BOARD OF BOILER RULES
STUDY SESSION & BOARD MEETING
AGENDA

May 26 & 27, 2015 @ 10 a.m.
Department of Labor & Industries Tacoma Office, Room 504
950 Broadway, Suite 200 • Tacoma, WA

1. **Approval of Agenda**

2. **Review and approve minutes from December 8, 2014, meeting**

3. **Review and approve minutes from February 25, 2015, meeting**

4. **Review and approve minutes from March 23, 2015, meeting**

5. **Public Hearing:** Held on May 27
   Chapter 70.79 RCW – WAC Changes
   - Add new definitions for "jacketed steam kettles" and update the existing definition for "places of public assembly";
   - Adopt the latest edition of national standards for American Petroleum Institute (API) 510 for boilers and unfired pressure vessels and TAPPI TIP 0402-16 for pulp or paper machine dryers;
   - Clarifying the annual internal and external inspection requirements for power boilers;
   - Clarifying the shutdown requirements for automatically fired boilers, after December 2004; and
   - Correcting references to National Board (NB) 263 and API 510 to consistently adopt the latest edition of standards.

6. **Request for Extension of Internal Inspection frequency for RockTenn Company-Tacoma Mill, #6 Power Boiler, State number 61862-00W**

7. **Request for State Special for a non-ASME Code built autoclave, operated by the University of Washington Friday Harbor Labs stockroom**

8. **Discussion on revision of Board of Boiler Rules Bylaws**

9. **Department Notes:**
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Next meeting will be held on September 1 & 2, 2015, at 10:00 a.m. at the Tacoma Labor & Industries location.

Information Packet

Public Hearing:

Amendments to Board of Boiler Rules

Date: May 27, 2015

Time: 10:00 a.m.

Location: Department of Labor & Industries
950 Broadway, Suite 200
Tacoma, Washington 98402

The Board of Boiler Rules will hold a public hearing to provide opportunity for comment and receive information on proposed amendments to the Board of Boiler Rules (boiler rules). "Chapter 70.79 RCW, Boilers and Unfired Pressure Vessels" grants the Board of Boiler Rules the authority to propose and adopt rules for the safe and proper construction, installation, repair, use and operation of boilers and the repair of unfired pressure vessels in the state of Washington.

The purpose of this rulemaking is to propose modifications to "Chapter 296-104 WAC, Board of Boiler Rules – Substantive" to update the existing rules, adopt new safety code requirements and for housekeeping changes. The boiler rules are reviewed on a regular basis to ensure the rules are consistent with national boiler and unfired pressure vessel safety standards and industry practice.

Proposed amendments to this chapter will:

- Add new definitions for "jacketed steam kettles" and update the existing definition for "places of public assembly";
- Adopt the latest edition of national standards for American Petroleum Institute (API) 510 for boilers and unfired pressure vessels and TAPPI TIP 0402-16 for pulp or paper machine dryers;
- Clarifying the annual internal and external inspection requirements for power boilers;
- Clarifying the shutdown requirements for automatically fired boilers, after December 2004; and
- Correcting references to National Board (NB) 263 and API 510 to consistently adopt the latest edition of standards.

If you require special communication or accommodation arrangements, please contact Alicia Curry at 360- 902-6244, no later than May 14, 2015.

Please send written comments using one of the following:

by mail to: Alicia Curry
Department of Labor and Industries
Field Services and Public Safety Division
P.O. Box 44400
Olympia, Washington 98504-4400

by electronic mail to: Alicia.Curry@Lni.wa.gov

by fax to: 360-902-5292 *(Comments submitted by fax must be 10 pages or less)*

Comments must be received by May 27, 2015.
Details of specific proposed amendments will be published in Washington State Register 15-08 on April 15, 2015. The tentative adoption date for these rules is June 30, 2015, and the tentative effective date is September 1, 2015.

AMENDATORY SECTION (Amending WSR 13-10-018, filed 4/23/13, effective 6/1/13)

WAC 296-104-010 Administration—What are the definitions of terms used in this chapter? **"Accident"** shall mean a failure of the boiler or unfired pressure vessel resulting in personal injury or property loss or an event which renders a boiler or unfired pressure vessel unsafe to return to operation.

"Agriculture purposes" shall mean any act performed on a farm in production of crops or livestock, and shall include the storage of such crops and livestock in their natural state, but shall not be construed to include the processing or sale of crops or livestock.

"Attendant" shall mean the person in charge of the operation of a boiler or unfired pressure vessel.

"Automatic operation of a boiler" shall mean automatic unattended control of feed water and fuel in order to maintain the pressure and temperature within the limits set. Controls must be such that the operation follows the demand without interruption. Manual restart may be required when the burner is off because of low water, flame failure, power failure, high temperatures or pressures.

"Board of boiler rules" or **"board"** shall mean the board created by law and empowered under RCW 70.79.010.

"Boiler and unfired pressure vessel installation/reinstallation permit," shall mean a permit approved by the chief inspector before starting installation or reinstallation of any boiler and unfired pressure vessel within the jurisdiction of Washington.

Owner/user inspection agency's, and Washington specials are exempt from "boiler and unfired pressure vessel installation/reinstallation permit."

"Boilers and/or unfired pressure vessels" - Below are definitions for types of boilers and unfired pressure vessels used in these regulations:

- **"Condemned boiler or unfired pressure vessel"** shall mean a boiler or unfired pressure vessel that has been inspected and declared unsafe or disqualified for further use by legal requirements and appropriately marked by an inspector.
  "Corrosion" shall mean the destruction or deterioration of a material, that results from a reaction with its environment.
- **"Expansion tank"** shall mean a tank used to absorb excess water pressure. Expansion tanks installed in closed water heating systems and hot water supply systems shall meet the requirements of ASME Section IV, HG-709.
  "Historical boilers and unfired pressure vessel" shall mean nonstandard boilers and pressure vessels including steam tractors, traction engines, hobby steam boilers, portable steam boilers, and other such boilers or pressure vessels that are preserved, restored, and maintained only for demonstration, viewing, or educational purposes. They do not include miniature hobby boilers as described in RCW 70.79.070.

- **"Hot water heater"** shall mean a closed vessel designed to supply hot water for external use to the system. All vessels must be listed by a nationally recognized testing agency and shall be protected with an approved temperature and pressure safety relief valve and shall not exceed any of the following limits:

* Pressure of 160 psi (1100 kpa);
* Temperature of 210 degrees F (99°C).

Additional requirements:

* Hot water heaters exceeding 120 gallons (454 liters) must be ASME code stamped;
* Hot water heaters exceeding 200,000 Btu/hr (58.58 kW) input must be ASME code stamped.

"Indirect water heater" shall mean a closed vessel appliance used to heat water for use external to itself, which includes a heat exchanger used to transfer heat to water from an external source. The requirements and limits described above shall apply.

- **"Low pressure boiler"** shall mean a steam boiler operating at a pressure not exceeding 15 psig or a boiler in which water is heated and intended for operation at pressures not exceeding 160 psig or temperatures not exceeding 250 degrees F by the direct application of energy from the combustion of fuels or from electricity, solar or nuclear energy. Low pressure boilers open to atmosphere and vacuum boilers are excluded.
- **"Nonstandard boiler or unfired pressure vessel"** shall mean a boiler or unfired pressure vessel that does not bear marking of the codes adopted in WAC 296-104-200.

"Pool heaters" shall mean a gas, oil, or electric appliance that is used to heat water contained in swimming pools, spas, and hot tubs.

(a) Pool heaters with energy input equivalent to 399,999 Btu/hr (117.2 kW) or less shall be manufactured and certified to ANSI Z21.56, UL1261, CSA 4.7 or equivalent manufacturing standards, as approved by the chief inspector, and are excluded from the limit and control devices requirements of WAC 296-104-300 through 296-104-303.

(b) Pool heaters with energy input of 400,000 Btu/hr and above shall be stamped with an ASME Section IV Code symbol, and the requirements of WAC 296-104-300 through 296-104-303 shall apply.

(c) Pool heaters open to the atmosphere are excluded.

- **"Power boiler"** shall mean a boiler in which steam or other vapor is generated at a pressure of more than 15 psig for use external to itself or a boiler in which water is heated and intended for operation at pressures in excess of 160 psig and/or temperatures in excess of 250 degrees F by the direct application of energy from the combustion of fuels or from electricity, solar or nuclear energy.
- **"Reinstalled boiler or unfired pressure vessel"** shall mean a boiler or unfired pressure vessel removed from its original setting and reset at the same location or at a new location without change of ownership.
- **"Rental boiler"** shall mean any power or low pressure heating boiler that is under a rental contract between owner and user.

- **"Second hand boiler or unfired pressure vessel"** shall mean a boiler or unfired pressure vessel of which both the location and ownership have changed after primary use.
- **"Standard boiler or unfired pressure vessel"** shall mean a boiler or unfired pressure vessel which bears the marking of the codes adopted in WAC 296-104-200.
- **"Unfired pressure vessel"** shall mean a closed vessel under pressure excluding:
  * Fired process tubular heaters;
  * Pressure containers which are integral parts of components of rotating or reciprocating mechanical devices where the primary design considerations and/or stresses are derived from the functional requirements of the device;
  * Piping whose primary function is to transport fluids from one location to another;
  * Those vessels defined as low pressure heating boilers or power boilers.
- **"Unfired steam boiler"** shall mean a pressure vessel in which steam is generated by an indirect application of heat. It shall not include pressure vessels known as evaporators, heat exchangers, or vessels in which steam is generated by the use of heat resulting from the operation of a processing system containing a number of pressure vessels, such as used in the manufacture of chemical and petroleum products, which will be classed as unfired pressure vessels.

"Certificate of competency" shall mean a certificate issued by the Washington state board of boiler rules to a person who has passed the tests as set forth in WAC 296-104-050.

"Certificate of inspection" shall mean a certificate issued by the chief boiler inspector to the owner/user of a boiler or unfired pressure vessel upon inspection by an inspector. The boiler or unfired pressure vessel must comply with rules, regulations, and appropriate fee payment shall be made directly to the chief boiler inspector.

"Code, API-510" shall mean the Pressure Vessel Inspection Code of the American Petroleum Institute with addenda and revisions, thereto made and approved by the institute which have been adopted by the board of boiler rules in accordance with the provisions of RCW 70.79.030.

"Code, ASME" shall mean the boiler and pressure vessel code of the American Society of Mechanical Engineers with addenda thereto made and approved by the council of the society which have been adopted by the board of boiler rules in accordance with the provisions of RCW 70.79.030.

"Code, NBIC" shall mean the National Board Inspection Code of the National Board of Boiler and Pressure Vessel Inspectors with addenda and revisions, thereto made and approved by the National Board of Boiler and Pressure Vessel Inspectors and adopted by the board of boiler rules in accordance with the provisions of RCW 70.79.030.

"Commission" shall mean an annual commission card issued to a person in the employ of Washington state, an insurance company or a company owner/user inspection agency holding a Washington state certificate of competency which authorizes them to perform inspections of boilers and/or unfired pressure vessels.

"Department" as used herein shall mean the department of labor and industries of the state of Washington.

"Director" shall mean the director of the department of labor and industries.

"Domestic and/or residential purposes" shall mean serving a private residence or an apartment house of less than six families.

"Existing installations" shall mean any boiler or unfired pressure vessel constructed, installed, placed in operation, or contracted for before January 1, 1952.

"Inspection certificate" see "certificate of inspection."

"Inspection, external" shall mean an inspection made while a boiler or unfired pressure vessel is in operation and includes the inspection and demonstration of controls and safety devices required by these rules.

"Inspection, internal" shall mean an inspection made when a boiler or unfired pressure vessel is shut down and handholes, manholes, or other inspection openings are open or removed for examination of the interior. An external ultrasonic examination of unfired pressure vessels less than 36" inside diameter shall constitute an internal inspection.

"Inspector" shall mean the chief boiler inspector, a deputy inspector, or a special inspector.

- **"Chief inspector"** shall mean the inspector appointed under RCW 70.79.100 who serves as the secretary to the board without a vote.
- **"Deputy inspector"** shall mean an inspector appointed under RCW 70.79.120.
- **"Special inspector"** shall mean an inspector holding a Washington commission identified under RCW 70.79.130.

"Jacketed steam kettle" shall mean a pressure vessel with inner and outer walls that is subject to steam pressure and is used to boil or heat liquids or to cook food. Jacketed steam kettles with a total volume greater than or equal to one and one-half cubic feet (11.25 gallons) shall be ASME code stamped.

(a) **"Unfired jacketed steam kettle"** is one where the steam within the jacket's walls is generated external to itself, such as from a boiler or other steam source.

(b) **"Direct fired jacketed steam kettle"** is a jacketed steam kettle having its own source of energy, such as gas or electricity for generating steam within the jacket's walls.

"Nationwide engineering standard" shall mean a nationally accepted design method, formulae and practice acceptable to the board.

"Operating permit" see "certificate of inspection."

"Owner" or **"user"** shall mean a person, firm, or corporation owning or operating any boiler or unfired pressure vessel within the state.

"Owner/user inspection agency" shall mean an owner or user of boilers and/or pressure vessels that maintains an established inspection department, whose organization and inspection procedures meet the requirements of a nationally recognized standard acceptable to the department.

"Place of public assembly" or **"assembly hall"** shall mean a building or portion of a building used for the gathering together of 50 or more persons for such purposes as deliberation, education, instruction, worship, entertainment, amusement, drinking, or dining or waiting transportation. This shall also include child care centers (those agencies which operate for the care of thirteen or more children),

public and private hospitals, nursing ((~~and boarding~~)) homes and assisted living facilities.

"Special design" shall mean a design using nationally or internationally recognized engineering standards other than the codes adopted in WAC 296-104-200.

AMENDATORY SECTION (Amending WSR 14-13-087, filed 6/17/14, effective 8/1/14)

WAC 296-104-050 Administration—What are the requirements for a boiler inspector? Application for examination for a Washington state certificate of competency shall be in writing upon a form to be furnished by the chief inspector stating the school and education of the applicant, a list of employers, period of employment and position held with each employer. Applications containing willful falsification or untruthful statements shall be rejected.

In order to qualify as a prospective inspector, an applicant shall meet the minimum requirements as set forth in the national board's "Rules for Commissioned Inspectors," NB263, ((~~Revision 8 (02/07)~~)) (current edition) or API-510 (((~~ninth~~)) current edition), as appropriate.

If the applicant's history and experience meet with the approval of the chief inspector based on the board of boiler rules approved criteria, the candidate shall be given the Washington state examination. If the applicant is accepted on the merits of these examinations or as provided for in WAC 296-104-065, and the applicant is in possession of a national board commission or API-510 certification, as appropriate, a Washington state certificate of competency will be issued by the chief inspector.

For those applicants sitting for the national board examination in conjunction with the Washington state examination, a certificate of competency will be issued by the chief inspector upon receipt of a valid national board commission.

Examinations shall be held at locations and times when considered necessary by the chief inspector. The examinations may be offered four times each year, namely, the first Wednesday and following Thursday of the months of March, June, September and December. Special examinations may be held when considered necessary by the chief inspector.

AMENDATORY SECTION (Amending WSR 10-06-049, filed 2/24/10, effective 4/1/10)

WAC 296-104-100 Inspection—How often must boilers and unfired pressure vessels be inspected? In accordance with RCW 70.79.080, 70.79.090, and 70.79.240 the following inspection requirements shall apply:

(1) **Power boilers** shall be inspected:

(a) Externally while under pressure - Annually.

(b) Internally and externally while not under pressure - Annually, except as noted in ((~~the following paragraph~~)) (d) of this subsection.

(c) The required annual "certificate of inspection" will not be issued until both inspections listed in (a) and (b) of this subsection are completed and reported to the jurisdiction.

(d) A power boiler in a national board accredited owner-user inspection program may have the internal inspection intervals extended by the owner-user inspection organization to five years maximum under the following conditions:

(i) The boiler water treatment and specific chemical limits are prescribed and monitored by an individual or company that specializes in the water treatment field;

(ii) Nondestructive examination (NDE) is performed along with the internal inspections;

(iii) The boiler is monitored within a manned operating facility;

(iv) Inspection, maintenance, and water treatment records are maintained;

(v) There is sufficient inspection history for the boiler or a boiler in similar service to justify the increase in the inspection interval; and

(vi) This provision shall not apply to a black liquor recovery boiler or any boiler with an unsuitable corrosion rate, remaining life, and/or repair history.

(2) **Organic vapor boilers** shall be inspected:

(a) Externally while under pressure - Annually.

(b) Internally and externally while not under pressure - Biennially.

(3) **Low pressure boilers** shall be inspected:

(a) Externally while in operation and under pressure - Biennially.

(b) Internally while not under pressure (except where construction does not permit an internal) - Every fourth year.

(c) Internally, all steam heating boilers will have as a minimum, an internal of their low water fuel cut off - Biennially.

(d) Internally, none required for nonvapor boilers using glycol, or adequately treated with corrosion inhibitor.

(4) **Hot water heaters** shall be inspected:

(a) Externally - Biennially.

(b) Internally - None required.

(5) **Unfired pressure vessels** shall be inspected:

(a) Externally - Biennially.

(b) Internally:

(i) When subject to corrosion and construction permits - Biennially, except that expansion tanks, air separators, ammonia storage tanks and hot water storage tanks may have internal inspections at the inspector's discretion. Vessels in an owner-user inspection program may follow intervals established by the NBIC or API-510 ((~~ninth edition with addenda~~)).

(ii) Pulp or paper dryer rolls may be inspected on a five-year basis in accordance with TAPPI TIP 0402-16 ((~~2001 edition~~)) revised 2011, provided the owner has established a written inspection program accepted by the inspector that meets the minimum requirements of TAPPI TIP 0402-16 ((~~2001 edition~~)) revised 2011.

(iii) Vessels not subject to corrosion do not require an internal.

AMENDATORY SECTION (Amending WSR 14-13-087, filed 6/17/14, effective 8/1/14)

WAC 296-104-102 Inspection—What are the standards for in-service inspection? Where a conflict exists between the requirements of the standards listed below and this chapter, this chapter shall prevail. The duties of the in-service inspector do not include the installation's compliance with other standards and requirements (environmental, construction, electrical, undefined industrial standards, etc.), for which other regulatory agencies have authority and responsibility to oversee.

(1) The standard for inspection of nonnuclear boilers, unfired pressure vessels, and safety devices in the National Board Inspection Code (NBIC), 2013 edition Part 2, excluding Section 6, Supplements 1, 2, 5, 6, and 7 which may be used as nonmandatory guidelines.

(2) The standard for inspection of historical steam boilers of riveted construction preserved, restored, or maintained for hobby or demonstration use, shall be Appendix "C" of the National Board Inspection Code (NBIC) 2004 edition with 2006 addenda.

(3) The standard for inspection of nuclear items is ASME section XI. The applicable ASME Code edition and addenda shall be as specified in the owner in-service inspection program plan.

(4) Where a petroleum or chemical process industry owner/user inspection agency so chooses, the standard for inspection of unfired pressure vessels used by the owner shall be the API-510 Pressure Vessel Inspection Code, ((~~ninth~~)) current edition((~~, with addenda~~)). This code may be used on or after the date of issue.

(5) TAPPI TIP 0402-16, ((~~dated 2006~~)) revised 2011 may be used for both pulp dryers and paper machine dryers when requested by the owner. When requested by the owner, this document becomes a requirement and not a guideline.

AMENDATORY SECTION (Amending WSR 13-10-018, filed 4/23/13, effective 6/1/13)

WAC 296-104-303 Installation—What control and limit devices are required on automatically fired boilers after December 2004? In addition to those requirements listed in WAC 296-104-302, the following are also required with regard to installations or refits of gas, oil, or combinations of gas or oil:

(1) All automatically fired boilers with input greater than 400,000 Btu/hr, including electric boilers with input greater than 117 kW shall have a manually operated remote shutdown switch or circuit breaker. Activation of the emergency shutdown switch or circuit breaker shall immediately shut off the fuel or energy supply and initiate the boiler shutdown sequence in accordance with manufacturer's recommendations. The shutdown switch should be located just outside the boiler room door and marked for easy identification. Consideration should be given to the type and location of the switch to safeguard against tampering. If the boiler room door is on the building exterior, the switch should be located just inside the door. If there is

more than one door to the boiler room, there should be a switch located at each door.

(2) A means shall be provided for testing the operation of hot water heating boiler low-water fuel cutoff(s) without resorting to draining the entire system. Such means shall not render the device(s) inoperable. If the means temporarily isolates the device from the boiler during testing, it shall automatically return to its normal position.