall apply except for those listed in (1) through (8) below. For the following terms, the definitions in Article NCA-9000 shall apply:

(1) item

(2) Owner

(3) quality assurance

(4) repair

(5) rework

(6) service

(7) use-as-is

(8) nonconformance

NCA-4130 ESTABLISHMENT AND IMPLEMENTATION

NCA-4131 Material Organizations, Division 1

The requirements of NCA-3800 apply.

NCA-4131.1 Polyethylene Material Organizations. The requirements of NCA-3970 apply.

NCA-4132 Material Organizations for Division 2

NCA-4132.1 Material Organizations. The requirements of NCA-3800 apply.

NCA-4132.2 Nonmetallic Material Organizations for Division 2. The requirements of NCA-3900 apply.

NCA-4133 Owner's Quality Assurance Program

NCA-4133.1 The Owner shall maintain a Quality Assurance Program. For this purpose, the Owner may use a Quality Assurance program accepted by the regulatory authority.

NCA-4133.2 The Owner shall maintain either a Quality Manual or procedure accepted by the AIA that describes how the Owner will meet his Code responsibilities, NCA-3200, including control of his designee(s).

NCA-4133.3 Owners performing activities that require an N-type Certificate or Quality System Certificate shall include the requirements of NCA-3800 or Article NCA-4000, as applicable, in its Quality Assurance Program, and obtain the appropriate Certificate(s).

NCA-4133.4 The Owner shall assure that organizations performing activities requiring an N-type Certificate or Quality System Certificate have a Quality Assurance Program meeting the requirements of NCA-3800 or Article NCA-4000, as applicable.

NCA-4134 N, NV, NPT, NS, and NA Certificate Holders for Class 1, 2, 3, MC, CS, and CC Construction

NCA-4134.1 Organization. The provisions of NQA-1, Requirement 1, shall apply.

NCA-4134.2 Quality Assurance Program. (15)

(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

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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.

(b) In lieu of para. 301, Requirement 2, the qualification of nondestructive examination personnel shall be as required by NB/NC/ND/NE/NF/NG-5520.

(c) The controls used in the Quality Assurance Program shall be documented in the Quality Assurance Manual. The Quality Assurance Manual may be hard copy or electronic, provided the controls are described to assure approved revisions are made available for use by the Certificate Holder personnel. 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.

NCA-4134.3 Design Control.

(a) The provisions of NQA-1, Requirement 3, shall apply.

(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.

(c) Design documents shall be verified for adequacy and compliance with the Design Specification and this Section.

(d) Paragraph 601, Configuration Management of Operating Facilities, is not applicable.

NCA-4134.4 Procurement Document Control. 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.

NCA-4134.5 Instructions, Procedures, and Drawings. The provisions of NQA-1, Requirement 5, shall apply.

NCA-4134.6 Document Control. The provisions of NQA-1, Requirement 6, shall apply. 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.

NCA-4134.7 Control of Purchased Items and Services. The provisions of NQA-1, Requirement 7, shall apply, except that

(a) in para. 507, Acceptance of Services Only, it is not applicable to the procurement of Authorized Inspection Agency services as required in NCA-8130.

(b) in para. 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.

(c) in para. 503, Certificate of Conformance, changes, waivers, or deviations are not acceptable unless they meet the requirements of this Section.

(d) in para. 503(c), Certificate of Conformance, the resolution of nonconformances shall be in conformance with the requirements of this Section.

(e) para. 700, Commercial Grade Items and Services, is not applicable to this Section. See NCA-3855.5 for unqualified source material.

(f) documentary evidence that items conform to the requirements of this Section shall be available at the construction 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.

NCA-4134.8 Identification and Control of Items.

(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; an Authorized Nuclear Inspector's signature, initials, or stamp; and the date on which those activities were witnessed.

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NCA-4134.9 Control of Processes.

(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 witnessed.

NCA-4134.10 Inspection.

(a) The provisions of NQA-1, Requirement 10, shall apply, except for para. 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 Certification Mark to the item.

(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.

NCA-4134.11 Test Control. The provisions of NQA-1, Requirement 11, shall apply.

NCA-4134.12 Control of Measuring and Test Equipment.

(a) The provisions of NQA-1, Requirement 12, shall apply.

(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.

NCA-4134.13 Handling, Storage, and Shipping. The provisions of NQA-1, Requirement 13, shall apply.

NCA-4134.14 Inspection and Test Status. The provisions of NQA-1, Requirement 14, shall apply for inspections and tests but not for operating status.

NCA-4134.15 Control of Nonconforming Items. 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-1.

NCA-4134.16 Corrective Action.

(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.

NCA-4134.17 Quality Assurance Records.

(a) General. The provisions of NQA-1, Requirement 17, shall apply, except that the requirements of para. 400, Classification; para. 500, Receipt Control of Records; and para. 600, Storage, are not applicable. Such records shall be classified and maintained as required by this Section.

(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.

(c) Reproduction of Electronic and Digital Radiographic Images and Radiographic Film. Radiographic film and images may be reproduced provided the following requirements are met:

(1) the reproduction process shall be subject to the Owner's approval;

(2) when radiographic film or images are reproduced for either an Owner or Certificate Holder, the Quality Assurance Program 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 radiographic film or images;

(3) procedures shall contain applicable requirements pertaining to exposure, scanning, focusing, contrast, resolution, and distinguishing film artifacts or system induced images that might appear as material discontinuities in the reproduced image.

(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 him.

(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

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for the period specified in Table NCA-4134.17-2. In no case need nonpermanent records be retained for longer than 10 yr after completion of applicable Code Data Report.

NCA-4134.18 Audits.

(a) The provisions of NQA-1, Requirement 18, shall apply.

(b) Results of audits shall be made available to the Authorized Nuclear Inspector.

(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.

(15)

Table NCA-4134.17-1
Lifetime Quality Assurance Records

Record	Record
1. Index to lifetime records (NCA-4134.17)	11. Heat treatment records [Note (1)]
2. Code Data Reports (NCA-8400)	12. Qualification test reports such as for concrete design mixes (CC-2460) and safety valves (NB-7700)
3. Design Specification (NCA-3250) [Note (2)]	13. Structural integrity test reports (CC-6260)
4. Design output documents, Division 1 (NCA-3350 and NCA-3550) [Note (2)]	14. Final hydrostatic and pneumatic test results (NCA-5280)
5. Design Report, Division 2	15. Final nondestructive examination reports; final radiographic film or images as specified by the Owner for Section XI applications
6. Overpressure Protection Report (NB/NC/ND/NE/HBB-7200)	16. Repair records when required by Code (NB/NC/ND/NE/NG-4130)
7. Construction Specification (NCA-3340)	17. Weld procedures
8. As-built drawings (NCA-3454)	18. Construction Report (NCA-3454)
9. Certified Material Test Reports (CMTR) and documentation providing traceability to location used, when required (NB/NC/ND/NE/NF/NG-4122)	19. NS-1 Certificate of Conformance (NCA-8440)
10. Records of post-tensioning sequence, procedure, and loads	20. Certificate of Analysis (NCA-3974.1) and Certified Polyethylene Test Report (NCA-3974.2)

GENERAL NOTE: Nonconformance reports that affect those records listed shall be incorporated into the record or be retained with the records. Records generated in compliance with Division 5, Subsection HB, Subpart B (referred to as HBB above) rules shall also comply with the record requirements of the referenced Subsections that contain additional rules.

NOTES:
(1) Either heat treatment charts or certified summaries of time and temperature data may be provided. These data may be included as part of the CMTR.
(2) For supports designed by load rating, the Load Capacity Data Sheet is the design output document to be maintained as a lifetime quality assurance record. For standard supports designed by analysis and supplied with a Certified Design Report Summary, the Certified Design Report Summary is the design output document to be maintained as a lifetime quality assurance record.

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Table NCA-4134.17-2
Nonpermanent Quality Assurance Records

	Record	Retention Period
1.	QA Program Manual	3 yr after superseded or invalidated
2.	Design procurement and QA procedures (NCA-4134.5)	3 yr after superseded or invalidated
3.	Installation and NDE procedures (NB/NC/ND/NE/NF/NG-5112)	10 yr after superseded or invalidated
4.	Personnel qualification records (NB/NC/ND/NE/NF/NG-5520 and NB/NC/ND/NE/NF/NG-4322)	3 yr after superseded or invalidated
5.	Purchase orders	10 yr after superseded or invalidated
6.	Audit and survey reports (NCA-4134.18)	3 yr after completion of report
7.	Final radiographs not covered in Table NCA-4134.17-1, Record 15	10 yr after completion
8.	Calibration records (NCA-4134.12)	Until recalibrated
9.	Process sheets, travelers, or checklists (NCA-4134.10)	10 yr after completion
10.	Rebar splice test reports (CC-4330)	10 yr after completion of report
11.	Joint-welder identification records when such records are used in lieu of physical marking of welds (NB/NC/ND/NE/NF/NG-4322)	10 yr after completion of report

GENERAL NOTE: Nonconformance reports, which affect those records listed and are not incorporated into the record, shall be retained for the retention period applicable to the record the nonconformance report affects.

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ARTICLE NCA-5000
AUTHORIZED INSPECTION

NCA-5100 INTRODUCTION

NCA-5110 APPLICABILITY

(a) This Article provides the requirements for the inspection of items constructed in accordance with this Section by the Authorized Inspection Agency.

(b) When preservice examinations are required by this Section, inspection of the preservice examinations by the Authorized Inspection Agency shall be in accordance with Section XI, Subsection IWA, IWA-2100.

NCA-5120 PERFORMANCE OF INSPECTION

(15) NCA-5121 Authorized Inspection Agency

(a) The Authorized Inspection Agency shall be accredited by the Society in accordance with the provisions set forth in ASME QAI-1, Qualification for Authorized Inspection.

(b) The Authorized Inspection Agency shall notify the Society when it enters into an agreement with an Owner or a Certificate Holder, or whenever an existing agreement is terminated. The Authorized Inspection Agency shall also notify the enforcement authority whenever an agreement with an Owner is written or an Owner's agreement is terminated.

NCA-5122 Authorized Nuclear Inspector Supervisor

The Authorized Inspection Agency shall employ Authorized Nuclear Inspection Supervisors qualified in accordance with ASME QAI-1, Qualification for Authorized Inspection, to supervise the Inspectors.

NCA-5123 Authorized Nuclear Inspector

The Authorized Inspection Agency shall also employ Authorized Nuclear Inspectors qualified in accordance with ASME QAI-1, Qualification for Authorized Inspection, to perform inspections required by this Section. The inspections required by this Section shall be performed by an Authorized Nuclear Inspector. Any reference to Inspector throughout this Section shall mean Authorized Nuclear Inspector. The Authorized Nuclear Inspector shall not be in the employ of an N Certificate Holder.

NCA-5125 Duties of Authorized Nuclear Inspector Supervisors

The responsibilities of the Authorized Nuclear Inspector Supervisor include the requirements of (a) through (h) below:

(a) Supervisors, in conjunction with Inspectors employed by the same Authorized Inspection Agency (NCA-5121), shall participate in the Society's review of the applicant's Quality Assurance Program (NCA-8160). In those cases where the Supervisor performs the functions of the Inspector, he may represent both during the review of the Program.

(b) A Supervisor designated by the Authorized Inspection Agency shall review and accept any proposed modifications to Quality Assurance Manuals before they are put into effect.

(c) The Authorized Nuclear Inspector Supervisor shall audit the Inspector's performance at least twice per year at locations where the Certificate Holder is actively engaged in Section III work.

(d) The Supervisor shall be available as needed for consultation and support of the local inspection staff.

(e) The Supervisor shall maintain supervisory control over one or more Authorized Nuclear Inspectors and shall perform all of the functions and maintain the records required of him in ASME QAI-1, Qualification for Authorized Inspection.

(f) The portion of a Certificate Holder's Quality Assurance Program that involves supply or manufacture and supply of materials [NCA-3561(a)] shall be audited by the Supervisor at least once each year.

(g) The NS Certificate Holder's Quality Assurance Program shall be audited by the Supervisor at least once each year.

(h) The Owner's Quality Assurance Program shall be audited annually by the Supervisor. The Supervisor shall report the results to the Society for review and determination as to whether the Owner's Certificate shall be renewed.

NCA-5130 ACCESS FOR INSPECTION AGENCY PERSONNEL[13]

NCA-5131 Access to the Certificate Holder's Facilities

(a) The Certificate Holder shall arrange for the Inspection Agency Personnel to have free access at all times to those locations where Code activities, including those

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concerned with supply or manufacture of materials, are being performed on an item, when so requested. The Certificate Holder shall keep the Inspector informed of the progress of the work and shall notify him reasonably in advance when the item will be ready for any required tests or inspections.

(b) The Certificate Holder shall provide personnel to accompany the Authorized Nuclear Inspector Supervisor during his required audits.

NCA-5132 Access to the Owner's Facilities

The Owner shall arrange for the Authorized Inspection Agency Personnel to have free access to the Owner's facilities as required to perform duties under the Owner's Agreement with the Authorized Inspection Agency (NCA-5121).

NCA-5200 DUTIES OF INSPECTOR

NCA-5210 GENERAL INSPECTION DUTIES

(a) The Inspector who performs the detailed inspections in compliance with this Section shall witness or otherwise verify all examinations and make all inspections required by this Section. He shall also make any other inspections and witness or verify (including making measurements) any other examinations and additional investigations that, in his judgment, are necessary to ascertain whether the item being inspected has been constructed[1, 2] in compliance with the rules of this Section. Parts and piping subassemblies shall be in accordance with the accepted documents (NCA-3251). For Division 2, this shall include verification that the items being inspected have been constructed and installed in accordance with the approved Design Drawings and Construction Specifications.

(b) The duties of the Inspector shall not be interpreted by virtue of these rules to extend to any construction requirements beyond those of this Section that may be set forth in the Design Specification (NCA-3251) or on Design Drawings and Construction Specifications (NCA-3340). However, such requirements shall not result in construction that fails to conform with the requirements of this Section (NCA-3252).

NCA-5220 CATEGORIES OF INSPECTOR'S DUTIES

The duties of the Inspector shall include but not necessarily be limited to those given in (a) through (m) below

(a) verifying the scope of work to be performed [NCA-5230(a)]

(b) monitoring of the Certificate Holder's Quality Assurance Program including subcontracted activities (NCA-5240)

(c) reviewing of Certificate Holder's qualification records (NCA-5250)

(d) verifying materials (NCA-5260)

(e) witnessing or verifying in-process fabrication, nondestructive examination, and tests (NCA-5270)

(f) witnessing final pressure tests (NCA-5280)

(g) reviewing and signing Data Reports and Construction Reports (NCA-5290)

(h) reviewing drawings and inspecting in accordance with them

(i) assuring that Design Reports that are not required by NCA-3551.1 to be certified by a Registered Professional Engineer are available

(j) assuring that capacity test data has been reviewed and accepted by an ASME designee before signing the pressure and vacuum relief valve Data Report Form NV-1 (Section III Appendices, Mandatory Appendix V)

(k) monitoring the Code activities of the Owner [NCA-5242(c)]

(l) performing all other duties specifically required in ASME QAI-1, Qualification for Authorized Inspection, as applicable, and

(m) verify all preservice examinations have been completed to Section XI edition specified [NCA-3252(c)]

NCA-5230 SCOPE OF WORK, DESIGN SPECIFICATIONS, AND DESIGN REPORTS

(a) The Inspector shall verify that the scope stated in the certificate includes the work to be performed.

(b) The Inspector shall verify that the Design Specification, Design Drawings, Construction Specifications, Construction Reports, Design Reports, Load Capacity Data Sheets, and Certified Design Report Summaries, when required (NCA-3256 and NCA-3550), are on file and that they have been properly certified in accordance with NCA-3255, NCA-3260, NCA-3360, NCA-3380, and NCA-3555.

(c) The Inspector shall not be held responsible for the scope or adequacy of the Design Specifications, for the completeness or accuracy of the Design Report or calculations, for the information reported in the Construction Report, or for the qualification of Registered Professional Engineers certifying documents in compliance with the requirements of this Section.

(d) The Inspector shall verify that Design Calculations have been prepared for those components and supports not requiring Design Reports. The Inspector shall not be responsible for the accuracy of the calculations.

NCA-5240 QUALITY ASSURANCE PROGRAMS

NCA-5241 Stipulation of Inspections Prior to Issuance of Process Sheets or Controls

Prior to the issuance of process sheets or controls required by NCA-4134.9, the Certificate Holder shall review them and the applicable drawings with the Inspector, who shall then stipulate the inspections he intends to make in order to fulfill the requirements of NCA-5210.

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NCA-5242 Monitoring of Quality Assurance Programs

(a) The Inspector shall monitor the performance of the Certificate Holder for conformity to the requirements of their Quality Assurance Program accepted by the Society. The Inspector shall verify that all changes to the Quality Assurance Manual have been accepted by the Authorized Inspection Agency before they are put into effect.

(b) The Inspector shall assure that the procedures employed in the batching, mixing, conveyance, placing, and curing of structural concrete have been approved under the provisions of the Construction Specification and as specified in Division 2. Certificate Holders shall submit evidence to the Inspector that these requirements have been met.

(c) The Inspector shall monitor the Owner's progress in compiling supporting data needed to complete the ASME Data Report Form N-3 (Section III Appendices, Mandatory Appendix V).

NCA-5243 Process Control Checklist

The Inspector shall indicate on the Certificate Holder's process sheets or checklist his concurrence that compliance has been attained at each point stipulated by him (NCA-5241).

NCA-5250 QUALIFICATION RECORDS

NCA-5251 Review of Qualification Records

The Inspector shall review the qualification records of the Certificate Holder.

NCA-5252 Structural Concrete Placement

The Inspector shall assure that the procedures employed in the batching, mixing, conveyance, placing, and curing of structural concrete have been approved under the provisions of the Construction Specification and as specified in this Section. The Certificate Holder shall submit evidence to the Inspector that these requirements have been met.

NCA-5253 Welding Procedures

The Inspector shall assure himself that the welding procedures employed in construction have been qualified under the provisions of this Section. The Certificate Holder shall submit evidence to the Inspector that these requirements have been met. When there is a specific reason to question the welding procedure, the Inspector may require requalification as a requirement for the procedure to be used on work subject to his inspection.

NCA-5254 Welders and Welding Operators

The Inspector shall assure himself that all welding is performed by welders or welding operators qualified under the provisions of this Section. The Certificate Holder shall make available to the Inspector a certified copy of the record of performance qualification tests of each welder and welding operator as evidence that these requirements have been met. When there is a specific reason to question the ability of the welder or the welding operator to make welds that meet the requirements of the specification, the Inspector may require requalification before the welder or welding operator is permitted to continue welding on work subject to his inspection. The Inspector shall also assure himself that each welder and welding operator has been assigned an identifying symbol and that such symbols are regularly and consistently applied when required by this Section.

NCA-5255 Examination Procedures

The Inspector shall assure himself that the examination and testing procedures required by this Section have been qualified. When there is a specific reason to question whether the examination or testing procedure requirements are being met, the Inspector may require requalification of the procedure.

NCA-5256 Nondestructive Examination Personnel

The Inspector has the duty to verify the qualification and certification of nondestructive examination personnel employed by the Certificate Holder and has the duty to monitor the nondestructive examination activities and require requalification of any personnel when there is reason to question the performance of that person. In addition, the Inspector shall monitor the Certificate Holder's Quality Assurance Program as it relates to the nondestructive examination activities of Material Organizations and NDE subcontractors that the Certificate Holder qualified.

NCA-5260 MATERIALS, PARTS, AND HEAT TREATMENT

NCA-5261 Inspection of Materials for Compliance

The Inspector shall assure himself that all materials used comply with all applicable requirements of this Section. The Certificate Holder shall make available to the Inspector certified reports of the results of all tests performed in accordance with (a) and (b) below

(a) the material specifications

(b) the requirements in the applicable materials Articles of this Section, including certified reports of the results of all required tests and examinations performed

NCA-5262 Dimensional Check

The Inspector shall satisfy himself

(a) that the item is being constructed within the tolerance required by the Design Specification, Design Drawings, and Construction Specifications, and this Section

(b) that head and shell sections conform to the prescribed shape and meet the thickness requirements

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(c) that nozzles and attachments to be welded to the vessel fit properly to the curvature of the vessel surface. If required by the Inspector, the Certificate Holder responsible for the vessel shall make available accurately formed templates for his use.

NCA-5263 Check of Heat Treatment Practice

The Inspector shall satisfy himself that all heat treatment operations required by this Section are correctly performed and that the temperature readings and gradients conform to the requirements.

NCA-5270 EXAMINATIONS AND TESTS

The Inspector shall witness in-process fabrication, nondestructive examinations and destructive tests, when feasible; alternatively, he shall check the examination and test records to determine the acceptability of the items involved.

NCA-5280 FINAL TESTS

The Inspector shall witness final hydrostatic, pneumatic, or structural integrity tests required by this Section and examinations performed during such tests by the Certificate Holder. Hydrostatic, pneumatic, or structural integrity tests are not required for core support structures or supports.

NCA-5290 DATA REPORTS AND CONSTRUCTION REPORTS

(a) The appropriate Data Reports prepared by the Certificate Holder shall be reviewed and signed by the Inspector only after they have been certified by a responsible representative of the Certificate Holder and after he has satisfied himself that all requirements of this Section have been met and that each Data Report certified is a correct record. For Division 2 items, certification by the Designer is also required prior to verification by the Inspector.

(b) The Inspector shall review and separately verify that the information contained in the Construction Report for Division 2 construction is valid and corresponds to the requirements of Division 2 and that the Designer's review and certification of the Construction Report have taken account of all requirements of this Section.

(c) The N-3 Data Report Form (NCA-3220) shall be reviewed and signed by the Inspector only after

(1) it has been certified by the Owner

(2) the Inspector has reviewed the N-3 Form and verified that the Data Reports referenced on the N-3 Form are on file and that such Data Reports verify Code compliance of all components, parts, appurtenances, supports, and core support structures incorporated into the nuclear power system or that portion of the system covered by the N-3 Form

(3) the Inspector has verified that required documents for overpressure protection exist and are properly filed for that portion of the system covered by the N-3 Form

NCA-5300 RESPONSIBILITIES OF THE AUTHORIZED INSPECTION AGENCY (15)

The responsibilities of the Authorized Inspection Agency shall include but not necessarily be limited to those given in (a) through (k) below.

(a) Maintain a staff of Authorized Nuclear Inspectors and Authorized Nuclear Inspector Supervisors (NCA-5123).

(b) Make agreements with Certificate Holders and Owners for inspection service (NCA-5121 and NCA-8130). Notify the Society whenever such agreements are terminated (NCA-5121).

(c) Provide for participation in the Society's review of the applicant's Quality Assurance Program (NCA-5125).

(d) Provide for the review and acceptance of any proposed modifications to Quality Assurance Manuals before they are put into effect (NCA-5125).

(e) Review and accept the Certificate Holder's method of securing the nameplate to components to which, because of size or other considerations, the nameplate cannot be directly attached [NCA-8220(b)].

(f) Review and accept the Certificate Holder's alternative method of identification, including the unique method of marking of components to which, because of size or other considerations, nameplates cannot be directly attached [NCA-8220(b)].

(g) Review and accept the Certificate Holder's alternative method of marking of parts, appurtenances, supports, and piping subassemblies (NCA-8230).

(h) Review and accept the Certificate Holder's provisions of positive identification and traceability of items from which nameplates are removed (NCA-8240).

(i) Determine by agreement with the Certificate Holder the sequence for stamping and the completion of the Code Data Report [NCA-8310(c)].

(j) Review and accept the Certificate Holder's procedure for providing traceability of parts for piping subassemblies which are furnished without stamping (NCA-8330).

(k) And all other duties specifically required in ASME QAI-1, Qualification for Authorized Inspection, as applicable.

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ARTICLE NCA-7000
REFERENCE STANDARDS

NCA-7100 GENERAL REQUIREMENTS

The dimensional standards for standard products that are referenced in this Section are listed in Table NCA-7100-1.

Compliance with these standards does not replace or eliminate the design requirements for stress analysis when required by this Section.

The standards and specifications referenced in the text of this Section are listed in Tables NCA-7100-2 (Division 1) and NCA-7100-3 (Division 2). For Table NCA-7100-3, when editions other than the referenced editions are used, the differences shall be reviewed to ensure that all technical requirements of the Code are satisfied. Where reference is made to requirements of the ASME Boiler and Pressure Vessel Code, they are not included in these Tables.

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Table NCA-7100-1
Dimensional Standards

(15)

Standard ID	Published Title	Section III Referenced Edition	Other Acceptable Editions	Subsection Applicability [Note (5)]
Pipes and Tubes				
ASME B36.10M	Welded and Seamless Wrought Steel Pipe	2004	2000, 1996, 1985	NB, NC, ND, NE, NF, CC, HBB
ASME B36.19M	Stainless Steel Pipe	2004	1985 (R1994)	NB, NC, ND, NE, NF, CC, HBB
Fittings, Flanges, and Gaskets				
ASME B16.5	Pipe Flanges and Flanged Fittings	2009	2003, 1998, 1988, 1981	NB, NC, ND, NE, CC, HBB
ASME B16.9 [Note (1)]	Factory-Made Wrought Buttwelding Fittings	2007	2001, 1993, 1986, 1981	NB, NC, ND, NE, CC, HBB
ASME B16.11	Forged Fittings, Socket-Welding and Threaded	2009	2001, 1996, 1980	NB, NC, ND, NE, CC, HBB
ANSI B16.18	Cast Copper Alloy Solder Joint Pressure Fittings	2001 (R2005)	1984 (R1994)	NC, ND
ASME B16.20	Metallic Gaskets for Pipe Flanges: Ring-Joint Spiral Wound and Jacketed	2007	2000, 1998, 1984	NB, NC, ND, NE, CC, HBB
ASME B16.21	Nonmetallic Flat Gaskets for Pipe Flanges	2005	1992	NB, NC, ND, NE, CC, HBB
ASME B16.22	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	2001	1998, 1980	NC, ND
ASME B16.24	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500, and 2500	2011	...	ND, NE
ASME B16.25	Buttwelding Ends	1997	1986	NB, NC, ND, NE, CC, HBB
ASME B16.28 [Note (2)]	Wrought Steel Buttwelding Short Radius Elbows and Returns	...	1994, 1986	NB, NC, ND, NE, CC, HBB
ASME B16.47	Large Diameter Steel Flanges	2006	1998	NB, NC, ND, NE, CC, HBB
SAE J513	Refrigeration Tube Fittings — General Specifications	1999	1981	NB, NC, ND, NE, HBB
MSS SP-43	Wrought and Fabricated Butt-Welding Fittings for Low Pressure, Corrosion Resistant Applications	2008	1991 (R1996) (R2001), 1982 (R1986), 1982	NB, NC, ND, NE, CC, HBB
MSS SP-44	Steel Pipeline Flanges	...	1996, 1985, 1982	NB, NC, ND, NE, CC, HBB
MSS SP-87 [Note (3)]	Factory-Made Butt-Welding Fittings for Class 1 Nuclear Piping Applications	1991 (R1996)	1991, 1982	NB, CC, HBB
MSS SP-97	Integrally Reinforced Forged Branch Outlet Fittings — Socket Welding, Threaded and Buttwelding Ends	2006	2001	NB, NC, ND, NE, HBB
ANSI/AWWA C207	Steel Pipe Flanges for Waterworks Service — Sizes 4 in. through 144 in.	2001	1994	NB, NC, ND, NE, CC, HBB
Bolting				
ASME B18.2.1 [Note (4)]	Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head and Lag Screws	2010	1999, 1981	NB, NC, ND, NE, NF, CC, WB, WC, HBB
ASME/ANSI B18.2.2 [Note (4)]	Square and Hex Nuts (Inch Series)	1987 (R1999)	1987, 1972 (R1983)	NB, NC, ND, NE, NF, CC, WB, WC, HBB
ASME B18.3 [Note (4)]	Socket Cap, Shoulder, and Set Screws, Hex and Spine Keys (Inch Series)	2003	1998, 1986, 1982	NB, NC, ND, NE, NF, CC, WB, WC, HBB
Threads				
ASME B1.1 [Note (4)]	Unified Inch Screw Threads (UN and UNR Thread Form)	2003 (R2008)	1989, 1982	NB, NC, ND, NE, NF, CC, WB, WC, HBB
ANSI/ASME B1.20.1 [Note (4)]	Pipe Threads, General Purpose (Inch)	1983 (R2006)	1983 (R1992)	NB, NC, ND, NE, NF, CC, WB, WC, HBB

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Table NCA-7100-1
Dimensional Standards (Cont'd)

Standard ID	Published Title	Section III Referenced Edition	Other Acceptable Editions	Subsection Applicability [Note (5)]
Threads (Cont'd)				
ANSI B1.20.3 [Note (4)]	Dryseal Pipe Threads (Inch)	1976 (R2008)	1976 (R1981) (R1982) (R1991) (R1998)	NB, NC, ND, NE, NF, CC, WB, WC, HBB
Standards Supports				
ANSI/MSS SP-58	Pipe Hangers and Supports — Materials, Design, Manufacture, Selection, Application, and Installation	2009	...	NF
MSS SP-89	Pipe Hangers and Supports — Fabrication and Installation Practices	...	2003, 1998, 1991	NF
Valves				
ASME B16.34	Valves — Flanged, Threaded, and Welding End	2009 (S2010)	1998, 1988, 1981	NB, NC, ND, CC, HBB
MSS SP-100	Qualification Requirements for Elastomer Diaphragms for Nuclear Service Diaphragm Type Valves	2009	2002, 1997, 1988	NC, ND
MSS SP-105	Instrument Valves for Code Applications	2010	2005	NC, ND

NOTES:
(1) Analysis per ASME B16.9, para. 2.2, is acceptable only for caps and reducers.
(2) Analysis per ASME B16.28, para. 2.1, is not acceptable. In 1994, ASME B16.28 was incorporated into ASME B16.9.
(3) Analysis per MSS-SP-87 is acceptable only for caps and reducers.
(4) These standards are referenced for dimensional purposes only. Any manufacturing or inspection requirements contained in item are not mandatory. The SA or SB Material Specification specifies the applicable manufacturing and inspection requirements.
(5) HBB refers to Division 5, Subsection HB, Subpart B.

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Table NCA-7100-2
Standards and Specifications Referenced in Division 1

(15)

Standard ID	Published Title	Section III Referenced Edition
The American Society of Mechanical Engineers (ASME)		
ASME NQA-1	Quality Assurance Requirements for Nuclear Facility Applications	2008, 2009a
ASME PTC 25	Pressure Relief Devices	2014
ASME QAI-1	Qualifications for Authorized Inspection	Latest
American Society for Nondestructive Testing (ASNT)		
SNT-TC-1A	Personnel Qualification and Certification in Nondestructive Testing	2011
American Society for Testing and Materials (ASTM)		
ASTM A275	Standard Test Method for Magnetic Particle Examination of Steel Forgings	2009a
ASTM A673	Standard Specification for Sampling Procedure for Impact Testing of Structural Steel	1977
ASTM E8	Standard Test Methods for Tension Testing of Metallic Materials	1972
ASTM E23	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	2002a
ASTM E94	Standard Guide for Radiographic Examination	1977
ASTM E142	Standard Method for Controlling Quality of Radiographic Testing (Discontinued 2000, Replaced by ASTM E94)	1977
ASTM E185	Standard Practice for Design of Surveillance Programs for Light-Water Moderated Nuclear Power Reactor Vessels	1982
ASTM E186	Standard Reference Radiographs for Heavy-Walled (2 to $4^1/_2$–in.) [(51 to 114–mm)] Steel Castings	67, 73, 75, 79
ASTM E208	Standard Test Method for Conducting Drop-Weight Test to Determine Nil-Ductility Transition Temperature of Ferritic Steels	1991
ASTM E213	Standards Practice for Ultrasonic Examination of Metal Pipe and Tubing	1979
ASTM E280	Standard Reference Radiographs for Heavy-Walled ($4^1/_2$ to 12-in.) [(114 to 305–mm)] Steel Castings	68, 72, 75
ASTM E446	Standard Reference Radiographs for Steel Castings up to 2 in. (51 mm) in Thickness	72, 75, or 78
ASTM E606	Standard Practice for Strain-Controlled Fatigue Testing	Latest
ASTM E883	Standard Guide for Reflected-Light Photomicrography	2002
American Welding Society (AWS)		
AWS A4.2	Calibrating Magnetic Instruments to Measure the Delta Ferrite Content of Austenitic and Duplex Ferritic-Austenitic Stainless Steel	1991
Plastics Pipe Institute (PPI)		
PPI TR-3	Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Hydrostatic Design Stresses (HDS), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe	2008
PPI TR-4	PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe	2008a

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(15)

Table NCA-7100-3
Standards and Specifications Referenced in Division 2

Standard ID	Published Title	Section III Referenced Edition
American Concrete Institute (ACI)		
ACI 116R	Cement and Concrete Terminology	2000 (R2005)
ACI 211.1	Standard Practice for Selecting Proportions for Normal, Heavy Weight, and Mass Concrete	1991 (R2009)
ACI 214R	Guide to Evaluation of Strength Test Results of Concrete	2011
ACI 304R	Guide for Measuring, Mixing, Transporting and Placing Concrete	2000 (R2009)
ACI 305R	Guide to Hot Weather Concreting	2010
ACI 306R	Guide to Cold Weather Concreting	2010
ACI 309R	Guide for Consolidation of Concrete	2005
ACI 347	Guide to Formwork for Concrete	2004
American Institute of Steel Construction (AISC)		
...	Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings	1978
...	Specification for Structural Steel Buildings — Allowable Stress Design and Plastic Design	1989
American National Standards Institute (ANSI)		
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration Laboratories	2005
American Public Health Association (APHA)		
APHA-4500-S^{2-} 17th Edition	Test for Determination of Water Soluble Sulfides (Methylene Blue Method) — Standards Methods for the Examination of Water and Wastewater	1985
American Society of Mechanical Engineers (ASME)		
ASME B1.1	Unified Inch Screw Threads (UN and UNR Thread Form)	2003 (R2008)
American Society for Nondestructive Testing (ASNT)		
SNT-TC-1A	Personnel Qualification and Certification in Nondestructive Testing	2011
American Society for Testing and Materials (ASTM)		
ASTM A108	Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished	2013
ASTM A416/A416M	Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete	2010
ASTM A421/A421M	Standard Specification for Uncoated Stress-Relieved Wire for Prestressed Concrete	2010
ASTM A490	Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength	2012
ASTM A513/A513M	Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing	2012
ASTM A519	Standard Specification for Seamless Carbon and Alloy Steel Mechanical Tubing	2006 (R2012)
ASTM A563	Standard Specification for Carbon and Alloy Steel Nuts	2007a
ASTM A576	Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality	1990b (R2012)
ASTM A615/A615M	Standard Specification for Deformed and Plain Steel Bars for Concrete Reinforcement	2009b
ASTM A673/A673M	Standard Specification for Sampling Procedure for Impact Testing of Structural Steel	2007 (R2012)
ASTM A706/A706M	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement	2013
ASTM A722/A722M	Standard Specification for Uncoated, High-Strength Steel Bar for Prestressing Concrete	2012
ASTM A779/A779M	Standard Specification for Steel Strand, Seven-Wire, Uncoated, Compacted, Stress-Relieved for Prestressed Concrete	2012
ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus	2011
ASTM C31/C31M	Standard Practice for Making and Curing Concrete Test Specimens in the Field	2012
ASTM C33/C33M	Standard Specification for Concrete Aggregates	2013
ASTM C39/C39M	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens	2012
ASTM C40/C40M	Standard Test Method for Organic Impurities in Fine Aggregates for Concrete	2011
ASTM C42/C42M	Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete	2013
ASTM C78/C78M	Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third Point Loading)	2010e1
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	2013
ASTM C94/C94M	Standard Specification for Ready Mixed Concrete	2013a
ASTM C109/C109M	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)	2013
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement	2011b
ASTM C115	Standard Test Method for Fineness of Portland Cement by the Turbidimeter	2010
ASTM C117	Standard Test Method for Materials Finer than 75-μm (No. 200) Sieve in Mineral Aggregates by Washing	2004
ASTM C123/C123M	Standard Test Method for Lightweight Particles in Aggregate	2012
ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate	2012
ASTM C128	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate	2012
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	2006

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Table NCA-7100-3
Standards and Specifications Referenced in Division 2 (Cont'd)

Standard ID	Published Title	Section III Referenced Edition
American Society for Testing and Materials (ASTM) (Cont'd)		
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates	2006
ASTM C138/C138M	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete	2013a
ASTM C142/C142M	Standard Test Method for Clay Lumps and Friable Particles in Aggregates	2010
ASTM C143/C143M	Standard Test Method for Slump of Hydraulic Cement Concrete	2010a
ASTM C150/C150M	Standard Specification for Portland Cement	2011
ASTM C151/C151M	Standard Test Method for Autoclave Expansion of Hydraulic Cement	2009
ASTM C157/C157M	Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete	2008
ASTM C172/C172M	Standard Practice of Sampling Freshly Mixed Concrete	2010
ASTM C173/C173M	Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method	2010b
ASTM C183	Standard Practice for Sampling and the Amount of Testing of Hydraulic Cement	2008
ASTM C191	Standard Test Methods for Time of Setting Hydraulic Cement by Vicat Needle	2008
ASTM C192/C192M	Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory	2007
ASTM C204	Standard Test Methods for Fineness of Hydraulic Cement by Air Permeability Apparatus	2011
ASTM C227	Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)	2010
ASTM C231/C231M	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method	2010
ASTM C260/C260M	Standard Specification for Air-Entraining Admixtures for Concrete	2010a
ASTM C266	Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles	2008e1
ASTM C289	Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)	2007
ASTM C295/C295M	Standard Guide for Petrographic Examination of Aggregates for Concrete	2011
ASTM C311/C311M	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete	2011b
ASTM C403/C403M	Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance	2008
ASTM C430	Standard Test Method for Fineness of Hydraulic Cement by the 45-μm (No. 325) Sieve	2008
ASTM C441/C441M	Standard Test Method for Effectiveness of Pozzolans or Ground Blast-Furnace Slag in Preventing Excessive Expansion of Concrete Due to the Alkali-Silica Reaction	2011
ASTM C469/C469M	Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression	2010
ASTM C494/C494M	Standard Specification for Chemical Admixtures for Concrete	2011
ASTM C496/C496M	Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens	2011
ASTM C512/C512M	Standard Test Method for Creep of Concrete in Compression	2010
ASTM C535	Standard Test Method for Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	2009
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying	1997 (R2004)
ASTM C586	Standard Test Method for Potential Alkali Reactivity of Carbonate Rocks as Concrete Aggregates (Rock-Cylinder Method)	2011
ASTM C595/C595M	Standard Specifications for Blended Hydraulic Cements	2011
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete	2012
ASTM C637	Standard Specification for Aggregates for Radiation Shielding Concrete	2009
ASTM C642	Standard Test Method for Density, Absorption and Voids in Hardened Concrete	2006
ASTM C937	Standard Specification for Grout Fluidifier for Preplaced Aggregate Concrete	2010
ASTM C939	Standard Test Method for Flow of Grout for Preplaced Aggregate Concrete (Flow Cone Method)	2010
ASTM C940	Standard Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Preplaced Aggregate Concrete in the Laboratory	2010a
ASTM C943	Standard Practice for Making Test Cylinders and Prisms for Determining Strength and Density of Preplaced Aggregate Concrete in the Laboratory	2010
ASTM C953	Standard Test Method for Time of Setting of Grouts for Preplaced Aggregate Concrete in the Laboratory	2010
ASTM C989/C989M	Standard Specification for Slag Cement for Use in Concrete and Mortars	2011
ASTM C1012/C1012M	Standard Test Method for Length Change of Hydraulic Cement Mortars Exposed to a Sulfate Solution	2010
ASTM C1017/C1017M	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete	2007
ASTM C1064/C1064M	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete	2011
ASTM C1069	Standard Test Method for Specific Surface Area of Alumina or Quartz by Nitrogen Adsorption	2009
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation	2011c
ASTM C1107/C1107M	Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)	2011
ASTM C1218/C1218M	Standard Test Method for Water-Soluble Chloride in Mortar and Concrete	1999(R2008)
ASTM C1240	Standard Specification for Silica Fume Used in Cementitious Mixtures	2011

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Table NCA-7100-3
Standards and Specifications Referenced in Division 2 (Cont'd)

Standard ID	Published Title	Section III Referenced Edition
American Society for Testing and Materials (ASTM) (Cont'd)		
ASTM C1567	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)	2011
ASTM C1580	Standard Test Method for Water-Soluble Sulfate in Soil	2009
ASTM C1602/C1602M	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete	2012
ASTM C1603	Standard Test Method for Measurement of Solids in Water	2010
ASTM D92	Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester	2011
ASTM D512	Standard Test Methods for Chloride Ion in Water	2010
ASTM D516	Standard Test Method for Sulfate Ion in Water	2011
ASTM D609	Standard Practice for Preparation of Cold Rolled Steel Panels for Testing Paint, Varnish, Conversion Coatings, and Related Coating Products	2000 (R2012)
ASTM D610	Standard Practice for Evaluating Degree of Rusting on Painted Steel Surface	2008 (R2012)
ASTM D937	Standard Test Method for Cone Penetration of Petrolatum	2007 (R2012)
ASTM D938	Standard Test Method for Congealing Point of Petroleum Waxes Including Petrolatum	2012
ASTM D974	Standard Test Method for Acid and Base Number by Color-Indicator Titration	2012
ASTM D1298	Standard Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method	1999 (R2005)
ASTM D1411	Standard Test Methods for Water-Soluble Chlorides Present as Admixtures in Graded Aggregate Road Mixes	2009
ASTM D3867	Standard Test Methods for Nitrite-Nitrate in Water	2009
ASTM D4130	Standard Test Method for Sulfate Ion in Brackish Water, Seawater, and Brines	2008
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate	2010
ASTM D6184	Standard Test Method for Oil Separation from Lubricating Grease (Conical Sieve Method)	1998 (R2005)
ASTM E23	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	2007ae1
ASTM E94	Standard Guide for Radiographic Examination	2004 (R2010)
ASTM E112	Standard Test Methods for Determining Average Grain Size	2010
ASTM E165	Standard Practice for Liquid Penetrant Examination for General Industry	2009
ASTM E186	Standard Reference Radiographs for Heavy-Walled (2 to 4$^1/_2$-in. (50.8 to 114-mm)) Steel Castings	2010
ASTM E208	Standard Test Method for Conducting Drop-Weight Test to Determine Nil-Ductility Transition Temperature of Ferritic Steels	2006
ASTM E280	Standard Reference Radiographs for Heavy-Walled (4$^1/_2$ to 12-in. (114 to 305-mm)) Steel Castings	2010
ASTM E328	Standard Test Methods for Stress Relaxation Tests for Materials and Structures	2002 (R2008)
ASTM E446	Standard Reference Radiographs for Steel Castings Up to 2 in. (50.8 mm) in Thickness	2010
ASTM F436	Standard Specification for Hardened Steel Washers	2011
ASTM F788	Standard Specification for Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series	2013
American Welding Society (AWS)		
AWS A4.2	Standard Procedures for Calibrating Magnetic Instruments to Measure the Delta Ferrite Content of Austenitic and Duplex Austenitic-Ferritic Stainless Steel Weld Metal	1997
AWS A5.1/A5.1M	Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding	2012
AWS A5.5/A5.5M	Specification for Low Alloy Steel Electrodes for Shielded Metal Arc Welding	2006
AWS A5.18/A5.18M	Specification for Carbon Steel Electrodes and Rods for Gas Shielded Arc Welding	2005
AWS A5.20/A5.20M	Carbon Steel Electrodes for Flux Cored Arc Welding	2005
AWS A5.28/A5.28M	Specification for Low-Alloy Steel Electrodes and Rods for Gas Shielded Arc Welding	2005
AWS A5.29/A5.29M	Specification for Low-Alloy Steel Electrodes for Flux Cored Arc Welding	2010
AWS D1.1/D1.1M	Structural Welding Code – Steel	2010
AWS D1.4/D1.4M	Structural Welding Code – Reinforcing Steel	2011
National Ready Mixed Concrete Association (NRMCA)		
...	QC Manual Section 3 – Plant Certification Check List (Eleventh Revision)	2011
U.S. Army Corps of Engineers		
CRD-C 36	Method of Test for Thermal Diffusivity of Concrete	1973
CRD-C 39	Test Method for Coefficient of Linear Thermal Expansion of Concrete	1981
CRD-C 44	Method for Calculation of Thermal Conductivity of Concrete	1963

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ARTICLE NCA-8000
CERTIFICATES, NAMEPLATES, CERTIFICATION MARK, AND DATA REPORTS

NCA-8100 AUTHORIZATION TO PERFORM CODE ACTIVITIES

NCA-8110 GENERAL

Authorization to use the official Certification Mark or to certify work by other means provided in this Section (see Table NCA-8100-1) will be granted by the Society for a 3-yr period pursuant to the provisions set forth in this subarticle. Authorization to certify Owner's Data Report Form N-3 (Section III Appendices, Mandatory Appendix V), will be granted pursuant to the provisions set forth in this subarticle.

NCA-8120 SCOPE OF CERTIFICATES

(a) The Certificate (NCA-3120) will identify the shop or field facility covered and state the scope of activities for which authorization is granted. The Society may, at its discretion, limit or extend the scope of an authorization to any types or classes of items or to a specific location.

(b) A Certificate of Authorization will be issued by the Society to an organization for the use of a Certification Mark, certifying a Data Report Form, or performing welding or certifying joining.

(c) The installation of items by mechanical means need not be performed by a Certificate Holder. The responsibility for the hydrostatic or pneumatic test of completed components must be assumed by a holder of a Certificate of Authorization and witnessed by the Authorized Nuclear Inspector regardless of the method of assembly. This does not preclude an organization that installs items by mechanical means only from obtaining a Certificate of Authorization.

(d) A Certificate of Authorization (Corporate) will be issued by the Society to an organization for performing Code activities other than those specified in (b) or (c) above or for welding supports.

(e) A Quality Assurance Program Certificate with an appropriate scope may be issued by the Society to an Organization who has documented a Quality Assurance Program and whose ability to staff, equip, or otherwise implement the described Quality Assurance Program has been evaluated and accepted by the Society. It is not necessary that the Program is or ever was implemented.

(f) The Society may, at any time, make regulations concerning the issuance and use of certificates and Certification Mark as it deems appropriate, and all regulations shall become binding upon the holders of a valid certificate.

NCA-8130 INSPECTION AGREEMENT REQUIRED

Certificate Holders and Owners shall possess an agreement with an Authorized Inspection Agency[14] to provide inspection and audit services. The agreement with the Authorized Inspection Agency shall be made prior to application for a survey or, in the case of the Owner, an interview. Certificate Holders and Owners shall notify the Society whenever their agreements with an Authorized Inspection Agency are cancelled or changed to another Authorized Inspection Agency.

NCA-8140 QUALITY ASSURANCE PROGRAM REQUIREMENTS

It is a requirement that a Certificate Holder have a Quality Assurance Program (NCA-4134) that has been evaluated and accepted by the Society. The Owner shall have a Quality Assurance Program in accordance with NCA-4133.

NCA-8150 APPLICATION FOR CERTIFICATION

An Organization desiring a certificate shall apply to the Society upon forms issued by the Society describing the scope of Code activities to be performed.

NCA-8151 Field Operations (15)

The N, NA, NPT, or NS certificates may be extended to include field operations such as installation, completion, or repair of components, parts, appurtenances, or supports constructed under that authorization. The NS Certificate may be extended to a field location; however, the activities of NCA-1282 for the installation of supports at their final location in the system are not permitted by the NS Certificate Holder. The Society requires that an audit acceptable to the Society be performed at each field site to assure that the Quality Assurance Program described in the Manual is implemented and enforced.

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Table NCA-8100-1
Certificates and Certification Mark Issued by the Society for Construction of Nuclear Power Plants

Type of Organization	Scope	Division 1					Division 2	Data Report Form	Notes
		Class 1	Class 2	Class 3	Class CS	Class MC	Class CC		
N Certificate Holder	Vessel	1	2	3	None	MC	None	N-1/N-1A	(9)
	Concrete containment	None	None	None	None	None	CC	C-1	...
	Pump	1	2	3	None	None	None	NPV-1	(1)
	Pressure relief valves	1	2	3	None	None	None	NV-1	(1)
	Line valve	1	2	3	None	None	None	NPV-1	(1), (6)
	Storage tank	None	2	3	None	None	None	N-6	...
	Piping systems	1	2	3	None	None	None	N-5	(1)
	Core support structures	None	None	None	CS	None	None	NCS-1	(2)

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Table NCA-8100-1
Certificates and Certification Mark Issued by the Society for Construction of Nuclear Power Plants (Cont'd)

Type of Organization	Scope	Division 1					Division 2	Data Report Form	Notes
		Class 1	Class 2	Class 3	Class CS	Class MC	Class CC		
NPT Certificate Holder	Tubular products welded with filler metal	1	2	3	None	2	2	NM-1	(1), (7)
	Part	1	2	3	CS	MC	CC	N-2	(1), (4), (8), (9)
	Appurtenance	1	2	3	CS	MC	CC	N-2	(1), (4), (8), (9)
	Piping subassembly	1	2	3	None	None	None	NPP-1	(1), (3), (9), (10)
NA Certificate Holder	All items	1	2	3	CS	MC	None	N-5	(1), (9)
Quality System Certificate Holder	Material	None	None	None	None	None	None	None	(7), (9)
NS Certificate Holder	Supports	None	None	None	None	None	None	None	(5)
Owners	Owner	None	None	None	None	None	None	N-3	...

NOTES:

(1) Items within the containment system, excluding the Class CC and MC vessel and its supports, shall be stamped Class 1 or 2 in accordance with the classification stated in the Design Specification or Construction Specification.

(2) A Data Report shall be filled out on Form NCS-1 (Section III Appendices, Mandatory Appendix V) by the Certificate Holder assuming overall responsibility. If this Certificate Holder also performs the fabrication, the Form NCS-1 shall be completed by this Certificate Holder and shall be certified by the Inspector for the core support structure to be stamped with the Certification Mark with N Designator and no N-2 Form is required. When a Certificate Holder is responsible for fabrication only, the Form N-2 (Section III Appendices, Mandatory Appendix V) shall be completed by that Certificate Holder and certified by the Inspector for core support structures, appurtenances, or parts which are to be stamped with the Certification Mark with NPT Designator.

(3) Data Report Form NPP-1 (Section III Appendices, Mandatory Appendix V) shall be forwarded in duplicate to the N Certificate Holder taking overall responsibility for the piping system and the NA Certificate Holder installing the piping system.

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Table NCA-8100-1
Certificates and Certification Mark Issued by the Society for Construction of Nuclear Power Plants (Cont'd)

NOTES (CONT'D):

(4) Data Report Form N-2 for parts shall be forwarded in duplicate to the Certificate Holder of the finished component or support.

(5) Welded supports shall be documented on an NS-1 Certificate of Conformance or for non-welded supports on a manufacturer's Certificate of Compliance. The certification documentation shall be forwarded in duplicate to the Certificate Holder who performs the installation. A single Certificate of Conformance may be used for ten supports when each is of the same design and each is identified on the NS-1 Certificate of Conformance by serial number.

(6) A single Data Report may be used for each group of 25 line valves and pumps of the same size and design with inlet piping connection of 4 in. nominal pipe size and smaller when each is identified on the Data Report by an individual serial number.

(7) Material (NCA-1220) shall be documented by a Certified Material Test Report or a Certificate of Compliance in accordance with Article NB/NC/ND/NE/NF/NG-2000.

(8) A multiple number of parts or appurtenances for a single nuclear power plant may be included on the N-2 Data Report, provided the parts or appurtenances are of the same class, size, and design and that the parts or appurtenances are manufactured for the same N Certificate Holder and authorized by the Inspector for stamping on the same day. Each part or appurtenance must be identified on the Data Report by an individual serial number.

(9) Miscellaneous items as described in NCA-1270 shall be stamped with the Certification Mark and listed on the appropriate Data Report Form when constructed as an "N" or "NPT" item or installed under an "NA" Certificate. When furnished as material, an appropriate Certified Material Test Report or Certificate of Compliance is required in lieu of Data Reports and stamping.

(10) A single Data Report may be used for each group of 25 braided flexible hose of the same nominal pipe size and design, provided each is identified on the Data Report by an individual serial number.

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NCA-8152 Shop Assembly

Shop assembly of components to components, or components to appurtenances and piping subassemblies or other items, may be by either NA or N Certificate Holders if such activities are included within the scope of their certificate.

NCA-8153 Code Activities Prior to Obtaining a Certificate

Code activities performed prior to issuance of a certificate shall be subject to the acceptance of the Inspector.

NCA-8160 EVALUATION

NCA-8161 Evaluation for a Certificate

(a) Applicants for a new or renewed certificate for Class 1, 2, 3, CS, CC, or MC construction require a survey of their shop or field facilities. The purpose of the survey is to evaluate the applicant's Quality Assurance Manual and the implementation of the Quality Assurance Program.

(b) The extent of the survey will be determined by the Society based on a review of the applicant's intended scope of Code activities described in the application. The acceptance by the Society of the Quality Assurance Program shall not be interpreted to mean endorsement of technical capability to perform design work such as system design or stress analysis. Such capability is implied for the specific component involved by the certification of Design Reports (NCA-3360, NCA-3555) by a Registered Professional Engineer.

(c) Authorization to apply a Certification Mark to an item will be granted only after a survey by the Society has satisfactorily demonstrated the adequacy and implementation of the Quality Assurance Program.

NCA-8162 Evaluation for an Owner's Certificate

(a) The Owner, after receipt of notification from the regulatory authority that an application for a construction permit or combined license for a specific plant has been docketed, shall obtain an Owner's Certificate (NCA-3230) from the Society for unit(s) docketed concurrently for each nuclear power plant site prior to field installation. In lieu of a survey, the Owner will be interviewed for the Society to verify the Owner's understanding of Code responsibilities (NCA-3220) and to obtain the Owner's agreement to meet the requirements.

(b) The Owner's certificate (NCA-3230) shall be applicable to nuclear power plant unit(s) docketed concurrently for each site.

NCA-8170 ISSUANCE

Each Certificate Holder shall have agreed that each certificate and Certification Mark (if one is issued) is at all times the property of the Society, that it will be used according to the rules and regulations of this Section, and that the certificate and Certification Mark will be promptly returned to the Society upon demand, or when the Certificate Holder discontinues the scope of Code activities covered by his certificate. The holder of a Certification Mark shall not permit any other party to use its certificate or Certification Mark. The Society reserves the absolute right to cancel or refuse to renew such authorization, returning fees paid for the prorated unexpired term.

NCA-8180 RENEWAL

NCA-8181 Certificates of Authorization, Certificates of Authorization (Corporate), and Quality Assurance Program Certificate Holders

(a) Not later than 6 months prior to the date of expiration of any certificate, the Certificate Holder shall apply for a renewal of such authorization and the issuance of a new certificate.

(b) A certificate issued for a specific field site, or a certificate that has been extended to a specific field site activity, is valid for the duration of the contract at the specified site or 3 yr, whichever occurs first.

NCA-8182 Owner's Certificate

(a) Annually, the Authorized Nuclear Inspector Supervisor shall audit the Owner's Quality Assurance Program and report the results to the Society for review and determination as to whether the certificate shall remain valid.

(b) Triennially, the Authorized Nuclear Inspector Supervisor shall audit the Owner's Quality Assurance Program and report the results to the Society for review and determination as to whether the Owner's Certificate shall be renewed.

(c) The Owner's Certificate expires when all N-3 Data Reports for the units listed on the certificate have been completed. The Society shall review the status of construction and determine whether the Owner's certificate shall be renewed.

NCA-8200 NAMEPLATES AND STAMPING WITH CERTIFICATION MARK

NCA-8210 GENERAL REQUIREMENTS

NCA-8211 Nameplates

Each item and installation to which a Certification Mark is applied shall have a nameplate, except as otherwise permitted by this subarticle. Marking shall be as required by (a) through (f) below

(a) the applicable official Certification Mark, as shown in Table NCA-8100-1

(b) Class of construction and Designator

(c) the statement "Certified by"

(d) Certificate Holder's name

(e) Certificate Holder's serial number and, if applicable, national board number and/or Canadian registration number

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(f) marking for line valves shall include the ANSI pressure class rating

NCA-8212 Stamping With Certification Mark

The Certification Mark shall be stamped on a nameplate attached to an item, except as otherwise permitted by this subarticle. The arrangement of markings shall be as shown in Figure NCA-8212-1. The data shall be in characters not less than $^{3}/_{32}$ in. (2.5 mm) high. The selected method shall not result in any harmful contamination or sharp discontinuities. Stamping directly on items, when used, shall be done with blunt-nosed continuous or blunt-nose interrupted dot die stamps.

NCA-8213 Attachment of Nameplates

(a) The nameplate shall be attached by a method (acceptable to the Designer for Division 2 items) that will not affect the structural integrity of the item.

(b) If the nameplate is marked before it is attached, the Certificate Holder shall assure that the nameplate with the correct marking has been attached and the Inspector shall verify that this has been done.

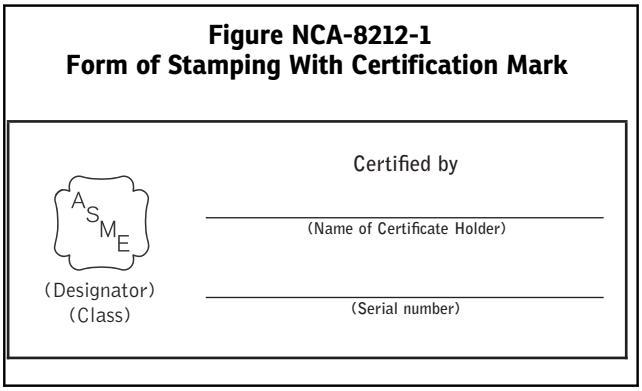
(c) When nameplates are attached with pressure sensitive acrylic adhesive systems, in addition to the requirements of this Article, those of Section III Appendices, Mandatory Appendix XXI shall be met.

NCA-8220 NAMEPLATES FOR COMPONENTS

(a) The markings required by NCA-8210 shall be applied to a separate nameplate attached to the component. In the case of core support structures, the marking shall be applied directly to the support.

(b) If because of size or other considerations the nameplates cannot be directly attached to the component, the Certificate Holder may secure the nameplate to the component in a manner acceptable to the Authorized Inspection Agency and apply a unique identification mark to the component that will serve to identify the component with the appropriate Data Report. The marking shall be of a visible, permanent type and not detrimental to the component. The type, method, and manner of marking shall be described in the Certificate Holder's Quality Assurance Program or Procedure. The use of this alternative method of identification, including the method of marking, shall be reviewed by and found acceptable to the Authorized Inspection Agency (NCA-5121) prior to implementation by the Certificate Holder.

Figure NCA-8212-1
Form of Stamping With Certification Mark



NCA-8230 NAMEPLATES FOR CERTIFICATION MARK WITH NPT DESIGNATOR ITEMS

(a) Parts, appurtenances, and piping subassemblies assembled by welding shall have a separate nameplate equivalent to that required for completed components when the size and use of the item will accommodate such a nameplate. When the size or use of the item will not permit the installation of a nameplate, the marking shall consist of suitable identification of the item until it has been incorporated into the finished component or the other item stamped with a Certification Mark with the NPT Designator. This alternative method of marking shall be reviewed with and found acceptable to the Authorized Inspection Agency before being used by the Certificate Holder.

(b) In the case of tubular products welded with filler metal, nameplates are not required. The marking shall be applied directly to the material by etching or stamping.

NCA-8240 REMOVED NAMEPLATES

If nameplates secured as noted in NCA-8220 are removed from items that have been installed in a nuclear power plant system, the Certificate Holder responsible for completion of the N-5 Data Report shall verify and document that the required nameplate had been attached to the item. Provisions of positive identification and traceability of the items to a specific location and applicable Data Report shall be included in the Quality Assurance Program or procedure of the Certificate Holder responsible for installation. This alternative shall be reviewed with and found acceptable to the Authorized Inspection Agency (NCA-5121) before being used by the Certificate Holder.

NCA-8300 CERTIFICATION MARK

NCA-8310 GENERAL REQUIREMENTS

(a) The Certification Mark shall be applied by the Certificate Holder only with authorization of the Inspector. In any case, the Certification Mark shall not be applied until completion of the required examination and testing.

(b) Table NCA-8100-1 provides Certification Mark requirements as related to type of certificates, scope of work, and class of construction. The class of construction shall be indicated by the applicable number 1, 2, or 3, or letters CS, CC, or MC stamped below and outside the official Certification Mark. For items to be certified as meeting a Section III Edition or Addenda before the 2011 Addenda, the ASME Certification Mark is equivalent to

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and may be used in lieu of the N, NA, NPT, or NV Stamp shown in the Section III Edition and Addenda used for construction.

(c) The completed Code Data Report Form indicates that the Inspector has inspected the item and authorized the application of the Certification Mark. The sequence for stamping and the completion of the Code Data Report shall be determined by agreement between the Authorized Nuclear Inspector and the Certificate Holder.

NCA-8320 APPLICATION OF THE CERTIFICATION MARK WITH N DESIGNATOR

NCA-8321 Authorization and Time of Stamping

The Certification Mark with N Designator shall be applied only with the authorization of the Inspector after the pressure test[15] requirements have been satisfied and all other examinations, tests, and inspections have been satisfactorily completed.

NCA-8322 Application of the Certification Mark With N Designator at Field Sites or Other Locations

(15) **NCA-8322.1 Application of the Certification Mark With N Designator at Field Sites or Other Locations for Items Requiring Pressure Test.** The N Certificate Holder may apply the Certification Mark with N Designator to the component in the field, without having the N Certificate of Authorization extended to a field site or other locations, under the following provisions:

(a) where the N Certificate Holder elects to substitute the system pressure test [NB/NC/ND-6221(a)] for the component pressure test, the test is conducted under the responsibility of an N or NA Certificate of Authorization issued for that field site or other locations and is witnessed and accepted by the N Certificate Holder responsible for the component, or

(b) where the N Certificate Holder elects to subcontract the performance of the component pressure test, the N Certificate Holder shall be responsible for supervising, witnessing, and accepting the pressure test and assuring that the test is controlled in accordance with the suppliers' approved program, or

(c) where the N Certificate Holder elects to perform the component pressure test at a field site or other location, the pressure test shall be controlled in accordance with the N Certificate Holder's Quality Assurance Program, or

(d) where the N Certificate Holder elects to subcontract the performance of the pressure test(s) outlined in NB-6114.2(d), the N Certificate Holder shall be responsible for supervising, witnessing, and accepting the pressure test(s) and assuring that the test is controlled in accordance with the suppliers' approved Quality Assurance Program.

The completed shop fabrication portion of the Data Report Form, together with the Inspector's own inspections of the component, shall be authority for that field Inspector to witness the test and authorize stamping of the completed component.

(15) **NCA-8322.2 Application of the Certification Mark With N Designator at Field Sites or Other Locations for Items Not Requiring Pressure Test.** The N Certificate Holder may apply the Certification Mark with N Designator to the component in the field or other locations, without having the N Certificate of Authorization extended to a field site or other locations, under the following provisions:

(a) When the N Certificate Holder subcontracts fabrication and installation activities, the N Certificate Holder shall verify the activities are completed in accordance with the supplier's approved program.

(b) The completed shop fabrication and field fabrication Data Report Forms, together with the Inspector's own inspection of the component, shall be the authority to authorize stamping of the completed component.

NCA-8330 PARTS AND PIPING SUBASSEMBLIES FURNISHED WITHOUT STAMPING WITH CERTIFICATION MARK

(a) An organization[16] with separate or extended certificates may manufacture and ship items such as parts and piping subassemblies without the Certification Mark with NPT Designator for use at another of its facilities, provided its Quality Assurance Manual includes the provisions of (1) through (3) below.

(1) Requirements for legible and specific identification of each item. Identification shall be permanent and not detrimental to the item. Identification shall be on the item.

(2) Requirements for completing a transmittal form with each shipment of items. The form shall list all items and their corresponding identification number, and shall indicate that the items do not contain the Certification Mark with NPT Designator. The form shall be signed by the Certificate Holder and the Authorized Nuclear Inspector prior to shipment.

(3) Requirements for receipt of items shipped without the Certification Mark with NPT Designator. Requirements shall include inspection upon receipt and maintenance and retention of transmittal forms.

(b) Neither a Certification Mark with NPT Designator, nameplate, Code Data Report, nor transmittal form is required on items manufactured and installed at the same facility by the same Certificate Holder, provided that the Certificate Holder's Quality Assurance Program provides for control of these items through completion of installation.

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NCA-8400 DATA REPORTS

NCA-8410 GENERAL REQUIREMENTS

The appropriate Data Report,[17] as specified in Table NCA-8100-1, shall be filled out by the Certificate Holder or Owner and shall be signed by the Certificate Holder or Owner and the Inspector for each item (except as provided elsewhere in this Article) to be marked with a Certification Mark.

NCA-8411 Compiling Data Report Records

Data Reports, that are the basis for approval of the C-1, N-3, and N-5 Data Reports (see Section III Appendices), may be compiled in any one of the following methods:

(a) by attaching each Data Report for items that make up that piping system, portion of a piping system, concrete containment, or nuclear power system to its respective Data Report Form C-1, N-3, or N-5; or

(b) by assigning each Data Report for items that make up that piping system, portion of a piping system, concrete containment, or nuclear power system a unique identifying number and listing the numbers on the Data Report Form C-1, N-3, or N-5; or

(c) by attaching a drawing that uniquely identifies each item that makes up that piping system, portion of a piping system, concrete containment, or nuclear power system to its respective Data Report Form C-1, N-3, or N-5.

NCA-8412 Availability of Data Reports

All Data Reports and referenced supporting material shall be available to the Inspector and enforcement authority having jurisdiction at the location of the nuclear power plant site.

NCA-8420 OWNER'S DATA REPORT

The Owner who has obtained an Owner's certificate shall be responsible for completing one or more of Form N-3. The Owner shall certify, by signing the form, that each Certificate Holder was the holder of the appropriate certificate and that components and installation comply with the applicable requirements of this Section. Review of the completed Owner's Data Report Form N-3, including attached Data Reports for all components and installation as required to verify Code Compliance, plus provision of the Overpressure Protection Report or the Overpressure Protection Analysis, when required, shall be the Inspector's authority to sign the Owner's Data Report.

NCA-8430 DATA REPORTS, TUBULAR PRODUCTS, AND FITTINGS WELDED WITH FILLER METAL

(a) Each piece of tubular products or fittings with filler metal shall be listed on a Data Report Form NM-1. This Data Report shall be completed by the Certificate Holder and signed by the Inspector.

(b) Multiple items may be listed on a single NM-1 Data Report Form, provided they are from the same heat and lot of material.

(c) When tubular products welded with filler metal are used to manufacture fittings, all the fittings made from the NPT stamped tubular product may be identified on one CMTR or NM-1, as applicable, prepared by the fitting manufacturer, that lists all the operations performed by him. The fitting manufacturer shall provide a copy of his CMTR or NM-1, as applicable, and a copy each of the CMTR and the NM-1 Data Report that were supplied with the tubular product.

NCA-8440 CERTIFICATES OF CONFORMANCE FOR WELDED SUPPORTS

Welded supports shall be listed on NS-1 Certificate of Conformance.

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ARTICLE NCA-9000
GLOSSARY

NCA-9100 INTRODUCTION

This Article defines selected terms used in this Section. The definitions in this glossary shall prevail should a conflict exist with definitions found elsewhere in this Section or other documents referenced in this Section.

(15) NCA-9200 DEFINITIONS

approved supplier: a supplier that has been evaluated and approved by a Material Organization or Certificate Holder in accordance with the requirements of NCA-3800 to supply qualified source material for conversion to material, or provision of services, to the party performing the evaluation and approval.

appurtenance: an item intended to be attached to a completed and stamped component that has work performed on it requiring verification by an Inspector.

audit: a documented evaluation performed to verify, by examination of objective evidence, that those selected elements of a previously approved quality program have been developed, documented, and implemented in accordance with specified requirements. An audit does not include surveillance or inspection for the purpose of process control, or acceptance of material or items.

Authorized Inspection Agency: an organization that is empowered by an enforcement authority to provide inspection personnel and services as required by this Section.

Authorized Nuclear Inspector: an Authorized Nuclear Inspector is an employee of an Authorized Inspection Agency who has qualifications for and has been properly qualified for Division 1 or Division 2.

Authorized Nuclear Inspector Supervisor: an Authorized Nuclear Inspector Supervisor is an employee of an Authorized Inspection Agency who has been assigned by that agency to oversee and direct the work of one or more Authorized Nuclear Inspectors and who has qualifications for and has been properly qualified for Division 1 or Division 2.

building structure: the structure whose purpose is to support, house, and protect nuclear power plant components. Rules for construction of building structures are outside the scope of this Section.

certificate: a Certificate of Authorization, Certificate of Authorization (Corporate), Quality Assurance Program Certificate, Quality System Certificate (Materials), or Owner's certificate issued by the Society.

Certificate Holder: an organization holding a Certificate of Authorization, Certificate of Authorization (Corporate), or Quality Assurance Program Certificate issued by the Society. This does not include the holder of a Quality System Certificate or Owner's Certificate.

Certificate of Analysis (as used in NCA-3970): a document attesting that natural compound, pigment concentrate compound, or polyethylene compound is in accordance with specified requirements, including the actual results of all required tests and examinations.

Certificate of Authorization: a document issued by the Society that authorizes the use of an ASME Certification Mark and appropriate designator for a specified scope of activity.

Certificate of Authorization (Corporate): a document issued by the Society that authorizes the performance of Code activities for a specified time and for a specified scope of activity.

Certificate of Compliance: a written statement attesting that the materials are in accordance with specified requirements.

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

Certification Mark: an ASME symbol identifying a product as meeting Code requirements.

Certification Mark Designator: a letter such as N, NA, and NPT to indicate what Certificate of Authorization was satisfied during fabrication.

Certification Mark Stamp: a metallic stamp issued by the Society for use in impressing the Certification Mark.

Certified Material Test Report (CMTR): a document attesting that the material is in accordance with specified requirements, including the actual results of all required chemical analyses, tests, and examinations.

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Certified Polyethylene Test Report: a document attesting that polyethylene material is in accordance with specified requirements, including the actual results of all required tests and examinations.

Code Addenda: additions and revisions to individual sections of the Code published annually.

Code Cases: documents issued by the Society to clarify the intent of existing Code requirements or to provide alternative rules for construction.

Code Class: the classification, specified by the Owner (or his designee) and included in the Design Specification, that establishes the rules for design and construction of items.

Code Editions: documents issued at 3-yr intervals by the Society that include all revisions and additions previously included in Addenda and corrections included in Errata published since the previous Edition.

compliance: conforming to the Code, a specification, or a procedure.

component: a vessel, concrete containment, pump, pressure relief valve, line valve, storage tank, piping system, or core support structure that is designed, constructed, and stamped in accordance with the rules of this Section.

component support: a support for a vessel, pump, or storage tank. A support that is attached to a valve may be classified as a component support when identified in the Design Specification.

concrete constituents: cement, aggregates, admixtures, and water.

concrete containment: a composite steel and concrete component that is designed as an integral part of the containment's pressure-retaining barrier that retains or controls the release of radioactive or hazardous effluents released from the nuclear power plant equipment that the containment encloses.

construction (as used in Division 1): an all-inclusive term comprising materials, design, fabrication, examination, testing, inspection, and certification required in the manufacture and installation of an item.

construction (as used in Division 2): all operations required to build an item in accordance with Design Drawings and the Construction Specification.

construction permit: a document issued by the Nuclear Regulatory Commission that authorizes the Owner to construct a nuclear power plant.

construction procedure: a written description of construction or fabrication methods the Constructor or Fabricator uses to ensure conformance with the requirements of the Construction Specification, Design Drawings, and this Section.

Construction Report: a report prepared by the Constructor that summarizes activities performed to construct the component in accordance with the Construction Specification, Design Drawings, and the requirements of this Section.

Construction Specification: a document prepared by the Designer that establishes requirements for the construction of a component.

Constructor: the N Certificate Holder in Division 2 responsible for construction [see definition of construction (as used in Division 2)] and stamping of a component.

containment system: an item that forms a structure that encloses a nuclear power system or that may be connected to other containment items and that is designed to provide a pressure containing barrier for the primary purpose of containing, within leakage limits, or of channeling, for containment or for controlled disposal, radioactive or hazardous effluents released from the system.

core support structures: those structures or parts of structures that are designed to provide direct support or restraint of the core (fuel and blanket assemblies) within the reactor pressure vessel.

corrective action: measures taken to rectify conditions adverse to quality, and, where necessary, to preclude repetition.

damper: a uniaxial or multiaxial dynamic restraint support that permits the slow movements associated with thermal expansion, but resists the rapid movement associated with earthquakes and other dynamic events as well as decreases the amplitude of operational dynamic oscillations of a piping system or component.

Data Report: a document that certifies that an item was constructed in accordance with the requirements of this Section.

Data Report Form: the form approved by the Society that is used to record the required Code Data.

defective material: material that does not meet specified requirements.

Design Drawings: drawings that are prepared to illustrate the structural and mechanical details necessary to comply with the Design Specification and this Section.

designee: any organization that performs specified activities at the request of the Owner. The Owner retains the responsibility for the activity performed by the designee.

design input documents: documents that include those criteria, parameters, bases, or other design requirements upon which detailed final design is based. For this Section, these include the Design Specifications and any other documents referenced by it.

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design limits: stress and stress intensity limits applicable to Design Loadings given in the Design Specifications.

Design Loadings: the temperatures, pressures, mechanical loads, and other loading conditions specified in Design Specifications that are the basis for design.

design output documents: documents defining technical requirements for Section III items such as Certified Design Reports, drawings, calculations, Load Capacity Data Sheets, Certified Design Report Summaries, and Construction Specifications.

design pressure: the pressures stated in the Design Specifications for which design limits are applicable.

Design Report: the design document that shows that the allowable limits stated in this Section are not exceeded for the loadings specified in the Design Specification.

Design Specification (Division 1): a document prepared by the Owner or Owner's designee that provides a complete basis for construction in accordance with this Section.

Design Specification (Division 2): a document prepared by the Owner or Owner's designee that provides a complete basis for design in accordance with this Section.

Designer: the Division 2 organization responsible for preparation of design output documents.

discrepancy: a condition outside of an established tolerance or requirement.

document control: those measures established to control the preparation, review, release, issuance, and disposition of documents, such as design calculations, purchase orders, specifications, instructions, procedures, and drawings, including changes thereto, that describe or document activities affecting quality.

energy absorber: a linear or nonlinear device that dissipates the kinetic energy of pipe or component movements through deformation or yielding of its parts.

enforcement authority: a regional or local governing body, such as a state or municipality of the United States or a Canadian province, empowered to enact and enforce boiler and pressure vessel legislation.

environmental conditions: those conditions to which the item is subjected such as radiation, pressure, temperature, humidity, site elevation, wind, and wind direction.

examination: specific actions by qualified personnel using qualified procedures to verify that items, fabrication processes, and preservice requirements are in conformance with specified requirements. This term, when used in conjunction with qualification of personnel to perform quality-related activities, shall mean a written examination.

fabrication: those actions required to manufacture components, parts, supports, and appurtenances. These actions may include forming, machining, assembling, welding, brazing, heat treating, examination, testing, inspection, and certification. Fabrication does not include design.

fabricator (Division 2): an organization that builds one or more parts (NCA-1231) for the components within the scope of Section III, Division 2 (NCA-3620).

full penetration weld: a nonstandard welding term for complete joint penetration.

hold point: a designated stopping place during or following a specific activity at which inspection or examination is required before further work can be performed.

hydrostatic test: the pressurization of an item to a test pressure using water or other liquid as a testing medium with the required examination prescribed by the Code.

identification and verification program: a documented system for the positive identification of material during storage and handling and verification of the identity of material on the accompanying Certified Material Test Report at the time of shipment.

Inspector: the Authorized Nuclear Inspector as defined in NCA-5122. The term Inspector, as used in this Subsection, is the same as the term Authorized Inspector as used in Division 2.

installation: those actions required to place and attach components to their supports and join items of a nuclear power system by welding or mechanical means.

instructions: detailed written directions provided to persons or organizations to ensure proper completion of a task.

intervening element: an element in the support load path that is constructed to rules other than those of this Section. Intervening elements include, but are not limited to, diesel engines, electric motors, coolers, valve actuators, instrument racks, and access structures.

item: a product constructed under a Certificate of Authorization or NS Certificate of Authorization (supports) (NCA-3120), or material (NCA-1220).

joining: the act of connecting two or more items to one another, by welding, brazing, bolting, or other mechanical means.

jurisdictional boundaries: the physical limits of a Code item that are identified to determine the applicability of Code rules for that item.

linear support (linear-type support): a structural element acting under essentially a single component of direct stress. Such elements may also be subjected to shear stresses. Examples of such structural elements are

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tension and compression struts, beams and columns subjected to bending, trusses, frames, rings, arches, and cables.

Load Capacity Data Sheet: the design document used in lieu of a Design Report when a support is designed by Load Rating to verify that the requirements of Article NF-3000 have been met.

material: for Section III, Division 1, metallic materials manufactured to an SA, SB, SFA, or any other material specification permitted in Section III and that are manufactured, identified, and certified in accordance with the requirements of Section III. For Section III, Division 2, metallic materials, as well as to nonmetallic materials, conforming to the specifications permitted in Section III.

Material Organization (Metallic), Certified: an organization certified by holding a Quality System Certificate issued by the Society to provide materials or services in accordance with the requirements of Section III, NCA-3800.

Material Organization (Metallic), Qualified: an organization surveyed and qualified to provide materials or services in accordance with the requirements of Section III, NCA-3800 to the certified Material Organization or Certificate Holder that performed the qualification.

material specification: a document that establishes the requirements for a material.

monitor: observe or check compliance with this Section and the Owner's or Certificate Holder's Quality Assurance Program. This activity is not necessarily documented or required to be continuous.

NA Certificate Holder: the organization that performs those activities required to place and attach components to their support structures and joins items requiring a Certification Mark with NA Designator.

natural compound: a polymerized ethylene with comonomer compounded with stabilizers.

Natural Compound Manufacturer: an organization that manufactures natural compound in accordance with this Section and that is certified by the Society or otherwise qualified in accordance with the requirements of NCA-3970.

N Certificate Holder (Division 1): the organization assuming responsibility for Code compliance with respect to material, design, fabrication, installation, examination, testing, inspection, certification, and stamping of items requiring a Certification Mark with N Designator.

N Certificate Holder (Division 2): the organization assuming responsibility for constructing and stamping of the component, including but not limited to installation of parts in accordance with the Design Drawings and Construction Specification.

nonconformance: a deficiency in a characteristic, documentation, or procedure that renders an item or activity unacceptable or indeterminate.

nonmetallic material: material that is not metallic, including, but not limited to, concrete, cement grout, and materials made with polyethylene.

Nonmetallic Material Constituent Supplier: an organization that manufactures, produces, and supplies the concrete constituents for plastic concrete or grout in accordance with the Construction Specification.

Nonmetallic Material Manufacturer: an organization that receives, stores, conveys, and combines the concrete constituents to produce plastic concrete or grout in accordance with the Construction Specification.

NPT Certificate Holder: the organization that fabricates parts, piping subassemblies, or appurtenances requiring a Certification Mark with NPT Designator.

NS Certificate Holder: the organization holding a valid NS Certificate of Authorization (issued by the Society with or without design) that fabricates all classes of supports and all classes of standard supports. The NS Certificate Holder is not required to apply a Certification Mark.

nuclear facility: the location where spent nuclear fuel or high level radioactive materials and wastes are processed, stored, or prepared for shipment or disposal. This may include portions of nuclear power plant sites.

nuclear power plant: one or more nuclear power systems and containment systems as well as other systems not covered by the rules of this Section.

nuclear power system: a system that serves the purpose of producing and controlling an output of thermal energy from nuclear fuel and those associated systems essential to the functions and overall safety of the nuclear power system.

nuclear power system item: an item that is designed to provide a pressure containing barrier or is a pressure-retaining member in the system, or an item that is designed as a core support structure or a support.

Owner: the organization legally responsible for the construction and/or operation of a nuclear facility including but not limited to one who has applied for, or has been granted, a construction permit or operating license by the regulatory authority having lawful jurisdiction.

part: an item that is attached to or becomes a portion of a component or support before completion and stamping of the component or support. Parts have work performed on them requiring verification by an Inspector.

penetration assembly: an electrical or mechanical part or appurtenance that permits piping, mechanical devices, or electrical connections to pass through the pressure-retaining boundary of a containment vessel.

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performance assessment: for Section III, a documented evaluation of material supplied by a previously audited and accepted Quality System Program to verify continued compliance with Code requirements.

pigment concentrate compound: a compound made of polyethylene with high concentrations of additives, including colorants or carbon black. (This compound is often called "master batch.")

Pigment Concentrate Compound Manufacturer: an organization that manufactures pigment concentrate compound in accordance with this Section and that is certified by the Society or otherwise qualified in accordance with the requirements of NCA-3970.

piping subassembly: a section of piping system consisting of fittings and pipes or tubes that are fabricated as subassemblies in a shop or in the field before being installed in a nuclear power system.

piping support: a support for piping. A support that is attached to an in-line valve may be classified as a piping support when identified in the Design Specification.

piping system: a piping system is an assembly of piping, piping supports, components, and, if applicable, component supports of one or more Code Classes, with a defined function as described in the Design Specification for the piping system.

plate- and shell-type support: a support such as a skirt or saddle that is fabricated from plate and shell elements and is normally subjected to a biaxial stress field.

pneumatic test: the pressurization of an item to a test pressure using a gas as the testing medium with the required examination prescribed by the Code.

polyethylene compound: natural compound combined with pigment concentrate compound meeting the requirements of this Section, including a material specification permitted by this Section.

Polyethylene Compound Manufacturer: an organization that manufacturers polyethylene compound in accordance with this Section and that is certified by the Society or otherwise qualified in accordance with the requirements of NCA-3970.

polyethylene material: polyethylene compound manufactured into a product form, without joining, meeting the requirements of this Section and a material specification permitted by this Section.

Polyethylene Material Manufacturer: an organization certified by the Society, or otherwise qualified in accordance with the requirements of NCA-3970, that uses either polyethylene compound or natural compound combined with pigment concentrate compound to produce polyethylene material in accordance with this Section.

Polyethylene Material Organization: Polyethylene Source Material Manufacturer, Polyethylene Material Manufacturer, Polyethylene Material Supplier, or Polyethylene Service Supplier.

Polyethylene Material Supplier: an organization certified by the Society, or otherwise qualified in accordance with the requirements of NCA-3970, that procures, receives, stores, and ships polyethylene material but does not perform or subcontract any design, examination, testing, marking, or operations that affect the polyethylene material properties required by the material specification and this Section.

Polyethylene Service Supplier: an individual or organization certified by the Society, or otherwise qualified in accordance with the requirements of NCA-3970, that furnishes nondestructive examination, testing, or calibration services in accordance with a procurement document and this Section.

polyethylene source material: products used for conversion to polyethylene material. Natural compound, pigment concentrate compound, and polyethylene compound are polyethylene source materials.

Polyethylene Source Material Manufacturer: a Natural Compound Manufacturer, Pigment Concentrate Compound Manufacturer, or Polyethylene Compound Manufacturer.

qualified procedure: a procedure that has been demonstrated to meet the specified requirements for its intended purpose.

qualified source material: metallic products produced by an approved supplier, Material Organization, or Certificate Holder in accordance with the requirements of NCA-3800 or the output of the qualification process requirements of NCA-3855.5.

quality assurance: as used in this Section, quality assurance comprises all those planned and systematic actions necessary to provide adequate confidence that all items designed and constructed are in accordance with the rules of this Section.

Quality Assurance Manual: a written document that describes a Quality Assurance Program.

Quality Assurance Program: a controlled system of planned and systematic actions required to provide adequate confidence that items designed and constructed are in accordance with the rules of the Code.

Quality Assurance Program Certificate: a certificate issued by the Society acknowledging that the Quality Assurance Program conforms to Article NCA-4000 QA requirements, but the implementation of the QA Program has not been demonstrated.

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Quality System Certificate: a Certificate issued by the Society that permits an organization to perform specified Material Manufacturer or Material Supplier activities in accordance with Code requirements.

Quality System Certificate Holder (Metallic): a Material Organization that maintains an ASME Quality System Certificate in accordance with the requirements of NCA-3800.

Quality System Program: a documented system of actions required to provide adequate confidence that materials conform to the requirements of the material specification and the rules of Section III.

regulatory authority: a Federal Government Agency, such as the United States Nuclear Regulatory Commission, empowered to issue and enforce regulations concerning the design, construction, and operation of nuclear power plants.

repair: the process of physically restoring a nonconformance to a condition such that an item complies with Code requirements.

rework: refer to *repair*.

service: an activity performed by a subcontractor such as designing, rigging, temporary bolting, and nondestructive examination.

Service Limits: stress and stress intensity limits applicable to Service Loadings given in the Design Specification.

shop and field drawings: drawings provided by the Constructor or Fabricator (Division 2) that describe construction, fabrication, and installation details, physical dimensions, arrangements, and any significant engineering features needed to establish conformance to the Design Drawings, Construction Specification, and this Section.

Society: The American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016.

snubber: a uniaxial piping or component support that permits the slow movements associated with thermal expansion, but resists the rapid movement associated with earthquakes and other dynamic events.

source material: metallic products used by a Material Organization or Certificate Holder in a product form conversion process in the manufacture of material [NCA-3851.2(a)(1)] or in a qualification process based on test and examination to the requirements of the material specification [NCA-3855.5(a)(2) and NCA-3855.5(a)(3)]. Source material may be qualified or unqualified.

special process: a process, the results of which are highly dependent on the control of the process or skill of the operator, or both.

standard support: a support consisting of one or more units usually referred to as catalog items and generally mass produced.

supplier: any individual or organization that furnishes materials or services in accordance with a procurement document.

support: a metal element, excluding an intervening element, that transmits loads between nuclear power plant components and the building structure. A support may be either a component support or a piping support.

survey: a documented evaluation of an organization's ability to perform Code activities as verified by a determination of the adequacy of the organization's quality program and by a review of the implementation of that program at the location of the work.

testing: an element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions.

traceability: the ability to verify the history, location, or application of an item by means of recorded identification.

unqualified source material: source material not produced by a Certificate Holder, Material Organization, or approved supplier in accordance with the requirements of Section III, NCA-3800.

use-as-is: a disposition assigned an item previously identified as nonconforming after reconciling design output documents with the item's as-built condition and verifying that applicable requirements of this Section have been met.

verification: a review to ensure that activities have been performed and documented in accordance with applicable requirements.

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ENDNOTES

1 Refer to Article NCA-9000 for definitions of the terms *construction, nuclear power plant*, and items.

2 Specifically excluded from consideration in this Section are tubes or other forms of sheathing used only for cladding nuclear fuel or neutron control material.

3 For consideration of environmental effects, see Section III Appendices, Nonmandatory Appendix W, Environmental Effects on Components, for guidance.

4 SA or SB Specifications listed under the heading Bars, Rods, Shapes, Forgings may be used as material for any of these product forms even though not all product forms are listed in the SA or SB Specification.

5 Plant and system operating conditions are commonly referred to as normal, upset, emergency, and faulted.

6 The terms *welding*, *welders*, and *welding operators* when used in this Subsection include brazing, brazers, and brazing operators.

7 As explained in Articles NB-7000, NC-7000, ND-7000, and NE-7000, an overpressure protection device or devices may be provided to protect one or more components, portions of the nuclear power system, or portions of components, provided they are so designed and located so that the overpressure protection requirements of all protected components and systems are fully complied with and that the safety relieving devices cannot be isolated from any component or system protected by them while the component or system is operating.

8 See Section III Appendices, Nonmandatory Appendix B.

9 For consideration of environmental effects, resulting from these conditions, see Nonmandatory Appendix W, Environmental Effects on Components, for guidance.

10 See Section III Appendices, Nonmandatory Appendix C.

11 Results of chemical analyses, tests, or examinations, rounded to the number of significant digits required by the material specification are considered actual results.

12 ASME NQA-1, Part IV provides guidance for various applications.

13 Includes Inspectors and Authorized Nuclear Inspector Supervisors.

14 A list of acceptable Authorized Inspection Agencies may be obtained from the Society.

15 Pressure tests include hydrostatic, pneumatic, and structural integrity tests. Hydrostatic or pneumatic tests are not required for core support structures.

16 In this usage, organization may be the same company at a single site, a multiplant company with separate certificates, regardless of type, or a multiplant corporation with extended corporate certificates.

17 Samples of the forms referred to in this subarticle may be found in Section III Appendices, Mandatory Appendix V. Copies of these forms may be obtained from the Society.

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ASME BOILER AND PRESSURE VESSEL CODE
SECTION III, DIVISIONS 1 AND 2

INTERPRETATIONS
Volume 63

Interpretations of the Code have historically been posted in January and July at http://cstools.asme.org/interpretations.cfm. Interpretations issued during the previous two calendar years are included with the publication of the applicable Section of the Code in the 2015 Edition. Interpretations of Section III, Divisions 1 and 2 and Section III Appendices are included with Subsection NCA.

Following the 2015 Edition, interpretations will not be included in the edition; they will be issued in real time in ASME's Interpretations Database at http://go.asme.org/Interpretations. Historical BPVC interpretations may also be found in the Database.

Volume 63 is the interpretations volume included with the update service to the 2015 Edition.

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INTERPRETATIONS VOLUME 63 — SECTION III, DIVISIONS 1 AND 2

Replies to Technical Inquiries January 1, 2013 through December 31, 2014

FOREWORD

GENERAL INFORMATION

This publication includes all written interpretations issued between the indicated dates by the ASME Staff on behalf of the ASME Boiler and Pressure Vessel Committee in response to inquiries concerning interpretations of the ASME Boiler and Pressure Vessel Code. A contents is also included that lists subjects specific to the interpretations covered in the individual volume.

These interpretations are taken verbatim from the original letters, except for a few typographical and editorial corrections made for the purpose of improved clarity. In some instances, a review of the interpretation revealed a need for corrections of a technical nature. In these cases, a revised interpretation is presented bearing the original interpretation number with the suffix R and the original file number with an asterisk. Following these revised interpretations, new interpretations and revisions to them issued during the indicated dates are assigned interpretation numbers in chronological order. Interpretations applying to more than one Code Section appear with the interpretations for each affected Section.

ASME procedures provide for reconsideration of these interpretations when or if additional information is available that the inquirer believes might affect the interpretation. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME committee or subcommittee. As stated in the Statement of Policy in the Code documents, ASME does not “approve,” “certify,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

An interpretation applies either to the Edition and Addenda in effect on the date of issuance of the interpretation or the Edition and Addenda stated in the interpretation. Subsequent revisions to the Code may supersede the interpretation.

For detailed instructions, see "Submittal of Technical Inquiries to the ASME Boiler and Pressure Vessel Standards Committees" in the front matter.

SUBJECT AND NUMERICAL INDEXES

Subject and numerical indexes (if applicable) have been prepared to assist the user in locating interpretations by subject matter or by location in the Code. They cover interpretations issued from Volume 12 up to and including the present volume.

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Interpretation: III-1-86-07

Subject: Division 1, NB-2223.3, Coupons From Separately Produced Test Forgings, SA-508 (1983 Edition With Summer 1985 Addenda)
Date Issued: September 6, 1985
File: NI85-041

Question: May test coupons representing SA-508 forgings with a rough machined weight of more than 1,000 lb be prepared in accordance with the requirements of NB-2223.3?

Reply: No. The material specification requirements must be met.

NOTE: On February 13, 2014, the BPV Committee on Construction of Nuclear Facility Components (III) voted to rescind this interpretation.

Interpretation: III-1-10-71

Subject: Division 1, NX-4622.7(b)-1, Exemptions to Mandatory PWHT
Date Issued: December 2, 2011
File: 11-1844

Question: Do the exemptions of NX-4622.7 include branch connection welds for P-Nos. 4, 5a, 5b, and 5c materials?

Reply: No.

NOTE: On May 15, 2014, the BPV Committee on Construction of Nuclear Facility Components (III) voted to rescind this interpretation.

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Interpretation: III-1-13-11R

Subject: Division 1, NB/NC/ND/NE/NF/NG/WB/WC-5500, Qualifications and Certification of Nondestructive Examination Personnel (2010 Edition and Earlier Editions/Addenda)
Date Issued: May 23, 2013
File: 12-1970*

Question (1): The 2011 Addenda revised NB-5521(a) to read in part, "Personnel performing nondestructive examinations shall be qualified in accordance with the recommended guidelines of SNT-TC-1A. The ACCP qualified and certified NDE Personnel option shall not be used for Section III." In accordance with NB/NC/ND/NE/NF/NG/WB/WC-5521(a) of the 2010 Edition and earlier Editions/Addenda of the Section III Code, may Nondestructive Examination personnel performing Code required Nondestructive Examinations (NDE) be qualified in accordance with ASNT's Central Certification Program (ACCP) in lieu of the required SNT-TC-1A?

Reply (1): No.

Question (2): In accordance with NB/NC/ND/NE/NF/NG/WB/WC-5521(a)(1) of the 2010 Edition and earlier Editions/Addenda of the Section III Code, when an NDE Level III individual is being qualified and certified in accordance with ASME Section III and that individual has an ACCP Level III certification, may the Employer use the individual's ACCP certification as satisfying the basic and method examinations required by SNT-TC-1A?

Reply (2): No.

Question (3): In accordance with NB/NC/ND/NE/NF/NG/WB/WC-5521(a)(1) of the 2011 Addenda of the Section III Code, when an NDE Level III individual is being qualified and certified in accordance with Section III and that individual has an ACCP Level III certification, may the Employer use the individual's ACCP certification as satisfying the basic and method examinations required by SNT-TC-1A?

Reply (3): No.

Question (4): When the ASNT Level III basic and method examinations are accepted by the Employer, must a specific examination be administered by either the Employer or an outside agency other than ASNT with the minimum grade requirement for the specific examination established as not less than 80%?

Reply (4): Yes.

Question (5): Do NCA-3461(a), NCA-3561(a), NCA-3661(a), NCA-3684(a), NCA-3761(a), and NCA-3855.3(b)(1) in the 2011 Addenda and earlier Editions/Addenda of the Section III Code require the Certificate Holders or Material Organizations employing NDE inspection personnel to survey, qualify, and audit an outside agency used to administer the NB/NC/ND/NE/NF/NG-5521(a)(1)(b) required specific qualification examination for the Certificate Holder's or Material Organization's NDE Level III?

Reply (5): Yes.

Interpretation: III-1-13-12

Subject: Division 1, Table NB/NC/ND-4622.7(b)-1, Exemptions to Mandatory PWHT
Date Issued: January 14, 2013
File: 12-920

Question: Is it the intent that the words in Table NB/NC/ND-4622.7(b)-1, "circumferential butt welds in pipe and tubes," include branch connection welds?

Reply: Yes.

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Interpretation: III-1-13-13

Subject: Division 1, Nonmandatory Appendix S (2010 Edition)
Date Issued: February 7, 2013
File: 12-2055

Question: When applying the rules of Nonmandatory Appendix S, does the referenced inactive standard, ANSI/ASME B106.1M-1985, apply?

Reply: Yes.

Interpretation: III-1-13-14

Subject: Division 1, NE-5120, Time of Examination of Welds (2001 Edition With the 2002 Addenda)
Date Issued: February 14, 2013
File: 13-176

Question: After the performance of a liquid penetrant (PT) or magnetic particle (MT) examination of the welds in accordance with NE-5120 and NE-5262, is it a requirement that PT or MT examination be performed again following grinding or machining of the weld?

Reply: No, provided the grinding or machining was not used to remove a defect.

Interpretation: III-1-13-15

Subject: Division 1, NCA-4110(b) and NCA-4134
Date Issued: February 19, 2013
File: 12-1953

Question (1): Does NCA-4110(b) require the use of NQA-1, Part 2 documents as requirement documents even though they may be referenced within NQA-1 as requirements to be used in conjunction with Part 1 of NQA-1?

Reply (1): No.

Question (2): Does each subparagraph of NCA-4134 (NCA-4134.1 through NCA-4134.18) require the use of NQA-1, Part 2 documents as requirement documents even if they may be referenced within NQA-1 as requirements to be used in conjunction with Part 1 of NQA-1?

Reply (2): No.

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Interpretation: III-1-13-16

Subject: Division 1, NCA-4134.1 and NCA-4134.2
Date Issued: February 19, 2013
File: 12-1965

Question (1): Does NCA-4134.1 contain an additional requirement to the NQA-1, Requirement 1 reference to use organizational charts as a required means to demonstrate the organizational structure, functional responsibilities, levels of authority, and lines of communications?

Reply (1): No, organizational charts are neither prohibited nor required.

Question (2): Does NCA-4134.2(a) require the use of organizational charts to demonstrate the organizational structure, functional responsibilities, levels of authority, and lines of communications, and be included within the Quality Assurance Manual?

Reply (2): No.

Interpretation: III-1-13-17

Subject: Division 1, NCA-3811(a) (2010 Edition With the 2011 Addenda)
Date Issued: February 22, 2013
File: 12-1023

Question: Does calibration service fall within the “services that affect materials” referred to in NCA-3811(a)?

Reply: No.

Interpretation: III-1-13-18

Subject: Division 1, NCA-3855.5 (2010 Edition With the 2011 Addenda)
Date Issued: February 22, 2013
File: 13-225

Question: When source material is qualified utilizing the alternative method described in NCA-3855.5(a)(3), is it required that the certifications for the unqualified source material reference the identification and traceability procedures (or Quality Assurance Program) that were reviewed and accepted by the Material Organization or Certificate Holder?

Reply: No.

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Interpretation: III-1-13-19

Subject: Division 1, NCA-3855.5
Date Issued: February 22, 2013
File: 13-272

Question (1): Does NCA-3855.5 require the supplier of unqualified source material to be an approved supplier?

Reply (1): No.

Question (2): Does NCA-3855.5 require the Certificate Holder or Material Organization to apply the requirements of NCA-3855.3 to the supplier of unqualified source material?

Reply (2): No.

Question (3): Does NCA-3855.5 require that the supplier of unqualified source material be qualified or approved to all the requirements of NCA-3800?

Reply (3): No.

Interpretation: III-1-13-20

Subject: Division 1, NCA-8322, Core Support Structure; N Certification at Field Sites
Date Issued: April 12, 2013
File: 12-1930

Question: For core support structures meeting Subsection NG, is it the intent of NCA-8322 to require an N Certificate Holder to extend their Certificate of Authorization to a field site, when the N Certificate Holder subcontracts fabrication and installation activities to an NA/NPT Certificate Holder at the field site or other locations?

Reply: No.

Interpretation: III-1-13-21

Subject: Division 1, NE-6225, Examination of Inaccessible Welds (2001 Edition Through the 2002 Addenda)
Date Issued: May 23, 2013
File: 12-1307

Question: Is it required when the Vacuum Box Test is used to test inaccessible pressure-retaining welds in accordance with NE-6225(d), and prior to the test being performed, that the ANI be given the opportunity to witness or verify the results of the Vacuum Box Test?

Reply: Yes.

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Interpretation: III-1-13-22

Subject: Division 1, NB-6114.3
Date Issued: May 23, 2013
File: 12-2288

Question: Does NB-6114.3 permit the component or appurtenance pressure test to be used in lieu of the pipe or tube material specification required pressure test, when source material has been qualified per NCA-3855.5?

Reply: Yes.

Interpretation: III-1-13-23

Subject: Division 1, NCA-3252(c)
Date Issued: May 23, 2013
File: 13-440

Question: Does NCA-3252(c) require the Design Specification to identify those components and/or parts that require preservice examination?

Reply: Yes.

Interpretation: III-1-13-24

Subject: Division 1, NB-4250(c) (1998 Edition)
Date Issued: May 23, 2013
File: 13-796

Question: Do the requirements of NB-4250(c) apply to weld joint when inside diameter is physically accessible for back-grooving and back-welding with subsequent back-cladding, which makes the counterbore unnecessary?

Reply: Yes.

Interpretation: III-1-13-25

Subject: Division 1, NCA-3861 (2010 Edition With the 2011 Addenda)
Date Issued: May 23, 2013
File: 13-801

Question: Is it permissible for the Material Organization to transcribe the results of the tests performed by Material Organization's Approved Supplier onto the Material Organization's Certified Material Test Report, provided the requirements of NCA-3861(b) and NCA-3862.1(b) are met?

Reply: Yes.

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Interpretation: III-1-13-26

Subject: Division 1, NCA-3530
Date Issued: May 23, 2013
File: 13-864

Question (1): May an N Certificate Holder assume design responsibility for an appurtenance, provided that the scope of work is included in the certificate, in accordance with NCA-3530?

Reply (1): Yes.

Question (2): In accordance with NCA-3530, may an N Certificate Holder provide the Design Report for an appurtenance required by NCA-3620(q)?

Reply (2): Yes.

Interpretation: III-1-13-27

Subject: Division 1, NCA-3251 and NCA-3255
Date Issued: May 23, 2013
File: 13-1331

Question (1): Does NCA-3251 require a Design Specification certified by a Registered Professional Engineer be provided for the manufacture of pressure-retaining parts for nuclear valves?

Reply (1): No, applicable data from the component Design Specification shall be provided in sufficient documented detail to form the basis for fabrication.

Question (2): Does NCA-3255 require the Design Specification for the component to be certified by Registered Professional Engineer qualified in accordance with Section III Appendices, Mandatory Appendix XXIII?

Reply (2): Yes.

Interpretation: III-1-13-28

Subject: Division 1, NB/NC/ND/NE/NF/NG-2431.1(b)
Date Issued: July 9, 2013
File: 13-773

Question: Does the requirement that base material conform with the requirements of QW-403.1 of Section IX or QW-403.4 of Section IX, as required by NB/NC/ND/NE/NF/NG-2431.1(b), CC-2612.1.1(b), and WB/WC-2431.1(b), apply only to electroslag filler metals?

Reply: Yes.

NOTE: This interpretation also appears as III-2-13-04 in this document and as III-3-13-02 in Section III, Division 3.

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Interpretation: III-1-13-29

Subject: Division 1, NCA-3862.1
Date Issued: July 17, 2013
File: 12-896

Question: Is it the intent of NCA-3862.1(g) to allow a Certificate of Compliance to be provided in lieu of a Certified Material Test Report for 1 in. (25 mm) outside diameter and less tubes (except heat exchanger tubes), tube fittings, and materials for valves with tube end connections?

Reply: Yes.

Interpretation: III-1-13-30

Subject: Division 1, NF-2120
Date Issued: August 21, 2013
File: 12-732

Question (1): Is it the intent of NF-2120 to allow the use of nuts suitable for the mating bolt as stated in the bolting specification in applications covered by Subsection NF?

Reply (1): Yes.

Question (2): Is it the intent of NF-2120 to allow the use of SA-194 and SA-563 nuts with compatible bolts in applications covered by Subsection NF?

Reply (2): Yes.

Interpretation: III-1-13-31

Subject: Division 1, NCA-3862.1
Date Issued: August 21, 2013
File: 13-291

Question: Is it the intent of NCA-3862.1 that the certification of heat analysis of welding material source material must be furnished as an identified attachment to the Certified Material Test Report when all the tests and chemical analyses required by the applicable welding material SFA Specification (NCA-1221.2/WA-1223) and specific welding material requirements of Section III, Division 1, NB/NC/ND/NE/NF/NG-2400; Division 1, NH-2121(g); Division 2, CC-2600; or Division 3, WB/WC-2400 are performed by the Material Organization or Certificate Holder issuing the Certified Material Test Report?

Reply: No.

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Interpretation: III-1-13-32

Subject: Division 1, NC/ND-3600, Allowable Limits for Hydrostatic Test
Date Issued: August 21, 2013
File: 13-444

Question: Does NC/ND-3600 provide allowable stress limits for piping systems for hydrostatic or pneumatic testing per NC/ND-6220 or NC/ND-6320?

Reply: No.

Interpretation: III-1-13-33

Subject: Division 1, NB-3226, Testing Limits
Date Issued: August 21, 2013
File: 13-894

Question: Is the intent of NB-3226 to allow the tolerance of 6% for pressure testing without recalculation of resulting stresses for all Class 1 components?

Reply: Yes.

Interpretation: III-1-13-34

Subject: Division 1, NCA-3530 (1992 Edition Through the 2013 Edition)
Date Issued: August 21, 2013
File: 13-1238

Question: May an N Certificate Holder without an NPT certificate provide an N-2 Data Report Form for a replacement disc that has been hardfaced by the fusion welding process when it is to be incorporated into a valve originally stamped by the N Certificate Holder?

Reply: Yes, provided the requirements of NCA-3530 are met.

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Interpretation: III-1-13-35

Subject: Division 1, NB-3649 and NB-3681(d) (2010 Edition With the 2011 Addenda)
Date Issued: November 6, 2013
File: 13-1235

Question (1): For fittings not manufactured in accordance with the standards listed in NCA-7100-1, in accordance with NB-3649, may a burst test in compliance with ASME B16.9, with a minimum test pressure equal to that defined in NB-3649, be used to show compliance with the pressure design requirements of NB-3640?

Reply (1): Yes.

Question (2): For fittings not manufactured in accordance with the standards listed in NCA-7100-1, in accordance with NB-3681(d), may experimental analysis in accordance with Appendix II or theoretical analysis be used to develop stress indices and flexibility factors for use in the piping stress equations in NB-3650, provided the test data or theoretical analysis is included in the Design Report?

Reply (2): Yes.

Question (3): For fittings not manufactured in accordance with the standards listed in NCA-7100-1, in accordance with NB-3649 and NB-3681(d), may the theoretical analysis described in NB-3681(d) be performed in accordance with the design by analysis requirements of NB-3200?

Reply (3): Yes.

Interpretation: III-1-13-36

Subject: Division 1, Subsection NC (2010 Edition With the 2011 Addenda)
Date Issued: November 6, 2013
File: 13-1823

Question (1): Does Subsection NC prohibit the construction of plate-type heat exchangers?

Reply (1): No.

Question (2): Does Subsection NC provide specific design requirements for the construction of plate-type heat exchangers?

Reply (2): No.

Interpretation: III-1-13-37

Subject: Division 1, NB-3222.4 and Code Case N-792-1
Date Issued: November 6, 2013
File: 13-1824

Question: Does Code Case N-792-1 require fatigue analysis considering the light water environment to be performed when the conditions of NB-3222.4(d) are satisfied?

Reply: No.

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Interpretation: III-1-13-38

Subject: Division 1, NB/NC/ND/NE/NF/NG/NH-5521, NDE Personnel Certification
Date Issued: November 12, 2013
File: 13-1391

Question: In accordance with the requirements of Section III, when the radiographic examination required by Section II, Part C is performed on the welding material test coupon, are the radiography NDE personnel employed by the Material Manufacturer of welding material required to be qualified in accordance with ASNT SNT-TC-1A?

Reply: No.

Interpretation: III-1-13-39

Subject: Division 1, NF-1132(d) (1987 Addenda Through the 2013 Edition)
Date Issued: January 13, 2014
File: 13-1832

Question: Is it the intent of NF-1132(d) that all base plates be designated building structure?

Reply: No; the Design Specification shall identify the jurisdiction of the base plate.

Interpretation: III-1-13-40

Subject: Division 1, Table NCA-4134.17-2 and Appendix XXIII-1210
Date Issued: February 19, 2014
File: 14-33

Question (1): Are the personnel qualification records of Registered Professional Engineers classified per Table NCA-4134.17-2 as nonpermanent quality assurance records?

Reply (1): Yes.

Question (2): Is the retention period per Table NCA-4134.17-2 for Registered Professional Engineer records 3 yr after superseded or invalidated?

Reply (2): Yes.

Question (3): Does Appendix XXIII-1210 require the Owner, Designer, N Certificate Holder, or N3 Certificate Holder to maintain a record of the qualifications of the Registered Professional Engineer when subcontracted to another organization?

Reply (3): Yes.

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Interpretation: III-1-13-41

Subject: Division 1, NB-2541 (1971 Edition)
Date Issued: February 19, 2014
File: 14-131

Question: Does NB-2541 require radiographic examination when ultrasonic techniques, per NB-2542, will not yield meaningful results due to geometric configuration?

Reply: Yes.

Interpretation: III-1-13-42

Subject: Division 1, NB-2551 (2000 Edition)
Date Issued: February 19, 2014
File: 14-155

Question: Does NB-2551(b) apply to a fitting machined from forged bar which meets the requirements of NB-2541 and will be subsequently welded to pipe?

Reply: Yes.

Interpretation: III-1-13-43

Subject: Division 1, NCA-3820(c) (2007 Edition Through the 2009 Addenda)
Date Issued: February 19, 2014
File: 14-169

Question: Does NCA-3820(c) permit a Certificate Holder, with material supply in their scope, to furnish material heat treated by an approved supplier qualified by the Certificate Holder provided the activities are identified and controlled in accordance with the Certificate Holder's Quality Assurance Program?

Reply: Yes.

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Interpretation: III-1-13-44

Subject: Division 1, NCA-1130(a), NCA-2142, NCA-3252(a), and Article NB-7000
Date Issued: February 19, 2014
File: 14-244

Question (1): Does NCA-2142 require the Owner or his designee to identify the loadings and combination of loadings to be considered in the Design Specification?

Reply (1): Yes.

Question (2): Does NCA-2142 require the Owner or his designee to identify the service limits to be applied to the loadings and combination of loadings in the construction of a component?

Reply (2): Yes.

Question (3): Is the certified Design Specification, as defined in NCA-3252(a) and NCA-3256(a), a principal document that forms the complete basis for Division 1 construction of a component?

Reply (3): Yes.

Question (4): After fulfilling the requirements of NCA-2142, NCA-3252(a), and NCA-3256(a), does the scope of Section III cover new loads identified after the component has been in operation in the plant?

Reply (4): No.

Question (5): Does NB-7732 require that each pressure relief valve installed in the system to provide overpressure protection be individually tested?

Reply (5): No.

Question (6): Does NB-7311(a) require the installation geometry be replicated in the capacity certification tests of NC-7732?

Reply (6): No.

Question (7): Does NB-7732.1 require the pressure relief valve that is tested be identical to the pressure relief valve to be used in service?

Reply (7): No.

Question (8): Does NCA-2141(a) and NCA-2142 require that the Design Specification identify the conditions to be considered in the overpressure protection of a component?

Reply (8): Yes.

Question (9): Does NB-7321 allow unexpected system excess pressure transients to exceed Service Level C limits?

Reply (9): No.

Question (10): Does NB-7731.3 require the capacity certification test be done at the maximum “unexpected system excess pressure transient condition”?

Reply (10): No.

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Interpretation: III-1-13-45

Subject: Division 1, NCA-3855.5(a)(1), Utilization of Unqualified Source Material
Date Issued: February 19, 2014
File: 14-262

Question (1): Does NCA-3855.5(a)(1) permit the organization that establishes the material form and issues the source material test report to provide a written statement that no welding with filler material was performed on the source material supplied to the Material Organization?

Reply (1): Yes.

Question (2): Does the written statement identified in Question (1) stating no welding with filler metal was performed need to identify the address and/or the location of the organization that establishes the material form and issues the source material test report?

Reply (2): Yes.

Interpretation: III-1-13-46

Subject: Division 1, NB/NC/ND-3650, S_m, S_h, and S_y
Date Issued: March 12, 2014
File: 12-1280

Question (1): Is it the intent that S_m be taken at the Design Temperature in NB-3652?

Reply (1): Yes.

Question (2): Is it the intent that S_m or S_y be taken at the temperature consistent with the loading under consideration in NB-3654.2(a), NB-3655.2(a), NB-3656(a)(2), NB-3656(b)(2), NB-3656(b)(3), and NB-3656(b)(4)?

Reply (2): Yes.

Question (3): Is it the intent that S_h or S_y be taken at the temperature consistent with the loading under consideration in NC-3654.2(a), NC-3655(a)(2), NC-3655(b)(2), and NC-3655(b)(4)?

Reply (3): Yes.

Question (4): Is it the intent that S_h or S_y be taken at the temperature consistent with the loading under consideration in ND-3654.2(a), ND-3655(a)(2), ND-3655(b)(2), and ND-3655(b)(4)?

Reply (4): Yes.

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Interpretation: III-1-13-47

Subject: Division 1, NB/NC/ND/NE/NF/NG-5521(a)(4) (Winter 1975 Addenda Through the 2013 Edition)
Date Issued: April 3, 2014
File: 12-1972

Question: Is it the intent of NB/NC/ND/NE/NF/NG-5521(a)(4), CC-5120, WB-5500, and WC-5500 to require all NDE personnel performing any Code required nondestructive examinations (NDE) regardless of the NDE method to be visually examined for near-visual acuity using Jaeger Number 1 letters in lieu of the Jaeger Number 2 letters required by SNT-TC-1A, paragraph 8.2.1?

Reply: Yes.

NOTE: This interpretation also appears as III-2-13-07 in this document and as III-3-13-03 in Section III, Division 3.

Interpretation: III-1-13-48

Subject: Division 1, Appendix I, Fig. I-9.1, Design Fatigue Curve for Martensitic Stainless Steel
Date Issued: May 21, 2014
File: 12-1021

Question (1): Does Section III specify the design fatigue curve to be used for martensitic stainless steels?

Reply (1): No.

Question (2): May the design fatigue curve of Fig. I-9.1 be used for martensitic stainless steels?

Reply (2): Yes.

Question (3): May interpolation between the two ultimate strength curves of Fig. I-9.1 be used for martensitic stainless steels?

Reply (3): Yes.

Interpretation: III-1-13-49

Subject: Division 1, NF-3322.8(c)(4)(-a)
Date Issued: May 21, 2014
File: 12-1042

Question: NF-3322.8(c)(4)(a) states: “The diameter of the pin shall not be less than seven-eighths of the width of the body of the eyebar.” Is this requirement necessary when both the pin and the eyebar can meet the stress requirements of Subsection NF after detailed stress calculations?

Reply: Yes.

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Interpretation: III-1-13-50

Subject: Division 1, NCA-1282 (1998 Edition With the 1999 Addenda, and Later Editions and Addenda Through the 2013 Edition)
Date Issued: May 21, 2014
File: 13-1820

Question: Is it the intent of NCA-1282 to prohibit an NS Certificate Holder from attaching supports to building structure during fabrication at the location authorized by its Certificate?

Reply: No.

Interpretation: III-1-13-51

Subject: Division 1, NCA-9200, Definition of "Appurtenance"
Date Issued: May 21, 2014
File: 14-22

Question: Does the word "it" in the definition of appurtenance in NCA-9200 refer to the item intended to be attached to the component?

Reply: Yes.

Interpretation: III-1-13-52

Subject: Division 1, NB-3222.4, NB-3232.3, and Appendix II-1500 (2007 Edition Through the 2008 Addenda)
Date Issued: May 21, 2014
File: 14-176

Question (1): Is Appendix II-1500 applicable for fatigue analysis of bolts as an alternative for NB-3232.3?

Reply (1): Yes.

Question (2): For threaded members, is the fatigue strength reduction factor less than 4.0 applicable if it is obtained by cyclic test in accordance with Appendix II-1500?

Reply (2): No. Fatigue strength reduction factor of less than 4.0 may be obtained using Mandatory Appendix II-1600 only for bolting materials having less than 100 ksi tensile strength.

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Interpretation: III-1-13-53

Subject: Division 1, NB-7121 and NB-7321
Date Issued: May 21, 2014
File: 14-344

Question: When overpressure protection is provided by use of a design where the Service Limits specified in the Design Specification are not exceeded, does NB-7120(c) require a pressure relief device?

Reply: No.

Interpretation: III-1-13-54

Subject: Division 1, NCA-3859.1(d) and NCA-3842.2(h)(2), Audits of Material Organizations and Suppliers
Date Issued: May 21, 2014
File: 14-352

Question: Does the phrase “at least annually” in NCA-3859.1(d) apply to audits of qualified Material Organizations and approved suppliers performed by certified Material Organizations and Certificate Holders?

Reply: No.

Interpretation: III-1-13-55

Subject: Division 1, NC-3224.6 and NC-3224.8, Design of Head-to-Shell Junction of Ellipsoidal Head and Cylindrical Shell
Date Issued: May 21, 2014
File: 14-476

Question: Do the provisions of NC-3211.1(c) allow complete stress analysis, performed in accordance with the provisions therein, as an alternative to design rules specified elsewhere in NC-3200?

Reply: Yes.

Interpretation: III-1-13-56

Subject: Division 1, NF-2340, Impact Test Frequency
Date Issued: May 21, 2014
File: 14-723

Question: Does NF-2340 require testing based on the definition of form or manufacturing process for material specification SA-350, Grade LF2?

Reply: Yes. SA-350, Grade LF2 is listed as a forging material in Section II; thus NF-2342 applies.

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Interpretation: III-1-13-57

Subject: Division 1, NCA-9200 and NB-5210(a)(2)
Date Issued: May 21, 2014
File: 14-753

Question (1): For welds in components constructed from P-No. 3 material, is it permissible to perform radiographic examination prior to final postweld heat treatment according to NB-5120(a)(2)?

Reply (1): Yes.

Question (2): Do the requirements of NB-5120(a)(2) apply to P-No. 3 piping?

Reply (2): Yes.

Question (3): If the material of the piping spool is P-No. 3, is it permissible to apply NB-5120(a)(2) on the weld joint with P-No. 3 material vessel nozzle?

Reply (3): Yes.

Interpretation: III-1-13-58

Subject: Division 1, NCA-9200, Definition of "Approved Supplier"
Date Issued: May 22, 2014
File: 14-810

Question: May an approved supplier, as defined in NCA-9200, have a limited scope quality system program [NCA-3811 (b)] applicable to the activities performed?

Reply: Yes.

Interpretation: III-1-13-59

Subject: Division 1, NC-1100(c), NC-3211.1(c), NC-3811.2, and NC-3911
Date Issued: May 22, 2014
File: 14-837

Question: Is it permissible to use the alternative design rules of NC-3200 in the design of Class 2 atmospheric and 0 psi to 15 psi storage tanks?

Reply: Yes.

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Interpretation: III-1-15-01

Subject: Division 1, NCA-3855.5 and NCA-3862
Date Issued: August 27, 2014
File: 13-2155

Question (1): Does NCA-3855.5(a)(2) require traceability of product analysis results to each individual piece of unqualified source material?

Reply (1): No, provided traceability to the heat or lot is maintained.

Question (2): Does NCA-3862 require traceability between product analysis results [NCA-3855.5(a)(2)] and each individual piece of material processed from qualified source material supplied under a Certificate of Compliance?

Reply (2): No.

Question (3): Does NCA-3862 require traceability between product analysis results [NCA-3855.5(a)(2)] and each individual piece of material processed from qualified source material supplied under a Certified Material Test Report?

Reply (3): No, provided traceability to the heat or lot is maintained.

Interpretation: III-1-15-02

Subject: Division 1, NB-2541, NB-5120, and NB-5130
Date Issued: August 27, 2014
File: 14-779

Question (1): Shall the magnetic particle or liquid penetrant examination of base material surfaces be repeated prior to depositing weld metal cladding, provided the requirements of NB-2541 have been satisfied?

Reply (1): No.

Question (2): Are weld edge preparations required to be examined in accordance with NB-5130 if they have previously been examined in accordance with NB-2541?

Reply (2): Yes.

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Interpretation: III-1-15-03

Subject: Division 1, Subsection NB, Allowable Stress for Branch Connections With Different Material Specifications for Run and Branch (2007 Edition)
Date Issued: August 27, 2014
File: 14-785

Question (1): Is it permitted by the Code to have different material specifications for the branch and run pipes for branch connections joined by full penetration welds as per Figure NB-4246(a)-1?

Reply (1): Yes.

Question (2): If a branch connection is constructed of different material specifications for run and branch, does the Code prohibit using the most limiting allowable stress intensity value for eqs. (9) and (10)?

Reply (2): No.

Interpretation: III-1-15-04

Subject: Division 1, NCA-3840 and NB/NC/ND/NE/NF/NG-2610
Date Issued: August 28, 2014
File: 14-906

Question: Does NCA-3840 apply to the Material Organizations supplying small products in accordance with NB/NC/ND/NE/NF/NG/WB/WC-2610(b)?

Reply: No.

NOTE: This also appears as III-3-15-01 in of Section III, Division 3.

Interpretation: III-1-15-05

Subject: Division 1, NB-5410(a), NB-6111, and NB-6115 (1998 Edition Through the 2000 Addenda)
Date Issued: August 28, 2014
File: 14-919

Question: In accordance with NB-6111, if a weld repair is performed after a hydrostatic test, does the hydrostatic test have to be performed again?

Reply: Yes.

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Interpretation: III-1-15-06

Subject: Division 1, NCA-3855.5, NCA-3862, and NB-4121.1
Date Issued: November 25, 2014
File: 14-797

Question (1): When an N-type Certificate Holder machines a solid bar into a hollow bar during fabrication of a Code stamped item, is a Certified Material Test Report required for this machined product?

Reply (1): No.

Question (2): Does the reference to "(NCA-3862)" in NB-4121.1 require that a Certified Material Test Report, meeting the requirements of NCA-3862, is required for additional treatments, tests, repairs, or examinations to be performed and certified by the Certificate Holder, as a part of their fabrication process?

Reply (2): No.

Interpretation: III-1-15-07

Subject: Division 1, NB-3222.4, NB-3232.3, Appendix II-1520 (2007 Edition Through the 2008 Addenda)
Date Issued: November 25, 2014
File: 14-1005

Question: Is a scaled-down model with tolerance acceptable for cyclic tests in accordance with Appendix II-1520?

Reply: Yes.

Interpretation: III-1-15-08

Subject: Division 1, NB-2311(b) and NB-2331(a)(2) (2004 Edition)
Date Issued: November 25, 2014
File: 14-1012

Question (1): Does NB-2311(b) require pressure-retaining material for pumps with nominal wall thickness greater than 64 mm to meet the requirements of NB-2331(a)(2) Charpy V-notch values of 1 mm lateral expansion?

Reply (1): Yes.

Question (2): Does NB-2311(b) require pressure-retaining material for pumps with nominal wall thickness greater than 64 mm to fulfill the requirement of NB-2331(a)(2) for 68 J absorbed energy?

Reply (2): No.

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Interpretation: III-1-15-09

Subject: Division 1, NF-2331(a)
Date Issued: November 25, 2014
File: 14-1184

Question: : Does NF-2331(a) require that both absorbed energy and lateral expansion be determined and reported?

Reply: No.

Interpretation: III-1-15-10

Subject: Division 1, Table NE-4622.1-1
Date Issued: November 25, 2014
File: 14-1199

Question: If a Class 2 integral fitting with P-No. 5A is welded to a Class MC containment penetration with P-No. 1, as shown in Figure NE-1120-1(c), does the information in NCA-1281 permit the requirement for PWHT of the welds in Table NC-4622.1-1 be applied to the weld between the Class 2 integral fitting and the Class MC containment penetration?

Reply: Yes.

Interpretation: III-1-15-11

Subject: Division 1, NCA-3855.2 and NCA-3856, Source Material Certification (1995 Edition Through the 1997 Addenda)
Date Issued: November 25, 2014
File: 14-1255

Question (1): Does NCA-3855.2 allow a Material Organization, approved supplier, or Certificate Holder to recertify source material from one material class to a different material class when the material specification and the grade are identical and the qualified source material meets all physical, chemical, and other requirements?

Reply (1): Yes.

Question (2): When qualified source material is recertified in accordance with NCA-3855.2, does NCA-3856 permit a Certificate Holder to alter the original material specification identification and marking supplied on qualified source material?

Reply (2): Yes, provided the requirements of NCA-3856 are met.

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Interpretation: III-1-15-12

Subject: Division 1, NB-2122 (1998 Edition Through the 2013 Edition)
Date Issued: November 25, 2014
File: 14-1327

Question: May a Material Organization remove oxide scale or other mechanically caused impressions, in accordance with the provisions of NB-2538(c), without reexamining the surface by the liquid penetrant method?

Reply: Yes.

Interpretation: III-1-15-13

Subject: Division 1, NCA-1140(e)
Date Issued: December 1, 2014
File: 14-1185

Question (1): Is it permissible to apply the Section II material properties (Table U and Table Y-1) of later Code years of Section II Edition and Addenda in lieu of the established Section II, Part D specified for construction, provided all of the NCA-1140(e) requirements are satisfied, including NCA-1140(e)(1) which requires the material be listed and approved for use in the tables of Section II, Part D for the established Code Edition and Addenda?

Reply (1): No.

Question (2): Is it permissible to apply the Section II material properties (Table U and Table Y-1) of later Code years of Section II Edition and Addenda in lieu of the established Section II, Part D specified for construction, provided all of the NCA-1140(b) requirements are satisfied?

Reply (2): Yes.

Interpretation: III-1-15-14

Subject: Division 1, NB-4424.2 (1995 Edition Through the 1997 Addenda)
Date Issued: December 1, 2014
File: 14-1421

Question: Shall the reference system per NB-4424.2 be established if the weld reference system is also established in accordance with Section XI, IWA-2600?

Reply: Yes; only the requirements of NB-4424.2 apply to Section III construction.

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Interpretation: III-1-15-15

Subject: Division 1, NE-6121 (2001 Edition)
Date Issued: December 1, 2014
File: 14-1444

Question: Do the words “uninsulated and exposed” in NE-6121 require welds, both internally and externally, to be free of paint, lacquer, or inorganic zinc during the hydrostatic or pneumatic test?

Reply: No.

Interpretation: III-1-15-16

Subject: Division 1, NC-2211
Date Issued: December 1, 2014
File: 14-1511

Question: Does the Design Specification in the endnote of NC-2211 mean the Design Specification that is provided by the Owner in accordance with NCA-3252?

Reply: Yes.

Interpretation: III-1-15-17

Subject: Division 1, ND-2431.1(c)
Date Issued: December 1, 2014
File: 14-1662

Question: Does the weld material used for fabricating SA-672 pipe with thickness of $\frac{1}{2}$ in. and diameter of 36 in. require simulated PWHT according to ND-2431.1(c)?

Reply: Yes.

Interpretation: III-1-15-18

Subject: Division 1, NCA-3561(a)
Date Issued: December 1, 2014
File: 14-1839

Question: In regards to NCA-3561(a), if an individual employed by a third party is controlled under the Certificate Holder’s Quality Assurance Program (i.e., qualified to the Certificate Holder’s written practice, meets other Quality Assurance training requirements, and works to the Certificate Holder’s approved procedures, as directed by the Certificate Holder), is the third-party employer required to be surveyed and audited as an approved supplier of services?

Reply: No.

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Interpretation: III-1-15-19

Subject: Division 1, NCA-3855.5(a)(2) and NCA-3855.5(a)(3)
Date Issued: December 1, 2014
File: 14-2035

Question: Do NCA-3855.5(a)(2) and NCA-3855.5(a)(3) permit the Certificate Holder to use one of five forged pieces of unqualified source material from one heat and lot to perform all tests required by the material specification, including physical testing, and take samples from each of the remaining forged pieces from that same heat and lot to perform chemical analyses, which shall qualify all of the forged pieces from that heat and lot as "qualified source material"?

Reply: Yes, provided all of the requirements of NCA-3855.5(a)(1), NCA-3855.5(a)(2), and NCA-3855.5(a)(3)(-a) through (-e) are met.

Interpretation: III-2-13-03

Subject: Division 2, Table CC-4552-2 (2001 Edition Through the 2011 Addenda)
Date Issued: May 23, 2013
File: 12-2088

Question: Does Table CC-4552-2 require PWHT for Category D welds that are full penetration welds of a portion of the liner plate or the shell plate whose wall thickness is equal to or less than $1\frac{1}{2}$ in. (38 mm) to a penetration or nozzle, provided the requirements of Table CC-4552-2 are followed?

Reply: No.

Interpretation: III-2-13-04

Subject: Division 2, CC-2612.1.1(b)
Date Issued: July 9, 2013
File: 13-773

Question: Does the requirement that base material conform with the requirements of QW-403.1 or QW-403.4 of Section IX, as required by NB/NC/ND/NE/NF/NG-2431.1(b), CC-2612.1.1(b) and WB/WC-2431.1(b), apply only to electroslag filler metals?

Reply: Yes.

NOTE: This interpretation also appears as III-1-13-28 in this document and as III-3-13-02 in Section III, Division 3.

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Interpretation: III-2-13-05

Subject: Division 2, Table CC-5200-1 and CC-5232.3.2, Evaluation and Acceptance
Date Issued: August 21, 2013
File: 13-1326

Question (1): Does CC-5232.3.2 require that at least five sets of cylinders be made when five or more batches are planned to be produced in a given concrete mix?

Reply (1): Yes.

Question (2): Does CC-5232.3.2 require that a set of cylinders be made from each batch when the concrete mix produces five or fewer batches?

Reply (2): Yes.

Interpretation: III-2-13-06

Subject: Division 2, CC-2131.3.1, Laboratory Accreditation; CC-2131.4, Personnel Qualification; CC-5211, Laboratory Qualification; CC-5132, Personnel Qualification; and Appendices V and VII (1998 Edition Through the 2010 Edition)
Date Issued: November 6, 2013
File: 13-1237

Question (1): Is it a requirement that a laboratory performing tests required by CC-2200 be an accredited laboratory that complies with ASTM C1077?

Reply (1): Yes.

Question (2): May laboratory testing personnel performing tests required by CC-2000 be qualified using appropriate industry or laboratory standards?

Reply (2): Yes.

Question (3): Is it a requirement that a laboratory performing tests required by CC-5200 be an accredited laboratory that complies with ASTM C1077, except that testing personnel shall be qualified in accordance with CC-5132?

Reply (3): Yes.

Question (4): Is it a requirement that laboratories performing tests required by CC-2200 and CC-5200 in accordance with ASTM C1077 be under the full-time technical direction of a registered professional engineer with at least 5-yr experience in construction materials testing?

Reply (4): Yes.

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Interpretation: III-2-13-07

Subject: Division 2, CC-5120 (Winter 1975 Addenda Through the 2013 Edition)
Date Issued: April 3, 2014
File: 12-1972

Question: Is it the intent of NB/NC/ND/NE/NF/NG-5521(a)(4), CC-5120, WB-5500, and WC-5500 to require all NDE personnel performing any Code required nondestructive examinations (NDE) regardless of the NDE method to be visually examined for near-visual acuity using Jaeger Number 1 letters in lieu of the Jaeger Number 2 letters required by SNT-TC-1A, paragraph 8.2.1?

Reply: Yes.

NOTE: This interpretation also appears as III-1-13-47 in this document and as III-3-13-03 in Section III, Division 3.

Interpretation: III-2-13-08

Subject: Division 2, CC-4333.4, Initial Qualification Tests
Date Issued: May 21, 2014
File: 14-538

Question: Does CC-4333.4 require the initial splicer qualification to meet the requirements of Table CC-4333-1, Minimum Average Mechanical Splice or Welded Joint Tensile Strength column?

Reply: No.

Interpretation: III-2-13-09

Subject: Division 2, CC-2442.3
Date Issued: May 28, 2014
File: 14-796

Question: Shall the requirements of CC-2442.3.2 and CC-2442.3.3 be met for permanent tendon corrosion preventative coatings?

Reply: Yes.

Interpretation: III-2-15-01

Subject: Division 2, CC-3532.2
Date Issued: August 28, 2014
File: 14-1351

Question: Does Section III, Division 2 have a compressive strength test requirement for mechanical splices?

Reply: No.

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Interpretation: III-2-15-02

Subject: Division 2, Table CC-5200-1 (2010 Edition)
Date Issued: December 1, 2014
File: 14-1658

Question: After field experience, does Table CC-5200-1 require the determination of concrete compressive strength for placements that are 50 yd^3 or less per day, provided all other requirements of Table CC-5200-1 are met?

Reply: No.

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