

TITLE 32: ENERGY
CHAPTER II: ILLINOIS EMERGENCY MANAGEMENT AGENCY
SUBCHAPTER c: NUCLEAR FACILITY SAFETY

PART 505
SAFE OPERATION OF NUCLEAR FACILITY BOILERS AND PRESSURE VESSELS

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AUTHORITY: Implementing and authorized by the Nuclear Safety Law of 2004 [20 ILCS 3310/25], Sections 2a and 2b of the Boiler and Pressure Vessel Safety Act [430 ILCS 75/2a and 2b] and Section 8(a)(8) of the Illinois Nuclear Safety Preparedness Act [420 ILCS 5/8(a)(8)].

SOURCE: Emergency Rule adopted at 17 Ill. Reg. 15667, effective September 10, 1993, for a maximum of 150 days; adopted at 18 Ill. Reg. 2317, effective February 7, 1994; amended at 20 Ill. Reg. 6455, effective April 26, 1996; amended at 23 Ill. Reg. 13089, effective October 6, 1999; recodified from the Department of Nuclear Safety to the Illinois Emergency Management Agency at 27 Ill. Reg. 13641; amended at 27 Ill. Reg. 15339, effective September 16, 2003; amended at 33 Ill. Reg. 4345, effective March 9, 2009; amended at 41 Ill. Reg. 645, effective January 4, 2017; amended at 45 Ill. Reg. 686, effective December 23, 2020.

SUBPART A: GENERAL

Section 505.10 Scope

This Part shall apply to all boilers and pressure vessels contained within or upon or in connection with nuclear facilities within this State except as provided in Section 505.50 and elsewhere in this Part. This Part sets forth standards for the safe and proper design, construction, installation, inspection, inservice examination and testing, repair and alteration of boilers and pressure vessels which are consistent with ASME Boiler and Pressure Vessel Code and National Board Inspection Code requirements as adopted and enforced by the Nuclear Regulatory Commission (NRC). This Part provides for the registration of boilers and pressure vessels. This Part also provides for the issuance of Inspection Certificates for nuclear power systems and non-ISI boilers and pressure vessels to document that such power systems, boilers and pressure vessels

comply with this Part.

Section 505.20 Policy

- a) Pursuant to the Boiler and Pressure Vessel Safety Act and the Nuclear Safety Law of 2004, the Agency has sole jurisdiction over all boilers and pressure vessels contained within or upon or in connection with any nuclear facility within this State and has the same powers and duties as the State Fire Marshal and the Board of Boiler and Pressure Vessel Rules with regard to those boilers and pressure vessels notwithstanding any other provision to the contrary.
- b) It is the intent of the Agency that the boiler and pressure vessel safety program be implemented in a manner consistent with the State role provided for in the ASME Code and National Board Inspection Code. The Agency intends to review Inservice Inspection Plans, reports and other documentation, as provided in this Part, to determine, in coordination and cooperation with the NRC, compliance with the ASME Code, National Board Inspection Code and other applicable codes and standards incorporated by reference in Section 505.40.
- c) This Part is not intended to be, in any way, inconsistent with the applicable regulations, rules and requirements of the NRC. If a requirement of this Part as applied in any situation is or would be inconsistent with the regulations, rules and requirements of the NRC, the requirements of this Part shall not be applied. In addition, if the application of any requirement of this Part could affect the safety or the operation of the nuclear facility, as determined by the NRC, the Agency shall apply the requirements only with the prior concurrence of the NRC, as provided for in Section 505.86.

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.30 Definitions

The following definitions shall apply to this Part:

"Act" means the Boiler and Pressure Vessel Safety Act [430 ILCS 75].

"Agency" means the Illinois Emergency Management Agency.

"Alteration" means a change to a boiler or pressure vessel made necessary by, or resulting in, a change in design requirements. Non-physical changes such as rerating of a boiler or pressure vessel shall be considered an alteration. The addition of nozzles smaller than a reinforced opening size shall not be considered an alteration.

"ANSI" means the American National Standards Institute, 1430 Broadway, New York NY 10018.

"Appurtenance" means an item attached to a stamped component that has work performed on it requiring verification by an Authorized Inspector.

"ASME" means the American Society of Mechanical Engineers, 345 E. 47th Street, New York NY 10017.

"ASME Code" means the American Society of Mechanical Engineers Boiler and Pressure Vessel Code with addenda thereof made, approved and adopted by the Council of the Society and adopted and incorporated by the Agency in Section 505.40. Copies of the ASME Code may be obtained from the American Society of Mechanical Engineers.

"ASME Code Case" or "Code Case" means a document published by ASME to clarify the intent of the ASME Code or to provide alternative requirements to those specifically indicated in the ASME Code due to special circumstances or for the use of new technology.

"Authorized Inspection Agency" means one of the following organizations:

A department or division established by a jurisdiction that has adopted one or more Sections of the ASME Code and whose inspectors hold valid commissions issued by the National Board of Boiler and Pressure Vessel Inspectors. In Illinois, the Division of Boiler and Pressure Vessel Safety of the Office of the State Fire Marshal (OSFM) is the jurisdiction, except for the City of Chicago; or

An insurance company that has been licensed or registered by the appropriate authority in the State of Illinois to write boiler and pressure vessel insurance in the State of Illinois; or

A company in the business of providing third party inspection services that has recognition from the State of Illinois to perform inspection and design reviews for boilers and pressure vessels; or

An owner of boilers or pressure vessels who maintains a regularly established inspection department, whose organization and inspection procedures meet the requirements established by OSFM.

"Authorized Inspector" means an individual who is employed by an authorized

inspection agency and meets the requirements of Section 505.180.

"Boiler" means a closed vessel used to heat water or other liquids or to generate steam or other vapors under pressure or vacuum by the application of heat resulting from the combustion of fuels, electricity, atomic energy or waste gases.

"Power boiler" means a boiler in which steam or other vapor is generated at a pressure of more than 15 psig and includes water boilers operating at pressures exceeding 160 psig or temperatures exceeding 250° F at or near the boiler outlet.

"High pressure, high-temperature water boiler" means a water boiler operating at pressures exceeding 160 psig or temperatures exceeding 250° F at or near the boiler outlet.

"Heating boiler" means a steam heating boiler operated at pressures not exceeding 15 psig, or a hot water heating boiler operated at pressures not exceeding 160 psig or temperatures not exceeding 250° F at or near the boiler outlet.

"Hot water supply boiler" means a boiler (including fired storage water heater) furnishing hot water to be used externally to itself at pressures not exceeding 160 psig or temperatures not exceeding 250° F at or near the boiler outlet.

"Certificate inspection" means an inspection, the report of which is used by the Agency as justification for issuing, withholding or revoking the Inspection Certificate.

"Condemned" means any boiler or pressure vessel, including related appurtenances, that has been inspected and declared unsafe, or disqualified by legal requirements, by the Agency.

"Design pressure" means the pressure used in the design of a boiler or pressure vessel for the purpose of determining the minimum permissible thickness or physical characteristics (e.g., material properties) of different parts of the vessel, in accordance with design standards of the ASME Code.

"Director" means the Director of the Illinois Emergency Management Agency.

"External inspection" means as complete an examination as can reasonably be made of the external surfaces of a boiler or pressure vessel. This examination shall be made while it is in operation, if possible.

"Inoperative" means a boiler, pressure vessel or attached appurtenance that is no longer capable of functioning within its design requirements. The inability of support equipment to operate does not cause a boiler or pressure vessel to be considered inoperative.

"Inservice inspection interval" means the period of time during which inservice examinations and system pressure tests are performed, as defined by the owner in accordance with ASME Code Section XI.

"Inservice inspection period" means a subdivision of the inservice inspection interval, as defined by the owner in accordance with ASME Code Section XI.

"Inservice Inspection Plan" means the documents prepared by the owner in accordance with paragraph IWA-2420 of the edition and addenda of Section XI approved by the NRC for use by the plant (10 year plan).

"Inspection" means examination and evaluation of documents and hardware by an Authorized Inspector to determine conformance of an item or an activity to the requirements of this Part.

"Inspection Certificate" means a certification issued by the Agency for the operation of a non-ISI boiler or pressure vessel or nuclear power system.

"Internal inspection" means as complete an examination as can reasonably be made of the internal surfaces of a boiler or pressure vessel while it is shut down and manhole plates, handhole plates or other inspection opening closures are removed as required by the Authorized Inspector.

"ISI boiler or pressure vessel" means any boiler or pressure vessel, including related appurtenances, that is in the owner's Inservice Inspection Plan.

"Maintenance" means routine activities conducted on an item that are performed and controlled in accordance with the owner's procedures, including minor restorative actions, that are not otherwise classified as a repair, replacement or alteration.

"Maximum Allowable Working Pressure" or "MAWP" means the maximum gauge pressure permissible (in accordance with the design requirements) at the top of a vessel in its operating position at the design temperature. This pressure is the least of those calculated for every element of the vessel using nominal thickness exclusive of allowances for corrosion and thickness required for loadings other than pressure. It is the basis for the pressure setting of the pressure

relieving devices (e.g., pressure relief valves) protecting the vessel. The design pressure may be used in place of the maximum allowable working pressure in all cases for which calculations are not made to determine the value of the maximum allowable working pressure.

"National Board" means the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus OH 43229.

"National Board Inspection Code" means the National Board Inspection Code published by the National Board and adopted and incorporated by the Agency in Section 505.40. Copies may be obtained from the National Board.

"NFPA" means the National Fire Protection Association, 1 Batterymarch Park, Quincy MA 02269.

"Non-ISI boiler or pressure vessel" means any boiler or pressure vessel, including related appurtenances, that is not in the owner's Inservice Inspection Plan.

"Non-standard boiler or pressure vessel" means any boiler or pressure vessel, including related appurtenances, that does not bear the Certification Mark with appropriate designator.

"NRC" means the United States Nuclear Regulatory Commission or any agency that succeeds to its function in the licensing of nuclear power reactors or facilities, or facilities for spent nuclear fuel.

"Nuclear facility" means a nuclear power station. There may be one or more nuclear power systems at a nuclear power station.

"Nuclear power system" means all ISI boilers and pressure vessels in a unit, including their appurtenances, at a nuclear facility that are inspected in accordance with an Inservice Inspection Plan. Such components are generally associated with systems that serve the purpose of producing and controlling the output of thermal energy from nuclear fuel and associated systems essential to the function and overall safety of the nuclear power system.

"OSFM" means the Illinois Office of the State Fire Marshal.

"Outage" means temporary suspension of operation of a component or system to conduct actions such as maintenance, forced repairs or testing of equipment.

"Owner" means any organization, person, firm or corporation legally responsible for the safe operation of any boiler or pressure vessel at a nuclear facility within

the State.

"PSIG" means pounds per square inch gauge and is a measure of pressure.

"Pressure relief valve" means a safety valve, relief valve or safety relief valve.

"Pressure vessel" means an enclosed vessel in which pressure is obtained from an external source, or by applying heat from an indirect source or from a direct source other than boilers as defined in this Section. Reactor containments are not considered pressure vessels.

"Quality Assurance Program" means a controlled system of planned and systematic actions required to provide adequate confidence that the items designed and constructed are in accordance with the rules of the ASME Code Section III; or all the planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service in accordance with Appendix B of 10 CFR 50 (2007), as applicable.

"Refueling outage" means temporary suspension of power production of the nuclear power system to conduct actions, including refueling the reactor. Refueling outages normally occur approximately every 2 years.

"Reinstalled" means any boiler or pressure vessel, including related appurtenances, removed from its original setting and reinstalled at the same location or at a new location within the State of Illinois without change of ownership.

"Relief valve" means an automatic pressure relieving device, actuated by the static pressure upstream of the valve, that opens further with the increase in pressure over the opening pressure. It is used primarily for liquid service.

"Repair" means the process of restoring a nonconforming item by welding or brazing so that existing design requirements are met.

"Report of Inspection" means a report prepared by an Authorized Inspector that documents that a non-ISI boiler or pressure vessel meets the requirements of this Part for installation and periodic inspection.

"Reportable event" means any accident that either causes a boiler or pressure vessel to become inoperative due to damage from an explosion, catastrophic event or failure due to material condition, of either itself or an attached appurtenance, or results in death or bodily injury to a person.

"Rerated" or "Rerating" means alteration.

"Safety relief valve" means an automatic pressure actuated relieving device suitable for use as a safety or relief valve, depending on application.

"Safety valve" means an automatic pressure relieving device actuated by the static pressure upstream of the valve and characterized by full opening pop action. It is primarily used for gas or vapor service.

"State Special" means a boiler or pressure vessel, including related appurtenances, of special construction that may not be constructed in accordance with the ASME Code. See Sections 505.170, 505.1700 and 505.2700 for the procedures for granting a State Special.

"Technical specifications" means part of the Updated or Final Safety Analysis Report and Operating License issued by the NRC that designates safety limits, limiting safety system settings, limiting conditions for operation and surveillance requirements for the safe operation of the nuclear facility.

"Updated or Final Safety Analysis Report" means a report required by the NRC in accordance with 10 CFR 50.34.

"Welding" means a group of processes in which coalescence is produced by heating with an arc or arcs, with or without the application of pressure and with or without the use of filler metal.

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.40 Standards Incorporated by Reference

The Agency hereby adopts and incorporates by reference the following codes and standards.

- a) The Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers with addenda thereto made. Those sections of the ASME Code listed in this Section are incorporated into the regulations of the Agency.
 - 1) ASME Boiler and Pressure Vessel Code, 1952 Edition including all addenda and editions through the 2019 edition, for the following:
 - A) Section I, Rules for Construction of Power Boilers;
 - B) Section II, Materials

Part A – Ferrous Material Specifications

Part B – Nonferrous Material Specifications

Part C – Specifications for Welding Rods, Electrodes and Filler Metals

Part D – Properties (Customary and Metric);

C) Section III, Rules for Construction of Nuclear Facility Components

Subsection NCA – General Requirements for Division 1 and Division 2

Division 1 Appendices

Division 2 – Code for Concrete Containments

Division 3 – Containment Systems for Transportation and Storage of Spent Nuclear Fuel and High-Level Radioactive Material

Division 5 – High Temperature Reactors;

D) Section IV, Rules for Construction of Heating Boilers;

E) Section V, Nondestructive Examination;

F) Section VI, Recommended Rules for the Care and Operation of Heating Boilers;

G) Section VII, Recommended Guidelines for the Care of Power Boilers;

H) Section VIII, Rules for Construction of Pressure Vessels

Division 1

Division 2 – Alternative Rules

Division 3 – Alternative Rules for Construction of High Pressure Vessels;

- I) Section IX, Welding, Brazing, and Fusing Qualifications;
 - J) Section X, Fiber-Reinforced Plastic Pressure Vessels;
 - K) Section XII, Rules for Construction and Continued Service of Transport Tanks.
- 2) ASME Boiler and Pressure Vessel Code, editions and addenda referenced in 10 CFR 50.55a, including all limitations and modifications contained therein, for the following:
- A) Section III, Rules for Construction of Nuclear Facility Components, Division 1; and
 - B) Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components, Division 1 – Rules for Inspection and Testing of Components of Light-Water-Cooled Plants.

AGENCY NOTE: The Agency will review programs at specific plants on the basis of the edition and addenda of Sections III and XI approved by the NRC for the specific plant.

- b) The National Board Inspection Code, 2019 edition, published by the National Board, except that "jurisdiction" shall be read as "Agency".
- c) ASME CSD-1, 2018 edition, Controls and Safety Devices for Automatically Fired Boilers
- d) NFPA 85, 2019 edition, Boiler and Combustion Systems Hazards Code.
- e) ANSI/ASME N626, Qualification and Duties of Authorized Nuclear Inspection Agencies and Personnel, 1974 Edition including all addenda and editions through the N626b-1992 addendum. The Agency also adopts the successor standard to this standard, ASME QAI-1, Qualification for Authorized Inspection, 1995 edition, including all addenda and editions through the 2018 edition.
- f) For documents included in subsections (a) through (e), the Agency is incorporating only those editions and addenda indicated. The Agency is not incorporating any subsequent edition or addendum to these documents. All documents are available for public review, by appointment, at the Agency offices, 1035 Outer Park Drive, Springfield, Illinois.

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.50 Exemptions

The following exemptions to requirements in this Part shall be permitted, except as defined in this Section or as otherwise provided in this Part. The exemptions provided in subsections (a)(1), (2), (3) and (4) shall not be permitted for ISI boilers and pressure vessels.

- a) Except as provided in Section 505.70, the following boilers and pressure vessels shall be exempt from the requirements of this Part:
 - 1) Those classes of pressure vessels not within the scope of ASME Code Section VIII, Division I as defined in the introduction under paragraph U-1.
 - 2) Boilers and pressure vessels which have either a Limiting Condition for Operation (LCO) or a surveillance requirement in the plant's technical specifications.
 - 3) Pressure vessels that do not exceed:
 - A) A volume of 15 cubic feet and 250 psig when not located in a place of public assembly; or
 - B) A volume of 5 cubic feet and 250 psig when located in a place of public assembly; or
 - C) A volume of 1½ cubic feet and 600 psig.
 - 4) Water conditioning equipment used for removing minerals, chemicals, or organic or inorganic particulate from water by means other than application of heat, e.g., water softeners, water filters, dealkalizers and demineralizers, provided the following conditions are met:
 - A) The temperature of such vessels is maintained below 212° F;
 - B) No heat is applied to the water after being placed into such vessels; and
 - C) No heat is applied either directly or indirectly to such vessels.
 - 5) Hot water supply boilers that are directly fired with oil, gas or electricity, provided none of the following limitations are exceeded:

- A) Heat input of 200,000 BTU/hr.; or
 - B) Water temperature of 200° F; or
 - C) Nominal water containing capacity of 120 gallons.
- 6) Coil type hot water boilers in which the water can flash into steam when released directly to the atmosphere through a manually operated nozzle, provided the following conditions are met:
- A) There is no drum, headers or other steam spaces;
 - B) No steam is generated within the coil;
 - C) Outside diameter of tubing does not exceed 1 inch;
 - D) Pipe size does not exceed $\frac{3}{4}$ inch;
 - E) Water capacity of the unit does not exceed 6 U. S. gallons; and
 - F) Water temperature does not exceed 350° F.
- 7) ISI pressure vessels that have a surveillance requirement in the plant technical specifications or are continuously monitored or are routinely subjected to examinations and tests (e.g., visual examinations and pressure tests), other than those required in this Part but that are determined by the Agency to give an assurance of structural integrity at least equal to that provided by the examinations and test required by this Part.
- 8) Other boilers and pressure vessels listed under Section 5(a) of the Act.
- b) Boilers and pressure vessels listed under Section 5(b) of the Act shall be subject to the requirements of this Part (e.g., design, construction and registration), except for those requirements pertaining to inspection, Inspection Certificates and penalties for operating without a valid Inspection Certificate.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.60 Access to Facilities and Documents

Upon prior notice and subject to requirements contained in the Memorandum of Understanding, Subagreement No. 2, between the Agency and the NRC, effective May 15, 1990, representatives of the Agency or an Authorized Inspector may enter upon any privately or publicly owned

property in this State where a boiler or pressure vessel, including related appurtenances, or a part thereof is being designed, constructed, installed or used within or upon or in connection with a nuclear facility in this State to ascertain whether such boiler or pressure vessel or part thereof is designed, constructed, installed and inspected in accordance with the standards of this Part. In addition to the documents required by this Part, owners shall make available to the Agency additional documents as the Agency determines are required to verify ASME Code and National Board Inspection Code compliance in accordance with this Part. These documents may include, but need not be limited to, such documents as a Quality Assurance Program in effect at the nuclear facility meeting the requirements of the ASME Code, or the details of flaw evaluations. The requirements of this Section are subject to the limitations of Section 505.20(c).

AGENCY NOTE: Documentation required to be made available under this Section shall be relevant to a determination of compliance with this Part.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.70 Notification of Failures

- a) Any owner, which includes any person, firm, partnership, corporation or government entity, that knowingly fails to notify the Agency within 24 hours, or the next business day, after a reportable event, or after any bodily injury or death to any person caused by a reportable event, is guilty of a Class B misdemeanor, if a natural person, or a business offense punishable by a fine of not less than \$501 and not more than \$10,000, if a corporation or government agency.
- b) In the case of a reportable event, the owner of the affected boiler or pressure vessel may take whatever measures it determines in its sole discretion are necessary to give emergency assistance to injured persons or to alleviate any threat to the public health and safety.
- c) In the case of a reportable event, the owner may not move, disturb or repair the affected boiler or pressure vessel until the Agency has been given the opportunity to examine the boiler or pressure vessel within 12 hours after the reportable event, except that the owner may initiate an investigation, including the gathering of material for samples and the taking of any ancillary action necessary for such sample gathering, where the owner either determines that such activities will not substantially interfere with the Agency's subsequent examination or provides a record of the initial circumstances sufficient to provide the Agency with an accurate report of the condition that was obtained before the owner initiated its activities.
- d) The requirements of this Section shall apply to any boiler or pressure vessel, including those exempt under Section 505.50.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.80 Administrative Review and Hearings – Inspection Certificates

This Section shall apply to all actions by the Agency for noncompliance with this Part that potentially could impact upon the issuance, suspension or revocation of an Inspection Certificate required by this Part.

- a) When in any instance an Agency review reveals that an owner may not be in compliance with one or more requirements of this Part, the Agency will notify the owner in writing of those facts and circumstances known to the Agency that give rise to the inference that the owner is not in compliance. If the facts and circumstances giving rise to the inference involve only boilers and pressure vessels that the NRC has determined are not within NRC's jurisdictional authority, subsection (c) shall apply and subsection (b) shall not apply. If the facts and circumstances giving rise to the inference involve any other boiler, pressure vessel or nuclear power system, subsection (b) shall apply and subsection (c) shall not apply.
- b) Simultaneously with the notification provided for in subsection (a), the Agency will notify the NRC in writing of those facts and circumstances known to the Agency that give rise to the inference that the owner is not in compliance. If the owner fails to demonstrate to the Agency that the owner is in compliance within 10 days after the notification, the Agency shall provide to the NRC a written request, pursuant to 10 CFR 2.200, that the NRC take appropriate action, e.g., pursuant to 10 CFR 2.206. The request will specify the NRC action or actions that the Agency is requesting.
- c) If the owner fails to demonstrate to the Agency that the owner is in compliance within 10 days after the notification provided for in subsection (a), the Agency shall issue a Preliminary Order and Notice of Opportunity for Hearing in accordance with 32 Ill. Adm. Code 200.
 - 1) If, after the hearing, the Director finds that the owner or organization was in compliance with the requirements of this Part, the Director shall issue to the owner an Order of Compliance or issue such other order as appropriate.
 - 2) If, after the hearing or default, the Director finds that the owner is not in compliance with the requirements of this Part, the Director will render a final decision which may include denying an application for, or suspending or revoking, an affected Inspection Certificate.

- d) All final administrative decisions of the Director under this Part shall be subject to the Administrative Review Law [735 ILCS 5/Art. III].

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.82 Administrative Review and Hearings – Authorized Inspection Agency

This Section shall apply to any action by the Agency to deny an application for, or to suspend or revoke, Agency recognition of an Authorized Inspection Agency.

- a) An owner or organization aggrieved by the Agency's action pursuant to Section 505.190(b) or (d) may within 15 days submit a written request for a hearing to the Agency, which shall thereafter hold an adjudicatory hearing in accordance with 32 Ill. Adm. Code 200.
 - 1) If, after the hearing, the Director finds that the owner or organization was in compliance with the requirements of this Part, the Director shall issue an order directing that recognition be extended to the organization.
 - 2) If, after the hearing or default, the Director finds that the owner or organization is not in compliance with the requirements of this Part, the Director will render a final decision which may include denying the application for recognition.
- b) All final administrative decisions of the Director under this Part shall be subject to the Administrative Review Law.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.84 Administrative Review and Hearings – Special Permits

This Section shall apply to any action by the Agency to deny an application for, or to suspend or revoke, a special permit for construction of a non-ASME Code boiler or pressure vessel pursuant to Section 505.2700.

- a) An owner aggrieved by an Agency denial pursuant to Section 505.2700(c)(5), (d)(5) and (e)(5) or Agency action pursuant to Section 505.2700(c)(4), (d)(5) and (e)(5) may within 15 days submit a written request for a hearing to the Agency, which shall thereafter hold an adjudicatory hearing in accordance with 32 Ill. Adm. Code 200.
 - 1) If, after the hearing, the Director finds that the owner was in compliance with the requirements of this Part or that the affected non-ASME boiler or

pressure vessel meets the criteria of Section 505.2700(c), the Director shall issue an order directing that the Special Permit be issued to the owner or organization.

- 2) If, after the hearing or default, the Director finds that the owner is not in compliance with the requirements of this Part, the Director will render a final decision which may include denying the application for, or suspending or revoking, a Special Permit.
- b) All final administrative decisions of the Director under this Part shall be subject to the Administrative Review Law.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.86 Actions Pending Before the United States Nuclear Regulatory Commission

Whenever any person brings an action before the NRC pursuant to 10 CFR 2.200 alleging that an Agency application of a requirement of this Part could affect the safety or the operation of a nuclear facility, the Agency shall not apply or enforce the requirement until such time as the NRC concurs in the application or enforcement or until the NRC otherwise finds and notifies the Agency that the application of the requirement could not affect the safety or the operation of the nuclear facility.

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.90 Address and Telephone Number for Notifications and Inquiries

Written reports or communications concerning or required by this Part shall be addressed to:

Illinois Emergency Management Agency
ATTN: Nuclear Facility Inspection
1301 Knotts Street
Springfield IL 62703

The Agency may be reached by telephone at (217)782-2700 or for 24-hour response at (800)782-7860.

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.100 Standards for Design, Construction, Operation and Inspection (general)

Please refer to Section 505.1000 of this Part for ISI boilers and pressure vessels and Section 505.2000 of this Part for non-ISI boilers and pressure vessels.

(Source: Amended at 23 Ill. Reg. 13089, effective October 6, 1999)

Section 505.110 Registration Requirements (general)

- a) The requirements of this Section are subject to the limitations of Section 505.20(c).
- b) The owner of a nuclear facility shall register with the Agency all boilers and pressure vessels contained within or upon or in connection with the nuclear facility unless exempt under Section 505.50(a). For each boiler and pressure vessel installed after February 7, 1994 that has not been registered with the Agency, the owner shall register the boiler or pressure vessel prior to its operation in accordance with this Section and either Section 505.1100 or 505.2100, as applicable.
- c) Manufacturer's Data Reports shall be filed by the owner with the Agency for new installation and reinstallation of boilers and pressure vessels at nuclear facilities, unless otherwise exempted by Section 505.50(a). If a boiler or pressure vessel is of special design or will not bear the ASME Certification Mark with appropriate designator, the owner shall additionally comply with the requirements of Sections 505.170 and 505.1700 or Section 505.2700 for non-ASME Code ISI or non-ISI boilers and pressure vessels, respectively.

AGENCY NOTE: Data Reports as used in this subsection (c) refers to those documents completed as required by the construction code applicable to the boiler or pressure vessel.

- d) Each boiler or pressure vessel subject to the Act shall be identified by a serial number of the State of Illinois. If a State serial number has not already been assigned, a number will be assigned and applied by the Authorized Inspector. Additionally, the ASME Code Certification Mark with appropriate designator shall be kept free of paint and lagging so that it will be plainly visible and easily read by the Authorized Inspector.
- e) The State serial number on boilers shall not be less than 5/16" in height and shall be preceded by the letters "ILL" and the letter "B", which also shall be not less than 5/16" in height. The State serial number on unfired pressure vessels shall be not less than 5/16" in height and shall be preceded by the letters "ILL" and the letter "U", which also shall be not less than 5/16" in height. The Authorized Inspector shall make certain that the correct Illinois State serial number is affixed to the boiler or pressure vessel.
- f) The requirements of subsections (d) and (e) for the physical application of the State serial number may be waived if a system to identify the boiler or pressure

vessel with the assigned State serial number has been established and the system of identification is acceptable to the Agency. An alternative system for the identification of boilers and pressure vessels with assigned State serial numbers shall be acceptable to the Agency if the alternative system readily and unambiguously allows the Agency and Authorized Inspector to track the inspection status of the boilers and pressure vessels using the State serial numbers. Acceptable alternative systems of identification may include, but are not limited to, the use of cross-reference lists between assigned State serial numbers and any of the following: National Board serial numbers; manufacturers' names and serial numbers; or plant equipment identification numbers as shown on controlled plant system identification drawings provided to the Agency.

- g) A Certificate Inspection shall be made of all used or second-hand boilers or pressure vessels prior to operation at a nuclear facility in this State. In a case where a boiler or pressure vessel is moved and reinstalled the fittings and appliances shall be upgraded to comply with the rules for new installations.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.120 Inspection Certificates (general)

- a) Inspection Certificates for nuclear power systems shall be issued in accordance with Section 505.1200. Inspection Certificates for non-ISI boilers and pressure vessels shall be issued in accordance with Section 505.2200. Both nuclear power systems and non-ISI boilers and pressure vessels and their Inspection Certificates shall be subject to the provisions of subsections (b) and (c).
- b) Owners shall keep the Inspection Certificate in an accessible location.
- c) Boilers and pressure vessels that change classification (i.e., to or from ISI or non-ISI) as a result of additions to or deletions from the Inservice Inspection Plan shall be subject to the registration and submittal requirements of the new classification. To reduce the administrative burden on the owner, the owner need only inform the Agency of all previous submittals made on behalf of existing registration that the owner intends to apply to the new classification.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.130 Operation Requirements (general)

- a) The requirements of this Section are subject to the limitations of Section 505.20(c).

- b) Any person, firm, partnership or corporation violating any of the provisions shall be subject to the penalties provided in the Act.
- c) An Inspection Certificate may be suspended by the Agency if an ISI or non-ISI boiler or pressure vessel or nuclear power system is in operation but not in compliance with this Part.
- d) An Inspection Certificate may be suspended by the Agency if an ISI or non-ISI boiler or pressure vessel or nuclear power system is being operated in an unsafe condition.
- e) If the owner of any boiler or pressure vessel or nuclear power system required to be inspected refuses to allow an inspection to be made, the Agency shall take action to suspend the Inspection Certificate under Section 505.80 until the owner complies with the requirements.
- f) For any boiler or pressure vessel that has been inspected and declared unsafe by an Authorized Inspector, the Authorized Inspector shall notify the Agency of his or her intention to condemn the boiler or pressure vessel. The Agency shall act in accordance with subsection (g) for such ISI or non-ISI boilers or pressure vessels.
- g) Upon being notified under the provisions of subsection (f), the Agency shall take action concerning the affected Inspection Certificate in accordance with Section 505.80.
- h) Subject to the limitations of Sections 505.20(c), 505.80 and 505.86, the owner who causes a non-ISI boiler or pressure vessel or nuclear power system to be operated without a valid Inspection Certificate shall be subject to the penalty as provided in the Act.
- i) Removal of Safety Appliances.
 - 1) No person, except under the direction of an Authorized Inspector, shall attempt to remove or shall do any work upon safety appliances required by this Part while a boiler or pressure vessel is in operation. If any of these appliances are repaired during an outage of a boiler or pressure vessel, they shall be reinstalled and in proper working order before the object is again placed in service.
 - 2) No person shall in any manner load the safety valve or valves to maintain a working pressure in excess of that stated on the Inspection Certificate.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.140 Inspection Requirements (general)

- a) The requirements of this Section are subject to the limitations of Section 505.20(c).
- b) If, upon inspection and notification by an Authorized Inspector, a boiler or pressure vessel at a nuclear facility is found to be in such condition that it is unsafe to operate, the Agency, subject to the limitations of Section 505.20(c), shall act to suspend the Inspection Certificate in accordance with Section 505.80.
- c) Owners shall assure that examinations and tests are conducted in accordance with the methods and frequencies established by this Part.
- d) In addition to the reporting frequencies specified in this Part, the owner shall report to the Agency within 72 hours when, on the basis of observation or objective information, the owner has reason to believe that an ISI or non-ISI boiler or pressure vessel or nuclear power system does not meet the standards of this Part.
- e) Inspections shall be conducted by Authorized Inspectors.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.150 Repairs and Alterations (general)

Please refer to Section 505.1500 of this Part for ISI boilers and pressure vessels and Section 505.2500 of this Part for non-ISI boilers and pressure vessels.

(Source: Amended at 23 Ill. Reg. 13089, effective October 6, 1999)

Section 505.160 Code Case Applications (general)

The owner may, at its discretion, elect to use an ASME Code Case to design, construct, examine, test, repair or alter a boiler or pressure vessel. The owner shall notify the Agency of all intentions to use a Code Case and the extent and nature of the use of the Code Case for the particular application.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.170 Use of Alternative Standards for Construction, Inspection and Repair (general)

- a) The Agency may issue special permits for boilers and pressure vessels at nuclear facilities that for some reason were not constructed in accordance with the applicable ASME Code Section, or for some reason cannot be inspected or repaired in accordance with this Part. The Agency shall issue special permits in accordance with Section 505.1700 or Section 505.2700, as applicable.
- b) Owners may request the Agency to issue a special permit for a boiler or pressure vessel not constructed in accordance with the applicable ASME Code Section.
- c) For boilers and pressure vessels using alternative standards for construction, upon completion of construction and installation, the owner shall register the non-ASME Code boiler or pressure vessel with the Agency. The owner shall demonstrate compliance with the provisions of the special permit. The owner shall meet the applicable registration requirements for either ISI boilers and pressure vessels in Sections 505.1100 and 505.1200 or non-ISI boilers and pressure vessels in Sections 505.2100 and 505.2200.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.180 Authorized Inspectors (general)

- a) ISI and non-ISI boilers and pressure vessels at nuclear facilities within the State shall be inspected by Authorized Inspectors.
- b) If an Authorized Inspector finds that the boiler or pressure vessel or any of its appurtenances are in an unsafe condition, the Authorized Inspector shall immediately notify the Agency and submit a report of the defects.
- c) The requirements of this Section are subject to the limitations of Section 505.20(c).
- d) Authorized Inspectors shall perform all duties required of them under the ASME Code or the National Board Inspection Code, as applicable. Authorized Inspectors shall notify the Agency within 7 days if they have knowledge of a nuclear power system or an ISI or non-ISI boiler or pressure vessel that:
 - 1) is being operated without a valid Inspection Certificate;
 - 2) is being operated at a pressure that exceeds indicated pressure on the Inspection Certificate; or
 - 3) otherwise deviates from the requirements of this Part.

- e) Authorized Inspectors inspecting ISI boilers or pressure vessels or nuclear power systems shall meet the requirements of Section 505.1800.
- f) Authorized Inspectors inspecting non-ISI boilers and pressure vessels shall meet the requirements of Section 505.2800.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.190 Authorized Inspection Agencies (general)

- a) An organization that wishes to provide ASME Code or National Board Inspection Code inspection services at a nuclear facility shall be recognized as an Authorized Inspection Agency by the Agency in accordance with subsection (b) prior to providing ASME Code or National Board Inspection Code inspection services at a nuclear facility. Such an organization shall submit the following to the Agency:
 - 1) A written request for recognition as an Authorized Inspection Agency;
 - 2) A list of the names of Authorized Inspectors employed; and
 - 3) A written description of the types of inspections that the organization will perform and the ASME Code Sections/National Board Inspection Code for which it will conduct inspection activities.

AGENCY NOTE: An Authorized Inspection Agency already recognized by the Agency does not need to resubmit the documents specified in this subsection (a).

- b) The Agency shall, within 90 days after receipt of an organization's request submitted pursuant to this Section, recognize the organization as an Authorized Inspection Agency upon determining that it has demonstrated in the request that it meets all qualification, duty and other requirements in those ASME Code Sections/National Board Inspection Code for which it wishes to provide inspection services. If it is determined that an organization's request submitted pursuant to this Section does not meet the requirements of this Section, the Agency shall take action under Section 505.82.

AGENCY NOTE: Qualification, duty and other requirements for organizations in subsections (a) and (b) shall be in accordance with the latest edition and addenda of the ASME Code/National Board Inspection Code referenced in Section 505.40.

- c) OSFM is exempt from all the requirements of this Section.
- d) If the Agency determines that an Authorized Inspection Agency is not qualified, the Agency shall act to suspend or revoke its recognition of the Authorized

Inspection Agency under Section 505.82.

AGENCY NOTE: Applicable ASME Code Sections/National Board Inspection Code as used in this Section means those under which the Authorized Inspection Agency is performing inspection activities. Agency reviews will determine whether the organization meets all requirements for Authorized Inspection Agencies as found in the most recent edition and addenda of the ASME Code or National Board Inspection Code, as applicable, referenced in Section 505.40.

- e) Within 30 days following each inspection required by this Part, the Authorized Inspection Agency shall submit an accurate report of the results of the inspection to the Agency in accordance with this Part.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

SUBPART B: ISI BOILERS AND PRESSURE VESSELS

Section 505.1000 Standards for Design, Construction, Operation and Inspection

ISI boilers and pressure vessels, including related appurtenances, except those exempt under Section 505.50(a) of this Part, installed or operated within or upon or in connection with a nuclear facility in Illinois shall be designed, constructed, installed, stamped, examined, tested, repaired, altered and inspected in accordance with Sections III and XI of the ASME Code or with other codes and standards as reflected in the facility's Operating License, Final Safety Analysis Report, technical specifications or other licensing documents as required or approved by the NRC.

(Source: Amended at 23 Ill. Reg. 13089, effective October 6, 1999)

Section 505.1100 Registration Requirements

For registration of each ISI boiler and pressure vessel, except those exempt under Section 505.50(a), the owner shall submit the following to the Agency. If the submittal applies to a collection of ISI boilers and pressure vessels, the owner shall submit the documentation once for the ISI boilers and pressure vessels included in the submittal. If it is determined that any of the documents have previously been submitted to the Agency, the owner does not have to resubmit them.

- a) A controlled copy of the Inservice Inspection Plans for the nuclear power system;
- b) Cross-references to the State serial numbers, and National Board serial numbers if available, for all ISI boilers and pressure vessels in the Inservice Inspection Plan;

- c) A preservice inspection summary report for the nuclear power system;
- d) For boilers and pressure vessels covered by this Section, owners shall meet the requirements of Section 505.110.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.1200 Inspection Certificates

This Section is not intended to be, in any way, inconsistent with the applicable regulations, rules and requirements of the NRC. If a requirement of this Section as applied in any situation is or would be inconsistent with the regulations, rules and requirements of the NRC, the requirements of this Section shall not be applied. The Agency will take action in regard to an Inspection Certificate only in accordance with Section 505.80. The Agency shall issue Inspection Certificates for nuclear power systems in accordance with this Section if the reports, programs and plans required to be submitted by this Section, Sections 505.110 and 505.1100 are submitted in accordance with the frequencies and standards specified in those Sections and are in compliance with this Part.

- a) Owners of nuclear power systems shall not operate those nuclear power systems without a valid Inspection Certificate issued by the Agency. The Agency shall issue one Inspection Certificate for each nuclear power system at a nuclear facility. Unless suspended by the Agency, the Inspection Certificate shall remain valid through the 6-month period following the end of the inservice inspection period for which the certificate was issued, or as otherwise permitted by this Part.
- b) Owners of nuclear power systems not yet in operation shall, prior to operation of the nuclear power systems, have a valid Inspection Certificate issued by the Agency for the nuclear power systems. The Agency shall issue the initial Inspection Certificates for the first inservice inspection period based on an Agency determination that the submittal requirements of Section 505.1100 are met.
- c) An Inspection Certificate shall be issued for each nuclear power system at the nuclear facility for the succeeding inservice inspection period when the Agency determines that:
 - 1) The examinations and tests required by the Inservice Inspection Plan during the preceding inservice inspection period were completed; and
 - 2) All related submittal requirements of this Part are met.

AGENCY NOTE: In order to determine whether the examinations and tests

required by the Inservice Inspection Plan during the preceding inspection period were performed and completed, the Agency will review the submittals required by this Section against the Inservice Inspection Plan and the applicable edition and addenda of the ASME Code Section XI. The review and determination will be made separately for each nuclear power system. During this review the Agency shall accept requests for relief from ASME Code Section XI requirements that have been approved by the NRC.

- d) The inservice inspection interval for the nuclear power system may be extended or reduced as permitted by the applicable Code edition and addenda or that has been approved by the NRC. The owner shall notify the Agency in writing of any such change in the inservice inspection interval. The Agency may issue a new Inspection Certificate, or may adjust the term of the Inspection Certificate in effect for the applicable inservice inspection period.
- e) When the owner discovers that an ISI boiler or pressure vessel is not in compliance with this Part, the owner shall take measures to bring the ISI boiler or pressure vessel into compliance. Those measures may include, but are not limited to, repair or replacement of the ISI boiler or pressure vessel in accordance with Section 505.1500. In such cases, the owner shall notify the Agency in accordance with Section 505.140. The owner shall submit information concerning the details of the noncompliance and the measures taken to bring the noncomplying ISI boiler or pressure vessel into compliance to the Agency within 90 days following the completion of the corrective measures. Any replacement ISI boiler or pressure vessel shall meet the requirements of this Part for new boilers and pressure vessels and shall be registered by the owner with the Agency in accordance with Section 505.1100. The Agency shall review the information submitted regarding the noncompliance and the corrective measures taken and may issue a revised Inspection Certificate to reflect any change in nuclear power system composition.
- f) The owner shall submit the following:
 - 1) In addition to the information submitted under Section 505.1100, the owner shall submit to the Agency within 90 days after completing a refueling outage:
 - A) The inservice inspection summary report required by ASME Code Section XI;
 - B) The Owner's Data Report, form NIS-1, required by ASME Code Section XI or an equivalent form;

- C) The Owner's Report for Repairs or Replacements, form NIS-2 of Section XI or an equivalent form, if required by the applicable Code Edition and Addenda or Code Case used, for all repairs and replacements performed since the last inservice inspection; and
 - D) Deviations from the Inservice Inspection Plan implemented during inservice inspections that impact upon compliance with this Part.
- 2) The owner shall submit the Inservice Inspection Plan for the next inservice inspection interval to the Agency prior to the end of each inservice inspection interval.
- g) The Agency shall take action under Section 505.80 if the Agency finds that:
- 1) The submittals in subsection (f) have not been made or are incomplete; or
 - 2) The examinations and tests required by the owner's Inservice Inspection Plan have not been performed or are incomplete; or
 - 3) The owner has not met the requirements of subsection (e); or
 - 4) The nuclear power system is not being inspected in accordance with this Part.
- h) In addition to the requirements of this Section, owners shall meet the requirements of Section 505.120.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.1300 Operation Requirements

ISI boilers and pressure vessels shall meet the requirements of Section 505.130 of this Part.

(Source: Amended at 23 Ill. Reg. 13089, effective October 6, 1999)

Section 505.1400 Inspection Requirements

ISI boilers and pressure vessels shall meet the requirements of Section 505.140 of this Part.

(Source: Amended at 23 Ill. Reg. 13089, effective October 6, 1999)

Section 505.1500 Repairs

Repairs of ISI boilers and pressure vessels and pressure relief valves associated with ISI boilers and pressure vessels, except boilers and pressure vessels and those pressure relief valves associated with boilers and pressure vessels that are exempt under Section 505.50(a) of this Part, shall be made in accordance with this Section.

- a) ISI boilers and pressure vessels shall be repaired in accordance with the applicable repair and replacement requirements of Section XI of the ASME Code or other codes and standards as reflected in the facility's Operating License, Final Safety Analysis Report, technical specifications or other licensing documents as required or approved by the NRC.
- b) Pressure relief valves associated with ISI boilers and pressure vessels shall be repaired in accordance with the applicable repair and replacement requirements of Section XI of the ASME Code or other codes and standards as reflected in the facility's Operating License, Final Safety Analysis Report, technical specifications or other licensing documents as required or approved by the NRC.

(Source: Amended at 23 Ill. Reg. 13089, effective October 6, 1999)

Section 505.1600 Code Case Applications

- a) Approval to use an ASME Code Case for ISI boilers and pressure vessels is vested in the NRC. The Agency shall accept all ASME Code Cases approved for use by the NRC.
- b) Owners shall meet the notification requirements of Section 505.160 in all cases involving the use of Code Cases for ISI boilers or pressure vessels.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.1700 Use of Alternative Standards for Construction, Inspection and Repair

- a) Approval to permit an owner to use alternative standards for construction, inspection or repair of an ISI boiler or pressure vessel is vested in the NRC. The Agency shall accept alternative construction, inspection or repair standards that have been accepted by the NRC.
- b) Owners shall meet the requirements of Section 505.170 in all cases involving use of alternative standards for ISI boilers or pressure vessels.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.1800 Authorized Inspectors

In order to perform the duties of an Authorized Inspector for ISI boilers and pressure vessels or nuclear power systems at nuclear facilities within the State, the individual shall, in addition to the requirements of Section 505.180, possess a current Inservice Commission (IS) and one of the following specialized qualifications, referred to as endorsements, issued by the National Board:

- a) Authorized Nuclear Inservice Inspector (I); or
- b) Authorized Nuclear Inservice Inspector Supervisor (NSI).

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.1900 Authorized Inspection Agencies

- a) Organizations seeking to provide inspection services to the requirements of ASME Code Section III, Section XI or both, shall be subject to the requirements of this Section and Section 505.190.
- b) The request for recognition submitted in Section 505.190(a) shall also contain documentation demonstrating that the organization meets the ASME Code and ASME/ANSI N626 or ASME QAI-1 qualifications for Authorized Inspection Agencies for the scope of inspection activities, including the possession of a valid ASME Certificate of Accreditation.
- c) The Agency shall act in accordance with Section 505.190(b) on all requests for recognition submitted in accordance with this Part.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

SUBPART C: NON-ISI BOILERS AND PRESSURE VESSELS

Section 505.2000 Standards for Design, Construction, Operation and Inspection

Non-ISI boilers and pressure vessels, including related appurtenances, except those exempt under Section 505.50(a), operated within or upon or in connection with a nuclear facility in Illinois, shall be designed, constructed, installed, examined, tested, repaired, altered and inspected as required by this Section, except in those cases in which NRC has jurisdiction, as determined by NRC. When NRC has jurisdiction, the codes and standards reflected in the facility's Operating License, Final Safety Analysis Report, technical specifications or other licensing documents as required or approved by the NRC shall apply. For non-ISI boilers and pressure vessels over which NRC has no jurisdiction, as determined by NRC, the standards required by this Part apply. If the NRC determines that NRC has jurisdiction, but has not established standards, the Agency may propose to NRC that these or other standards be applied to such boilers and pressure vessels in nuclear power plants in Illinois.

- a) All new, existing and reinstalled non-ISI boilers, including related appurtenances, shall be designed, constructed, installed, examined, tested, repaired and altered in accordance with the ASME Code or National Board Inspection Code, as applicable, and inspected in accordance with this Part. Where a non-ISI boiler is moved and reinstalled, the fittings and appliances of that boiler shall comply with this Part.
- b) All non-ISI pressure vessels installed and placed in operation after December 31, 1976 and all reinstalled non-ISI pressure vessels, including related appurtenances, shall be designed, constructed, installed, tested, examined, repaired and altered in accordance with the ASME Code or National Board Inspection Code, as applicable, and inspected in accordance with this Part. Where a non-ISI pressure vessel is moved and reinstalled, the fittings and appliances of that pressure vessel shall comply with this Part.
- c) Non-ISI pressure vessels and related appurtenances installed and placed in operation at nuclear facilities on or before December 31, 1976 shall be inspected in accordance with this Part and designed, constructed, installed, tested, repaired and altered, in accordance with the following requirements.
- 1) The MAWP for standard pressure vessels shall be determined in accordance with the applicable provisions of the ASME Code under which they were constructed and stamped.
 - 2) MAWP for Non-standard Pressure Vessels
 - A) The MAWP of a non-standard pressure vessel subject to internal pressure shall be determined by the strength of the weakest course computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint, the inside diameter of the course and the factor of safety set by this Part, as follows:

$$\frac{TS \times t \times E}{R \times FS} = \text{MAWP, in psig}$$

where:

TS = ultimate tensile strength of shell plate, in psi. When the tensile strength of steel plate is not known, it shall be taken as 55,000 psi for temperature not exceeding 650° F.

- t = minimum thickness of shell plate of weakest course, in inches.
- E = efficiency of longitudinal joint, depending upon construction. Use the following values (in percents):

For Fusion-Welded and Brazed Joints:

Single lap welded.....	40
Double lap welded	60
Single butt welded.....	60
Double butt welded.....	75
Forge welded.....	70
Braze steel.....	80

For riveted joints – calculate riveted joint efficiency in accordance with rules given in Section I, Part PR, of the 1971 ASME Code.

- R = inside radius for weakest shell course, in inches, provided the thickness does not exceed 10 percent of the radius. If the thickness is over 10 percent of the radius, the outer radius shall be used.
- FS = factor of safety permitted shall be a minimum of 5.0.
- B) The MAWP for cylindrical non-standard pressure vessels subject to external or collapsing pressure shall be determined by the rules in Par. UG-27 and UG-28 of the ASME Code Section VIII.
- C) The minimum factor of safety may be increased when deemed necessary by the Authorized Inspector to assure the operation of the vessel within safe limits. The condition of the vessel and the particular service to which it is subject will be determining factors.
- D) The MAWP permitted for formed heads under pressure shall be determined by using the appropriate formulas from UG-32 or UG-33 of the ASME Code Section VIII and the tensile strength and efficiencies given in this Section.
- d) All non-ISI boilers and pressure vessels, including related appurtenances, shall be inspected in accordance with the National Board Inspection Code and this subsection (d). The following general requirements shall apply to all non-ISI boilers and pressure vessels.

- 1) The owner shall prepare each boiler and pressure vessel for internal inspection in accordance with the National Board Inspection Code. The Authorized Inspector should not enter any boiler or pressure vessel before he or she is satisfied that all necessary safety precautions of the National Board Inspection Code have been taken, including testing the boiler or pressure vessel atmosphere for oxygen and toxic, flammable and inert gases.
 - 2) The owner shall prepare for and apply the hydrostatic test, whenever necessary, on a date agreeable to the owner and the Authorized Inspector.
- e) All cases not specifically covered by this Part shall be treated as new installations. Existing non-ISI boilers and pressure vessels shall be governed by current ASME Code and National Board Inspection Code requirements or the requirements of the ASME Code in effect at the time of construction.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.2100 Registration Requirements

For registration of each non-ISI boiler or pressure vessel, except those exempt under Section 505.50(a), the owner shall submit the following to the Agency. If the submittal applies to a collection of non-ISI boilers and pressure vessels, the owner shall submit the documentation once for the non-ISI boilers and pressure vessels included in the submittal.

- a) For each non-ISI boiler and pressure vessel not already registered with the Agency, the owner shall submit any manufacturer's Data Reports related to the construction, repair, replacement or alteration of the non-ISI boiler or pressure vessel and its appurtenances.

AGENCY NOTE: Data Reports as used in this subsection (a) refers to those documents completed as required by the construction code applicable to the non-ISI boiler or pressure vessel.

- b) For boilers and pressure vessels covered by this Section, owners shall meet the requirements of Section 505.110.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.2200 Inspection Certificates

This Section is not intended to be, in any way, inconsistent with the applicable regulations, rules

and requirements of the NRC. If a requirement of this Section as applied in any situation is or would be inconsistent with the regulations, rules and requirements of the NRC, the requirements of this Section shall not be applied. The Agency will take action in regard to an Inspection Certificate only in accordance with Section 505.80. The Agency shall issue Inspection Certificates for non-ISI boilers and pressure vessels in accordance with this Section if the reports, inspection criteria and plans required to be submitted by and identified in Sections 505.110 and 505.2100 and this Section are submitted in accordance with the frequencies specified in those Sections and are in compliance with this Part.

- a) The Agency shall issue one Inspection Certificate to each non-ISI boiler and pressure vessel for a term equal to the frequency of inspection of the non-ISI boiler or pressure vessel. The frequency and type of inspection for each non-ISI boiler and pressure vessel shall be as follows:
 - 1) Power boilers, high pressure water boilers and high temperature water boilers shall be inspected annually, which shall be an internal inspection where conditions permit. The boilers shall also be inspected externally annually while under representative operating conditions, if possible.
 - 2) Low pressure steam boilers, hot water heating boilers and hot water supply boilers shall be inspected every 2 years. The inspection shall be internal and external, where conditions permit. An external inspection shall be conducted under representative operating conditions at the request of the Authorized Inspector.
 - 3) Pressure vessels subject to internal corrosion shall be inspected in accordance with subsection (a)(3)(A), unless the Agency approves an alternative under subsection (a)(3)(B).
 - A) Pressure vessels shall be inspected every 3 years. The inspection shall be internal and external where conditions permit.
 - B) Alternatively, for each pressure vessel that can be inspected only during refueling outages, the owner may develop an inspection plan for the remaining life of the pressure vessel. The plan shall provide that an inspection of each pressure vessel will occur prior to the completion of every 2 consecutive refueling outages, but in no case more than 5 years after the last inspection of the pressure vessel. The owner may include in the plan contingency options for conducting inspections during unplanned or extended refueling outages, provided the required frequency of inspection is met. The bases for the inspection plan may include, but is not necessarily limited to, alternative examinations and tests planned and

performed, past performance of this and similar pressure vessels, status of the pressure vessel in the plant's maintenance program, the environment and contents of the pressure vessel, vessel use, service condition (operating or not) of the pressure vessel relative to operation of the plant, corrosive environment where the pressure vessel is installed, risks, methods of inspection, ALARA (as defined in 32 Ill. Adm. Code 310) considerations, trade-offs and relevant engineering data. This plan shall be submitted to the Agency for approval.

- 4) Pressure vessels not subject to internal corrosion shall be inspected in accordance with subsection (a)(4)(A) or (B) as applicable, unless the Agency approves an alternative under subsection (a)(4)(C):
 - A) Vessels containing incompressible fluids (e.g., water) shall be inspected externally every 5 years.
 - B) Vessels containing compressible fluids (e.g., air steam), or a combination of compressible and incompressible fluids, shall be inspected externally every 3 years.
 - C) Alternatively, the owner may develop an inspection plan for the vessel for its remaining life based upon refueling outages. This plan shall be submitted to the Agency for approval. The basis for such an inspection plan may include alternative examinations and tests planned and performed, past performance of the pressure vessel and similar pressure vessels, status of the pressure vessel in the plant's maintenance program, the environment and contents of the pressure vessel and relevant engineering data.

AGENCY NOTE: External inspection may be waived by the Agency due to inaccessibility of the equipment, based on the owner's detailed assessment of documentation and performance data verifying vessel integrity.

- 5) Inspection of flame safeguard equipment shall be to the standards of Section 505.40(c) and will be in conjunction with the regular inspection of boilers.
- 6) A grace period of 2 months beyond the period specified in subsection (a)(1) or (2), may elapse between internal inspections of the boiler while it is not under pressure and the external inspection of the boiler while it is under pressure.

- b) The Agency shall issue an initial Inspection Certificate for a non-ISI boiler or pressure vessel in accordance with this subsection (b). Owners of a non-ISI boiler or pressure vessel not yet in operation shall, prior to operation of the boiler or pressure vessel, have a valid Inspection Certificate issued by the Agency. Application for an Inspection Certificate shall be in accordance with subsection (f) except that the owner shall submit the documents listed in subsection (f)(2) at least 90 days prior to operating the boiler or pressure vessel.
- c) For other than initial issuance of an Inspection Certificate in accordance with subsection (b), the Agency shall issue an Inspection Certificate for each non-ISI boiler or pressure vessel at the nuclear facility in accordance with this Section when the Agency determines that:
- 1) The inspections required under subsection (a) were applied to the non-ISI boiler or pressure vessel, were completed and the condition of the non-ISI boiler or pressure vessel is such that an Inspection Certificate may be issued in accordance with subsection (d);
 - 2) The Report of Inspection or similar report form was completed for the non-ISI boiler or pressure vessel and was submitted to the Agency in accordance with subsection (f)(2); and
 - 3) If applicable, all submittals in subsections (e) and (f)(2)(B) are met.
- d) The Agency shall issue the Inspection Certificate within 90 days following receipt of the Report of Inspection on the non-ISI boiler or pressure vessel, or shall observe the procedures of subsection (g). The latter shall occur either within 90 days following receipt of the Report of Inspection or within 10 days following the expiration date of the Inspection Certificate.
- e) The Inspection Certificate issued for the non-ISI boiler or pressure vessel as established by this Section may be extended for a maximum of 1 year.
- 1) For all pressure vessels and for boilers, other than power boilers, high pressure water boilers and high temperature water boilers, the owner shall request permission from the Agency to extend the term of the Inspection Certificate prior to implementing the extension. The Agency shall review a request for extension and permit the extension when the extension does not increase the risk to the health and safety of the public and personnel.
 - 2) For power boilers, high pressure water boilers and high temperature water boilers, the Agency may extend, for a time not exceeding 1 year, the time

within which the power boiler is required to be internally inspected, subject to the following conditions and qualifications:

- A) The analysis and treatment of feedwater for the power boilers shall be under the supervision of a person qualified in the field of water chemistry.
 - B) The analysis and treatment of the boiler feedwater shall be for the purpose of controlling and limiting serious deteriorating, crusting and sludge that affect the safety of the boiler.
 - C) The owner of the boilers shall maintain, for examination by the Authorized Inspector, accurate records of chemical and physical laboratory analyses of samples of the boiler water taken at regular intervals of not more than 24 hours operation and of the treatment applied. These records shall specify dates and times of analyses, by whom analyzed, and the treatment applied at that time, and shall be certified by the responsible authority. These records will adequately show the conditions of the water and any constituents or characteristics that are capable of producing corrosion or other deterioration of the boiler or its parts.
 - D) Application for extension shall be in writing setting forth facts establishing compliance with the foregoing conditions and qualifications and shall be accompanied by the report of external inspection.
- f) For each non-ISI boiler or pressure vessel, the owner shall submit the following:
- 1) The information required by Section 505.2100;
 - 2) On or before the expiration date of the Inspection Certificate issued to the non-ISI boiler or pressure vessel:
 - A) The completed Report of Inspection or similar report form documenting that the inspections were performed in accordance with the inspection criteria and frequency requirements of subsection (a) and Section 505.2000.
 - B) All Code Data Reports and all other information related to the repair, replacement or alteration of the non-ISI boiler or pressure vessel or its appurtenances performed since the last Certificate Inspection.

- g) The Agency shall take action under Section 505.80 if the Agency finds that:
- 1) The submittals and notifications required by subsections (e) and (f) have not been made or are incomplete; or
 - 2) The inspections required by this Section have not been performed or are incomplete; or
 - 3) A change to the inspection frequency applied to the non-ISI boiler or pressure vessel is not in accordance with subsection (e); or
 - 4) The non-ISI boiler or pressure vessel was insured and the insurance has been canceled or has otherwise become ineffective.
- h) In addition to the requirements of this Section, owners shall meet the requirements of Section 505.120.
- i) Notwithstanding any other provision of this Section, an Inspection Certificate shall remain valid beyond the expiration date noted on the certificate until the boiler or pressure vessel is reinspected by the Authorized Inspector or until the certificate is suspended by the Agency, provided that the owner of the boiler or pressure vessel makes it available for inspection at reasonable times.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.2300 Operation Requirements

Non-ISI boilers and pressure vessels shall meet the requirements of Section 505.130 of this Part.

(Source: Amended at 23 Ill. Reg. 13089, effective October 6, 1999)

Section 505.2400 Inspection Requirements

- a) If, upon an external inspection, there is evidence of a leak or crack, enough of the covering of the non-ISI boiler or pressure vessel shall be removed so that the Authorized Inspector may determine the condition of the non-ISI boiler or pressure vessel. If removing the covering could create a situation which could affect the operability or safety of the vessel, the limitations of Section 505.20(c) of this Part shall apply.
- b) Owners shall permanently maintain inspection reports and supporting documents throughout the lifetime of the equipment.

- c) In addition to the requirements of this Section, owners shall meet the requirements of Section 505.140.

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.2500 Repairs and Alterations

Repairs and alterations of non-ISI boilers and pressure vessels, and repairs of pressure relief valves associated with non-ISI boilers and pressure vessels, except boilers and pressure vessels and those pressure relief valves associated with boilers and pressure vessels that are exempt under Section 505.50(a), shall be made in accordance with this Section. The requirements of this Section are subject to the limitations of Section 505.20(c).

- a) Non-ISI boilers and pressure vessels that are repaired or altered shall be repaired or altered in accordance with the National Board Inspection Code or this subsection (a). The requirements of this subsection (a) are limited to welded repairs and welded and non-welded alterations of non-ISI boilers and pressure vessels. When requirements for a repair or alteration are not given, it is intended that, subject to approval of the Authorized Inspector, details of design and construction, insofar as practical, will be consistent with the ASME Code for boilers and pressure vessels constructed to the ASME Code, or the code to which the item was originally constructed for boilers and pressure vessels not constructed to the ASME Code or the repair or alteration rules of the National Board Inspection Code.
 - 1) All non-ISI boilers and pressure vessels covered by the Act that are repaired shall be repaired by one of the following organizations:
 - A) An owner and those organizations under contract to the owner, provided that:
 - i) the repairs are made in accordance with a Quality Assurance Program that meets the requirements of 10 CFR 50 Appendix B (2007) and has been approved by the NRC;
 - ii) all portions of the owner's 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsection (a)(1)(A)(i), that are applicable to a repair activity are applied to the repair; and
 - iii) the owner notifies the Agency of its intention to apply 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsection (a)(1)(A)(i), to the repair of boilers

and pressure vessels. This notification only needs to be given once for all repairs of boilers and pressure vessels performed under the owner's 10 CFR 50 Appendix B Quality Assurance Program at the nuclear facility.

AGENCY NOTE: The application of the owner's 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsections (a)(1)(A)(i), (ii) and (iii), is subject to review by the Authorized Inspector.

- B) An organization in possession of a valid "R" Certificate of Authorization issued by the National Board.
 - C) An organization authorized by the Division of Boiler and Pressure Vessel Safety, Office of the State Fire Marshal, to repair boilers and pressure vessels.
- 2) Repairs shall be initiated only after they have been authorized by the Authorized Inspector who has reviewed and accepted the weld procedures, welders and welding operators' qualifications and repair methods. The Authorized Inspector may give prior approval for repairs of a routine nature. In every case the Authorized Inspector shall be advised of each repair under prior agreement.
- 3) All non-ISI boilers and pressure vessels covered by the Act that are altered shall be altered by one of the following organizations:
- A) An owner and those organizations under contract to the owner, provided that:
 - i) the alterations are made in accordance with a Quality Assurance Program that meets the requirements of 10 CFR 50 Appendix B and has been approved by the NRC;
 - ii) all portions of the owner's 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsection (a)(3)(A)(i), that are applicable to an alteration activity are applied to the alteration; and
 - iii) the owner notifies the Agency of its intention to apply 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsection (a)(3)(A)(i), to the alteration of boilers and pressure vessels. This notification only needs

to be given once for all alterations of boilers and pressure vessels performed under the owner's 10 CFR 50 Appendix B Quality Assurance Program at the nuclear facility.

AGENCY NOTE: The application of the owner's 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsections (a)(3)(A)(i), (ii) and (iii), is subject to review by the Authorized Inspector.

- B) An organization in possession of a valid "R" Certificate of Authorization issued by the National Board, provided the alterations are within the scope of that authorization.
- 4) Alterations shall be initiated only after they have been authorized by the Authorized Inspector who has reviewed and accepted the alteration methods and calculations. If considered necessary, the Authorized Inspector shall make an inspection of the object before granting authorization.
- 5) Reports documenting repairs and alterations shall be sent to the Agency in addition to the distribution required by the National Board Inspection Code.
- 6) Documentation of repairs and alterations shall be in accordance with the National Board Inspection Code, except that, in lieu of a form R-1 or R-2, an alternative form containing equivalent information may be used. All alternative forms shall be signed by the Authorized Inspector. All alternative forms shall be approved by the Agency prior to use. The Authorized Inspector shall determine whether the completion of the form R-1, R-2, or an alternative form is required for routine repairs.
- 7) Repairs and alterations shall be accepted by either an Authorized Inspector employed by the Authorized Inspection Agency responsible for the boiler or pressure vessel or by an Authorized Inspector employed by the Authorized Inspection Agency of record for the organization making the repair or alteration. It shall be the responsibility of the organization making the repair or alteration to coordinate the acceptance inspection of the repair or alteration.
- 8) For pressure parts, the rules of Part 3, Section 3 of the National Board Inspection Code shall apply.
- 9) Pressure Testing

- A) The Authorized Inspector may require a pressure test after completing a repair to a boiler or pressure vessel when in the Authorized Inspector's judgment one should be conducted.
 - B) A pressure test in accordance with the National Board Inspection Code shall be applied to the boiler or pressure vessel on the completion of an alteration.
- 10) For repair methods, the rules of Part 3 of the National Board Inspection Code shall apply.
- 11) Alteration methods shall comply with the general requirements of this subsection (a), and with the appropriate ASME Code Section or Part 3 of the National Board Inspection Code, as applicable, including any service restrictions.
- 12) Major replacement of pressure parts, including drums and shells, that are fabricated by welding and for which a Manufacturers Data Report is required by the applicable ASME Code Section shall be fabricated by a manufacturer having an ASME Certificate of Authorization and the appropriate Certification Mark with appropriate designator. The item shall be inspected, stamped with the applicable Certification Mark with appropriate designator and the word "PART", and reported on the appropriate Manufacturers Partial Data Report.
- 13) When a repair or alteration requires removal of that part of a non-ISI boiler or pressure vessel containing the Code stamping, the Authorized Inspector shall, subject to the approval of the Agency, witness the making of a facsimile of the stamping, the obliteration of the old stamping and the transfer of the stamping to the new part. When the stamping is on a nameplate, the Authorized Inspector is to witness the transfer of the nameplate to the new part. The Certification Mark with appropriate designator is not to be restamped.
- 14) For rerating, the rules of this subsection (a) and Part 3 of the National Board Inspection Code shall apply. Additionally, the following shall apply:
- A) All requirements in Part 3 of the National Board Inspection Code and this subsection (a) shall be met to the satisfaction of the Authorized Inspection Agency at the location of the installation.

- B) Revised calculations verifying the new service conditions shall be required from the original manufacturer or, when the calculations cannot be obtained from this source, they may be prepared by an engineer in accordance with Part 3 of the National Board Inspection Code.
 - C) The boiler or pressure vessel shall be pressure tested for the rerated condition as required by subsection (a)(9)(B).
- 15) Nameplates and Stamping for Repair and Alteration
- A) The rules of Part 3, Section 5 of the National Board Inspection Code shall apply. The exceptions and clarifications of this subsection (a)(15) shall also apply.
 - B) For owners that act as the repair organization under the provisions of subsection (a)(1)(A) for repairs or under subsection (a)(3)(A) for alterations who are not in possession of a valid "R" Certificate of Authorization issued by the National Board, the requirements for nameplates and stamping in Part 3, Section 5 of the National Board Inspection Code shall not apply. All other requirements shall be met.
- b) Pressure relief valves associated with non-ISI boilers and pressure vessels shall be repaired in accordance with the National Board Inspection Code or with this subsection (b).
- 1) All pressure relief valves covered by this subsection (b) that are repaired shall be repaired by one of the following organizations:
 - A) An owner and those organizations under contract to the owner, provided that:
 - i) the repairs are made in accordance with a Quality Assurance Program that meets the requirements of 10 CFR 50 Appendix B and has been approved by the NRC;
 - ii) all portions of the owner's 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsection (b)(1)(A)(i), that are applicable to a repair activity are applied to the repair; and
 - iii) the owner notifies the Agency of its intention to apply 10

CFR 50 Appendix B Quality Assurance Program, referenced in subsection (b)(1)(A)(i), to the repair of these pressure relief valves. This notification only needs to be given once for all repairs of pressure relief valves performed under the owner's 10 CFR 50 Appendix B Quality Assurance Program at the nuclear facility.

AGENCY NOTE: The application of the owner's 10 CFR 50 Appendix B Quality Assurance Program, referenced in subsections (b)(1)(A)(i), (ii) and (iii), is subject to review by the Authorized Inspector.

- B) The manufacturer of the valve who is in possession of a valid ASME "V", "NV" or "UV" Certificate of Authorization, provided repairs are within the scope of the organization's Certificate of Authorization and are performed under the organization's Quality Control System or Quality Assurance System, as applicable.
 - C) An organization in possession of a valid "VR" Certificate of Authorization issued by the National Board, provided repairs are within the scope of the organization's Certificate of Authorization and are performed under the organization's Quality Control System.
 - D) An organization in possession of a valid Certificate of Authorization issued by the Division of Boiler and Pressure Vessel Safety, Office of the State Fire Marshal, to repair pressure relief valves provided repairs are within the scope of the organization's Certificate of Authorization and performed under the organization's accepted Quality Control System.
- 2) Repair of a pressure relief valve is considered to be the replacement or machining of any critical part, lapping of seat and disc or any other operation that may affect the flow passage, capacity, function or pressure retaining integrity. Disassembly and reassembly or adjustments that affect the pressure relief valve function are not considered a repair, but a test confirming the valve's set pressure shall be performed. The initial installation, testing and adjustments of a new pressure relief valve on a non-ISI boiler or pressure vessel are not considered a repair.
- 3) Nameplates and Stamping
- A) The rules of Part 4, Section 4 of the National Board Inspection

Code shall apply. The exceptions and clarifications of this subsection (b)(3) shall also apply.

- B) Individuals authorized by the Division of Boiler and Pressure Vessel Safety, Office of the State Fire Marshal, who are properly trained and qualified employees of the owner may make adjustments to the set pressure provided the adjusted settings and the date of the adjustment are recorded on a metal tag secured to the seal wire. All external adjustments shall be resealed showing the identification of the organization making the adjustments.
 - C) For owners that act as the valve repair organization under the provisions of subsection (b)(1)(A) who are not in possession of a valid "VR" Certificate of Authorization issued by the National Board, the requirements for stamping and nameplates in Part 4, Section 4 of the National Board Inspection Code shall not apply. All other requirements shall be met.
- 4) Performance Testing
- A) The rules of Part 4, Section 4 of the National Board Inspection Code shall apply, regardless of whether the "VR" stamp will be or has been applied. The exceptions and clarifications of this subsection (b)(4) shall also apply.
 - B) For owners that act as the valve repair organization under the provisions of subsection (b)(1)(A) who are not in possession of a valid "VR" Certificate of Authorization issued by the National Board, performance testing equipment qualified by the owner under Part 4, Section 4 of the National Board Inspection Code shall be done by the owner. The Authorized Inspector shall witness the qualification of test equipment and review the documentation of the qualification.
- 5) Organizations that repair pressure relief valves under subsections (b)(1)(B) through (b)(1)(D) may perform field repairs in accordance with the following requirements.
- A) Qualified technicians in the employ of the repair organization perform the repairs.
 - B) Procedures that address field repairs are contained in the Quality Control System or Quality Assurance System, as applicable, and

are maintained.

- C) All functions affecting the quality of the repaired pressure relief valves are controlled from the location for which the appropriate authorization was issued.
- D) Periodic audits of work carried out in the field are made by quality control personnel of the repair organization to ensure that the requirements of the Quality Control System or Quality Assurance System, as applicable, are met. This audit may include witnessing the test of the field repaired pressure relief valve.

(Source: Amended at 45 Ill. Reg. 686, effective December 23, 2020)

Section 505.2600 Code Case Applications

- a) The Agency shall act on requests to use ASME Code Cases within 30 days after their receipt. The Agency shall approve the use of a Code Case if that use is directly applicable to and consistent with the uses authorized by the ASME Code Case.
- b) The Agency shall automatically approve the use of Code Cases to non-ISI boilers or pressure vessels in all cases in which the use is approved by the NRC and referenced in the nuclear facility's Updated or Final Safety Analysis Report, technical specifications or other licensing documents. The Agency shall not approve use of Code Cases when the use is disapproved by the NRC.
- c) ASME Code Cases approved by the Agency for a particular situation rather than for generic use shall be used only for that situation.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.2700 Use of Alternative Standards for Construction, Inspection and Repair

- a) For all non-ISI boilers and pressure vessels, the Agency shall determine the acceptability of the alternative standards in accordance with this Section.
- b) The Agency shall automatically accept alternative standards that have been accepted by the NRC and referenced in the nuclear facility's Updated or Final Safety Analysis Report, technical specifications or other licensing documents.
- c) For boilers and pressure vessels, other than those covered by subsection (b), installed subsequent to February 7, 1994 to be constructed to alternative standards

other than the ASME Code standards referenced in Section 505.40, the owner may request the Agency to issue a permit for the installation of a boiler or pressure vessel not constructed in accordance with the applicable ASME Code.

- 1) The owner shall submit the documentation described in this Section to the Agency and obtain a special installation permit.
- 2) The owner shall specify the reasons why the boiler or pressure vessel cannot be constructed in accordance with ASME Code standards. The owner shall also supply the following information to the Agency for review and consideration of requests for a special installation permit:
 - A) Full details of design and construction showing equivalency to and departures from the ASME Code, including blueprints and material showing details of the construction;
 - B) Data relating to the physical and chemical properties of all materials used in construction;
 - C) Calculations showing how the MAWP was derived;
 - D) An authentic test record for all non-ASME Code materials used in construction; and
 - E) Other data as the owner deems relevant or as the Agency may request in order to establish that the boiler or pressure vessel will be capable of operating as safely as one built to ASME Code standards.
- 3) The Agency may issue special installation permits to a class of boilers or pressure vessels meeting the criteria listed in subsection (c)(2) when it deems that the public interest would be best served by application of the class of boilers or pressure vessels rather than individual case-by-case determination.
- 4) The Agency may, as a condition to issuance of a special installation permit, require the installation of safety features or prescribed operating procedures for boilers or pressure vessels. The Agency will use relevant safety data in determining the need for installation of safety features or operating features.
- 5) If the Agency denies a request for a special permit, the owner may request a hearing pursuant to Section 505.84.

- d) For boilers and pressure vessels, other than those covered by subsection (b), to be inspected to standards other than those specified in this Part, the owner shall request the use of alternative standards.
- 1) The owner shall submit the documentation described in this Section to the Agency and obtain permission to use the alternative standards.
 - 2) The owner shall specify the reasons why the boiler or pressure vessel cannot be inspected in accordance with this Part.
 - 3) The Agency may approve the use of alternative standards for inspection for a class of boilers or pressure vessels when it deems that the public interest would be best served by application of the class of boilers or pressure vessels rather than individual case-by-case determination.
 - 4) The Agency may, as a condition of approval of the use of alternative standards for inspection, require the installation of safety features or prescribed operating procedures for boilers or pressure vessels. The Agency will use relevant safety data in determining the need for installation of safety features or operating features.
 - 5) If the Agency denies a request for the use of alternative standards for inspection, the owner may request a hearing pursuant to Section 505.84.
- e) For boilers and pressure vessels, other than those covered by subsection (b), to be repaired to standards other than those specified in this Part, the owner shall request the use of alternative standards.
- 1) The owner shall submit the documentation described in this Section to the Agency and obtain permission to use the alternative standards.
 - 2) The owner shall specify the reasons why the boiler or pressure vessel cannot be repaired in accordance with this Part.
 - 3) The Agency may approve the use of alternative standards for repair for a class of boilers or pressure vessels when it deems that the public interest would be best served by application of the alternative standards to the class of boilers or pressure vessels rather than individual case-by-case determination.
 - 4) The Agency may, as a condition of approval of the use of alternative standards for repair, require the installation of safety features or prescribed

operating procedures for boilers or pressure vessels, require monitoring the integrity of the alternative repair, or approve the alternative repair on a temporary basis. The Agency will use relevant safety data in determining the need for installing safety features or operating features, monitoring the integrity of the alternative repair, or approving the alternative repair on a temporary basis.

- 5) If the Agency denies a request for the use of alternative standards for repair, the owner may request a hearing pursuant to Section 505.84.
- f) Owners shall meet the requirements of Section 505.170 in all cases involving use of alternative standards for non-ISI boilers or pressure vessels.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)

Section 505.2800 Authorized Inspectors

In order to perform the duties of an Authorized Inspector for non-ISI boilers and pressure vessels at nuclear facilities within the State, an individual shall, in addition to the requirements of Section 505.180, possess either a current Inservice Commission (IS) issued by the National Board or a commission as an inspector of boilers and pressure vessels issued by OSFM.

(Source: Amended at 41 Ill. Reg. 645, effective January 4, 2017)

Section 505.2900 Authorized Inspection Agencies

- a) Authorized Inspection Agencies that are insuring a non-ISI boiler or pressure vessel shall immediately notify the Agency when the insurance is canceled, not renewed, suspended or otherwise made ineffective because of unsafe conditions.
- b) Organizations seeking to provide inspection services to the requirements of the National Board Inspection Code or the ASME Code, except for Section III and Section XI, shall be subject to the requirements of Section 505.190.
- c) The request for recognition submitted in Section 505.190(a) shall also contain documentation demonstrating that the organization meets the ASME Code or the National Board Inspection Code requirements for Authorized Inspection Agencies, if any, for the scope of inspection activities.
- d) Organizations that are providing inspection services at nuclear facilities may be reviewed by the Agency. The reviews shall be for the purpose of verifying that the organization is in compliance with applicable ASME Code Sections or National Board Inspection Code, as applicable, including qualification and duty

requirements for Authorized Inspection Agencies contained in those codes.

- e) An organization that is recognized by the Agency under Section 505.190(b) as an Authorized Inspection Agency may be reviewed by the Agency either prior or subsequent to recognition. The reviews shall be for the purpose of verifying that the organization is in compliance with applicable ASME Code Sections or National Board Inspection Code, as applicable, including qualification and duty requirements for Authorized Inspection Agencies contained in those codes.
- f) The Agency shall give 15 days written notice before any reviews are performed under this Section. Reviews shall be performed at the locations where control of Authorized Inspectors occurs or at the organization's home office.

(Source: Amended at 33 Ill. Reg. 4345, effective March 9, 2009)