

Rules for Commissioned Inspectors

RCI-1 (NB-263)
2017 Edition



Objectives

- **Describe and discuss** the requirements for Rules for Commissioned Inspectors/Supervisors, RCI-1.
- **Qualifications and Duties**
 - Inservice Inspection
 - Authorized Inspection (ASME)
 - Repairs/Alterations (National Board)



RCI-1, Rules for Commissioned Inspectors

Sectioned into Elements

- Foreword
- Part 1 – National Board (NB) Commissions & Endorsements
- Part 2 – Commission and Endorsement Examinations
- Part 3 – Inservice Inspection
- Part 4 – Authorized Inspection (ASME)
- Part 5 – Repair Inspection
- Part 6 – Inspector Diary for New Construction and Repairs
- Part 7 – Code of Ethics
- Part 8 – Complaints and Due Process
- Glossary of Terms



RCI-1, Foreword

Scope

Provides a general overview, purpose, and content of the document, and requirements for inspection.

Highlights:

- Describes each endorsement
- Inspectors/Supervisors
 - Relationships
- Jurisdictions

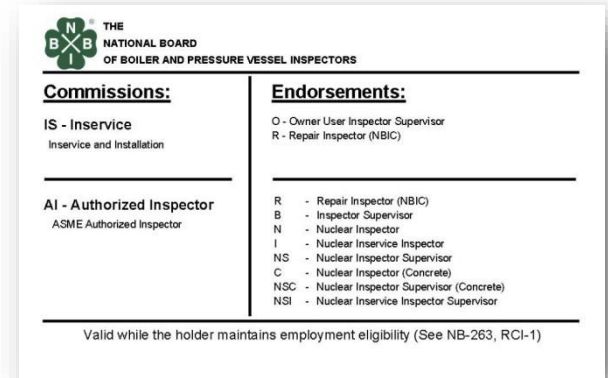
RCI-1, Part 1

National Board Commissions and Endorsements

Scope

Describes general topics for obtaining and maintaining Commissions and Endorsements, such as:

- Qualification requirements
- New issuance and renewal
- Reinstatement and change of employment
- Continuing Education requirements



THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS

<u>Commissions:</u>	<u>Endorsements:</u>
IS - Inservice Inservice and Installation	O - Owner User Inspector Supervisor R - Repair Inspector (NBIC)
AI - Authorized Inspector ASME Authorized Inspector	R - Repair Inspector (NBIC) B - Inspector Supervisor N - Nuclear Inspector I - Nuclear Inservice Inspector NS - Nuclear Inspector Supervisor C - Nuclear Inspector (Concrete) NSC - Nuclear Inspector Supervisor (Concrete) NSI - Nuclear Inservice Inspector Supervisor

Valid while the holder maintains employment eligibility (See NB-263, RCI-1)



RCI-1, Table 1

Qualification Requirements For Commissions

An applicant shall be in the **employment** of, and **exclusively** engaged by, an Authorized Inspection Agency (as defined in the Glossary of Term), an Owner-User Inspection Organization, a Non-member Enforcement Agency, a Federal Inspection Agency, or the National Board.

As a **minimum**, an applicant shall have a **high school education** (12 years or equivalent educational system). The applicant shall have a minimum of **5 credit points** based upon the **combination** of **education** and **experience in the pressure equipment industry**, as described in Table 1 shown on the next slide.



RCI-1, Table 1

Qualification Requirements for Commissions

Education Requirements

Education (1 Credit Minimum, 4 Credits Maximum)	Credit Points
Bachelor's Degree or higher in Engineering, Technology, Science, or Mathematics from an accredited institution	3
Two Year Degree or Certificate in Engineering, Technology, Science, or Mathematics from an accredited institution	2
Graduation from an accredited technical school in subjects that include, but not limited to, Manufacturing; Building Construction; Construction Technology; Heating, Ventilation; and Air Conditioning; and Industrial Science	2
Completion of an accredited Power Engineering certification program.	2
Completion of an accredited Apprenticeship Program, for example: boilermaker, steamfitter, or pipefitter.	2
Completion of an accredited military or merchant marine training program in the area of marine or stationary boilers, pressure vessels, or nuclear reactors.	2



RCI-1, Table 1

Qualification Requirements for Commissions

Education Requirements (cont.)

Education (1 Credit Minimum, 4 Credits Maximum)	Credit Points
Completion of a Certified Welding Inspector (CWI) certification program from the American Welding Society, or an equivalent certification.	2
Certification as an American Petroleum Institute API-510 or API-570 Inspector.	2
Completion of a total of 80 hours of Classroom Technical Training in Boiler, Pressure Vessel, or Piping Inspection. Acceptable technology courses include such subjects as Quality Systems, Engineering, Fabrication Methods, Nondestructive Examination; courses on knowledge, understanding, and general structure of the NBIC or the ASME BPV Code or National Board courses on Inservice Inspection (IC Course) or Inspection of ASME BPV Code items (AI Course).	1



RCI-1, Table 1

Qualification Requirements for Commissions

Experience Requirements

Experience (1 Credit Minimum, 4 Credits Maximum)

One (1) credit point may be assigned for each year of experience associated with the pressure equipment industry in the categories below:

- Engineering or design review
- Manufacturing, including fabrication methods or processes, in either shop or field
- Operation of boiler(s) exceeding 50,000 lbs. of steam per hour total capacity
- Performance of repairs, alterations, or maintenance of boilers or pressure vessels
- Quality control systems related to boiler or pressure vessel manufacturing, repair, or alteration in either shop or field
- Inspection of boilers or pressure vessels either inservice or during construction including either shop or field
- NDE examiner of boiler and pressure vessels meeting ASNT Level II or III (qualified by examination) or equivalent qualifications

Note: Credit for concurrent experience in two or more categories will be limited to the experience in one category. For example, consider an individual who has been employed by a repair organization for two years as a quality control manager. The individual has also been qualified, during the same period, as a Level II NDE examiner. The allowable credit for experience is two (2) years only. The two years' experience as a quality control manager and the two years' experience as a Level II NDE examiner are not additive: they are concurrent and the allowable credit is two years.



RCI-1, Table 2

Qualifications for Inspector Endorsements

Nuclear Endorsements

Designator	Title	Qualifications
N	Authorized Nuclear Inspector	<ul style="list-style-type: none">• Holds the Authorized Inspector Commission (AI) and subsequently either shall have been engaged for at least one (1) year in ASME BPV Code related work or shall have been engaged for at least one (1) year as an Inspector Trainee of nuclear items under the direct supervision of an Authorized Nuclear Inspector.• Satisfactory completion of the National Board Nuclear Inspection course.
I	Authorized Nuclear Inservice Inspector	<ul style="list-style-type: none">• Holds the N endorsement and either shall have been engaged for at least one (1) year in ASME BPV Code related work such as inspections under the provisions of the ASME BPV Code or shall have been engaged for at least one (1) year as an inspector trainee of nuclear items under direct supervision of an Authorized Nuclear Inservice Inspector.• Satisfactory completion of the National Board Nuclear Inservice Inspection course
C	Authorized Nuclear Inspector (Concrete)	<ul style="list-style-type: none">• Holds the N endorsement.• Engaged for at least one (1) year in design, construction, or inspection of concrete structures similar to those used in nuclear facilities or satisfactory completion of the National Board's accelerated course in the fundamentals of concrete construction and inspection.• Satisfactory completion of the National Board C endorsement course.



RCI-1, Table 2

Qualifications for Inspector Endorsements

Repair Endorsement

Designator	Title	Qualifications
R	Repair Inspector	<ul style="list-style-type: none">• Holds either the Inservice Commission (IS) or an Authorized Inspector Commission (AI)• <u>Holders of an IS Commission:</u> Eighty (80) hours on-the-job training in the inspection of repairs/alterations in accordance with the NBIC at either shop or field locations.• <u>Holders of the AI Commission:</u> Forty (40) hours on-the-job training in the inspection of repairs/alterations in accordance with the NBIC at either shop or field locations.• Satisfactory completion of the National Board Repair Inspector Course



RCI-1, Table 3

Qualifications for Inspector Supervisor Endorsements

BPV Supervisor Endorsements

Designator	Title	Qualifications
B	Authorized Inspector Supervisor	<ul style="list-style-type: none">• Holds the Authorized Inspector Commission (AI) and subsequently either shall have been engaged for at least two (2) years in ASME BPV Code related work such as inspection under the provisions of the ASME BPV Code, or shall have been engaged for at least two (2) years in the administration of shop inspection services under the ASME BPV Code.• Satisfactory completion of the National Board Inspector Supervisor course.
O	Owner-User Inspector	<ul style="list-style-type: none">• Holds the Inservice Commission (IS).• Shall have a minimum of two (2) years' experience holding an active Inservice Commission (IS).• Shall be employed by an Owner-User Inspection Organization.• Satisfactory completion of the National Board Authorized Inspector Supervisor course.



RCI-1, Table 3

Qualifications for Inspector Supervisor Endorsements

Nuclear Supervisor Endorsements

Designator	Title	Qualifications
NS	Authorized Nuclear Inspector Supervisor	<ul style="list-style-type: none">• Holds the N endorsement and subsequently either shall have been engaged for at least two (2) years of diversified inspection experience in the construction of ASME BPV Code Section I; Section III; Section VIII pressure equipment, or shall have been engaged for at least two (2) years in the administration of shop inspection services under the referenced ASME BPV Code sections.• Satisfactory completion of the National Board Authorized Nuclear Supervisor course.
NSI	Authorized Nuclear Inservice Inspector Supervisor	<ul style="list-style-type: none">• Holds the NS endorsement.• Holds the I endorsement for the Authorized Nuclear Inservice Inspector (ANII) and subsequently shall have been engaged for at least one (1) year as an ANII and have at least one (1) year of experience in nondestructive examination (NDE) methods. Such minimum of one (1) year of engagement as an ANII and one (1) year of experience in NDE methods may be during the same year.
NSC	Authorized Nuclear Inspector Supervisor (Concrete)	<ul style="list-style-type: none">• Holds the NS endorsement.• Holds the C endorsement for the Authorized Nuclear Inspector (Concrete) and subsequently shall have been engaged for at least one (1) year in design, construction, or inspection of concrete structures similar to those used in nuclear facilities.



RCI-1, Table 4

Continuing Education Requirements

Continuing Education Courses (one per year per commission/endorsement)

If you hold one of these commissions or endorsements...	The required continuing education course category is...
Inservice Commission IS or O Endorsement	Inservice Inspection
Authorized Inspector Commission AI or B Endorsement	Authorized Inspection: All ASME BPV Code Sections (Excluding Sections III and XI)
N or NS Endorsements	Nuclear: ASME BPV Section III, Division 1
C or NSC Endorsement	Nuclear Concrete: ASME BPV Section III, Division 2
I or NSI Endorsements	Nuclear Inservice: ASME BPV Section XI
R Endorsement	Repair Inspection



RCI-1, Part 2

Commissions and Endorsement Examinations

Scope

Describes Commission and Endorsement examination requirements, including re-examination activities.

- When an exam may be administered
- Exam Locations
- Re-examination time periods – 3 attempts/12 months
- Minimum of 70% to pass



RCI-1, Part 3

Inservice Inspection

Scope

Specifies required duties for:

- Inservice Supervisors and Technical Managers, and
- Inservice Commissioned Inspectors

Note:

Each Supervisor/Technical Manager shall, at a minimum hold the same endorsement as the Inspector being supervised.



RCI-1, Part 3

Inservice Inspection

Inspector Supervisor/Technical Manager Duties

- Assist in maintaining competency of the Inspector
- Assign work appropriate for the Inspector's skill level
- Maintain a record of Inspector assigned
- Document nonconforming activities, including violations
- Audit/document each Inspector annually



RCI-1, Part 3

Inservice Inspection

Inspector Duties

- Perform external and internal inspections (jurisdictional and code compliance)
- Witness pressure tests as required by_____?
- Verify nameplate stamping is legible and represents the item (provides instruction if lost or illegible)
- Report inspection results, including nonconforming conditions (jurisdiction, employer)



RCI-1, Part 4

Authorized Inspection (ASME)

Scope

Specifies required duties for:

- Authorized Inspector Supervisor holding the B endorsement
- Authorized Inspector, and
- Authorized Inspectors holding N, NS, I, NSI, C, and NSC endorsements

Note:

Each Supervisor/Technical Manager shall, at a minimum hold the same endorsement as the Inspector being supervised.



RCI-1, Part 4

Authorized Inspection (ASME)

Authorized Inspector Supervisor Duties

- Maintain competency of the AI
- Maintain a record of AI assignments
- Audit the performance of each AI
- Document nonconforming activities reported by the AI
- Confirm corrective actions have been verified by the AI
- Ensure each AI maintains an Inspector Diary
- Record audits and supervisory activities in the Inspector Diary
- Attend joint reviews for each AI being supervised.



RCI-1, Part 4

Authorized Inspection (ASME)

Authorized Inspector Duties

- Record daily inspections/activities in Inspector's Diary
- Verify Certificates of Authorization and Code books
- Monitor Certificate Holder's quality program
- Notify Certificate Holder and Supervisor of nonconforming conditions
- Verify drawings and calculations
- Verify materials and related documentation



RCI-1, Part 4

Authorized Inspection (ASME)

Authorized Inspector Duties (cont.)

- Perform inspections and witness examinations/tests
- Verify welding methods, procedures, and qualifications
- Verify calibration of equipment
- Verify heat treatment and nondestructive examination
- Review and accept corrective actions of nonconforming conditions
- Verify ASME Data Reports & Stamping
- Attend joint reviews for all assigned Certificate Holders



RCI-1, Part 5

Repair Inspection

Scope

Specifies required duties for:

- Repairs Inspector Supervisors/Technical Managers, and
- Repair Inspectors

Note:

Each Supervisor/Technical Manager shall, at a minimum hold the same endorsement as the Inspector being supervised.



RCI-1, Part 5

Repair Inspection

Repair Inspector Supervisor/Technical Manager Duties

- Maintain **competency** of the Repair Inspector
- Maintain a record of Repair Inspector assignments
- Document nonconforming activities reported by the AI
- **Audit** the performance of each Repair Inspector
- Confirm corrective actions have been verified by the Repair Inspector
- Record audits and supervisory activities in the Inspector Diary
- **Attend joint reviews** for each Repair Inspector being supervised



RCI-1, Part 5

Repair Inspection

Repair Inspector Duties

- Record daily inspections/activities in **Inspector's Diary**
- Verify Certificate of Authorization and Code books
- **Monitor** repair organization's quality program
- Notify repair organization and Supervisor of nonconforming conditions
- Verify drawings and calculations
- Verify new and existing materials, related documentation, and repair methods
- **Perform inspections** and **witness examinations**/tests
- Verify welding methods, procedures, and qualifications



RCI-1, Part 5

Repair Inspection

Repair Inspector Duties (cont.)

- Verify calibration of equipment
- Verify heat treatment and nondestructive examination methods, qualifications, and reports
- Review and accept corrective actions of nonconforming conditions
- Verify routine repairs are acceptable to the jurisdiction
- Verify records are complete, accurate, maintained, and retained as required
- Verify documentation and stamping
- **Attend all joint reviews** for assigned Certificate Holders



RCI-1, Part 6

Inspector Diary for New Construction and Repairs

Scope

Specifies required duties of the Authorized Inspector and Repair Inspector pertaining to recording inspections and activities related to:

- Repairs and alterations
- ASME Code inspections on newly constructed items



RCI-1, Part 6

Inspector Diary for New Construction and Repairs

The Inspector's Diary is:

- property of the Inspector's employer
- available at the location of inspection (including field sites)
- maintained for a minimum of five (5) years
- bound (not loose-leaf)
 - An electronic diary may be used provided it meets the provisions described in RCI-1, Part 6, 6-2.2

Note:

National Board Commission numbers of all Inspectors and Supervisors shall be entered into the diary.



RCI-1, Part 6

Inspector Diary for New Construction and Repairs

Diary Entries shall:

- provide **clear indication** of the nature and extent of the activities and inspections made (description, observations, results)
- be completed **daily** or at **each** inspection **visit**
- include the Inspector's signature/initials, date, and Commission Number
- be **available** for reviews and investigations
- meet the requirements of the Inspector's **employer**



RCI-1, Part 6

Inspector Diary for New Construction and Repairs

Monitoring Activities

Recording

Specific monitoring activities shall be recorded in the bound diary and in such detail as to be readily understood by the Supervisor and other personnel permitted to review diary entries.

Methods

Monitoring may be accomplished while performing normal inspection activities or through an **established schedule**.

Based on the amount of Code work being performed and the AIA internal procedures



RCI-1, Part 7

Code of Ethics

Scope

Establishes criteria for all National Board Inspectors to act in an ethical manner, specifically:

- Conflicts of Interest
- Good Faith Actions
- Public Perception
- Independence, Impartiality, and Integrity



RCI-1, Part 8

Complaints and Due Process

Scope

Requirements covering complaints against National Board Commissioned inspection personnel and provisions for due process, specifically:

- Falsification of an application
- Neglect of duties or falsification of a report



RCI-1, Glossary of Terms

Scope

Includes important definitions of terms used throughout RCI-1, *Rules for Commissioned Inspectors* to fully understand required activities, duties and responsibilities.



Important Definitions

Employment

Inspectors shall be exclusively employed (full or part time basis) for only one AIA. The following **shall** be **met** and **documented**:

- The AIA shall assume the responsibility for inspectors inspection function
- The AIA shall provide oversight for Inspectors activities
- The Inspector shall be exclusively engaged by only one AIA when performing duties of an Inspector within the scope of their NB Commission and endorsements
- There shall be an agreement that Inspectors NB Commissions and endorsements remain the property of the AIA and will be returned upon termination
- There shall be an agreement that the Inspector will not engage in any activity constituting a conflict of interest



Important Definitions

Verify

to determine that a particular action has been performed in accordance with the requirements either by witnessing the action or reviewing records

Witness

To be **present** at an event and have first-hand knowledge of the action and be able to attest that it occurred.

Monitor

To **observe** or **verify** that an activity is systematically **consistent** over a **period of time** with the Certificate Holder's **accepted quality program**



Questions?

