

ASME QAI-1–2018
(Revision of ASME QAI-1–2016)

Qualifications for Authorized Inspection

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The American Society of
Mechanical Engineers

Qualifications for Authorized Inspection

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FOREWORD

The 2018 Edition of ASME QAI-1 incorporates the 2016 Edition of QAI-1 and revisions and additions approved by the QAI Standards Committee since the publication of the 2016 Edition.

This Standard is arranged into the Parts listed below.

- Part 1** Requirements for qualifications and duties of the Authorized Inspection Agency (AIA), its Authorized Nuclear Inspectors, and its Authorized Nuclear Inspector Supervisors, as used with the ASME Boiler and Pressure Vessel Code, Section III, Division 1, Rules for Construction of Nuclear Facility Components; Section III, Division 3, Containment Systems for Transportation and Storage of Spent Nuclear Fuel and High-Level Radioactive Material; and Section III, Division 5, High Temperature Reactors
- Part 2** Requirements for qualifications and duties of the AIA, its Authorized Nuclear Inservice Inspectors, and its Authorized Nuclear Inservice Inspector Supervisors, as used with the ASME Boiler and Pressure Vessel Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components
- Part 3** Requirements for qualifications of the AIA, its Authorized Nuclear Inspectors (Concrete), and its Authorized Nuclear Inspector Supervisors (Concrete), as used with the ASME Boiler and Pressure Vessel Code, Section III, Division 2, Code for Concrete Containments (ACI 359)
- Part 4** Requirements for accreditation of AIAs
- Part 5** Requirements for qualifications and duties of the AIA and its Supervisors, and qualifications of Authorized Inspectors, as used with the ASME Boiler and Pressure Vessel Code, Section I; Section IV; Section VIII, Divisions 1, 2, and 3; Section X; and Section XII
- Part 6** Requirements for qualifications and duties for Qualified Inspection Organizations and qualifications for Inspectors and Supervisors as used with the ASME Boiler and Pressure Vessel Code, Section XII
- Part 7** Requirements for accreditation of Qualified Inspection Organizations (QIOs) performing inspections as required by the ASME Boiler and Pressure Vessel Code, Section XII
- Part 8** Requirements for qualification and duties of the Certified Individual performing inspections as used with the ASME Boiler and Pressure Vessel Code, Section I; Section IV; Section VIII, Divisions 1, 2, and 3; Section X; and Section XII when so referenced by the respective Code Sections

These requirements were developed and are maintained by the ASME Committee on Qualifications for Authorized Inspection, which was first formed on March 29, 1973, as a special committee under the Policy Board, Codes and Standards and that now reports to the ASME Board on Conformity Assessment. The Committee operates under procedures accredited by the American National Standards Institute.

The QAI-1 Standard has been developed with the following principles intended to apply to all jurisdictional authorities accredited as an AIA by ASME:

(a) *Reciprocity.* The enforcement authority (jurisdiction) agrees to accept the results of inspections required by the ASME Boiler and Pressure Vessel Code that have been performed by an accredited AIA.

(b) *Integrity.* The AIA maintains the commitment to the integrity of the inspection process and of the ASME Code Symbol Marks by fulfilling its obligations under the ASME Boiler and Pressure Vessel Code and by recognizing the role of the third party inspection system.

(c) *Openness.* The enforcement authority (jurisdiction) permits ASME Certificate Holders and Applicants for ASME Certificates of Authorization located within its jurisdiction to select other ASME accredited AIAs.

(d) *Participation in the Process.* The AIA agrees to participate in the development of the ASME Boiler and Pressure Vessel Code by becoming a member of either the Conference Committee or the International Interest Review Group (IIRG).

When required by context in this Standard, 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.

COMMITTEE ON QUALIFICATIONS FOR AUTHORIZED INSPECTION

(The following is the roster of the Committee as of December 2017.)

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B. Hrubala, *Vice Chair*
J. Pang, *Secretary*

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M. Pischke , GE Power	
T. E. Quaka , Consultant	

CORRESPONDENCE WITH THE QAI COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, QAI Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
<http://go.asme.org/Inquiry>

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Interpretations. Upon request, the QAI Standards Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the QAI Standards Committee.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at <http://go.asme.org/InterpretationRequest>. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of the QAI Standards Committee at the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not “approve,” “certify,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

Attending Committee Meetings. The QAI Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the QAI Standards Committee.

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ASME QAI-1-2018

SUMMARY OF CHANGES

ASME QAI-1-2018, which was approved by ASME on July 10, 2018, replaces previously issued ASME QAI-1-2016.

In ASME QAI-1-2018, “ASME BPV Code” has been editorially revised to “ASME Code” and footnotes are treated as endnotes. The endnotes are referenced in numeric order and appear at the end of this Standard. Also, the edition includes changes and corrections as well as the following changes identified by a margin note, **(18)**.

<i>Page</i>	<i>Location</i>	<i>Change</i>
1	1-1.1.1	(1) Subparagraph (c) revised (2) Endnotes 4, 5, and 6 added
2	1-1.2	Revised
2	1-1.2.1	Revised
2	1-1.2.2	Endnote 8 revised
2	1-1.2.5	Subparagraph (a) editorially revised
3	1-1.2.10	Revised
3	1-1.2.12	Added
3	1-1.2.13	(1) Added (2) Endnote 9 added
6	1-3.2.2	Endnote 11 added
6	1-3.2.18	Revised
6	1-3.2.18.1	Subparagraph (b) editorially revised
8	2-1.1.1	(1) Subparagraph (c) revised (2) Endnotes 4, 5, 6, and 12 added
9	2-1.2.6	Revised
9	2-1.2.10	Revised
10	2-2.1.1	Revised
11	2-3.1	Revised
11	2-3.1.5	Endnote 11 added
12	2-3.2.10	Revised
12	2-3.2.10.1	Subparagraph (b) revised
13	3-1.1.1	(1) Subparagraph (c) revised (2) Endnotes 4, 6, and 14 added
14	3-1.2	Revised
14	3-1.2.1	Revised
15	3-1.2.8	Revised
15	3-1.2.12	Added
16	3-2.1.1	Revised
17	3-3.2.2	Endnote 11 added
18	3-3.2.19	Revised
18	3-3.2.19.1	Subparagraph (b) editorially revised

21	5-1.1.1	(1) Subparagraph (c) revised (2) In subparagraph (c)(1), endnote 21 added
22	5-1.1.5	Revised
22	5-1.1.10	Added
22	5-1.2	Revised
22	5-1.2.1	Revised
22	5-1.2.2	Endnote 11 added
23	5-1.2.7	Revised
23	5-1.2.13	Added
25	5-3.1.1	Revised
25	5-3.1.2	Endnote 25 added
25	5-3.3	Revised
25	5-3.3.1	Subparagraph (b) editorially revised
26	6-1.2	Revised
26	6-1.2.1	Endnote 11 added
26	6-1.2.5	Editorially revised
27	6-1.2.11	Revised
27	6-1.2.12	Added

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Part 1

Qualifications and Duties for Authorized Inspection Agencies, Nuclear Inspectors, and Nuclear Inspector Supervisors (Applicable to ASME Boiler and Pressure Vessel Code, Section III, Divisions 1, 3, and 5)

1-0 SCOPE

Part 1 is for use with the ASME Code,¹ Section III, Divisions 1, 3, and 5, including applicable Addenda and Code Cases.

1-1 THE AUTHORIZED INSPECTION AGENCY

1-1.1 Qualifications

An Authorized Inspection Agency (AIA) is an organization meeting the criteria of this Standard that is accredited by the Society pursuant to the provisions set forth in **Part 4** to provide AIA services within a jurisdiction.² Such agencies employ Authorized Inspectors and Inspector Supervisors that meet the criteria of the ASME Code Section III, Division 1, 3, or 5 and of the National Board Rules for Commissioned Inspectors.³

(18) **1-1.1.1** An AIA shall be one of the following:

(a) a jurisdiction² that has adopted and does administer the ASME Code Section III, Division 1, 3, or 5 as a legal requirement and is qualified to be represented on the ASME Code Conference Committee.

(b) an insurance company that has been licensed or registered by the appropriate authority of a state of the United States of America, or of a province of Canada, to write boiler and pressure vessel insurance in such state or province. The insurance company shall show its capability to provide boiler and pressure vessel insurance coverage by being actively engaged in writing such insurance in one or more of the states or provinces where so licensed or registered.

(c) a company in the business of providing "third party" inspection services. The company shall have

(1) recognition from a government entity⁴ to perform inspection and design examinations for pressure-retaining and pressure-relieving items⁵ performing a safety function⁶ and for installation at an operating nuclear facility within its jurisdictional boundaries

(-a) The company shall be a registered entity within the same city, state, province, or country as the government entity that is providing the recognition.

(-b) The government entity may elect to designate another organization to authorize the performance of inspections and design examinations.

(2) accreditation or certification under a recognized accreditation or certification scheme that is found acceptable by ASME

(-a) The scope of activity on the certificate shall identify the performance of inspections and design examinations for pressure vessels and/or boilers.

(-b) The certificate shall be valid and in good standing.

(-c) The company shall have undergone at least one accreditation or certification renewal cycle.

(3) appropriate levels of financial support or liability insurance

1-1.1.2 The jurisdiction described in **1-1.1.1(a)** may designate one or more organizations to act on its behalf to enforce its regulations. The organization shall

(a) provide evidence establishing that such delegation of authority is duly authorized by the laws of the jurisdiction

(b) describe how the ASME Code is accepted by the jurisdiction

(c) describe how the ASME Code is enforced by the organization

1-1.1.3 An AIA shall be accredited by the Society pursuant to the provisions set forth in **Part 4**. The AIA services provided by their Inspectors and Inspector Supervisors shall also be subject to audit by ASME for compliance with this Standard during shop or site reviews of organizations for which they provide Authorized Nuclear Inspection.

1-1.1.4 The AIA shall provide authorized inspection services within such states or provinces by Inspectors and Inspector Supervisors who meet the qualifications of the Authorized Nuclear Inspector and of the

Authorized Nuclear Inspector Supervisor as defined herein.

1-1.1.5 The AIA shall have no commercial interest in, or shall be independent of any part of an organization having direct commercial interest in, the products to be inspected. The staff shall be free from any commercial, financial, and other pressures that might influence their judgment or the results of their work.

1-1.1.6 AIAs described in 1-1.1.1(b) and 1-1.1.1(c) shall have liability insurance and shall

(a) be able to demonstrate that they have adequate arrangements (e.g., insurance or reserves) to cover the liabilities

(b) evaluate their finances and sources of income and shall be able to demonstrate that initially, and on an annual basis, commercial, financial, or other pressures do not compromise their impartiality

(c) retain documentary evidence that they have reviewed their activities on an annual basis to ensure that the requirements of (a) and (b) have been met

(d) declare by signature in the Quality Assurance Manual's Statement of Policy that the requirements of (a) and (b) will be met

(e) submit the documentary evidence as part of their application for the ASME Certificate of Accreditation

(18) **1-1.2 Duties**

An AIA⁷ shall perform the duties specified in 1-1.2.1 through 1-1.2.13.

- (18) **1-1.2.1** Provide Supervisors and Inspectors to participate in the ASME surveys of Certificate Holders for which they provide Authorized Nuclear Inspection.

Ensure the Inspector's diary is made available for all ASME surveys and investigations where an AIA has provided Authorized Inspections to the Certificate Holder during the period under survey or investigation. The purpose of the diary is to provide a record of the Inspector's activities and to support the continuity of inspections.

- (18) **1-1.2.2** Provide qualified Authorized Nuclear Inspectors to monitor construction⁸ in accordance with the ASME Code Section III, Division 1, 3, and/or 5.

1-1.2.3 Maintain qualified Supervisors to monitor the performance of the Authorized Nuclear Inspectors and to audit the activities at nuclear shops and field sites for which inspection agreements have been made, in accordance with the requirements of 1-2.2.6.

1-1.2.4 Give written notice to all Inspectors of the name, office address, e-mail address, office phone, and mobile phone of their respective Supervisors annually or whenever there is a change in the above contact information.

1-1.2.5 Assure proper execution of responsibilities. In particular, the Agency shall (18)

(a) establish and implement an internal program which shall provide assurance that its employees holding the positions of Supervisor and Authorized Nuclear Inspector perform work in accordance with the requirements of Part 1. This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout the life term of any agreement covering inspections required by the ASME Code, in accordance with the program. The program shall provide for indoctrination and training of personnel performing such activities, as necessary, to ensure that suitable proficiency is achieved and maintained.

(b) provide instructions in writing to Authorized Nuclear Inspectors and their Supervisors, specifying their respective duties and responsibilities.

(c) provide instructions in writing to Authorized Nuclear Inspectors requiring them to immediately contact their Supervisor whenever the Inspector is unable to readily resolve any question concerning ASME Code compliance, manufacturing procedure, or quality assurance provision or its implementation. Instructions should be included as a reminder to the Authorized Nuclear Inspector that he has the authority and the duty to refuse to sign any Data Reports involving nonconformance with the ASME Code.

(d) conduct annual planned audits of activities performed by Authorized Nuclear Inspector Supervisors to verify compliance with the provisions of Part 1 and the ASME Code Section III, Division 1, 3, and/or 5. The audit shall be performed by appropriately trained personnel, in accordance with a written procedure or checklist. Audit results shall be documented and reviewed by management. Follow-up action, including reaudit of deficient areas, shall be taken where indicated to ensure that necessary corrective action is completed.

(e) establish and implement a written policy to ensure levels of inspection activity commensurate with the scope of the AIA's Certificate of Accreditation.

1-1.2.6 Provide certification for each Authorized Nuclear Inspector and Supervisor to be performing work under the provisions of the ASME Code Section III, Division 1, 3, and/or 5 to ensure that the Inspectors and Supervisors meet the required experience and training requirements of Part 1. Certification and documentation of qualifications shall be retained by the employer and shall be made available for review by the jurisdictional authorities and the ASME Survey Team, upon request.

1-1.2.7 Submit to the National Board an application for an "N" endorsement for the Authorized Nuclear Inspector applicant, certifying that he has the required experience and training and that qualified supervision will be

provided to ensure that the Authorized Nuclear Inspector satisfactorily fulfills his functions.

1-1.2.8 Submit to the National Board an application for an “NS” endorsement for the Authorized Nuclear Inspector Supervisor applicant, certifying that the Supervisor has the required experience and training.

1-1.2.9 Verify to the National Board that the audits required by 1-2.2.6 have been carried out.

- (18) **1-1.2.10** Notify the ASME Conformity Assessment department when entering into an agreement or whenever an existing agreement is terminated with an ASME Certificate Holder.

1-1.2.11 Notify the ASME Conformity Assessment department immediately, when a change in qualification status as indicated in 1-1.1.1, or on the Certificate of Accreditation, occurs.

- (18) **1-1.2.12** When requested by ASME, perform follow-up activities on Certificate Holders for which they provide Authorized Nuclear Inspection services.

- (18) **1-1.2.13** When an AIA enters into a contract with an Owner,⁹ the duties of the AIA shall include the requirements of (a) through (i) below.

(a) Notify the ASME Conformity Assessment department and the applicable enforcement authority when entering into an agreement with an Owner.

(b) Notify the ASME Conformity Assessment department and the applicable enforcement authority whenever an agreement with an Owner is terminated.

(c) Provide qualified Authorized Nuclear Inspector Supervisors to participate in the ASME interview of the Owner for which they provide Authorized Nuclear Inspection.

(d) Provide qualified Authorized Nuclear Inspector Supervisors to review and accept any proposed modification to the Owner’s Quality Assurance Manual or procedure.

(e) Ensure the Authorized Nuclear Inspector Supervisors performs an annual audit of the Owner’s Quality Assurance Program and the results are reported to the ASME Conformity Assessment department for review and determination as to whether the Owner’s Certificate shall be renewed.

(f) Ensure at least once each year, the Authorized Nuclear Inspector Supervisor performs an audit of the Owner’s (or his designee’s) Certifying Engineer qualification activities to verify that the procedures are being followed and that records exist to support qualification of each Certifying Engineer.

(g) Provide qualified Authorized Nuclear Inspectors to monitor the Owner’s progress in compiling supporting data needed to complete the ASME Data Report Form N-3.

(h) Ensure the Authorized Nuclear Inspector has verified that the required documentation for overpressure protection exist and are properly filed for that portion of the system covered by the ASME Data Report Form N-3.

(i) Ensure the Authorized Nuclear Inspector has reviewed and signed the ASME Data Report Form N-3 only after it has been certified by the Owner.

1-1.3 AIA Quality Program

1-1.3.1 A documented Quality Program shall be established, implemented, and maintained by the AIA in accordance with the requirements of this Standard. The AIA Quality Program shall identify the activities to which it applies and shall provide for the planning, control, and accomplishment of activities affecting the quality of the AIAs implementation of duties and activities as described in applicable Parts of this Standard.

1-1.3.2 The AIA Quality Program shall, at a minimum, include the following parts:

(a) *Organization.* The Program shall document the organizational structure, functional responsibilities, levels of authority, and lines of responsibility for activities required for compliance with requirements of this Standard.

(b) *Program Description.* The Program shall describe the scope of the activities for which the Program applies. The scope shall include all requirements of the QAI-1 Standard for which the AIA is accredited by the Society (or for which the applicant is seeking Society accreditation as an Accredited Authorized Inspection Agency). The Program shall document the policies and describe the process for the implementation of the requirements of the QAI-1 Standard.

(c) *Document Control.* The Program shall describe the process for the review and revision of the Program. All changes to the Program shall be controlled and the process for review and approval of changes shall be specified. All changes to the Program require prior review and approval by the Society before implementation as required by 4-4(d). Further, the Program shall be controlled to ensure appropriate distribution to and use at the location(s) where the prescribed activity is performed.

(d) *Training.* The Program shall describe the process for the indoctrination and training of personnel responsible for implementing the Program.

(e) *Records.* The Program shall describe the process for records management. The description shall include measures to ensure that the records are controlled and maintained in a manner that prevents damage, deterioration, and loss. The AIA’s records necessary to verify compliance with this QAI Standard, except for personnel qualification records, shall be maintained for a minimum of 5 yr. The personnel qualification records, necessary to

verify compliance with this QAI Standard, shall be maintained while the individual is providing AIA services and for a minimum of 5 yr after the individual ceases to provide AIA services.

(f) *Corrective Actions.* The Program shall describe the process for the identification, review, and correction of a condition or activity that is not conducted in accordance with the Program. Corrective action shall be taken to preclude the repetition of nonconforming conditions. The description of the process shall include how corrective action is implemented, documented, and reported to management.

(g) *Audits.* The Program shall describe the audit process and shall include the following as a minimum:

(1) A comprehensive system of planned and periodic audits shall be carried out to verify compliance with applicable requirements of the QAI-1 Standard and the AIA Quality Program and to determine its effectiveness. The audits shall be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibility in the areas being audited.

(2) Audit results shall be documented and the results shall be reviewed by management responsible for the area audited. Follow-up action including reaudit of deficient areas shall be taken where indicated.

(3) At least annually, the overall adequacy and effectiveness of the implementation of the AIA Quality Program shall be reviewed and the results of the review documented and reported to management.

1-2 THE AUTHORIZED NUCLEAR INSPECTOR SUPERVISOR

1-2.1 Qualifications

The Supervisor shall be selected and designated as such by his employer. The Supervisor shall have the qualifications specified in 1-2.1.1 through 1-2.1.6.

1-2.1.1 The Supervisor shall have passed an examination developed and administered by the National Board and received an "NS" endorsement from the National Board. The examinations shall encompass sufficient means of determination of the candidate's ability to ascertain the validity of the ASME Code requirements and quality assurance requirements of the ASME Code Section III, Divisions 1, 3, and 5. The examination shall be graded by the National Board and results provided to the AIA concerned.

1-2.1.2 A candidate for designation as an Authorized Nuclear Inspector Supervisor shall have qualified as an Authorized Nuclear Inspector and subsequently either shall have been engaged for at least 2 yr of diversified inspection experience in the construction of the ASME Code Section I, Section III, or Section VIII pressure equipment, or shall have been engaged for at least 2 yr in the

administration of shop inspection services under the referenced ASME Code Sections.

1-2.1.3 The Supervisor shall have a working knowledge of ASME Code Sections, applicable Code Cases, and reference codes and standards.

1-2.1.4 The Supervisor shall have experience that includes the review and implementation of quality assurance programs and resolution of corrective actions associated with the program.

1-2.1.5 The Supervisor shall have knowledge of ASME nuclear survey procedures, which shall include either of the following:

(a) service with at least two nuclear Survey Teams as a member or as an observer, or

(b) serving as a member or observer on one ASME nuclear Survey Team, plus documented satisfactory completion of a course promulgated by ASME on the conduct of nuclear surveys and administration of ASME nuclear accreditation programs

1-2.1.6 The Supervisor shall receive health physics training prior to exposure to occupational related ionizing radiation.

1-2.2 Duties

The Authorized Nuclear Inspector Supervisor shall perform the duties specified in 1-2.2.1 through 1-2.2.12.

1-2.2.1 Maintain a record of Certificate Holders' shop and field sites where Inspectors assigned to him by his AIA for supervision are performing Code inspection activities. He shall record the date of his visits to such locations when related to his assigned supervisory duties.

1-2.2.2 Maintain a record of those Authorized Nuclear Inspectors assigned to him and a description of their assignments.

1-2.2.3 Assist in maintaining the competency of the Authorized Nuclear Inspector through periodic arrangement of panel discussions of work-related topics; written communications of unique problems and their solution; informal question and answer discussion sessions, and other means he deems suitable. The Supervisor shall maintain documentation of such activities.

1-2.2.4 The Supervisor shall be responsible for the technical performance of the Authorized Nuclear Inspector(s) assigned to him. He shall report in writing to his management significant nonconforming activities that are reported to him or that he has observed on the part of the Inspector, following full investigation of such activities.

1-2.2.5 Either establish, or have available to him, a system to record and limit his radiation exposure and that of the Inspectors assigned to him. This system

shall be under the regulation of his employer, who shall maintain an acceptable system of control.

1-2.2.6 Audit the performance of each Authorized Nuclear Inspector under his supervision on a planned and periodic basis. Each Authorized Nuclear Inspector actively engaged in the ASME Code Section III, Division 1, 3, and/or 5 inspection shall be audited at least twice a year at the shop or site to which he is assigned. When an Inspector is assigned to more than one shop or site at which Code activities are being performed, or have been performed since the previous audit, the Authorized Nuclear Inspector shall be audited at least once a year at each location. At the time of this audit, the Supervisor shall be accompanied by the Authorized Nuclear Inspector. The audit shall include, but not be limited to, a check that the duties listed under 1-3.2 are being performed, and a check of the following:

(a) one item under construction or installation phase to ensure implementation of the Quality Assurance Program.

(b) travelers or process sheets¹⁰ accompanying items in the construction or installation phase to ensure that these accurately represent and properly attest to the work, examinations, tests, and inspections performed. Particular attention should be given to provision for hold points and sign-off.

(c) the Certificate Holder's Quality Assurance Manual to ensure that changes, if any, in the Quality Assurance Program have been accepted and have been properly incorporated in the Manual.

(d) a review of nonconformances to ensure that appropriate technical review has been provided and that corrective measures are adequate and timely.

(e) the Certificate Holder's record keeping procedure to ensure traceability of any phase of work or nondestructive examination results as required by the ASME Code.

(f) the Authorized Nuclear Inspector's records or diary of inspection phases performed on identified items, with dates of the inspection activities noted.

1-2.2.7 The audit required in 1-2.2.6 shall be recorded in writing and shall contain a written comment regarding the status of each item audited.

1-2.2.8 The Supervisor shall ensure that the activities covered by the Certificate Holder's Quality Assurance Manual which are performed at locations not assigned to an Authorized Nuclear Inspector are audited at least twice a year. Corporate offices would be an example of such a location. Engineering and procurement could be examples of the types of activities performed at such a location. If no activities have been performed at these locations during the period from the last audit, then only one audit per year is required.

1-2.2.9 The Supervisor shall ensure that portions of the N-Type Certificate Holder's Quality Assurance Program that involve supply or manufacture and supply of materials are audited at least once each year.

1-2.2.10 The Supervisor shall investigate and report in writing to his management significant observed or reported ASME Code or Quality Assurance Program nonconformance by the Certificate Holder engaged in ASME Code Section III, Division 1, 3, or 5 activities.

1-2.2.11 The Supervisor shall audit the NS Certificate Holder's Quality Assurance Program at least once each year.

1-2.2.12 The Supervisor shall record, in the Inspector Diary (see 1-3.2.18), dates of all audits and all visits to shop and field locations when related to supervisory duties.

1-3 THE AUTHORIZED NUCLEAR INSPECTOR

1-3.1 Qualifications

The Inspector shall be selected and designated as such by his employer. The Inspector shall have the qualifications specified in 1-3.1.1 through 1-3.1.9.

1-3.1.1 The Inspector shall have passed an examination developed and administered by the National Board and received an "N" endorsement from the National Board. The examination shall encompass sufficient means to determine the candidate's knowledge of and familiarity with the ASME Code. The examination shall be graded by the National Board and results provided to the AIA concerned.

1-3.1.2 A candidate for designation as an Authorized Nuclear Inspector shall have qualified as an Authorized Inspector and either shall have been engaged for at least 1 yr in ASME Code related work, such as inspections under the provisions of the ASME Code, or shall have been engaged for at least 1 yr as an Inspector Trainee of nuclear items under the direct supervision of an Authorized Nuclear Inspector.

1-3.1.3 The Inspector shall have a working knowledge of the ASME Code Section III, Divisions 1, 3, and 5; applicable Code Cases; and reference codes and standards.

1-3.1.4 The Inspector shall have knowledge of quality assurance requirements and shop and field procedures and processes.

1-3.1.5 The Inspector shall have the knowledge and ability to evaluate and monitor shop and field procedures and performance.

1-3.1.6 The Inspector shall have demonstrated the ability to perform shop and field inspections to the satisfaction of the AIA employing the Inspector.

1-3.1.7 The Inspector shall have a satisfactory degree of experience, knowledge, and background for the inspection of nuclear items, consistent with the complexity of the assignment.

1-3.1.8 The Inspector shall have knowledge of the requirements for lifetime and nonpermanent records.

1-3.1.9 The Inspector shall receive health physics training prior to any exposure to occupational related ionizing radiation.

1-3.2 Duties

The Inspector's duties are covered in the ASME Code and include, but are not limited to 1-3.2.1 through 1-3.2.18.

1-3.2.1 He shall verify that the manufacturer or installer has the required Certificate of Authorization to construct the items contracted for. It is necessary to check the Certificate to make certain that it has not expired and to determine the scope of construction permitted under the terms of the Certificate.

NOTE: The fact that the manufacturer or installer has the required Code Symbol Stamp is not sufficient evidence to assume that he has a valid Certificate of Authorization.

(18) **1-3.2.2** He shall monitor¹¹ the Quality Assurance Program and verify conformity.

1-3.2.3 He shall verify that the Certificate Holder has the necessary Code books, Addenda, and Code Cases for the work he inspects.

1-3.2.4 He shall verify that the Design Specification and Design Report, where required, are available, properly certified by Registered Professional Engineers in accordance with ASME Code requirements, and that they are on file.

1-3.2.5 He shall verify that material complies with the applicable ASME Code requirements.

1-3.2.6 When it is necessary to cut the material into two or more pieces, he shall verify that the Certificate Holder's controls are such that responsible personnel transfer the identification in order to maintain traceability of the material.

1-3.2.7 He shall verify that the Certificate Holder's personnel are examining all cut edges, as required by the ASME Code.

1-3.2.8 He shall verify that welding procedures conform to the ASME Code Sections III and IX.

1-3.2.9 He shall verify that welders and welding operators are properly qualified and that their qualification permits them to use the required procedures.

1-3.2.10 During construction, he shall verify that the welding controls permit only the use of qualified welding procedures and qualified welders and operators.

1-3.2.11 If welded repairs are found to be necessary during construction, he shall verify that only properly qualified procedures, welders, and operators are used.

1-3.2.12 He shall verify that required heat treatments have been performed and are properly documented.

1-3.2.13 He shall verify that required nondestructive examinations and tests have been performed by qualified personnel and that the results are properly documented and meet ASME Code requirements. Nondestructive examination procedures and acceptance standards shall be in accordance with the ASME Code.

1-3.2.14 He shall perform the required inspections prior to closure for testing. He shall also witness hydrostatic or pneumatic tests.

1-3.2.15 He shall verify that the responsible representative of the Certificate Holder has signed the Data Report and verified it as correct before he signs it.

1-3.2.16 Prior to stamping, he shall verify to the best of his knowledge and belief that the item is in compliance with the ASME Code. He shall also verify that the nameplate stamping is correct and that the nameplate has been properly attached.

1-3.2.17 He shall also inspect, where applicable, items that are reported on Data Reports and those that are constructed using methods other than welding.

1-3.2.18 He shall keep an electronic or bound (not looseleaf) record or diary of his activities and inspections made, detailing corrections and any other pertinent data that will be useful to him and his employer. Information to be recorded shall include a description of the item inspected, the type of observations made, and the results of inspection. (18)

1-3.2.18.1 Electronic diaries shall, as a minimum (18)

(a) be under the complete administrative control of the AIA

(b) be secured in a way that prevents revisions, additions, or deletions to data previously logged in the diary

(c) provide a means for other inspectors and supervisors, within the AIA, to review diary entries, as required

(d) include a provision for signatures by a PIN or other secure means

1-3.2.18.2 All diaries, whether electronic or bound, shall as a minimum

(a) be completed daily or at each inspection visit by the Inspector.

(b) be available at the location of the inspection. For field sites, the diary must be available for the duration of the work.

(c) be maintained for a minimum of 5 yr from the date of the entry.

(d) be available for surveys, reviews, audits, and investigations.

1-3.3 Performance of Inspector's Duties

The audit performed in conformance with 1-2.2.6 and documented in accordance with 1-2.2.7 shall provide evidence of the satisfactory performance of the duties of 1-3.2 by the Inspector.

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Part 2

Qualifications and Duties for Authorized Inspection Agencies, Nuclear Inservice Inspectors, and Nuclear Inservice Inspector Supervisors (Applicable to ASME Boiler and Pressure Vessel Code, Section XI)

2-0 SCOPE

Part 2 is for use with the ASME Code,¹ Section XI, including applicable Addenda and Code Cases.

2-1 THE AUTHORIZED INSPECTION AGENCY

2-1.1 Qualifications

An Authorized Inspection Agency (AIA) is an organization meeting the criteria of this Standard that is accredited by the Society pursuant to the provisions set forth in Part 4 to provide AIA services within a jurisdiction.² Such agencies employ Authorized Inspectors and Inspector Supervisors that meet the criteria of the ASME Code Section XI and of the National Board Rules for Commissioned Inspectors.³

- (18) **2-1.1.1** An AIA shall be one of the following:

(a) a jurisdiction² that has adopted and does administer the ASME Code Section XI as a legal requirement and is qualified to be represented on the ASME Code Conference Committee.

(b) an insurance company that has been licensed or registered by the appropriate authority of a state of the United States of America, or of a province of Canada, to write boiler and pressure vessel insurance in such state or province. The insurance company shall show its capability to provide boiler and pressure vessel insurance coverage by being actively engaged in writing such insurance in one or more of the states or provinces where so licensed or registered.

(c) a company in the business of providing "third party" inspection services. The company shall have

(1) recognition from a government entity⁴ to perform inspection and design examinations for pressure-retaining and pressure-relieving items¹² performing a safety function⁶ and for installation at an operating nuclear facility within its jurisdictional boundaries

(-a) The company shall be a registered entity within the same city, state, province, or country as the government entity that is providing the recognition.

(-b) The government entity may elect to designate another organization to authorize the performance of inspections and design examinations.

(2) accreditation or certification under a recognized accreditation or certification scheme that is found acceptable by ASME

(-a) The scope of activity on the certificate shall identify the performance of inspections and design examinations for pressure vessels and/or boilers.

(-b) The certificate shall be valid and in good standing.

(-c) The company shall have undergone at least one accreditation or certification renewal cycle.

(3) appropriate levels of financial support or liability insurance

2-1.1.2 The jurisdiction described in 2-1.1.1(a) may designate one or more organizations to act on its behalf to enforce its regulations. The organization shall

(a) provide evidence establishing that such delegation of authority is duly authorized by the laws of the jurisdiction

(b) describe how the ASME Code is accepted by the jurisdiction

(c) describe how the ASME Code is enforced by the organization

2-1.1.3 An AIA shall be accredited by the Society pursuant to the provisions set forth in Part 4. The AIA services provided by their Inspectors and Inspector Supervisors shall also be subject to audit by ASME for compliance with this Standard during shop or site reviews of organizations for which they provide Authorized Nuclear Inservice Inspection.

2-1.1.4 The AIA shall provide authorized inspection services within such states or provinces by Inspectors and Inspector Supervisors who meet the qualifications of the Authorized Nuclear Inservice Inspector and of the Authorized Nuclear Inservice Inspector Supervisor as defined herein.

2-1.1.5 The AIA shall have no commercial interest in, or shall be independent of any part of an organization having direct commercial interest in, the products to be inspected. The staff shall be free from any commercial, financial, and other pressures that might influence their judgment or the results of their work.

2-1.1.6 AIAs described in 2-1.1.1(b) and 2-1.1.1(c) shall have liability insurance and shall

(a) be able to demonstrate that they have adequate arrangements (e.g., insurance or reserves) to cover the liabilities

(b) evaluate their finances and sources of income and shall be able to demonstrate that initially, and on an annual basis, commercial, financial, or other pressures do not compromise their impartiality

(c) retain documentary evidence that they have reviewed their activities on an annual basis to ensure that the requirements of (a) and (b) have been met

(d) declare by signature in the Quality Assurance Manual's Statement of Policy that the requirements of (a) and (b) will be met

(e) submit the documentary evidence as part of their application for the ASME Certificate of Accreditation

2-1.2 Duties

An Authorized Inspection Agency¹³ shall perform the duties specified in 2-1.2.1 through 2-1.2.11.

2-1.2.1 Provide qualified Authorized Nuclear Inservice Inspectors to monitor inservice examinations, tests, repairs, and replacements in accordance with the ASME Code Section XI.

2-1.2.2 Maintain qualified Supervisors to monitor the performance of the Authorized Nuclear Inservice Inspectors and to audit the activities at sites for which inspection agreements have been made in accordance with the requirements of 2-2.2.6.

2-1.2.3 Give written notice to all Inspectors of the name, office address, e-mail address, office phone, and mobile phone of their respective Supervisors annually or whenever there is a change in the above contact information.

2-1.2.4 Assure proper execution of responsibilities. In particular, the Agency shall

(a) establish and implement an internal program which shall provide assurance that those of its employees holding the positions of Supervisor or Nuclear Inservice Inspector perform work in accordance with the requirements of Part 2. This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout the term of any agreement covering inspections required by the ASME Code, in accordance with the program. The program shall provide for indoctrination and training of personnel performing these

activities, as necessary, to ensure that suitable proficiency is achieved and maintained.

(b) provide instructions in writing to Authorized Nuclear Inservice Inspectors and their Supervisors, specifying their respective duties and responsibilities.

(c) conduct annual planned audits of its activities to verify compliance with the provisions of the ASME Code. The audits shall be performed by appropriately trained personnel in accordance with a written procedure or checklist. Audit results shall be documented and reviewed by management. Follow-up action, including reaudit of deficient areas, shall be taken where indicated to ensure that necessary corrective action is completed.

(d) establish and implement a written policy to ensure levels of inspection activity commensurate with the scope of the AIA's Certificate of Accreditation.

2-1.2.5 Submit to the National Board an application for an "I" endorsement for the Authorized Nuclear Inservice Inspector applicant, certifying that the Inspector has the required experience and training and that qualified supervision will be provided to ensure that the Authorized Nuclear Inservice Inspector satisfactorily fulfills his functions.

2-1.2.6 Submit to the National Board an application for an "NSI" endorsement for the Authorized Nuclear Inservice Inspector Supervisor applicant, certifying that the Supervisor has the required experience and training. (18)

2-1.2.7 Verify to the National Board that the audits required by 2-2.2.6 have been carried out.

2-1.2.8 Establish a system to record and control the radiation exposure of those employees engaged in nuclear inspection activities.

2-1.2.9 Take appropriate action to advise the Owner of the need to correct nonconforming activities reported by its Supervisors and Inspectors to ensure ASME Code compliance.

2-1.2.10 Ensure the Inspector's diary is made available for all ASME investigations where an AIA has provided Authorized Inspections to the Certificate Holder during the period under investigation. The purpose of the diary is to provide a record of the Inspector's activities and to support the continuity of inspections. (18)

2-1.2.11 Notify the ASME Conformity Assessment department immediately when a change in qualification status as indicated in 2-1.1.1, or on the Certificate of Accreditation, occurs.

2-1.3 AIA Quality Program

2-1.3.1 A documented Quality Program shall be established, implemented, and maintained by the AIA in accordance with the requirements of this Standard. The AIA Quality Program shall identify the activities to which it

applies and shall provide for the planning, control, and accomplishment of activities affecting the quality of the AIAs implementation of duties and activities as described in applicable parts of this Standard.

2-1.3.2 The AIA Quality Program shall, at a minimum, include the following parts:

(a) *Organization.* The Program shall document the organizational structure, functional responsibilities, levels of authority, and lines of responsibility for activities required for compliance with requirements of this Standard.

(b) *Program Description.* The Program shall describe the scope of the activities for which the Program applies. The scope shall include all requirements of the QAI-1 Standard for which the AIA is accredited by the Society (or for which the applicant is seeking Society accreditation as an Accredited AIA). The Program shall document the policies and describe the process for the implementation of the requirements of the QAI-1 Standard.

(c) *Document Control.* The Program shall describe the process for the review and revision of the Program. All changes to the Program shall be controlled and the process for review and approval of changes shall be specified. All changes to the Program require prior review and approval by the Society before implementation as required by 4-4(d). Further, the Program shall be controlled to ensure appropriate distribution to and use at the location(s) where the prescribed activity is performed.

(d) *Training.* The Program shall describe the process for the indoctrination and training of personnel responsible for implementing the Program.

(e) *Records.* The Program shall describe the process for records management. The description shall include measures to ensure that the records are controlled and maintained in a manner that prevents damage, deterioration, and loss. The AIA's records necessary to verify compliance with this QAI Standard, except for personnel qualification records, shall be maintained for a minimum of 5 yr. The personnel qualification records, necessary to verify compliance with this QAI Standard, shall be maintained while the individual is providing AIA services and for a minimum of 5 yr after the individual ceases to provide AIA services.

(f) *Corrective Actions.* The Program shall describe the process for the identification, review, and correction of a condition or activity that is not conducted in accordance with the Program. Corrective action shall be taken to preclude the repetition of nonconforming conditions. The description of the process shall include how corrective action is implemented, documented, and reported to management.

(g) *Audits.* The Program shall describe the audit process and shall include the following as a minimum:

(1) A comprehensive system of planned and periodic audits shall be carried out to verify compliance with applicable requirements of the QAI-1 Standard and the AIA Quality Program and to determine its effectiveness. The audits shall be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibility in the areas being audited.

(2) Audit results shall be documented and the results shall be reviewed by management responsible for the area audited. Follow-up action including reaudit of deficient areas shall be taken where indicated.

(3) At least annually, the overall adequacy and effectiveness of the implementation of the AIA Quality Program shall be reviewed and the results of the review documented and reported to management.

2-2 THE AUTHORIZED NUCLEAR INSERVICE INSPECTOR SUPERVISOR

2-2.1 Qualifications

The Supervisor shall be selected and designated as such by his employer. The Supervisor shall have the qualifications specified in 2-2.1.1 through 2-2.1.4.

2-2.1.1 A candidate for designation as an Authorized Nuclear Inservice Inspector Supervisor (NSI endorsement) shall have qualified as an Authorized Nuclear Inspector Supervisor in accordance with 1-2.1. (18)

2-2.1.2 The Supervisor shall have qualified as an Authorized Nuclear Inservice Inspector (ANII), and subsequently shall have been engaged for at least 1 yr as an ANII and have at least 1 yr of experience in NDE methods. Such a minimum of 1-yr engagement as an Authorized Nuclear Inservice Inspector and 1 yr of experience in NDE methods may be during the same year.

2-2.1.3 The Supervisor shall have a working knowledge of the requirements of the ASME Code Section XI, applicable Code Cases, and reference codes and standards.

2-2.1.4 The Supervisor shall receive health physics training prior to any exposure to occupational related ionizing radiation.

2-2.2 Duties

The Authorized Nuclear Inservice Inspector Supervisor shall perform the duties specified in 2-2.2.1 through 2-2.2.9.

2-2.2.1 Maintain a record of Owners' sites where Inspectors assigned to him by his Authorized Agency are performing ASME Code inspection activities. He shall record the date of his visits to such locations when related to his assigned supervisory duties.

2-2.2.2 Maintain a record of those Authorized Nuclear Inservice Inspectors assigned to him and a description of their assignments.

2-2.2.3 Assist in maintaining the competency of the ANII through periodic arrangement of panel discussions of work-related topics, written communications of unique problems and their solution, informal question and answer discussion sessions, and other means he deems suitable. The Supervisor shall maintain documentation of such activities.

2-2.2.4 The Supervisor shall be responsible for the technical performance of the Authorized Nuclear Inservice Inspector(s) assigned to him. He shall report in writing to his management nonconforming activities that are reported to him or that he has observed on the part of the Inspector, following full investigation of such activities.

2-2.2.5 Either establish, or have available to him, a system to record and limit his radiation exposure and that of the Inspectors assigned to him. This system shall be under the regulation of his employer, who shall maintain an acceptable system of control.

2-2.2.6 Audit the performance of each ANII under his supervision on a planned and periodic basis. Each ANII actively engaged in Section XI Code inspection shall be audited at least twice a year at the site to which he is assigned. When an Inspector is assigned to more than one site at which ASME Code activities are being performed or have been performed since the previous audit, the ANII shall be audited at least once a year at each site. At the time of this audit, the Supervisor shall be accompanied by the ANII. The audit shall include, but not be limited to, a check that the duties listed under 2-3.2 are being performed and a check of the following:

- (a) the ANII's record or diary of inspection phases performed on identified items, with dates of the inspection activities noted
- (b) methods used by the Inspector to assure himself that ASME Code requirements are met with by the Owner
- (c) that the Inspector is complying with employer's policies, instructions, and procedures
- (d) Owner's record keeping procedures to verify traceability requirements for any phase of nondestructive examination, evaluation of results, or subsequent repair activities
- (e) calibration procedures of nondestructive examination equipment and adequacy of record-keeping procedures
- (f) local environmental conditions of components examined to ensure that tests and examinations performed on the components are valid

(g) a review to ensure that all nonconforming items disclosed during this audit or prior audits have been brought into accordance with applicable ASME Code Sections

2-2.2.7 The audit required in 2-2.2.6 shall be recorded in writing and shall contain a written comment regarding the status of each item audited.

2-2.2.8 The Supervisor shall investigate and report in writing to his management any observed or reported ASME Code or Quality Assurance Program nonconformance by the Owner or other parties engaged in ASME Code Section XI activities.

2-2.2.9 The Supervisor shall record, in the Inspector Diary (see 2-3.2.10), dates of all audits and visits to shop and field locations when related to supervisory duties.

2-3 THE AUTHORIZED NUCLEAR INSERVICE INSPECTOR

2-3.1 Qualifications

(18)

The Inspector shall be selected and designated as such by his employer. The Inspector shall have the qualifications specified in 2-3.1.1 through 2-3.1.9.

2-3.1.1 The Inspector shall have passed an examination developed and administered by the National Board and received an "I" endorsement from the National Board. The examination shall encompass sufficient means to determine the candidate's knowledge of, and familiarity with, ASME Code, Section XI and NDE methods as referenced therein. The examination shall be graded by the National Board and results provided to the Authorized Inspection Agency concerned.

2-3.1.2 A candidate for designation as an ANII shall have qualified as an Authorized Nuclear Inspector and shall have been engaged in at least 1 yr in ASME Code-related work, such as inspections under the provisions of the ASME Code, or shall have been engaged for at least 1 yr as an Inspector Trainee of nuclear items under the direct supervision of an ANII.

2-3.1.3 The Inspector shall have a working knowledge of the ASME Code Section XI, applicable Code Cases, and reference codes and standards.

2-3.1.4 The Inspector shall have knowledge of quality assurance requirements and shop and field procedures and processes.

2-3.1.5 The Inspector shall have the knowledge and ability to evaluate and monitor¹¹ shop and field procedures and performance. (18)

2-3.1.6 The Inspector shall have demonstrated the ability to perform shop and field nuclear inservice inspections to the satisfaction of the AIA employing the Inspector.

2-3.1.7 The Inspector shall have a satisfactory degree of experience, knowledge, and background for the inspection of nuclear items, consistent with the complexity of the assignment.

2-3.1.8 The Inspector shall have knowledge of the requirements for lifetime and nonpermanent records.

2-3.1.9 The Inspector shall receive health physics training prior to any exposure to occupational related ionizing radiation.

2-3.2 Duties

The Inspector's duties are covered in the ASME Code Section XI and include, but are not limited to 2-3.2.1 through 2-3.2.10.

2-3.2.1 He shall verify that the Owner or User has the applicable Code books, Addenda, and Code Cases.

2-3.2.2 He shall verify that materials used for nondestructive examinations comply with the ASME Code Section XI requirements.

2-3.2.3 He shall verify that required nondestructive examinations and tests have been made by personnel who meet the qualifications and requirements of the ASME Code Section XI and that the results are properly documented and meet the ASME Code Section XI requirements. Nondestructive examination procedures and acceptance standards shall be in accordance with the ASME Code Section XI.

2-3.2.4 He shall verify that the Design Specification and Design Report for repairs and replacements, where required, are available, properly certified by Registered Professional Engineers in accordance with the ASME Code requirements, and that they are on file.

2-3.2.5 He shall verify that all required welding procedures conform to the ASME Code Sections IX and XI.

2-3.2.6 He shall verify that welders and welding operators are properly qualified to use the required procedures.

2-3.2.7 He shall verify that material and replacement parts comply with the requirements of the ASME Code Section XI.

2-3.2.8 He shall verify that heat treatments required by the ASME Code Section XI for repairs and replacements have been performed and are properly documented.

2-3.2.9 He shall verify that the responsible representative of the Owner has signed the required NIS-1 and NIS-2 Data Report Forms, and verified them as correct before he signs them.

2-3.2.10 He shall keep an electronic or bound (not looseleaf) record or diary of his activities and inspections made, detailing corrections and any other pertinent data that will be useful to him and his employer. Information to be recorded shall include a description of the item inspected, the type of observations made, and the results of inspection. (18)

2-3.2.10.1 Electronic diaries shall, as a minimum (18)

(a) be under the complete administrative control of the AIA

(b) be secured in a way that prevents revisions, additions, or deletions to data previously logged in the diary

(c) provide a means for other inspectors and supervisors, within the AIA, to review diary entries, as required

(d) include a provision for signatures by a PIN or other secure means

2-3.2.10.2 All diaries, whether electronic or bound, shall as a minimum

(a) be completed daily or at each inspection visit by the Inspector.

(b) be available at the location of the inspection. For field sites, the diary must be available for the duration of the work.

(c) be maintained for a minimum of 5 yr from the date of the entry.

(d) be available for surveys, reviews, audits, and investigations.

2-3.3 Performance of Inspector's Duties

The audit performed in conformance with 2-2.2.6 and documented in accordance with 2-2.2.7 shall provide evidence of the satisfactory performance of the duties of 2-3.2 by the Inspector.

Part 3

Qualifications and Duties for Authorized Inspection Agencies, Nuclear Inspectors (Concrete), and Nuclear Inspector Supervisors (Concrete)

[Applicable to ASME Boiler and Pressure Vessel Code, Section III, Division 2 (ACI 359)]

3-0 SCOPE

Part 3 is for use with the ASME Code,¹ Section III, Division 2, including applicable Addenda and Code Cases. Division 2 has been prepared and is maintained jointly by the American Concrete Institute and The American Society of Mechanical Engineers.

3-1 THE AUTHORIZED INSPECTION AGENCY

3-1.1 Qualifications

An Authorized Inspection Agency (AIA) is an organization meeting the criteria of this Standard that is accredited by the Society pursuant to the provisions set forth in Part 4 to provide AIA services within a jurisdiction.² Such agencies shall meet the criteria of the ASME Code Section III, Division 2 and of the National Board Rules for Commissioned Inspectors.³

- (18) **3-1.1.1** An AIA shall be one of the following:

(a) a jurisdiction² that has adopted and does administer the ASME Code Section III, Division 2 as a legal requirement and is qualified to be represented on the ASME Code Conference Committee.

(b) an insurance company that has been licensed or registered by the appropriate authority of a state of the United States of America, or of a province of Canada, to write boiler and pressure vessel insurance in such state or province. The insurance company shall show its capability to provide boiler and pressure vessel insurance coverage by being actively engaged in writing such insurance in one or more of the states or provinces where so licensed or registered.

(c) a company in the business of providing "third party" inspection services. The company shall have

(1) recognition from a government entity⁴ to perform inspection and design examinations for pressure-retaining items¹⁴ performing a safety function⁶ and for installation at an operating nuclear facility within its jurisdictional boundaries

(-a) The company shall be a registered entity within the same city, state, province, or country as the government entity that is providing the recognition.

(-b) The government entity may elect to designate another organization to authorize the performance of inspections and design examinations.

(2) accreditation or certification under a recognized accreditation or certification scheme that is found acceptable by ASME

(-a) The scope of activity on the certificate shall identify the performance of inspections and design examinations for pressure vessels and/or boilers.

(-b) The certificate shall be valid and in good standing.

(-c) The company shall have undergone at least one accreditation or certification renewal cycle.

(3) appropriate levels of financial support or liability insurance

3-1.1.2 The jurisdiction described in 3-1.1.1(a) may designate one or more organizations to act on its behalf to enforce its regulations. The organization shall

(a) provide evidence establishing that such delegation of authority is duly authorized by the laws of the jurisdiction

(b) describe how the ASME Code is accepted by the jurisdiction

(c) describe how the ASME Code is enforced by the organization

3-1.1.3 An AIA shall be accredited by the Society pursuant to the provisions set forth in Part 4. The AIA services provided by their Inspectors and Inspector Supervisors shall also be subject to audit by ASME for compliance with this Standard during shop or site reviews of organizations for which they provide Authorized Nuclear Inspection (Concrete).

3-1.1.4 The AIA shall provide authorized inspection services within such states or provinces by Inspectors and Inspector Supervisors who meet the qualifications

of the Authorized Nuclear Inspector (Concrete) and of the Authorized Nuclear Inspector Supervisor (Concrete) as defined herein.

3-1.1.5 The AIA shall have no commercial interest in, or shall be independent of any part of an organization having direct commercial interest in, the products to be inspected. The staff shall be free from any commercial, financial, and other pressures that might influence their judgment or the results of their work.

3-1.1.6 Authorized Inspection Agencies described in **3-1.1.1(b)** and **3-1.1.1(c)** shall have liability insurance and shall

(a) be able to demonstrate that they have adequate arrangements (e.g., insurance or reserves) to cover the liabilities

(b) evaluate their finances and sources of income and shall be able to demonstrate that initially, and on an annual basis, commercial, financial, or other pressures do not compromise their impartiality

(c) retain documentary evidence that they have reviewed their activities on an annual basis to ensure that the requirements of (a) and (b) have been met

(d) declare by signature in the Quality Assurance Manual's Statement of Policy that the requirements of (a) and (b) will be met

(e) submit the documentary evidence as part of their application for the ASME Certificate of Accreditation

(18) **3-1.2 Duties**

An AIA¹⁵ shall perform the duties specified in **3-1.2.1** through **3-1.2.12**.

(18) **3-1.2.1** Provide Supervisors and Inspectors to participate in the ASME surveys of Certificate Holders for which they provide Authorized Nuclear Inspection.

Ensure the Inspector's diary is made available for all ASME surveys and investigations where an AIA has provided Authorized Inspections to the Certificate Holder during the period under survey or investigation. The purpose of the diary is to provide a record of the Inspector's activities and to support the continuity of inspections.

3-1.2.2 Provide qualified Authorized Nuclear Inspectors (Concrete) to monitor construction,¹⁶ in accordance with the ASME Code Section III, Division 2.

3-1.2.3 Maintain qualified Supervisors to monitor the performance of the Authorized Nuclear Inspectors (Concrete) and to audit the activities at nuclear shops and field sites for which inspection agreements have been made, in accordance with the requirements of **3-2.2.6**.

3-1.2.4 Give written notice to all Inspectors of the name, office address, e-mail address, office phone, and mobile phone of their respective Supervisors annually

or whenever there is a change in the above contact information.

3-1.2.5 Assure proper execution of responsibilities. In particular, the Agency shall

(a) establish and implement an internal program which shall provide assurance that those of its employees holding the positions of Supervisor and Authorized Nuclear Inspector (Concrete) perform work in accordance with the requirements of **Part 3**. This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout the term of any agreement covering inspections required by the ASME Code, in accordance with the program. The program shall provide for indoctrination and training of personnel performing such activities, as necessary, to ensure that suitable proficiency is achieved and maintained.

(b) provide instructions in writing to Authorized Nuclear Inspectors (Concrete) and their Supervisors, specifying their respective duties and responsibilities.

(c) provide instructions in writing to Authorized Nuclear Inspectors (Concrete) requiring them to immediately contact their Supervisor whenever the Inspector is unable to readily resolve any question concerning ASME Code compliance, manufacturing procedure, or quality assurance provision or its implementation. Instructions should be included as a reminder to the Authorized Nuclear Inspector (Concrete) that he has the authority and duty to refuse to sign any Data Reports involving nonconformance with the ASME Code.

(d) conduct annual planned audits of activities performed by Authorized Nuclear Inspector Supervisors (Concrete) to verify compliance with the provisions of **Part 3** and the ASME Code Section III, Division 2. The audit shall be performed by appropriately trained personnel in accordance with a written procedure or checklist. Audit results shall be documented and reviewed by management. Follow-up action, including reaudit of deficient areas, shall be taken where indicated to ensure that necessary corrective action is completed.

(e) establish and implement a written policy to ensure levels of inspection activity commensurate with the scope of the AIA's Certificate of Accreditation.

3-1.2.6 Provide certification for each Authorized Nuclear Inspector (Concrete) and Supervisor to be performing work under the provisions of the ASME Code Section III, Division 2, to ensure that the Inspectors and Supervisors meet the required experience and training requirements of **Part 3**. Certification and documentation of qualifications shall be retained by the employer and shall be made available for review by the jurisdictional authorities and the ASME Survey Team upon request.

3-1.2.7 Submit to the National Board an application for a "C" endorsement for the Authorized Nuclear Inspector (Concrete) applicant, certifying that he has the required

experience and training and that qualified supervision will be provided to ensure that the Authorized Nuclear Inspector satisfactorily fulfills his functions.

- (18) **3-1.2.8** Submit to the National Board an application for an “NSC” endorsement for the Authorized Nuclear Inspector Supervisor Concrete applicant, certifying that the Supervisor has the required experience and training.

3-1.2.9 Verify to the National Board that the audits required by 3-2.2.6 have been carried out.

3-1.2.10 Notify the ASME Conformity Assessment department when entering into an agreement or whenever an existing agreement is terminated with an ASME Certificate Holder or Owner.

In addition, the enforcement authority shall be notified whenever an agreement with an Owner is written or an Owner’s agreement is terminated.

3-1.2.11 Notify the ASME Conformity Assessment department immediately when a change in qualification status as indicated in 3-1.1.1, or on the Certificate of Accreditation, occurs.

- (18) **3-1.2.12** When requested by ASME, perform follow-up activities on Certificate Holders for which they provide Authorized Nuclear Inspection (Concrete) services.

3-1.3 AIA Quality Program

3-1.3.1 A documented Quality Program shall be established, implemented, and maintained by the AIA in accordance with the requirements of this Standard. The AIA Quality Program shall identify the activities to which it applies and shall provide for the planning, control, and accomplishment of activities affecting the quality of the AIA’s implementation of duties and activities as described in applicable parts of this Standard.

3-1.3.2 The AIA Quality Program shall, at a minimum, include the following parts:

(a) *Organization.* The Program shall document the organizational structure, functional responsibilities, levels of authority, and lines of responsibility for activities required for compliance with requirements of this Standard.

(b) *Program Description.* The Program shall describe the scope of the activities for which the Program applies. The scope shall include all requirements of this Standard for which the AIA is accredited by the Society (or for which the applicant is seeking Society accreditation as an Accredited Authorized Inspection Agency). The Program shall document the policies and describe the process for the implementation of the requirements of this Standard.

(c) *Document Control.* The Program shall describe the process for the review and revision of the Program. All changes to the Program shall be controlled and the process for review and approval of changes shall be speci-

fied. All changes to the Program require prior review and approval by the Society before implementation as required by 4-4(d). Further, the Program shall be controlled to ensure appropriate distribution to and use at the location(s) where the prescribed activity is performed.

(d) *Training.* The Program shall describe the process for the indoctrination and training of personnel responsible for implementing the Program.

(e) *Records.* The Program shall describe the process for records management. The description shall include measures to ensure that the records are controlled and maintained in a manner that prevents damage, deterioration, and loss. The AIA’s records necessary to verify compliance with this Standard, except for personnel qualification records, shall be maintained for a minimum of 5 yr. The personnel qualification records, necessary to verify compliance with this QAI-1 Standard, shall be maintained while the individual is providing AIA services and for a minimum of 5 yr after the individual ceases to provide AIA services.

(f) *Corrective Actions.* The Program shall describe the process for the identification, review, and correction of a condition or activity that is not conducted in accordance with the Program. Corrective action shall be taken to preclude the repetition of nonconforming conditions. The description of the process shall include how corrective action is implemented, documented, and reported to management.

(g) *Audits.* The Program shall describe the audit process and shall include the following as a minimum:

(1) A comprehensive system of planned and periodic audits shall be carried out to verify compliance with applicable requirements of this Standard and the AIA Quality Program and to determine its effectiveness. The audits shall be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibility in the areas being audited.

(2) Audit results shall be documented and the results shall be reviewed by management responsible for the area audited. Follow-up action including reaudit of deficient areas shall be taken where indicated.

(3) At least annually, the overall adequacy and effectiveness of the implementation of the AIA Quality Program shall be reviewed and the results of the review documented and reported to management.

3-2 THE AUTHORIZED NUCLEAR INSPECTOR SUPERVISOR (CONCRETE)

3-2.1 Qualifications

The Supervisor shall be selected and designated as such by his employer. The Supervisor shall have the additional qualifications specified in 3-2.1.1 through 3-2.1.4.

- (18) **3-2.1.1** A candidate for designation as an Authorized Nuclear Inspector Supervisor (Concrete) (NSC endorsement) shall have qualified as an Authorized Nuclear Inspector Supervisor in accordance with 1-2.1.

3-2.1.2 The Supervisor shall have qualified as an Authorized Nuclear Inspector (Concrete) and subsequently shall have been engaged in at least 1 yr in design, construction, or inspection of concrete structures similar to those used in nuclear facilities.

3-2.1.3 The Supervisor shall have a working knowledge of the requirements of the ASME Code Section III, Division 2; applicable Code Cases; and reference codes and standards.

3-2.1.4 The Supervisor shall receive health physics training prior to any exposure to occupational related ionizing radiation.

3-2.2 Duties

The Authorized Nuclear Inspector Supervisor (Concrete) shall perform the duties specified in 3-2.2.1 through 3-2.2.11.

3-2.2.1 Maintain a record of Certificate Holders' shop and field sites where Inspectors assigned to him by his AIA for supervision are performing Code inspection activities. He shall record the date of his visits to such locations when related to his assigned supervisory duties.

3-2.2.2 Maintain a record of those Authorized Nuclear Inspectors (Concrete) assigned to him and a description of their assignments.

3-2.2.3 Assist in maintaining the competency of the Authorized Nuclear Inspector (Concrete) through periodic arrangement of panel discussions of work-related topics, written communications of unique problems and their solution, informal question and answer discussion sessions, and other means he deems suitable. The Supervisor shall maintain documentation of such activities.

3-2.2.4 The Supervisor shall be responsible for the technical performance of the Authorized Nuclear Inspector(s) (Concrete) assigned to him. He shall report in writing to his management significant nonconforming activities that are reported to him or that he observed on the part of the Inspector, following full investigation of such activities.

3-2.2.5 Either establish, or have available to him, a system to record and limit his radiation exposure and that of the Inspectors assigned to him. This system shall be under the regulation of his employer, who shall maintain an acceptable system of control.

3-2.2.6 Audit the performance of each Authorized Nuclear Inspector (Concrete) under his supervision on a planned and periodic basis. Each Authorized Nuclear Inspector (Concrete) actively engaged in Section III, Division 2 inspection shall be audited at least twice a year at the shop or site to which he is assigned. When an Inspector is assigned to more than one shop or site at which ASME Code activities are being performed, or have been performed since the previous audit, the Authorized Nuclear Inspector (Concrete) shall be audited at least once a year at each location. At the time of this audit, the Supervisor shall be accompanied by the Authorized Nuclear Inspector (Concrete). The audit shall include, but not be limited to, a check that the duties listed under 3-3.2 are being performed and a check of the following:

(a) one item under construction or installation phase to ensure implementation of the Quality Assurance Program.

(b) travelers or process sheets¹⁰ accompanying items in the construction or installation phase to ensure that these accurately represent and properly attest to the work, examinations, tests, and inspections performed. Particular attention should be given to provision for hold points and sign-off.

(c) the Certificate Holder's Quality Assurance Manual to ensure that changes, if any, in the Quality Assurance Program have been accepted and have been properly incorporated in the Manual.

(d) a review of nonconformances to ensure that appropriate technical review has been provided and that corrective measures are adequate and timely.

(e) the Certificate Holder's record keeping procedure to ensure traceability of any phase of work or nondestructive examination results as required by the ASME Code.

(f) the Authorized Nuclear Inspector's (Concrete) records or diary of inspection phases performed on identified items, with dates of the inspection activities noted.

3-2.2.7 The audit required in 3-2.2.6 shall be recorded in writing and shall contain a written comment regarding the status of each item audited.

3-2.2.8 The Supervisor shall ensure that the activities covered by the Certificate Holder's Quality Assurance Manual which are performed at locations not assigned to an Authorized Nuclear Inspector (Concrete) are audited at least twice a year. Corporate offices would be an example of such a location. Engineering and procurement could be examples of the types of activities performed at such a location. If no activities have been performed at these locations during the period from the last audit, then only one audit per year is required.

3-2.2.9 The Supervisor shall ensure that portions of the N Type Certificate Holder's Quality Assurance Program that involve supply or manufacture and supply of materials are audited at least once each year.

3-2.2.10 The Supervisor shall investigate and report in writing to his management significant observed or reported ASME Code or Quality Assurance Program nonconformance by the Certificate Holder engaged in the ASME Code Section III, Division 2 activities.

3-2.2.11 The Supervisor shall record, in the Inspector Diary (see 3-3.2.19), dates of all audits and visits to shop and field locations when related to supervisory duties.

3-3 THE AUTHORIZED NUCLEAR INSPECTOR (CONCRETE)

3-3.1 Qualifications

The Inspector shall be selected and designated as such by his employer. The Inspector shall have the qualifications specified in 3-3.1.1 through 3-3.1.9.

3-3.1.1 The Inspector shall have passed an examination developed and administered by the National Board and received a "C" endorsement from the National Board. The examination shall encompass sufficient means to determine the candidate's knowledge of, and familiarity with, the ASME Code. The examination shall be graded by the National Board and results provided to the AIA concerned.

3-3.1.2 A candidate for designation as an Authorized Nuclear Inspector (Concrete) shall have qualified as an Authorized Nuclear Inspector and shall have been engaged for at least 1 yr in design, construction, or inspection of concrete structures similar to those used on nuclear facilities or satisfactorily completed an accelerated course in the fundamentals of concrete construction and inspection.

3-3.1.3 The Inspector shall have working knowledge of the ASME Code Section III, Division 2; applicable Code Cases; and reference codes and standards.

3-3.1.4 The Inspector shall have knowledge of quality assurance requirements and shop and field procedures and processes.

3-3.1.5 The Inspector shall have the knowledge and ability to evaluate and monitor shop and field procedures and performance.

3-3.1.6 The Inspector shall have demonstrated the ability to perform shop and field nuclear inspections to the satisfaction of the AIA employing the Inspector.

3-3.1.7 The Inspector shall have a satisfactory degree of experience, knowledge, and background for the inspection of nuclear items, consistent with the complexity of the assignment.

3-3.1.8 The Inspector shall have knowledge of the requirements for lifetime and nonpermanent records.

3-3.1.9 The Inspector shall receive health physics training prior to any exposure to occupational related ionizing radiation.

3-3.2 Duties

The Authorized Nuclear Inspector's (Concrete) duties are covered in the ASME Code and include, but are not limited to, 3-3.2.1 through 3-3.2.19.

3-3.2.1 He shall periodically verify that the fabricator or constructor has the required Certificate of Authorization to construct the items for which he has contract responsibility.

NOTE: The fact that the constructor or fabricator has the required Code Symbol Stamp is not sufficient evidence to assume that he has a valid Certificate of Authorization.

The fact that the manufacturer or installer has the required Code Symbol Stamp for Section III, Division 1, 3, or 5 work may not be sufficient evidence to assume that he has a valid Certificate of Authorization, as required in the ASME Code Section III, Division 2.

3-3.2.2 He shall monitor¹¹ the Quality Assurance Program and verify conformance to ASME Code requirements. He shall ensure that changes to the QA Program, when made, meet ASME Code requirements and are properly approved and that the Quality Assurance Manual is appropriately updated to reflect such changes. (18)

3-3.2.3 He shall verify that the Certificate Holder has the necessary ASME Code books, Addenda, Code Cases, and reference codes and standards for the work he inspects.

3-3.2.4 He shall verify that the Design Specification, Design Drawings, Design Report, and Construction Specification, where required, are available, properly certified by Registered Professional Engineers in accordance with ASME Code requirements, and that they are on file.

3-3.2.5 He shall verify that material complies with the applicable ASME Code Section III, Division 2 requirements and the Construction Specification.

3-3.2.6 When it is necessary to cut or separate metallic material into two or more pieces, he shall verify that the Certificate Holder's controls are such that responsible personnel transfer the identification in order to maintain traceability of the material.

3-3.2.7 He shall verify that the Certificate Holder's personnel are examining cut edges of metallic materials as required by the ASME Code Section III, Division 2.

3-3.2.8 He shall verify that Welding Procedure Specifications and all concrete batching, mixing, and placing procedures conform to the ASME Code Section III, Division 2 and the Construction Specification.

3-3.2.9 He shall verify that welders and welding operators are properly qualified and that their qualification permits them to use the required procedures.

3-3.2.10 If either concrete repairs or welding repairs are found to be necessary during construction, he shall verify that only properly qualified procedures, personnel, and materials are used.

3-3.2.11 He shall verify that required heat treatments of metallic materials have been performed and are properly documented.

3-3.2.12 He shall verify that required examinations and tests conform to qualified procedures specified in the Construction Specifications, that the results are documented, and that they are performed by qualified personnel. He shall also verify that compression, tension, weighing, and measuring equipment is calibrated.

3-3.2.13 He shall visually verify that reinforcing bar placement and size are as specified in the Design Drawings and the Construction Specification prior to concrete placement. He shall visually verify that tendon conduits, where used, are properly sized, placed, and protected prior to, and during, concrete placement as specified in the Design Drawings and the Construction Specification.

3-3.2.14 He shall visually verify form cleanliness prior to concrete placement, the application of specified procedures during placement, and proper concrete curing prior to, and after, removal of forms as specified in the Construction Specification.

3-3.2.15 He shall perform the required inspections of inaccessible areas and witnessing of vacuum box testing when required by the ASME Code, prior to closure for hydrostatic or pneumatic tests. He shall witness all hydrostatic or pneumatic tests.

3-3.2.16 He shall verify that the responsible representative of the Certificate Holder signs the required Data Report and verifies it as correct before he signs it.

3-3.2.17 Prior to stamping he shall verify to the best of his knowledge and belief that the item is in compliance with the ASME Code. He shall also verify that the name-

plate stamping is correct and that the nameplate has been properly attached.

3-3.2.18 He shall review and certify that the documentation of the Construction Report is in compliance with the ASME Code.

3-3.2.19 He shall keep an electronic or bound (not looseleaf) record or diary of his activities and inspections made, detailing corrections and any other pertinent data that will be useful to him and his employer. Information to be recorded shall include a description of the item inspected, the type of observations made, and the results of inspection. (18)

3-3.2.19.1 Electronic diaries shall, as a minimum (18)
(a) be under the complete administrative control of the AIA

(b) be secured in a way that prevents revisions, additions, or deletions to data previously logged in the diary

(c) provide a means for other inspectors and supervisors, within the AIA, to review diary entries, as required

(d) include a provision for signatures by a PIN or other secure means

3-3.2.19.2 All diaries, whether electronic or bound, shall as a minimum

(a) be completed daily or at each inspection visit by the Inspector.

(b) be available at the location of the inspection. For field sites, the diary must be available for the duration of the work.

(c) be maintained for a minimum of 5 yr from the date of the entry.

(d) be available for surveys, reviews, audits, and investigations.

3-3.3 Performance of Inspector's Duties

The audit performed in conformance with 3-2.2.6 and documented in accordance with 3-2.2.7 shall provide evidence of the satisfactory performance of the duties of 3-3.2 by the Inspector.

Part 4

Accreditation of Authorized Inspection Agencies

4-0 SCOPE

Part 4 is for use with the ASME Code,¹ Section I; Section III, Divisions 1, 2, 3, and 5; Section IV; Section VIII, Divisions 1, 2, and 3; Section X; Section XI; and Section XII, including applicable Addenda and Code Cases.

4-1 REQUIRED ACCREDITATION TO PROVIDE AUTHORIZED INSPECTION SERVICES

Authorized Inspection Agencies (AIA) shall be accredited by the Society¹⁷ pursuant to the provisions set forth in this Part.

4-2 SCOPE OF ACCREDITATION

(a) The AIA Certificate of Accreditation shall identify the office locations from which inspection service is controlled and state the scope of inspections by Code Sections, and Divisions thereof, for which accreditation is granted. Certificates of Accreditation are issued for a 3-yr period. The Society may, at its discretion, limit or extend the scope of inspection and remove or add locations.

(b) The Society may, at any time, make regulations concerning the issuance and use of Certificates as it deems appropriate, and all regulations shall become binding upon the holders of Certificates.

4-3 APPLICATION FOR ACCREDITATION

An organization desiring an AIA Certificate of Accreditation shall apply to the Society upon forms issued by the Society describing the basis for qualification as an AIA and the scope of activities to be accredited. Upon completion of a successful survey¹⁸ and favorable action by the Society, the applicant shall be granted an AIA Certificate of Accreditation.

On initial application, the requirements of 1-1.1, 2-1.1, 3-1.1, and 5-1.1 to employ Inspectors and Supervisors may be demonstrated by having been issued Provisional Acceptance from the National Board of Boiler and Pressure Vessel Inspectors in accordance with its established criteria (NB-360) and evidence issued from the National Board that the Applicant's employees to whom commissions and applicable endorsements will be issued meet the National Board Rules for Commissioned Inspectors. The organization will not be

permitted to perform inspections until Inspectors have received their National Board Commissions and applicable endorsements and the organization has been issued an AIA Certificate of Accreditation from ASME.

4-4 EVALUATION FOR AN AIA CERTIFICATE OF ACCREDITATION

(a) Applicants for a new or renewed AIA Certificate of Accreditation require a survey at a location or locations where the applicant's QAI-1 and Boiler and Pressure Vessel Code inspection activities are controlled. The applicant shall specify the location(s) at which the QAI-1 Quality Program will be fully demonstrated. It is not necessary to survey each office or location covered by the same program provided documentation is made available to the Survey Team. The purpose of the survey is to evaluate the applicant's QAI-1 Quality Program including its implementation.

(b) The extent of the survey will be determined by the Society based on a review of the applicant's intended scope of ASME Code activities described in the application. The acceptance by the Society of the QAI-1 Quality Program shall not be interpreted to mean endorsement of the items or activities inspected by the AIA personnel.

(c) As part of the accreditation process for a new or renewed AIA Certificate of Accreditation, the AIA shall provide a controlled copy of the AIA Quality Program, required to be maintained in accordance with 1-1.3, 2-1.3, 3-1.3, and 5-1.3, to the Society.

(d) All changes to the AIA Quality Program shall be controlled. Copies of changes to the AIA Quality Program shall be provided to the Society for review and acceptance before implementation.

(e) An AIA shall provide ASME Survey Teams access to facilities, premises, and records necessary to assess conformance with this Standard.

(f) The required AIA Certificate of Accreditation to provide inspection services shall be granted only after the adequacy of this content and implementation of the QAI-1 Quality Program has been satisfactorily demonstrated to an ASME Survey Team and the survey results acted upon by the Society.

(g) The AIA will be subject to a planned audit program by the Society.

4-5 ISSUANCE OF ACCREDITATION

Each Certificate of Accreditation holder shall have agreed that each Certificate is at all times the property of the Society, that it will be used according to the rules and regulations of this Standard, and that the Certificate will be promptly returned to the Society upon demand, or when the Certificate of Accreditation holder discontinues the scope of inspection activities covered by the Certificate. The holder of a Certificate of Accreditation shall not permit any other party to

use its Certificate. The Society reserves the absolute right to cancel or refuse to renew such accreditation, returning fees paid for the prorated unexpired term.

4-6 RENEWAL OF ACCREDITATION

Not later than 6 months prior to the date of expiration of the Certificate, the AIA Certificate of Accreditation holder desiring renewal shall apply for renewal of such accreditation and the reissuance of the Certificate.

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Part 5

Qualifications and Duties for Authorized Inspection Agencies and Inspector Supervisors, and Qualifications for Inspectors of Boilers and Pressure Vessels (Applicable to ASME Boiler and Pressure Vessel Code, Section I; Section IV; Section VIII, Divisions 1, 2, and 3; Section X; and Section XII)

5-0 SCOPE

Part 5 is for use with the ASME Code,¹ Section I; Section IV; Section VIII, Divisions 1, 2, and 3; Section X; and Section XII, including applicable Addenda and Code Cases.

5-1 THE AUTHORIZED INSPECTION AGENCY

5-1.1 Qualifications

An Authorized Inspection Agency (AIA) is an organization meeting the criteria of this Standard that is accredited by the Society pursuant to the provisions set forth in **Part 4** to provide AIA services within a jurisdiction.¹⁹ Such agencies employ Authorized Inspectors and Inspector Supervisors that meet the criteria of this Standard and of the National Board Rules for Commissioned Inspectors.³

(18) **5-1.1.1** An AIA shall be one of the following:

(a) a jurisdiction that accepts and does administer one or more construction code sections²⁰ of the ASME Code as a means to satisfy legal or regulatory requirements.

(b) an insurance company that has been licensed or registered by the appropriate authority of a state of the United States of America, or of a province of Canada, to write boiler and pressure vessel insurance in such state or province. The insurance company shall show its willingness and capability to provide boiler and pressure vessel insurance coverage by being actively engaged in writing such insurance in one or more of the states or provinces where so licensed or registered.

(c) a company in the business of providing "third party" inspection services. The company shall have

(1) recognition from a government entity⁴ to perform inspection and design examinations for pressure-retaining items²¹ for installation within its jurisdictional boundaries

(-a) The company shall be a registered entity within the same city, state, province, or country as the government entity that is providing the recognition.

(-b) The government entity may elect to designate another organization to authorize the performance of inspections and design examinations.

(2) accreditation or certification under a recognized accreditation or certification scheme that is found acceptable by ASME

(-a) The scope of activity on the certificate shall identify the performance of inspections and design examinations for pressure vessels and/or boilers.

(-b) The certificate shall be valid and in good standing.

(-c) The company shall have undergone at least one accreditation or certification renewal cycle.

(3) appropriate levels of financial support or liability insurance

5-1.1.2 The jurisdiction described in **5-1.1.1(a)** may designate one or more organizations to act on its behalf to enforce its regulations. The organization shall

(a) provide evidence establishing that such delegation of authority is duly authorized by the laws of the jurisdiction

(b) describe how the ASME Code is accepted by the jurisdiction

(c) describe how the ASME Code is enforced by the organization

5-1.1.3 An AIA shall be accredited by the Society pursuant to the provisions set forth in **Part 4**. The AIA services provided by their Inspectors and Inspector Supervisors shall also be subject to audit by ASME for compliance with this Standard during shop or site reviews of organizations for which they provide Authorized Inspection.

5-1.1.4 The AIA shall provide authorized inspection services by Inspectors and Inspector Supervisors who meet the qualifications of the Inspector²² and of the Inspector Supervisor as defined herein.

- (18) **5-1.1.5** The AIA shall demonstrate the capability to perform the duties required by [Part 5](#).

5-1.1.6 The AIA shall have the resources necessary to comply with the requirements of [Part 5](#).

5-1.1.7 The AIA shall have no commercial interest in, or shall be independent of any part of an organization having direct commercial interest in, the products to be inspected. The staff shall be free from any commercial, financial, and other pressures that might influence their judgment or the results of their work.

5-1.1.8 The AIA shall have adequate arrangements to safeguard the confidentiality of information obtained during inspection activities.

5-1.1.9 Authorized Inspection Agencies described in [5-1.1.1\(b\)](#) and [5-1.1.1\(c\)](#) shall have liability insurance and shall

(a) be able to demonstrate that they have adequate arrangements (e.g., insurance or reserves) to cover the liabilities

(b) evaluate their finances and sources of income and shall be able to demonstrate that initially, and on an annual basis, commercial, financial, or other pressures do not compromise their impartiality

(c) retain documentary evidence that they have reviewed their activities on an annual basis to ensure that the requirements of (a) and (b) have been met

(d) declare by signature in the Quality Assurance Manual's Statement of Policy that the requirements of (a) and (b) will be met

(e) submit the documentary evidence as part of their application for the ASME Certificate of Accreditation

- (18) **5-1.1.10** When the AIA is a legal entity within a larger organization, the relationship between entities within the larger organization structure shall be clearly delineated within the AIA Quality Program as required by [5-1.3](#). The quality program shall clearly recognize and address the following requirements:

(a) Personnel of the AIA shall be free from any commercial, financial, and other pressures which can affect their judgement or cause a conflict with their duties. Procedures shall be implemented to ensure personnel or organizations related to the AIA cannot influence AIA activities required by this Standard.

(b) The AIA shall be independent to the extent that is required with regard to the conditions under which it performs its services. The AIA and its employees shall meet the criteria described below.

(1) shall function independently from any other organization entity, shall have their responsibilities clearly defined, and shall have the organizational freedom and authority to fulfill those responsibilities

(2) when performing AIA activities, shall not have or participate in any other functions, such as designer, manufacturer, supplier, installer, purchaser, owner, user, or

maintainer of the items that they inspect, nor be the authorized representative for any of these functions

(3) shall not engage in any activity that may conflict with their judgement and integrity in relation to performing their AIA activities

5-1.2 Duties

(18)

An AIA²³ shall perform the duties specified in [5-1.2.1](#) through [5-1.2.13](#).

5-1.2.1 Provide Supervisors and/or Inspectors to participate in the ASME reviews of Certificate Holders for which they provide Authorized Inspection. (18)

Ensure the Inspector's diary is made available for all ASME reviews and investigations where an AIA has provided Authorized Inspections to the Certificate Holder during the period under review or investigation. The purpose of the diary is to provide a record of the Inspector's activities and to support the continuity of inspections.

5-1.2.2 Provide qualified Inspectors to monitor¹¹ construction in accordance with the ASME Code. (18)

5-1.2.3 Employ qualified Supervisors²⁴ to monitor the performance of the Inspectors and to audit the activities at shops and field sites for which inspection agreements have been made, in accordance with the requirements of [5-2.2.5](#).

5-1.2.4 Give written notice to all Inspectors of the name, office address, e-mail address, office phone, and mobile phone of their respective Supervisors annually or whenever there is a change in the above contact information.

5-1.2.5 Assure proper execution of responsibilities. In particular, the Agency shall

(a) establish and implement an internal program which shall provide assurance that those of its employees holding the positions of Supervisor and Inspector perform work in accordance with the requirements of [Part 5](#). This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout the term of any agreement covering inspections required by the ASME Code, in accordance with the program. The program shall provide for indoctrination and training of personnel performing such activities, as necessary, to ensure that suitable proficiency is achieved and maintained.

(b) provide instructions in writing to Inspectors and their Supervisors, specifying their respective duties and responsibilities.

(c) provide instructions in writing to Inspectors requiring them to immediately contact their Supervisor whenever the Inspector is unable to readily resolve any question concerning ASME Code compliance, manufacturing procedure, or quality control provision or its

implementation. Instructions should be included as a reminder to the Inspector that he has the authority and the duty to refuse to sign any Data Reports involving nonconformance with the ASME Code.

(d) conduct annual planned audits of activities performed by Supervisors to verify compliance with the provisions of Part 5 and the ASME Code. The audit shall be performed by appropriately trained personnel, in accordance with a written procedure or checklist. Audit results shall be documented and reviewed by management. Follow-up action, including reaudit of deficient areas, shall be taken where indicated to ensure that necessary corrective action is completed.

5-1.2.6 Provide certification for each Inspector and Supervisor to be performing work under the provisions of the ASME Code, to ensure that the Inspectors and Supervisors meet the required experience and training requirements of Part 5. Certification and documentation of qualifications shall be retained by the employer and shall be made available for review by the jurisdictional authorities and the ASME upon request.

- (18) **5-1.2.7** Submit to the National Board an application for an Authorized Inspector Commission for the Inspector applicant, certifying that he has the required experience and training and that qualified supervision will be provided to ensure that the Inspector satisfactorily fulfills his functions.

5-1.2.8 Submit to the National Board an application for a "B" endorsement for the Supervisor applicant, certifying that the Supervisor has the required experience and training.

5-1.2.9 Verify to the National Board that audits required by 5-2.2.5 have been carried out.

5-1.2.10 Notify the ASME Conformity Assessment department when entering into an agreement or whenever an existing agreement is terminated with an ASME Certificate Holder.

5-1.2.11 Notify the ASME Conformity Assessment department immediately when a change in qualification status as indicated in 5-1.1.1, or on the Certificate of Accreditation, occurs.

5-1.2.12 Annually review the Quality Control System for each "UM" Certificate of Authorization Holder for which they have an inspection contract or agreement.

- (18) **5-1.2.13** When requested by ASME, perform follow-up activities on Certificate Holders for which they provide Authorized Inspection services.

5-1.3 AIA Quality Program

5-1.3.1 A documented Quality Program shall be established, implemented, and maintained by the AIA in accordance with the requirements of this Standard. The AIA

Quality Program shall identify the activities to which it applies and shall provide for the planning, control, and accomplishment of activities affecting the quality of the AIA's implementation of duties and activities as described in applicable parts of this Standard.

5-1.3.2 The AIA Quality Program shall, as a minimum, include the following parts:

(a) *Organization.* The Program shall document the organizational structure, functional responsibilities, levels of authority, and lines of responsibility for activities required for compliance with requirements of this Standard.

(b) *Program Description.* The Program shall describe the scope of the activities for which the Program applies. The scope shall include all requirements of this Standard for which the AIA is accredited by the Society (or for which the applicant is seeking Society accreditation as an Accredited Authorized Inspection Agency). The Program shall document the policies and describe the process for the implementation of the requirements of this Standard.

(c) *Document Control.* The Program shall describe the process for the review and revision of the Program. All changes to the Program shall be controlled and the process for review and approval of changes shall be specified. All changes to the Program require prior review and acceptance by the Society before implementation as required by 4-4(d). Further, the Program shall be controlled to ensure appropriate distribution to and use at the location(s) where the prescribed activity is performed.

(d) *Training.* The Program shall describe the process for the indoctrination and training of personnel as required by 5-1.2.5(a).

(e) *Records.* The Program shall describe the process for records management. The description shall include measures to ensure that the records are controlled and maintained in a manner that prevents damage, deterioration, and loss. The AIA's records necessary to verify compliance with this Standard, except for personnel qualification records, shall be maintained for a minimum of 5 yr. The personnel qualification records, necessary to verify compliance with this Standard, shall be maintained while the individual is providing AIA services and for a minimum of 5 yr after the individual ceases to provide AIA services.

(f) *Corrective Actions.* The Program shall describe the process for the identification, review, and correction of conditions or activities that are not conducted in accordance with the Program. Corrective action shall be taken to preclude the repetition of nonconforming conditions. The description of the process shall include how corrective action is implemented, documented, and reported to management.

(g) *Audits.* The Program shall describe the audit process and shall include the following as a minimum:

(1) A comprehensive system of planned and periodic audits shall be carried out to verify compliance with applicable requirements of this Standard and the AIA Quality Program and to determine its effectiveness. The audits shall be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibility in the areas being audited.

(2) Audit results shall be documented and the results shall be reviewed by management responsible for the area audited. Follow-up action including reaudit of deficient areas shall be taken where indicated.

(3) At least annually, the overall adequacy and effectiveness of the implementation of the AIA Quality Program shall be reviewed and the results of the review documented and reported to management.

5-2 THE AUTHORIZED INSPECTOR SUPERVISOR

5-2.1 Qualifications

The Supervisor shall be selected and designated as such by his employer. The Supervisor shall have the qualifications specified in 5-2.1.1 through 5-2.1.4.

5-2.1.1 The Supervisor shall have passed an examination developed and administered by the National Board and received a "B" endorsement from the National Board. The examination shall encompass sufficient means of determination of the candidate's ability to ascertain the validity of the ASME Code requirements, including quality control, material, design, overpressure protection, fabrication methods, inspections, tests, and certification by stamps and data reports. The examination shall be graded by the National Board and results provided to the AIA concerned.

5-2.1.2 A candidate for designation as an Authorized Inspector Supervisor shall have qualified as an Authorized Inspector and subsequently shall have been engaged for at least 2 yr in ASME Code-related work, such as inspection under the provisions of the ASME Code, or shall have been engaged for at least 2 yr in the administration of shop inspection service under the ASME Code.

5-2.1.3 The Supervisor shall have knowledge of ASME Code shop review procedures, which shall include service with at least three shop review teams as a member or as an observer.

5-2.1.4 The Supervisor shall have a working knowledge of the requirements of applicable ASME Code Sections, applicable Code Cases, and reference codes and standards.

5-2.2 Duties

The Supervisor shall perform the duties specified in 5-2.2.1 through 5-2.2.8.

5-2.2.1 Maintain a record of Certificate Holders' shop and field sites where Inspectors assigned to him by his Agency for supervision are performing ASME Code inspection activities. He shall record the date of his visits to such locations when related to his assigned supervisory duties.

5-2.2.2 Maintain a record of those Inspectors assigned and a description of their assignments.

5-2.2.3 Assist in maintaining the competency of the Inspector to an acceptable level through periodic arrangement of panel discussions of work-related topics, written communications of unique problems and their solution, informal question and answer discussion sessions, and other means he deems suitable. The Supervisor shall maintain documentation of such activities.

5-2.2.4 The Supervisor shall be responsible for the technical performance of the Inspector(s) assigned to him. He shall report in writing to his management significant nonconforming activities that are reported to him or that he observed on the part of the Inspector, following full investigation of such activities.

5-2.2.5 Audit the performance of each Inspector as specified below.

(a) The audit shall be performed at least once each year at approximately 12-month intervals and at additional times as requested by the Inspector.

(b) The audit shall take place at a shop or field site location.

(c) The Supervisor shall be accompanied by the Inspector during the audit.

(d) An audit is not required if the Inspector has not been engaged in ASME Code inspection activity within the time specified in (a).

5-2.2.6 The audit required by 5-2.2.5 shall be recorded in writing, containing the status of each item audited and a brief description of the objective evidence reviewed to evaluate the duty being audited.

5-2.2.7 Confirm the corrective action has been verified by the Inspector to ensure compliance with the ASME Code requirements at the shops and sites which have been assigned to the Supervisor.

5-2.2.8 The Supervisor shall record, in the Inspector Diary (see 5-3.3), dates of all audits and visits to shop and field locations when related to supervisory duties.

5-3 THE AUTHORIZED INSPECTOR

5-3.1 Qualifications

The Inspector shall be selected and designated as such by his employer. The Inspector shall have the qualifications specified in 5-3.1.1 through 5-3.1.8.

- (18) **5-3.1.1** The Inspector shall have passed an examination developed and administered by the National Board and received an Authorized Inspector Commission from the National Board. The examination shall encompass sufficient means to determine the candidate's knowledge of, and familiarity with, the ASME Code. The examination shall be graded by the National Board and results provided to the AIA concerned. The Inspector shall have been engaged for at least 80 hr of diversified experience as an Inspector Trainee under the direct supervision of an Authorized Inspector.
- (18) **5-3.1.2** The Inspector shall comply with the National Board Rules for Inservice and New Construction Commissioned Inspectors (NB-263) and hold a valid Certificate of Competency²⁵ (where required).
- 5-3.1.3** The Inspector shall have a working knowledge of applicable ASME Code Sections, applicable Code Cases, and reference codes and standards.
- 5-3.1.4** The Inspector shall have knowledge of quality assurance requirements and shop and field procedures and processes.
- 5-3.1.5** The Inspector shall have the knowledge and ability to evaluate and monitor shop and field procedures and performance.
- 5-3.1.6** The Inspector shall have demonstrated the ability to perform shop and field inspections to the satisfaction of the AIA employing the Inspector.
- 5-3.1.7** The Inspector shall have a satisfactory degree of experience, knowledge, and background for the inspection of boilers and pressure vessels, consistent with the complexity of the assignment.
- 5-3.1.8** The Inspector shall have knowledge of the requirements for quality assurance records.

5-3.2 Performance of Inspector's Duties

The audit performed in conformance with 5-2.2.5 and documented in accordance with 5-2.2.6 shall provide evidence of the satisfactory performance of the duties as specified in the applicable Sections of the ASME Code and the National Board Rules for Commissioned Inspectors.

5-3.3 Inspector Diary

(18)

The Inspector shall keep an electronic or bound (not looseleaf) record or diary of his activities and inspections made, detailing corrections and any other pertinent data that will be useful to him and his employer. Information to be recorded shall include a description of the item inspected, the type of observations made, and the results of inspection.

5-3.3.1 Electronic diaries shall, as a minimum

(18)

- (a) be under the complete administrative control of the AIA
- (b) be secured in a way that prevents revisions, additions, or deletions to data previously logged in the diary
- (c) provide a means for other inspectors and supervisors, within the AIA, to review diary entries, as required
- (d) include a provision for signatures by a PIN or other secure means

5-3.3.2 All diaries, whether electronic or bound, shall as a minimum

- (a) be completed daily or at each inspection visit by the Inspector.
- (b) be available at the location of the inspection. For field sites, the diary must be available for the duration of the work.
- (c) be maintained for a minimum of 5 yr from the date of the entry.
- (d) be available for surveys, reviews, audits, and investigations.