


## Form #3

OFFICE WEST VIRGINIA  
SECRETARY OF STATE

  
Authorized Signature

## QUESTIONNAIRE

*(Please include a copy of this form with each filing of your rule: Notice of Public Hearing or Comment Period; Proposed Rule, and if needed, Emergency and Modified Rule.)*

DATE: July 27, 2007

TO: LEGISLATIVE RULE-MAKING REVIEW COMMITTEE

FROM: (Agency Name, Address & Phone No.) West Virginia Division of Labor  
Room B-749, Building #6  
State Capitol Complex  
Charleston, WV 25305

LEGISLATIVE RULE TITLE: Steam Boiler Inspection

1. Authorizing statute(s) citation W.Va. Code §21-3-7

2. a. Date filed in State Register with Notice of Hearing or Public Comment Period:  
June 27, 2007

b. What other notice, including advertising, did you give of the hearing?  
None

c. Date of Public Hearing(s) *or* Public Comment Period ended:  
July 27, 2007

d. Attach list of persons who appeared at hearing, comments received, amendments, reasons for amendments.

Attached \_\_\_\_\_ No comments received X

- e. Date you filed in State Register the agency approved proposed Legislative Rule following public hearing: (be exact)

July 27, 2007

- f. **Name, title, address and phone/fax/e-mail numbers** of agency person(s) to receive all *written correspondence* regarding this rule: (Please type)

Andrew A. Brown, Asst. to the Commissioner

West Virginia Division of Labor

Room B-749, Building #6

State Capitol Complex , Charleston, WV 25305

Ph: (304) 558-7890, ext.#112      FAX (304) 558-2273  
abrown@labor.state.wv.us

- g. **IF DIFFERENT FROM ITEM 'f'**, please give **Name, title, address and phone number(s)** of agency person(s) who wrote and/or has responsibility for the contents of this rule: (Please type)

N/A

3. If the statute under which you promulgated the submitted rules requires certain findings and determinations to be made as a condition precedent to their promulgation:

- a. Give the date upon which you filed in the State Register a notice of the time and place of a hearing for the taking of evidence and a general description of the issues to be decided.

N/A

**WEST VIRGINIA  
SECRETARY OF STATE  
BETTY IRELAND  
ADMINISTRATIVE LAW DIVISION**

Form #2

Do Not Mark In This Box

2007 JUN 27 7:13 PM

OFFICE  
SECRETARY OF STATE

**NOTICE OF A COMMENT PERIOD ON A PROPOSED RULE**

AGENCY: West Virginia Division of Labor TITLE NUMBER: 42

RULE TYPE: Legislative CITE AUTHORITY: W.Va. Code §21-3-7

AMENDMENT TO AN EXISTING RULE: YES X NO     

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 3

TITLE OF RULE BEING AMENDED: Steam Boiler Inspection

IF NO, SERIES NUMBER OF RULE BEING PROPOSED:     

TITLE OF RULE BEING PROPOSED:     

IN LIEU OF A PUBLIC HEARING, A COMMENT PERIOD HAS BEEN ESTABLISHED DURING WHICH ANY INTERESTED PERSON MAY SEND COMMENTS CONCERNING THESE PROPOSED RULES. THIS COMMENT PERIOD WILL END ON July 27, 2007 AT 4:30 pm ONLY WRITTEN COMMENTS WILL BE ACCEPTED AND ARE TO BE MAILED TO THE FOLLOWING ADDRESS:

West Virginia Division of Labor

Attn: Andrew A. Brown  
Room B-748, Building #6 **Legislative Rule-Making**

State Capitol Complex  
Charleston, WV 25305

THE ISSUES TO BE HEARD SHALL BE LIMITED TO THIS PROPOSED RULE.

**JUN 27 2007**

**Review Committee**

  
Authorized Signature

ATTACH A **BRIEF** SUMMARY OF YOUR PROPOSAL

## APPENDIX B

**FISCAL NOTE FOR PROPOSED RULES**

Rule Title: Steam Boiler Inspection

Type of Rule: ☒ Legislative ☐ Interpretive ☐ Procedural

Agency: West Virginia Division of Labor

Address: Room B-749, Building #6  
State Capitol Complex  
Charleston, West Virginia 25305

Phone Number: (304) 558-7890 Email: abrown@labor.state.wv.us

**Fiscal Note Summary**

Summarize in a clear and concise manner what impact this measure will have on costs and revenues of state government.

This amendment to the rule, 42CSR 3, will increase fees charged for certain services provided by the Division of Labor. The end result will be a revenue increase of approximately \$31,000 annually. Presently, this operation has a revenue shortfall of slightly more than \$29,000. The fee increases will return this operation to a self-supporting, revenue neutral status.

**Fiscal Note Detail**

Show over-all effect in Item 1 and 2 and, in Item 3, give an explanation of Breakdown by fiscal year, including long-range effect.

FISCAL YEAR			
Effect of Proposal	Current Increase/Decrease (use "-")	Next Increase/Decrease (use "-")	Fiscal Year (Upon Full Implementation)
1. Estimated Total Cost	80,016.59	0.00	80,016.59
Personal Services	55,016.59	0.00	55,016.59
Current Expenses	25,000.00	0.00	25,000.00
Repairs & Alterations	0.00	0.00	0.00
Assets	0.00	0.00	0.00
Other	0.00	0.00	0.00
2. Estimated Total Revenues	51,000.00	31,000.00	82,000.00

Rule Title: \_\_\_\_\_

Rule Title:

Steam Boiler Inspection

**3. Explanation of above estimates (including long-range effect):**

Please include any increase or decrease in fees in your estimated total revenues.

The sole intent of this amendment is to return this operation to a self-supporting status by increasing revenues to equal expenditures. The fee increases proposed are as follows:

1. Processing of inspection reports from \$25 to \$50,
2. Processing annual operating permits from \$25 to \$50, and
3. The commissioning of insurance company inspectors from \$25 to \$50.

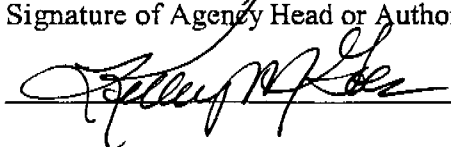
**MEMORANDUM**

Please identify any areas of vagueness, technical defects, reasons the proposed rule would not have a fiscal impact, and/or any special issues not captured elsewhere on this form.

NONE

Date: June 27, 2007

Signature of Agency Head or Authorized Representative



## **SUMMARY**

This is an amendment to an existing rule. The rule amendment increases fees for the following:

1. Processing inspection reports (from \$25 to \$50),
2. Issuing annual operating permits (from \$25 to \$50), and
3. The commissioning of insurance company inspectors (from \$25 to \$50).

This amendment makes no other changes to the rule.

**TITLE 42  
LEGISLATIVE RULE  
DIVISION OF LABOR**

**SERIES 3  
STEAM BOILER INSPECTION**

**§42-3-1. General.**

1.1. Scope. -- This Legislative rule is promulgated for the enforcement of W. Va. Code §21-3-7 relating to Steam Boilers under authorization under that same section of the West Virginia Code.

1.2. Authority. -- W. Va. Code §21-3-7

1.3. Filing Date. -- ~~April 5, 2002.~~

1.4. Effective Date. -- ~~July 1, 2002.~~

**§42-3-2. Definitions.**

2.1. "Approved or special inspector" means an inspector certified by the commissioner as having met the minimum qualifications for boiler inspectors established by the national board.

2.2. "Board or National Board" means the National Board of Boiler and Pressure Vessel Inspectors.

2.3. "Commissioner" means the state commissioner of labor.

2.4. "Division" means the West Virginia division of labor.

2.5. "Forced-flow steam generator" means a boiler which has no fixed steam and water line.

2.6. "NBIC" means the National board of Boiler and Pressure Vessel Inspectors Inspection Code.

**§42-3-3. Boilers Of All Types.**

3.1. All boilers operating in the State of West

Virginia, except boilers on railroad locomotives subject to inspection under Federal laws, portable boilers used for agricultural purposes, boilers on automobiles; boiler of steam fire engines brought into the State for temporary use in times of emergency for the purpose of checking configurations; boilers used in private residences which are solely for residential purposes; sectional boilers; small portable boilers commonly used in the oil and gas industry around their wells and tool houses; boilers carrying not more than fifteen (15) pounds pressure per square inch, which are equipped with safety devices approved by the Commissioner, and boilers under the jurisdiction of the United States; are subject to an internal inspection annually by an approved inspector while not under pressure, and externally with at least the same frequency, and are required to have an annual permit to operate, except as may be otherwise required by subdivision a of this section subsection.

a. Force-flow steam generators are subject to an inspection cycle as determined by the approved inspector for both the internal and the external inspections. Under no circumstances shall the inspection cycle exceed twenty-four (24) months. The permit to operate is valid for a period of time equal to the inspection cycle established by the approved inspector.

b. The division shall accept insurance inspector's reports on insured boilers in lieu of inspection reports by an inspector of the Division of Labor.

c. Notice shall be given to the Division of Labor any time a boiler is moved from one location to another. The notice shall specify the boiler identification number, the original location and the new location.



d. The provisions of this rule do not apply to boilers exempt from inspection by the Commissioner under W. Va. Code §21-3-7.

3.2. Each steam boiler used or proposed to be used within the state, except boilers exempt from inspection under W. Va. Code §21-3-7, shall be thoroughly inspected internally and externally while not under pressure by an inspector of the Division, or by approved inspectors provided for this rule, as to its design, construction, installation, condition and operation; and if it is found to be suitable and to conform to the rules of the Division, the Commissioner shall issue to the owner or user a Permit to Operate for each boiler. Permits to operate shall specify the maximum pressure that the boiler inspected is allowed to carry. Permits to operate shall be issued by the Commissioner and are valid for a period of twelve (12) months from the date of issuance, except as otherwise specified by subsection 3.1 of this rule. Requests for an extension, not to exceed one hundred twenty (120) days beyond the expiration date of the permit, may be considered where there are unusual circumstances or conditions: Provided, the request has the approval of the insurance company carrying the risk, in the case of insured boilers, or the approval of the State Inspector in the area in which the boilers are in operation, in the case of state inspected boilers. No request shall be considered unless approval in writing accompanies the request for extension of time. The permit shall be posted under glass in the engine or boiler room containing the boiler or an engine operated by it, or, in the case of portable boiler, in the office of the plant where it is located. The Commissioner, or his or her authorized representative, may at any time suspend a Permit to Operate when, in his or her opinion, the boiler for which it was issued may not continue to be operated without menace to the public safety, or when the boiler is found to not comply with this rule. A Special Inspector shall have corresponding powers with respect to Permits to Operate for boilers insured by the company employing him or her. The suspension of a Permit to Operate continues in effect until the boiler has been made to conform to the rules of the Division and until the Permit to Operate has

been reinstated by a State Inspector, if the Permit to Operate was suspended by a State Inspector, or by a Special Inspector if it was suspended by a special inspector. Each boiler shall also be inspected externally while under pressure with at least the same frequency and at no greater intervals.

3.3. Not later than the first internal inspection, all boilers shall be stamped with a West Virginia serial number WOOOW. The numbers and letters shall be not less than 5/16 inches high.

a. The stamps shall be placed in the location specified by the rules of the American Society of Mechanical Engineers' Boiler Code.

b. The stamping shall not be covered by insulating or other material.

c. No steam boiler shall be operated in this state if the boiler has been condemned for further use in this or any other State by an approved boiler inspector.

d. Every steam boiler condemned in this State shall be stamped "WXXXW" placed across the registration mark or number. The inspector shall put beneath the mark the identification mark furnished his or her company, if an insurance company, or that provided by the Commissioner if condemned by the State. The Division shall provide identification marks to all companies insuring boilers within the state.

e. The stamping shall be done with individual letters, driven into the plate so far as to thoroughly cancel any previous registration and shall be made with letters at least 5/16 inches high.

3.4. In addition to any boiler inspectors of the Division, the Commissioner shall, upon the request of any company authorized to insure against loss from explosion of steam boilers in this State, issue to the boiler inspectors of the company a Certificate of Competency. The commissioner shall issue a Certificate of

Competency if the inspectors satisfactorily pass the examination provided for in subsection 3.6 of this rule or, in lieu of the examination, hold a certificate as an inspector of steam boilers for a state that has a standard of examination equal to that of the State of West Virginia or a certificate from the National Board of Boiler and Pressure Vessel Inspectors. The Special Inspectors shall receive no salary from, nor shall any of their expenses be paid by the State, and the continuance of a Special Inspector's certificate shall be conditioned upon their continuing in the employ of the insurance company.

3.5.a. An insurance company shall immediately notify the Division of all insurance policy of coverage changes to include expiration of the policy, cancellation of the policy or the initiating of a new policy of coverage.

b. If a Special Inspector, upon the first inspection of a new risk finds that the boiler or any of the appurtenances are in a condition that his or her company refuses coverage, the company shall immediately notify the Division of Labor of that fact together with a list of the defects.

3.6.a. Examination for Inspectors of the Division and Special Inspectors shall be given by the Commissioner, or by at least two (2) examiners to be appointed by the Commissioner. Examinations shall be written or part written and part oral, recorded in writing and shall be confined to questions the answers of which will aid in determining the fitness and competency of the applicant for the intended service and shall be of uniform grade throughout the State. In case an applicant for an inspector's Certificate of Competency fails to pass the examination, he or she may appeal to the Commissioner for a second examination, which shall be given by the Commissioner, or by examiners other than those by whom the first examination was given, and these examiners shall be appointed immediately to give a second examination. Upon the result of this examination, on appeal, the Commissioner shall determine whether the applicant is qualified.

b. The record of an applicant's

examination, whether original or on appeal, shall be accessible to him or her and to his or her employer. A Certificate of Competency may be revoked by the Commissioner for the incompetency or untrustworthiness of the holder or for willful falsification of any matter or statement contained in his or her application or in a report of any inspection. A person whose certificate is revoked may appeal from the revocation to a board of hearing, which shall consist of three (3) or more members to be appointed by the Commissioner. The board shall hear the appeal and either set aside or affirm the revocation and its decision is final. The person whose certificate has been revoked may be present in person or by counsel on the hearing of the appeal. If a certificate is lost or destroyed, a new certificate shall be issued in its place without another examination. A person who has failed to pass the examination or whose Certificate of Competency has been revoked, may apply for a new examination and certificate after ninety (90) days from the failure or revocation.

3.7. The first internal inspection of each boiler to which this rule applies shall be reported on the National Board of Boiler and Pressure Vessel Inspectors Inspection Code (NBIC) "Report Of First Internal Inspection" form, or a similar form. Annually, thereafter, inspections shall be reported on the NBIC "Report of Inspection" form or a similar form. Copies of inspection reports shall be forwarded to the Commissioner. Not more than twelve (12) months shall elapse between internal inspections unless requests for extensions are granted or the boiler is subject to the provisions of subdivision 3.1(a) of this rule.

3.8. No used steam boiler for use under pressure shall be brought into this State except boilers exempt under W. Va, Code §21-3-7, unless the boiler complies with section four of this rule.

3.9. No permit to operate, issued on an insured boiler, is valid after the boiler for which it was issued ceases to be insured by a duly authorized insurance company. In that case, the owners or operator shall promptly notify the West

Virginia Division of Labor.

3.10. The Commissioner has adopted the American Society of Mechanical Engineers (ASME) Boiler Code, Amendments, Addendums, and Interpretations thereto, and the National Board of Boiler and Pressure Vessel Inspectors Inspection Code (NBIC), Amendments, Addendums, and Interpretations thereto for both new and existing installations as the standards to be used by inspectors in the State of West Virginia.

3.11. The Commissioner shall have free access for himself or herself, his or her authorized inspectors and special inspectors, during reasonable hours, to any premises in the state where a steam boiler is built or where a steam boiler or power plant apparatus is being installed or operated, for the purpose of ascertaining whether the boiler is built, installed and operated in accordance with the provisions of W. Va. Code §21-3-7.

3.12. The owner or user of a boiler to which this rule applies is required to be inspected annually on a date specified by the Commissioner or by Special Inspectors of any authorized insurance company. The inspection date shall not be less than seven (7) days after the date of the notice, unless by consent of the boiler owner. The boiler owner shall prepare the boiler for internal inspection or hydrostatic pressure test when necessary.

3.13.a. To prepare a boiler for internal inspection, the water shall be drawn off and the boiler thoroughly washed. All manhole and handhole plates and washout plugs in boilers and plugs in water column connection, if any, shall be removed and the furnace and combustion chambers thoroughly cooled and cleaned. All grates of internally fired boilers shall be removed. Also enough of the brick work or insulating material of any type of boiler shall be removed to determine the condition of the boiler, when necessary. The steam gauge shall be removed for testing.

b. All gas or oil fired boilers that come under this rule which are equipped with a stack damper shall have the damper arranged so that it cannot be closed tight. The damper should have at least a twenty percent (20%) opening at all times. If necessary, a section of damper blade should be cut out to provide this minimum amount of opening to permit escape of any possible gas accumulation. If it is found that any steam or hot water is leaking into the boiler, the source of the leakage shall be disconnected, if necessary, so as to cut out the steam or hot water from the boiler to be inspected.

3.14.a. If a boiler has not been properly prepared for internal inspection as provided for in this section, the inspector may decline to make the inspection and may withhold the Permit to Operate until the boiler has been properly prepared and inspected.

b. When inspecting a boiler under this rule the State or Approved Inspector shall observe if any appurtenances are connected to the boiler which are not a part of the boiler proper, but which may be subjected to boiler pressure. The vessel may be a condensate return tank or blow-off tank. The inspector shall report to the Commissioner any defects or sub-standard conditions he or she may note on appurtenances connected to the boiler.

3.15. A boiler shall be condemned by an approved inspector if, upon inspection, it is found to be in a condition that it is unsafe to operate. However, the owner or user may immediately appeal to the Commissioner, before the boiler is stamped as provided in subsection 2.3 of this rule. If an appeal is made, the boiler shall not be operated pending the decision of the Commissioner.

3.16. The shell or drum of a boiler in which a typical "lap seam crack" is discovered along a longitudinal riveted joint for either butt strap or lap joint shall be permanently discontinued for use under steam pressure. For the purposes of this subsection "lap seam crack" means the typical crack frequently found in lap seams extending

parallel to the longitudinal joint and located either between or adjacent to rivet holes.

3.17. All automatically fired gas or oil boilers which come under this rule shall be equipped with a manual reset gas trip valve which functions in case of safety pilot light failure or the operation of the low water fuel cutout. This apparatus shall be designed so that the flow of gas or oil cannot be resumed without the service of the attendant.

3.18.a. Provisions shall be made when insulating a boiler so that the insulation covering the longitudinal seam may be removed, or a space not less than (ten) 10 inches wide shall be provided with removable insulation for taking measurements or inspection of the joint and shell. This requirement also applies to portable boilers which are jacketed with steel over the insulation.

b. When a boiler is covered with insulating materials, the materials shall be kept not less than (two) 2 inches away from edges of all handhole and manhole openings and not less than (one) 1 inch away from threaded pipe connections to boiler.

c. If the boiler is jacketed so that the longitudinal seams of the shells, drums or domes cannot be seen, or if the size and pitch of the rivets and other necessary data cannot be determined, the inspector may require that enough of the jacketing, setting wall or other covering be removed as is necessary to determine the safety of the boiler or appliance.

3.19. All appliances required for electric steam generators shall be attached in accordance with the following standards:

a. A cable at least as large as one of the incoming power lines to the generator shall be provided for grounding the generator shell. This cable shall be permanently fastened on some part of the generators and shall be grounded in an approved manner;

b. A suitable screen or guard shall be provided around high tension bushings and a sign

posted warning of high voltage. This screen or guard shall be located in a manner that it will be impossible for anyone working around the generator to accidentally come in contact with the high tension circuits. When the operator adjusts safety valves, the power circuit to the generator shall be open. The generator may be under steam pressure but the power line shall be open while the operator is making the necessary adjustments. A switch or circuit breaker of suitable rupturing capacity shall be installed in the power circuit together with disconnecting switches so that the power circuit may be opened and prevented from being accidentally closed during repairs to the boiler. One (1) switch shall be located near the boiler.

3.20. In all cases, where no mechanical feed is attached to a boiler, the safety valve shall be set at not less than six percent (6%) below the pressure of the main source of supply feeding the boiler. A return trap shall not be considered as a mechanical feeding device. A boiler having more than five hundred (500) square feet of water heating surface shall have at least two (2) means of feeding, one (1) of which shall be a pump, inspirator or injector. Where a source of feed is available at a sufficient pressure to feed the boiler against a pressure of six percent (6%) higher than, that at which the safety valve is set to blow, this may be considered one of the meanings. Where possible, feed water should have a temperature of not less than one hundred twenty (120) degrees Fahrenheit.

3.21. If upon an external inspection there is evidence of a leak or crack, enough of the covering of the boiler shall be removed to satisfy the inspector in order that he or she may determine the safety of the boiler. If the covering cannot be removed at that time, he or she may order the operation of the boiler stopped until the covering can be removed and proper examination made.

3.22. All repairs or alterations shall be made to boilers or boiler appurtenances subject to this rule by individuals or repair organizations who are accredited by and in accordance with the rules of

the National Board of Boiler And Pressure Vessel Inspectors Inspection Code (NBIC).

3.23.a. All repairs and alterations made to boilers and boiler appurtenances subject to this rule shall be made and tested in accordance with the rules of the National Board of Boiler And Pressure Vessel Inspectors Inspection Code (NBIC).

b. The American Society Of Mechanical Engineers Boiler Code applicable on the date of original construction of the boiler or boiler appurtenance shall be used as the minimum design standard in making the repairs and alterations.

3.24. No repairs (including welding) shall be made without the approval of an authorized inspector and the method of the repair shall be sanctioned by the inspector. If, in the opinion of the inspector, a hydrostatic test is necessary, the test shall be applied when the work is completed.

3.25. The Commissioner or his or her authorized representative or Special Inspectors may at any time call for an accumulation test to determine if a steam heating boiler is subject to or operated at a pressure in excess of fifteen (15) pounds.

#### **§42-3-4. New Installations.**

All new steam boilers installed in this State except boilers exempt from inspection under W. Va. Code §21-3-7, shall be constructed and installed in accordance with the rules and regulations of the Power Boiler Code of the American Society of Mechanical Engineers, together with the Appendix and any amendments thereto. Also, the boilers shall be inspected by an approved inspector, holding a boiler inspector's Certificate of Competency, issued by the Commissioner of Labor, or issued by a state having rules and regulations the equivalent of the State of West Virginia or issued by the National Board of Boiler and Pressure Vessel Inspectors. Boilers to which this rule applies shall be stamped as provided by the Power Boiler Code of the

American Society of Mechanical Engineers, the letters and figures of the stamp to be not less than 5/16 inches in height. Boilers having a standard stamping of a state requiring a standard of construction equivalent to the established standard of West Virginia may be accepted by the Division: The owner or operator desiring to install the boiler in this State, shall file with the application to the Division a manufacturer's data report covering the construction of the boiler in question.

#### **§42-3-5. Existing Installations.**

5.1. The following standards, formulated by the Commissioner, in accordance with W. Va. Code §21-3-7, apply to boilers installed previous to January 1, 1938. Form 104, "Affirmation of Previous Installation," shall be used to prove that a boiler which does not bear proper stamping was installed in West Virginia prior to that time.

5.2. The maximum allowable working pressure on the shell of a boiler or drum shall be determined by the strength of the weakest section of the boiler, computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint, or the tube ligament, the inside diameter of the course and the factor of safety allowed by these rules.

$$\frac{TS \times t \times E}{R \times FS} = \text{maximum allowable working pressure, lbs.}$$

$$R \times FS \text{ per square inch}$$

Where

TS = ultimate tensile strength of shell plates, lbs. per. sq. in.

t = minimum thickness of shell plate, in weakest course, in.

E = efficiency of longitudinal joint, method of determining which is given in the ASME Code Book. See note.

E for seamless boilers is 100%.

E for tube ligaments between openings shall be calculated by the rules given in the ASME Boiler Code.

R = inside radius of the weakest course of the shell or drum, inches.

FS = factor of safety allowed by this rule.

Note: To be used as given above for longitudinal joints, riveted construction or if for fusion welded joints, E shall be taken as per efficiency specified in the ASME Boiler Code.

In any case where there are both riveted joints and tube ligaments to consider, the weaker of these shall be used for E.

5.3. a. Boilers of butt strap longitudinal seam construction shall be operated with a factor of safety of at least four and five tenths (4.5). This factor of safety may be increased by the inspector if the condition and safety of the boiler demands the action.

b. Ten (10) years after this rule becomes effective the factor of safety shall be at least five (5).

c. Boilers of lap seam longitudinal construction shall be operated with a factor of safety of at least five (5).

d. In no case shall the maximum allowable working pressure on old boilers be increased unless they are being operated at a lesser pressure than would be allowable for new

boilers, in which case the changed pressure shall not exceed that allowable for new boilers of the same construction. The factor of safety may be increased by the inspector if the condition and safety of the boiler demands the action.

5.4. Tensile strength. -- When the tensile strength of steel or wrought-iron shell plates is not known, it shall be taken as fifty-five thousand (55,000) pounds per square inch for steel and forty-five thousand (45,000) pounds per square inch for wrought-iron.

5.5. Strength of rivets in shear. -- In computing the ultimate strength of rivets in shear, the following values in pounds per square inch of the cross-sectional area of the rivet shank shall be used:

Iron rivets in single  
shear ..... 38,000

Iron rivets in double  
shear ..... 76,000

Steel rivets in single  
shear ..... 44,000

Steel rivets in double  
shear ..... 88,000

The cross-sectional area used in the computations shall be that of the rivet shank after driving.

5.6. Crushing strength of mild steel. -- The resistance to crushing of mild steel shall be taken at ninety-five thousand (95,000) pounds per square inch of cross-sectional area.

5.7. Rivets. -- When the diameter of the rivet holes in the longitudinal joints of a boiler is not known, the diameter and cross-sectional area of rivets, after driving, may be taken from the following table or ascertained by cutting out one (1) rivet in the body of the joint.

Table  
Sizes of Rivets Based on

Plate Thickness \_\_\_\_\_

Thickness of plate

1/4" 9/32" 5/16" 11/32" 3/8" 13/32"

Diameter of rivet after driving

11/16" 11/16" 3/4" 3/4" 13/16" 13/16"

Thickness of plate

7/16" 15/32" 1/2" 9/16" 5/8"

Diameter of rivet after driving

15/16" 15/16" 15/16" 1-1/16" 1-1/16"

5.8. The safety valve capacity of each boiler shall be such that the safety valve or valves will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than six percent (6%) above the maximum allowable working pressure or more than six percent (6%) above the highest pressure to which any valve is set.

5.9. One or more safety valves on every boiler shall be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of three percent (3%) above the maximum allowable working pressure, but the range of setting of all the valves on a boiler shall not exceed ten percent (10%) of the highest pressure to which any valve is set. No valve of any description shall be placed between a safety valve escape pipe. It shall be located close to the safety valve outlet, or the escape pipe, shall be securely anchored and supported. When an escape pipe is used, it shall be full size and fitted with an open drain to prevent water lodging in the upper part of the safety valve or escape pipe. Safety valves having either the seat or disc of cast iron shall not be used. Dead weight or lever weighted safety valves are prohibited.

5.10. All stationary reinstalled boilers for which ownership has not changed shall be inspected and subjected to a hydrostatic test

before being placed in operation and shall be equipped with appurtenances conforming to the ASME Boiler Code applying to new installations.

5.11. The factor of safety for re-installation shall be in accordance with the requirements of subsection 5.3 of this rule except that a factor of safety of not less than five and five tenths (5.5) shall be used when the boiler is of the lap seam type and a factor of safety of not less than five (5) shall be used when the boiler is of butt and double strap construction.

5.12. Second-hand boilers which for the purposes of this subsection are meant boilers where both the ownership and location are changed, which are not constructed in accordance with the Code, and which have been installed or in use in this State previous to January 1, 1938, shall be inspected and subjected to a hydrostatic test and the factor of safety of not less than five and five tenths (5.5) shall be used.

5.13. The National Board of Boiler and Pressure Vessel Inspectors Inspection Code (NBIC) has been adopted as the repair standard of the Division.

5.14. Any boiler having a continuous lap seam more than twelve (12) feet in length and a diameter over 36 inches when removed from an existing setting shall not be reinstalled to operate at a pressure in excess of fifteen (15) pounds per square inch.

5.15. The maximum allowable working pressure shall not exceed one hundred sixty (160) pounds per square inch on a water-tube boiler when the tubes of the boiler are secured to cast-iron or malleable headers.

5.16. Fire-actuated fusible plugs, when used, shall conform to the Rules and Regulations of the Boiler Code of the American Society of Mechanical Engineers, and shall be renewed when requested by the Commissioner or inspectors.

5.17. The least diameter of fusible metal in a fire-actuated plug shall be not less than one half

(1/2) inch, except for maximum allowable working pressures of over one hundred seventy-five (175) pounds per square inch, or when it is necessary to place a fire-actuated fusible plug in a tube, in which case the least diameter of fusible metal shall be not less than 3/8". If a fire-actuated fusible plug is inserted in a tube, the tube wall shall be not less than 0.22 inch thick or sufficient to give four (4) threads.

5.18. Steam-actuated fusible plugs, if used, shall be located so that they will operate when the water level is at the point where a fire-actuated fusible plug would be located if installed under this rule. Fire-actuated fusible plugs, if used, shall be located at the lowest permissible water level for different types of boilers as specified by the ASME Code.

5.19.a. Each steam boiler shall have at least one (1) water glass, the lowest visible part of which shall be not less than two (2) inches above the lowest permissible water level.

b. Each boiler shall have three (3) or more gauge cocks, located within the range of the visible length of the water glass, when the maximum allowable working pressures exceeds fifteen (15) pounds per square inch, except when the boiler has two (2) water glasses with independent connections to the boiler, located on the same horizontal line and not less than 2 feet apart.

c. Locomotive-type boilers not over thirty-six (36) inches in diameter, or any firebox or water leg boiler in which the heating surface does not exceed 50 square feet, shall have two (2) gauge cocks.

d. The water column shall be fitted with a drain cock or drain valve with a suitable connection to the ashpit, or other safe point of waste if the water connection has a rising bend or pocket, which cannot be drained by means of the water column drain, an additional drain shall be placed on this connection in order that it may be blown off to clear any sediment from the pipe. The water column blow-off pipe shall be at least

three-fourths (3/4)-inch pipe size.

5.20.a. No outlet connections, except for damper regulator, feed-water regulator, low water cut-outs, drains or steam gauges, shall be placed on the pipes connecting a water column to a power boiler.

b. When water level controls or low water cutouts are installed, the piping to the controls shall be independent of the regular water column piping.

c. The pipe connections to the apparatus shall be provided at each right angle turn with a cross fitting with a readily removable plug to permit inspection and cleaning in both directions.

5.21.a. Steam gauges. -- Each boiler shall have a steam gauge connection to the steam space or to the water column or to its steam connection graduated to not less than one and one-half (1 1/2) times the safe working pressure of the boiler. The steam gauge shall be connected to a siphon or equivalent device of sufficient capacity to keep the gauge tube filled with water and arranged so that the gauge cannot be shut off from the boiler except by a cock placed near the gauge and provided with a tee or lever handle arranged to be parallel to the pipe in which it is located when the cock is open. Where the pipe may be subject to freezing, a shut off cock may be placed close to the boiler for removal or draining. Connections to gauges shall be of brass, copper or bronze composition. One-fourth (1/4)-inch inspector's test gauge connection shall be fitted so that the gauge can be tested while the boiler is in operation.

b. Where the use of a pipe longer than ten (10) feet becomes necessary, an exception may be made to the rule that the gauge must be arranged so that it cannot be shut off except by a cock placed near the gauge. A shutoff valve or cock arranged so that it can be locked or sealed open may be used near the boiler. The pipe shall be of ample size and arranged so that it may be cleared by blowing out.



5.22.a. Each steam outlet from a power boiler, except safety valve connections, shall be fitted with a stop valve located as close as practicable to the boiler.

b. When a stop valve is located so that water can accumulate, ample drains shall be provided.

c. An ordinary cast pipe plug is not considered to be readily removable. A suggested improvement would be a plug made of a nipple and pipe can or blind nipple.

5.23.a. Each boiler shall have a blow-off pipe fitted with a valve or cock in direct connection with the lowest water space practicable. When cocks are used, they shall be of the gland or guard type and suitable for the pressure allowed. Boilers carrying over one hundred (100) pounds steam pressure shall have two (2) valves or a valve and cock on the blow-off line.

b. The bottom blow-off of every traction and/or portable boiler shall have at least one blow-off valve, conforming to the requirements of the ASME Code for the pressure allowed.

5.24. When any changes or repairs are made in the blow-off pipe for existing installations:

a. The blow-off valve or valves and the pipe between them and the boiler shall be of the same size except where a larger pipe for the return of condensate is used;

b. All fittings between the boiler and valves shall be steel for pressure over one hundred (100) pounds;

c. When the pressure does not exceed one hundred (100) pounds per square inch, the valves and fittings shall be equal at least to the requirements of the American Standards for one hundred twenty-five (125) pounds per square inch;

d. For pressures exceeding one hundred (100) pounds per square inch, the valves, pipe and

fittings shall be equal at least to the requirements of the American Standards for two hundred fifty (250) pounds per square inch; and

e. For pressures over two hundred fifty (250) pounds per square inch, the valves or cocks shall be of steel construction equal at least to the requirements of the ASME Code.

5.25.a. A bottom blow-off pipe when exposed to direct furnace heat shall be protected by firebrick or other heat resisting material arranged so that the pipe may be inspected.

b. An opening in the boiler setting for a blow-off pipe shall be arranged to provide for free expansion and contraction.

5.26. The feed pipe of a steam boiler operated at more than fifteen (15) pounds per square inch maximum allowable working pressure, shall be provided with a check valve near the boiler and a valve or cock between the check valve and boiler, and when two (2) or more boilers are fed from a common source, there shall also be a stop valve on the branch to each boiler, between the check valve and the source of supply. When a globe valve is used on a feed pipe, the inlet shall be under the disc of the valve.

5.27. Each boiler fitted with a water-jacket boiler furnace mouth protector, or similar appliance having valves on the pipes connecting them to the boiler, shall have these valves locked or sealed open. The valves, when used, shall be of the straightway type. Suitable means should be provided for blowing out this equipment.

5.28.a. Test pressure. -- When a hydrostatic test is applied, the required test pressure shall be in accordance with the rules of the NBIC.

b. During a hydrostatic test of a boiler, suitable provisions shall be made so that it will not be necessary to screw down the compression screw upon the spring of the safety valve. The temperature of water used during a hydrostatic test shall be in accordance with the rules of the NBIC.

5.29.a. An approved inspector shall be called for consultation when repairs are necessary which in any way affect the working pressure or safety of a boiler. The repairs made are subject to the approval of an approved inspector.

b. When repairs or alterations are ordered by an inspector and a "Boiler Repair Report" is required, the Annual Inspection Certificate shall be withheld until the Boiler Repair Report, completed by the owner, is received by the Division showing that the repairs have been completed as required. Repairs to all boilers and their appurtenances shall conform to the requirements of the NBIC.

5.30. A boiler, except a self-contained portable boiler used for purposes other than operating ground saw-mills, cannot be moved from one location to another and legally operated at the new location until it has been inspected internally by an approved inspector and a permit to operate has been issued by the Commissioner.

#### **§42-3-6. Inspection Fee Schedule.**

6.1. General Purposes. The general purpose of this section is to formulate an inspection fee schedule. This rule establish fees:

a. for the inspection of boilers by those persons whom the Commissioner of Labor has authorized as inspectors;

b. for the processing of inspection reports from insurance companies;

c. for issuing annual permits to operate boilers;

d. for the commissioning of insurance company boiler inspectors; and,

e. emergency extension of operating permits.

6.2. The Commissioner shall not issue a permit to operate a boiler until all applicable fees have been paid. All fees shall be paid by check or

money order made payable to the West Virginia Division of Labor. The schedule of fees is as follows:

a. Boiler Inspection Fees for Steam Boilers:

1. Boilers with less than 100 square feet of heating surface \$150.00

2. Boilers with 101 to 500 square feet of heating surface \$200.00

3. Boilers with more than 500 square feet of heating surface \$250.00

b. Fee for the processing of inspection reports for insurance companies:

~~\$25.00~~ \$50.00

c. Fee for issuing annual permits to operate boilers:

~~\$25.00~~ \$50.00

d. Fee for commissioning insurance company boiler inspectors:

~~\$25.00~~ \$50.00

e. Fee for emergency extension of operating permit:

\$100.00

f. Hobby Boilers - operating permits Only:

\$25.00

g. National Board Examinations

\$25.00