6/12/15

PROPOSED RULES

BOILER RULES
ARTICLE 45-12

Section 45-12-02-01 is amended as follows:

45-12-02-01. Inspection reports to be submitted.

1. **Power boilers.** Each authorized inspection agency or owner/user inspection organization, to which a special inspector commission has been issued, shall submit to the chief boiler inspector complete data of each high pressure boiler insured or inspected by it or covered by a written inspection agreement ~~in North Dakota on form SFN 10706. Each certificate inspection must be reported to the chief boiler inspector within fifteen days after inspection on form SFN 10706~~. A complete report of each boiler inspection must be filed electronically with the chief boiler inspector on form SFN 10706 within fifteen days of inspection.

2. **Low pressure, hot water heating, and hot water supply boilers.** Within one year from effective date of this article, each authorized inspection agency or owner/user inspection organization shall submit to the chief boiler inspector complete data of each boiler insured or inspected by it or covered by a written inspection agreement ~~in North Dakota on form SFN 10706. All required inspections must be reported on form SFN 10706~~. A complete report of each boiler inspection must be filed electronically with the chief boiler inspector on form SFN 10706 within fifteen days of inspection.

History: Effective June 1, 1994; amended effective January 1, 2006; April 1, 2010; January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14

Section 45-12-02-04 is amended as follows:

45-12-02-04. Owner/user inspection organizations making own inspections. The chief inspector will not be required to inspect boilers in any establishment owned and operated by an owner/user inspection organization provided an annual boiler inspection program is established and maintained by such organization and all boilers and appurtenances are constructed, installed, operated, and repaired in accordance with the provisions of this article. When boilers are inspected by an employee of an

owner/user inspection organization, such inspector must hold a certificate of competency or a commission issued by North Dakota or a state that has adopted the American Society of Mechanical Engineers Code. A complete report of each boiler inspection must be filed electronically with the chief inspector on form SFN 10706 within fifteen days of inspection.

History: Effective June 1, 1994; amended effective January 1, 2006; January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14

Section 45-12-02-08 is amended as follows:

45-12-02-08. Validity of inspection certificate for boilers. A certificate of inspection, issued in accordance with this article, is valid until expiration unless some defect or condition affecting the safety of the boiler is disclosed and if all inspection fees have been paid. A certificate of inspection is valid for the following time periods:

1. Thirty-six months for power boilers over one hundred thousand pounds [45359.24 kilograms] of steam per hour as allowed by North Dakota Century Code section 26.1-22.1-07.

2. Twelve months for steam traction engines.

3. Twelve months for all other power boilers.

4. Thirty-six months for hot water heating and hot water supply boilers ~~located in apartments and condominiums~~.

5. Twenty-four months for ~~all other hot water heating, hot water supply, and~~ low pressure steam boilers.

A certificate issued for a boiler inspected by a special inspector is valid only if the boiler for which it was issued continues to be insured by a duly authorized insurance company, covered by a written inspection agreement with an authorized inspection agency, or inspected by an accredited owner/user inspection organization. A two-month grace period must be extended for any certificate.

History: Effective June 1, 1994; amended effective January 1, 2000; January 1, 2006; January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14

Section 45-12-03-26 is amended as follows:

45-12-03-26. Inspection of boilers.

1. Each boiler used or proposed to be used within this state, except boilers exempt in North Dakota Century Code section 26.1-22.1-06, must be thoroughly inspected as to their construction, installation, condition, and operation as follows:

   a. Power boilers must be inspected annually both internally while not under pressure and externally while under pressure. However, any power boiler or steam generator, the operation of which is an integral part of or a necessary adjunct to other continuous processing operations, must be inspected internally at such intervals as are permitted by the shutting down of the processing operation. The chief boiler inspector may provide for extension of time between internal inspections, but an external inspection must be made, and report submitted, for purposes of issuing a certificate. In all other instances the certificate inspection must be an internal inspection when construction permits.

   b. Power boilers of one hundred thousand pounds [45359.24 kilograms] per hour or more capacity, which comply with subsection 2 of North Dakota Century Code section 26.1-22.1-07, must be inspected at least once every thirty-six months internally while not under pressure and at least once every twelve months externally while under pressure.

   c. Steam traction engines must be inspected at least once every twelve months. Inspections must alternate between internal inspections, external inspections, and hydrostatic tests.

   d. Low pressure steam boilers must be inspected annually. Low pressure steam boilers of steel construction must be inspected alternately internally and externally. The issuance of a certificate must normally be based on the internal inspection.

   e. Hot water heating and hot water supply boilers must be inspected ~~biennially~~ triennially unless they are located in a nursing home, school, hospital, nursery school, or kindergarten, in which case they must be inspected annually. ~~Hot water heating and hot water supply boilers located in apartments and condominiums must be inspected triennially.~~ Internal inspections will be required when deemed necessary by the inspector.

f. A grace period of two months beyond the period specified in the above subdivisions may elapse between inspections.

2. Certificate inspections must be made during the period of thirty days prior to and thirty days after the expiration date of the certificate. Noncertificate inspections, when required by the provisions of this section, must be made between certificate inspections. The chief boiler inspector encourages reports to be made at any time adverse conditions are found, or when difficulty is encountered getting cooperation from the owner or user.

3. The inspections required under this section must be made by the chief boiler inspector, or by a deputy inspector, or by a special inspector provided for in this article.

4. If at any time a hydrostatic test is deemed necessary by the inspector, it must be made by the owner or user in the presence of, and under the supervision of the inspector, and must be approved by the inspector.

5. Cast iron boilers must be considered as boilers that do not lend themselves to internal inspections. Internal inspections of electric boilers must be made when deemed necessary by the inspector.

History: Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; January 1, 2006; April 1, 2010; January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14

Section 45-12-05-20 is amended as follows:

45-12-05-20. Water columns, gauge glasses, and gauge cocks.

1. Outlet connections (except for damper regulator, feedwater regulator, low water fuel cutoff, drains, steam gauges, or such apparatus that does not permit the escape of an appreciable amount of steam or water therefrom) may not be placed on the piping that connects the water column to the boiler. The water column must be placed on the piping that connects the water column to the boiler. The water column must be provided with a valved drain of at least three-fourths-inch [19.05-millimeter] pipe size, the drain to be piped to a safe location.

2. Each boiler constructed prior to 1999 must have three or more gauge cocks located within the visible length of the water glass, except when the boiler has two water glasses located on the same horizontal lines. Boilers not over thirty-six inches [.914 meters] in diameter, in which the heating

surface does not exceed one hundred square feet [9.29 square meters] need have but two gauge cocks.

3. For all installations where the water gauge glass or glasses are more than thirty feet [9.14 meters] from the boiler operating floor, it is recommended that water level indicating or recording gauges be installed at eye height from the operating floor.

History: Effective June 1, 1994; amended effective January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14

Section 45-12-09-15 is amended as follows:

45-12-09-15. Provisions for thermal expansion in hot water systems.

1. All hot water heating systems incorporating hot water tanks or fluid relief columns must be so installed as to prevent freezing under normal operating conditions.

2. Systems with open expansion tank. If the system is equipped with an open expansion tank, an indoor overflow from the upper portion of the expansion tank must be provided in addition to an open vent, the indoor overflow to be carried within the building to a suitable plumbing fixture or to the basement.

3. Closed-type systems. If the system is of the closed type, an airtight tank or other suitable air cushion must be installed that will be consistent with the volume and capacity of the system, and must be suitably designed for a hydrostatic test pressure of two and one-half times the allowable working pressure of the system. Expansion tanks for systems designed to operate above thirty pounds per square inch [206.85 kilopascals] must be constructed in accordance with the American Society of Mechanical Engineers Code, section VIII, division 1. Except for prepressurized tanks, provisions must be made for draining the tank without emptying the system. Provisions must also be made for changing of all tanks without emptying the system.

4. Expansion tank capacities for gravity hot water systems. Based on two-pipe system with average operating water temperature one hundred seventy degrees Fahrenheit [76.7 degrees Celsius], using cast iron column radiation with heat emission rate one hundred fifty British thermal units per hour per square foot [158.25 x 10 to the 3rd power joules per .0929 square meter] equivalent direct radiation.

Square Feet of Installed Equivalent Direct Radiation	Tank Capacity, Gallons
Up to 350	18
Up to 450	21
Up to 650	24
Up to 900	30
Up to 1,100	35
Up to 1,400	40
Up to 1,600	2-30
Up to 1,800	2-30
Up to 2,000	2-35
Up to 2,400	2-40

5. Expansion tank capacities for forced hot water systems. Based on average operating water temperature one hundred ninety-five degrees Fahrenheit [90 degrees Celsius], a fill pressure twelve pounds per square inch gauge [82.74 kilopascals] and a maximum operating pressure thirty pounds per square inch gauge [206.84 kilopascals].

System Volume, Gallons	Nonpressurized Tank Capacity Gallons	Prepressurized Tank Capacity Gallons
100	15	9
200	30	17
300	45	25
400	60	33
500	75	42
1,000	150	83
2,000	300	165

Note: System volume includes volume of water in boiler, radiation, and piping, not including the expansion tank.

6. Expansion tanks for hot water supply systems must be constructed in accordance with the American society of mechanical engineers code, section VIII, division1 if over five gallons in size of water and air.

History: Effective June 1, 1994; amended effective January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14

Section 45-12-10-01 is amended as follows:

45-12-10-01. Construction and installation standards - Exceptions. Unfired pressure vessels may not be installed in North Dakota unless such vessels have been constructed in accordance with the American society of mechanical engineers boiler and pressure vessel code, section VIII, division 1, 2, or 3, ~~2013 edition,~~ and bear the ~~"U" stamp~~ American society of mechanical engineers stamping as proof of such construction.

Manufacturers shall register unfired pressure vessels with the national board of boiler and pressure vessel inspectors. Unfired pressure vessels must bear the required stamping of the national board.

The requirements of this section apply to all pressure vessels within the scope of the American society of mechanical engineers boiler and pressure vessel code, section VIII, division 1, 2, or 3, ~~2013 edition,~~ with these exceptions:

1. Pressure vessels under federal control.

2. Pressure vessels that do not exceed four cubic feet [30 United States gallons] in volume and two hundred fifty pounds per square inch gauge [1723.70 kilopascals] in pressure.

3. Pressure vessels that do not exceed one and one-half cubic feet [11.22 United States gallons] in volume and six hundred pounds per square inch gauge [4136.88 kilopascals] in pressure.

4. Unfired pressure vessels installed or ordered prior to November 1, 1987. However, these unfired pressure vessels must be maintained in a safe operating condition using ANSI/NB-23 and ANSI/API-510 as guidelines. Unfired pressure vessels referenced by this section must be protected with the American society of mechanical engineers stamped pressure relief devices as defined in section VIII of the American society of mechanical engineers boiler and pressure vessel code~~, 2013 edition~~. Existing pressure relief devices installed on unfired pressure vessels referenced by this section will be considered acceptable if the pressure relief device is set for the correct pressure, if the usage is correct, and if the device is in a satisfactory operating condition.

History: Effective June 1, 1994; amended effective April 1, 1996; January 1, 2000; October 1, 2002; January 1, 2006; April 1, 2010; July 1, 2012; January 1, 2014; January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14

Section 45-12-10-04 is created as follows:

45-12-10-04. Change of service from anhydrous ammonia to propane.
Unfired pressure vessels that have been previously used in anhydrous ammonia service may be converted to liquid petroleum service only with all of the following conditions being met:

1. The pressure vessel is American society of mechanical engineers code constructed and national board registered.

2. The pressure vessel has a manhole opening for access or a manhole opening is provided as an alteration.

3. The pressure vessel is in satisfactory condition internally and externally using the national board inspection code to determine acceptable condition.

4. The pressure vessel has passed a wet fluorescent magnetic particle test made by an individual possessing a valid American society for nondestructive testing level II or III certificate issued in accordance with the requirements of the American society for nondestructive testing, inc.

History: Effective January 1, 2016.
General Authority: NDCC 26.1-22.1-14
Law Implemented: NDCC 26.1-22.1-14