



**THE  
NATIONAL  
BOARD**  
OF BOILER AND  
PRESSURE VESSEL  
INSPECTORS

**NATIONAL BOARD  
TASKGROUP  
NR**

**MINUTES**

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Meeting of July 15<sup>th</sup>, 2019  
Kansas City, MO

*These minutes are subject to approval and are for the committee use only.  
They are not to be duplicated or quoted for other than committee use.*

The National Board of Boiler & Pressure Vessel Inspectors  
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**1. Call to Order**

Chair, P. Edwards called the meeting to order at 8:00 AM

**2. Introduction of Members and Visitors**

Introductions took place amongst all members and visitors, and an attendance sheet was circulated ([Attachment Page 1](#)).

**3. Announcements**

The National Board announced the reception for all committee members and visitors on Wednesday evening at 5:30pm in the Rooftop Ballroom on the top floor of the InterContinental.

Mr. Hellman provided an presentation on the new letter ballot system on the National Board Business Center.

**4. Adoption of the Agenda**

Adoption of the Agenda was motioned, seconded, and unanimously approved.

**5. Approval of the Minutes of January 14<sup>th</sup>, 2019 Meeting**

There was a motion to approve the Minutes of January 14, 2019 as published. The motion was seconded and unanimously approved.

**6. Interpretations**

**New Items:**

<p><b>Item Number:</b> 19-44      <b>NBIC Location:</b> Part 3, 1.6.6.2, 1.6.7.2, 1.6.8.2      <a href="#">Attachment Page 2</a></p> <p><b>General Description:</b> Update the edition of the listed ISO/IEC-17025 from 2005 to “most current” edition to align with ASME until 2021 NBIC Code change (Action Item 19-43) is approved.</p> <p><b>Subgroup:</b> NR Task Group</p> <p><b>Task Group:</b> None Assigned.</p> <p><b>Explanation of Need:</b> Many, if not all calibration labs are already accredited to ISO/IEC 17025:2017 and will be required to by 2020. No lab will bother accreditation to 2005 after that, so finding a calibration house will be difficult.</p> <p>1.6.6.2 M-5-A</p> <p>1.6.7.2 M-1 1.6.7.2 M-4-A 1.6.7.2 M-5-A</p> <p>1.6.8.2 M-1 1.6.8.2 M-4-A 1.6.8.2 M-5-A</p> <p><b>Meeting Action:</b> Chair, P. Edwards presented. The inquirer’s question was revised, and the TG’s question and proposed response to accept either the 2005 or the 2017 edition of ISO/IEC 17025 was motioned, seconded, and unanimously approved.</p>
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## 7. Action Items

### New Items:

<b>Item Number: 19-11</b>	<b>NBIC Location: Parts 1,2,3,4, Section 9</b>	<b><a href="#">Attachment Page 3</a></b>
<b>General Description:</b> Review the use of "Authorized Nuclear Inspection Agency" within the NBIC		
<b>Subgroup:</b> NR Task Group		
<b>Task Group:</b> C. Withers – PM		
<b>January 2019 Meeting Action:</b> Discussion regarding how an ANIA cannot be an Inservice AIA since Endorsements for nuclear inspectors are issued only to new construction AIA's. The 3 requirements for qualified Authorized Nuclear Inspectors/Supervisors are clearly specified in NB-263, RCI-1. Therefore revision to the Glossary definition is needed to clarify this requirement for the NR Accreditation Program. This Action Item (19-11) was created and C. Withers was designated as the P		
<b>Meeting Action:</b> Chair, P. Edwards presented. The results of the Ballot 19-11-NR were discussed (Failed – 4 Comments). Discussion took place regarding how an ANIA cannot be an Inservice AIA since Endorsements for nuclear inspectors are issued only to new construction AIA's. B. Wielgoszinski proposed that a revision to the text in NBIC Part 3, 1.6.3 a) would better address what type of AI should be considered an ANIA. Based on ballot comments, it was decided that AI's or ANI's would/could only work for an NB-360 and NOT an NB-369. Revision to 1.6.3 a) was proposed removing reference to NB-369. Nuclear Inspectors are required to hold N and I endorsements and must be employed by an AIA with an NB-360 Certificate. The proposed revision was motioned, seconded, and unanimously approved.		
NOTE: A new Action Item Number: 19-68 was opened (B. Wielgoszinski – PM) for possible need for ANI's and ANII's to hold the (R) Endorsement in addition to the (N) and (I) Endorsements.		

<b>Item Number: 19-12</b>	<b>NBIC Location: Part 3, 1.6.3 b)</b>	<b><a href="#">Attachment Page 4</a></b>
<b>General Description:</b> Paragraph 1.6.3 – revise text to clarify Quality Assurance Program reqs		
<b>Subgroup:</b> Repairs and Alterations		
<b>Task Group:</b> C. Withers – PM		
<b>Explanation of Need:</b> Revise text to clarify Quality Assurance Program requirements for NR Cert holders.		
<b>Meeting Action:</b> Chair, P. Edwards presented the results of the Ballot 19-12-NR. (Pass). The proposal was unanimously approved.		

<b>Item Number: 19-13</b>	<b>NBIC Location: Part 3, 1.6.6.2 s), 1.6.7.2 s), &amp; 1.6.8.2 s)</b>	<b>Attachment Page 5</b>
<b>General Description:</b> Revise text to clarify responsibilities for performing audits		
<b>Subgroup:</b> Repairs and Alterations		
<b>Task Group:</b> None assigned		
<b>Explanation of Need:</b> Revise text to clarify responsibilities for performing audits between the Certificate Holder and the AIA.		
<b>Meeting Action:</b> Chair, P. Edwards presented the results of the Ballot 19-13-NR (Pass – 2 Comments). Editorial revisions to the text were made and the proposal was unanimously approved.		

<b>Item Number: 19-43</b>	<b>NBIC Location: Part 3, 1.6.6.2, 1.6.7.2, 1.6.8.2</b>	<b>Attachment Page 6</b>
<b>General Description:</b> Update the edition of the listed ISO/IEC-17025 from 2005 to include 2017 to align with ASME for 2021 Edition of the NBIC		
<b>Subgroup:</b> NR Task Group		
<b>Task Group:</b> None Assigned.		
<b>Explanation of Need:</b> References to "ISO/IEC-18025:2005" need to be changed to add "ISO/IEC-18025:2017" to align with ASME Section III requirements of “most current” in the following paragraphs of the 2019 NBIC: 1.6.6.2 m) 1) 1.6.6.2 m) 4) a) 1.6.6.2 m) 5) a)  1.6.7.2 m) 1) 1.6.7.2 m) 4) a) 1.6.7.2 m) 5) a)  1.6.8.2 m) 1) 1.6.8.2 m) 4) a) 1.6.8.2 m) 5) a)		
<b>Meeting Action:</b> Chair, P. Edwards presented this Action Item based on the Interpretation Request Item 19-44. Verbiage within the referenced paragraphs was changed to add the 2017 edition to the acceptable editions of ISO/IEC-170025 within the referenced paragraphs. The proposal was unanimously approved.		

**8. Discussion on Editorial Corrections to the 2019 NBIC:** Several editorial corrections to 1.6.6.2 h), 1.6.6.2 i), 1.6.7.2 o), 5.12.5, and 5.12.6 were discussed and will be forwarded to the NBIC Secretary. A new Action Item Number 19-69 with B. Schaefer – PM was opened to include Code Case and Edition values in 5.12.5.1 8) and 5.12.5.1 11).

**9. Update on Promoting NR Accreditation Program**

- a. CNSC - Mr. Withers was not present to provide a progress report on the Canadian Nuclear Safety Commission (CNSC).

- b. US NRC - Mr. Withers was not present to provide a progress report on the response letter for the NRC letter dated May 1, 2018 regarding requested endorsement of the NR and NRV accreditation programs.
  - (i) **History:** The NRC letter from May, 2018 indicated that the NRC would not endorse the NR and NRV accreditation programs. After discussion, it was decided that a Task Group with Chuck Withers as Project Manager would draft a response letter to the NRC. The CNSC has also indicated that their interest in the NR/NVR programs was contingent with the NRC endorsing the program(s).
- c. An email will be sent to C. Withers to determine if he has had any additional contact with either the NRC or the CNSC.

#### 10. Future Meetings

- January 13<sup>th</sup> -16<sup>th</sup>, 2020 – San Diego, CA
- July 13<sup>th</sup>-16<sup>th</sup>, 2020 – Louisville, KY

#### 11. Adjournment

There being no further business before the Task Group, the Chair adjourned the meeting at 12:00 pm, without objection.

Respectfully submitted,



Terrence Hellman  
NR Task Group Secretary



Item 19-44 – Interpretation Request  
Submitted by: Laura Fuhrmann [Laura.Fuhrmann@FoxValleyMetrology.com](mailto:Laura.Fuhrmann@FoxValleyMetrology.com)

**NBIC Location:** Part 3, 1.6.6.2, 1.6.7.2, and 1.6.8.2

**Explanation of Need:** Many, if not all calibration labs are already accredited to ISO/IEC 17025:2017 and will be required to by 2020. No lab will bother accreditation to 2005 after that, so finding a calibration house will be difficult.

**Background Information:** 2019 NBIC Part 3, 1.6.6.2 ~~M-5-Am~~, 1.6.7.2 ~~M-1m~~, ~~1.6.7.2 M-4-A~~, ~~1.6.7.2 M-5-A~~, 1.6.8.2 ~~M-1~~, ~~1.6.8.2 M-4-A~~, ~~1.6.8.2 M-5-Am~~

**Question 1:** The listed paragraphs show service to be provided in accordance with ISO/IEC 17025:2005. The 17025 standard has been revised to the 2017 version, and all labs accredited as such have a 3 year transition window. Is it permissible to use either the 2005 or the 2017 edition of ISO/IEC 17025?

**Reply 1:** ~~A change similar to ASME section III, which does not list a specific revision, instead, wording it as "most current".~~ Yes.

### 1.6.6.2, 1.6.7.2, and 1.6.8.2 QUALITY PROGRAM ELEMENTS

#### m) Control of Measuring and Test Equipment

The "NR" Certificate Holder may utilize calibration and test activities performed by subcontractors when surveys and audits are performed. As an alternative to performing a survey and audit for procuring Laboratory Calibration and Test Services, the "NR" Certificate Holder as documented in their Quality Program may accept accreditation of an International Calibration and Test Laboratory Services by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) provided this alternative method is described in the "NR" Certificate Holder's Quality Program and the following requirements are met:

- 1) The "NR" Certificate Holder shall review and document verification that the supplier of calibration or test services was accredited by an accredited body recognized by the ILAC MRA encompassing ISO/IEC-17025:2005 or 2017, "General Requirements for the Competence of Testing and Calibration Laboratories";
- 2) For procurement of calibration services, the published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges and uncertainties.
- 3) For procurement of testing services, the published scope of accreditation for the test laboratory covers the needed testing services including test methodology and tolerances/uncertainty.
- 4) The "NR" Certificate Holder's purchase documents shall include:
  - a. Service provided shall be in accordance with their accredited ISO/IEC-17025:2005 or 2017 program and scope of accreditation;
  - b. As-found calibration data shall be reported in the certificate of calibration when items are found to be out-of-calibration;
  - c. Standards used to perform calibration shall be identified in the certificate of calibration;
  - d. Notification of any condition that adversely impacts the laboratories ability to maintain the scope of accreditation;
  - e. Any additional technical and/or quality requirements, as necessary, which may include tolerances, accuracies, ranges, and standards;
  - f. Service suppliers shall not subcontract services to any other supplier.
- 5) The "NR" Certificate Holder shall upon receipt inspection, validate that the laboratory documentation certifies that:
  - a. Services provided by the laboratory has been performed in accordance with their ISO/IEC-17025:2005 or 2017 program and performed within their scope; and
  - b. Purchase order requirements have been met.

#### n) Handling, Storage and Shipping

From 2019 ASME Section 3, NCA:



## LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
11-1037	Revised Table NCA-3200-1, Document Distribution for Division 2 Construction.
11-2161	Added new definition "Certified Design Report Summary."
14-315	Revised Table NCA-7100-2 for TR-3 and TR-4 to the following: (a) TR-3 "2008 through 2017." (b) TR-4 "2008a through 2017."
15-2538	Revised editorially NCA-4134.17(d) to add lifetime record no. 20.
15-2539	Added reference to NC- and ND-6114.2(d) to NCA-8322.1(d).
16-363	Revised Table NCA-8100-1 to address appurtenances. Revised Form N-2 to address the certification of Nuclear parts and established a new Form N-2A for the certification of Nuclear appurtenances.
16-1827	Revised NCA-3820(c).
16-2116	Updated wording of NCA-3360(b) to show that the Certifying Engineer certifies the Construction Specification and Design Drawings on behalf of the Designer.
16-2145	Revised NCA-1274 to clarify that the inlet and outlet parts of rupture disk holders are to be considered as material, part, or appurtenance.
16-2204	Revised Table NCA-7100-2.
16-2964	Added the 2006 Edition of SNT-TC-1A as an acceptable Edition within Table NCA-7100-2, Table NCA-7100-3, and Table WA-7100-2.
17-650	Restructured and renumbered NCA-3551. Clarified that date of certification is the date(s) the Design Reports are certified with an alternative of the date the Summary is Certified.
17-1111	Revised NCA-3761(a).
17-2058	Revised Table NCA-7100-1 to update the referenced standards.
17-2149	Added reference to NCA-3127 in NCA-4134.7(g).
17-2210	Errata correction. See Summary of Changes for details.
17-2214	Errata correction. See Summary of Changes for details.
17-2295	Clarified the recent revision to the Forewords for Section III and Section XI to properly address all items that have nuclear rules addressing their structural integrity.
17-3081	Changed "Registered Professional Engineer" to "Certifying Engineer" in NCA-3784.2 and NCA-3784.5.
18-340	Revised Table NCA-7100-2 to reference NQA-1-2015. Revised NCA-4100 to clarify the use of NQA-1 Part II and the use of commercial grade dedication for software.
18-355	Added ISO/IEC 17025 reference editions 2005 and 2017 to Tables NCA-7100-2 and NCA-7100-3. Deleted 2005 reference edition from ISO/IEC 17025 in NCA-3126, NCA-3127, NCA-4354.3, NCA-4255.3(c), and NCA-4255.3(d).
18-402	Revised Table NCA-7100-3 to delete two references (PTI M50.1 and AASHTO LRFD Bridge Design Specifications) that are no longer needed based on changes approved in Record 17-718.
18-955	Errata correction. See Summary of Changes for details.
18-1446	Revised NCA-5125(i).
18-1669	Revised Table NCA-7100-3 to update the applicable reference editions.
18-2668	Revised Table NCA-7100-3.

<b>Table NCA-7100-2 Standards and Specifications Referenced in Division 1</b>		
Standard ID	Published Title	Section III Referenced Edition
<b>The American Society of Mechanical Engineers (ASME)</b>		
ASME NQA-1	Quality Assurance Requirements for Nuclear Facility Applications	2015
ASME PTC 25	Pressure Relief Devices	2014
ASME QAI-1	Qualifications for Authorized Inspection	latest
<b>American Society for Nondestructive Testing (ASNT)</b>		
SNT-TC-1A	Personnel Qualification and Certification in Nondestructive Testing	2006, 2011
<b>American Society for Testing and Materials (ASTM)</b>		
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	1969 through 2015
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 in. to 4½ in. (51 mm to 114 mm)] Steel Castings	1967, 1973, 1975, 1979, 2010
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 [4½ in. to 12 in. (114 mm to 305 mm)] Steel Castings	1968, 1972, 1975, 2010
ASTM E426	Standard Practice for Electromagnetic (Eddy-Current) Examination of Seamless and Welded Tubular Products, Titanium, Austenitic Stainless Steel and Similar Alloys	1988
ASTM E446	Standard Reference Radiographs for Steel Castings up to 2 in. (51 mm) in Thickness	1972, 1975, 1978, 2010
ASTM E571	Standard Practice for Electromagnetic (Eddy-Current) Examination of Nickel and Nickel Alloy Tubular Products	1982 (R1988)
ASTM E606	Standard Practice for Strain-Controlled Fatigue Testing	latest
ASTM E883	Standard Guide for Reflected-Light Photomicrography	2002
ASTM E1921	Standard Test Method for the Determination of Reference Temperature, $T_{97.5}$ , for Ferritic Steels in the Transition Range	2016
ASTM F788	Standard Specification for Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series	2013
ASTM F812	Standard Specification for Surface Discontinuities of Nuts, Inch and Metric Series	2012
<b>American Welding Society (AWS)</b>		
AWS A4.2	Calibrating Magnetic Instruments to Measure the Delta Ferrite Content of Austenitic and Duplex Ferritic-Austenitic Stainless Steel	1991
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories	2005, 2017
<b>Plastics Pipe Institute (PPI)</b>		
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 through 2017
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 through 2017

**Table NCA-7100-3  
Standards and Specifications Referenced in Division 2 (Cont'd)**

Standard ID	Published Title	Section III Referenced Edition
<b>International Organization for Standardization</b>		
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories	2005, 2017
<b>Post-Tensioning Institute (PTI)</b>		
PTI M10.2	Specification for Unbonded Single Strand Tendons	2017
<b>U.S. Army Corps of Engineers</b>		
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



## Item 19-11 – Hellman – 7-15-2019

**Location:** Section 9 of Parts 1, 2, 3 and 4

**Explanation of Need:** Review the use of “Authorized Nuclear Inspection Agency” within the NBIC.

**Background:** An ANIA can not be an Inservice AIA since Endorsements for nuclear inspectors are issued only to new construction AIA’s. The requirements for qualified Authorized Nuclear Inspectors/Supervisors are clearly specified in NB-263, RCI-1. Therefore revision to the Glossary definition is needed to clarify this requirement for the NR Accreditation Program.

### Proposed Revision:

#### 1.6.3 PREREQUISITES FOR ISSUING A NATIONAL BOARD “NR” CERTIFICATE OF AUTHORIZATION

Before an organization can obtain a National Board “NR” Certificate of Authorization, the organization shall:

- a) Have and maintain an inspection agreement with an Authorized Nuclear Inspection Agency accepted in accordance with NB-360, National Board Acceptance of Authorized Inspection Agencies (AIA) Accredited by the American Society of Mechanical Engineers (ASME) ~~or accredited in accordance with NB-369, Accreditation of Authorized Inspection Agencies (AIA) Performing Inservice Inspection Activities and Qualification of Inspectors of Boilers and Pressure Vessels.~~
- b) Have a written Quality Assurance Program that complies with the requirements of this section and address all controls for the intended category and scope of activities.
- c) Have a current edition of the NBIC.

## Item 19-12 – Withers – 01-22-2019

NBIC NR Revisions.

Paragraph 1.6.3 – revise text to clarify Quality Assurance Program requirements:

Existing Text;

b) Have a written Quality Assurance Program that complies with the requirements of this section and address all controls for the intended category and scope of activities.

Revised text;

b) Have a written Quality Assurance Program ~~that complies with the requirements of~~ which includes the quality assurance manual and any supporting procedures, instructions and specifications required to comply with -this section. The Quality Assurance Program shall ~~and~~ address all controls for the intended category and scope of activities requested.

## Item 19-13 – Hellman – 7-15-2019

NBIC NR Revisions.

**Explanation of Need:** Revise text to clarify responsibilities for performing audits between the Certificate Holder and the AIA.

**Location:** Paragraph's 1.6.6.2 s); 1.6.7.2 s); and 1.6.8.2 s) AUDITS

The provisions identified in ASME NQA-1, Part 1, and Requirement 18 shall apply and shall include the following:

A comprehensive system of planned and periodic audits of the NR Certificate Holder's Quality Assurance Program shall be performed. ~~Audits shall include internal audits by the Certificate Holder and audits by the Authorized Inspection Agency.~~ Audit frequency shall be specified in the organization's Quality Assurance Manual. Audits shall be conducted at least annually (within 12 months) for any ongoing code activity to verify compliance with the Quality Assurance Program requirements, performed criteria, and to determine the effectiveness of the Quality Assurance Program. When no code work has been performed, the required annual audit need only include those areas of responsibility required to be continually maintained such as training, audits, organizational structure, and Quality Assurance Program revisions. The Quality Assurance Manual shall as a minimum describe the following:

- a. Audits shall be performed in accordance with written procedures or checklists by qualified audit personnel not having direct responsibility in areas being audited;
- b. Audit personnel shall be qualified in accordance with the current requirements of ASME NQA-1;
- c. Audit results shall be documented and reviewed by responsible management for adequacy and effectiveness of the quality assurance program;
- d. Requirements for follow-up actions shall be specified for any deficiencies noted during the audit;
- e. Audit records and applicable documentation shall be made available to the Authorized Nuclear Inspector ~~or~~ Inspection Agency for review;
- f. Audit records shall include as a minimum;
  - i. Written procedures
  - ii. Checklists;
  - iii. Reports;
  - iv. Written replies; and
  - v. Completion of corrective actions.

Performance of Authorized Inspection Agency audits required by ASME QAI-1 and NB-263, RCI-1 shall be addressed in the Quality Assurance Manual.

## Item 19-43

6/11/2019

### Request for NBIC Part 3, Section 1.6 Revisions

<b>Purpose</b>	Update the edition of ISO/IEC-17025 to include 2017
<b>Scope:</b>	<p>References to "ISO/IEC-18025:2005" need to be changed to include "ISO/IEC-18025:2017" to align with ASME Section III requirements in the following paragraphs:</p> <p>1.6.6.2 m) 1),  1.6.6.2 m) 4) a),  1.6.6.2 m) 5) a),</p> <p>1.6.7.2 m) 1),  1.6.7.2 m) 4) a),  1.6.7.2 m) 5) a),</p> <p>1.6.8.2 m) 1),  1.6.8.2 m) 4) a),  1.6.8.2 m) 5) a)</p>
<b>Background</b>	<p>Based on Interp. 19-44: Many, if not all calibration labs are already accredited to ISO/IEC 17025:2017 and will be required to by 2020. No lab will bother accreditation to 2005 after that, so finding a calibration house will be difficult. Interpretation Item 19-44 intends to allow the 2017 edition of ISO/IEC-17025 to be used currently, however this Action Item (19-43 intends to correct the verbiage in the 2021 Edition of the NBIC.</p>
<b>Proposed Revision</b>	See page 2 for proposed revisions. See pages 3-5 for 2019 ASME Sect III, NCA references.



**1.6.6.2, 1.6.7.2, and 1.6.8.2 QUALITY PROGRAM ELEMENTS**

## m) Control of Measuring and Test Equipment

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- 3) For procurement of testing services, the published scope of accreditation for the test laboratory covers the needed testing services including test methodology and tolerances/uncertainty.
- 4) The “NR” Certificate Holder’s purchase documents shall include:
  - a. Service provided shall be in accordance with their accredited ISO/IEC-17025:2005 or 2017 program and scope of accreditation;
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  - d. Notification of any condition that adversely impacts the laboratories ability to maintain the scope of accreditation;
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  - f. Service suppliers shall not subcontract services to any other supplier.
- 5) The “NR” Certificate Holder shall upon receipt inspection, validate that the laboratory documentation certifies that:
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**LIST OF CHANGES IN RECORD NUMBER ORDER**

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17-2214	Errata correction. See Summary of Changes for details.
17-2295	Clarified the recent revision to the Forewords for Section III and Section XI to properly address all items that have nuclear rules addressing their structural integrity.
17-3081	Changed "Registered Professional Engineer" to "Certifying Engineer" in NCA-3784.2 and NCA-3784.5.
18-340	Revised Table NCA-7100-2 to reference NQA-1-2015. Revised NCA-4100 to clarify the use of NQA-1 Part II and the use of commercial grade dedication for software.
<b>18-355</b>	<b>Added ISO/IEC 17025 reference editions 2005 and 2017 to Tables NCA-7100-2 and NCA-7100-3.</b> Deleted 2005 reference edition from ISO/IEC 17025 in NCA-3126, NCA-3127, NCA-4354.3, NCA-4255.3(c), and NCA-4255.3(d).
18-402	Revised Table NCA-7100-3 to delete two references (PTI M50.1 and AASHTO LRFD Bridge Design Specifications) that are no longer needed based on changes approved in Record 17-718.
18-955	Errata correction. See Summary of Changes for details.
18-1446	Revised NCA-5125(i).
18-1669	Revised Table NCA-7100-3 to update the applicable reference editions.
18-2668	Revised Table NCA-7100-3.

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<b>Table NCA-7100-2</b>		
<b>Standards and Specifications Referenced in Division 1</b>		
Standard ID	Published Title	Section III Referenced Edition
<b>The American Society of Mechanical Engineers (ASME)</b>		
ASME NQA-1	Quality Assurance Requirements for Nuclear Facility Applications	2015
ASME PTC 25	Pressure Relief Devices	2014
ASME QAI-1	Qualifications for Authorized Inspection	latest
<b>American Society for Nondestructive Testing (ASNT)</b>		
SNT-TC-1A	Personnel Qualification and Certification in Nondestructive Testing	2006, 2011
<b>American Society for Testing and Materials (ASTM)</b>		
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	1969 through 2015
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 in. to 4½ in. (51 mm to 114 mm)] Steel Castings	1967, 1973, 1975, 1979, 2010
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 [4½ in. to 12 in. (114 mm to 305 mm)] Steel Castings	1968, 1972, 1975, 2010
ASTM E426	Standard Practice for Electromagnetic (Eddy-Current) Examination of Seamless and Welded Tubular Products, Titanium, Austenitic Stainless Steel and Similar Alloys	1988
ASTM E446	Standard Reference Radiographs for Steel Castings up to 2 in. (51 mm) in Thickness	1972, 1975, 1978, 2010
ASTM E571	Standard Practice for Electromagnetic (Eddy-Current) Examination of Nickel and Nickel Alloy Tubular Products	1982 (R1988)
ASTM E606	Standard Practice for Strain-Controlled Fatigue Testing	latest
ASTM E883	Standard Guide for Reflected-Light Photomicrography	2002
ASTM E1921	Standard Test Method for the Determination of Reference Temperature, $T_{97.5}$ , for Ferritic Steels in the Transition Range	2016
ASTM F788	Standard Specification for Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series	2013
ASTM F812	Standard Specification for Surface Discontinuities of Nuts, Inch and Metric Series	2012
<b>American Welding Society (AWS)</b>		
AWS A4.2	Calibrating Magnetic Instruments to Measure the Delta Ferrite Content of Austenitic and Duplex Ferritic-Austenitic Stainless Steel	1991
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories	2005, 2017
<b>Plastics Pipe Institute (PPI)</b>		
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 through 2017
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 through 2017

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<b>Table NCA-7100-3 Standards and Specifications Referenced in Division 2 (Cont'd)</b>		
Standard ID	Published Title	Section III Referenced Edition
<b>International Organization for Standardization</b>		
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories	2005, 2017
<b>Post-Tensioning Institute (PTI)</b>		
PTI M10.2	Specification for Unbonded Single Strand Tendons	2017
<b>U.S. Army Corps of Engineers</b>		
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