



BOILER SAFETY INTERPRETATION/TECHNICAL LETTER BSI21

MEMORANDUM

TO: All Authorized Inspectors

FROM: Fred P. Barton, Director/Chief Inspector
Boiler Safety Compliance Program

SUBJECT: Internal Inspections & Vessels Containing Water [[view Illustration](#)]

DATE: June 9, 2004

In the last few months there has been renewed activity in areas that should be of interest to all.

- A. Firstly, there has been some laxity by Inspectors in recommending Certificates of Inspection for high pressure boilers strictly on external inspections. The Boiler Rules and Regulations require annual internal inspections for high pressure boilers with few exceptions. Those exceptions are registering new high pressure boilers within one (1) year of installation and electric miniature boilers.

All other boilers require internal inspections of the water (fluid side) annually unless they have a Variance from the Commissioner of DOLI. Variances have been routinely issued over the years for high pressure boilers used by utilities and, more recently, hot oil boilers. (Note: Hot oil vaporizers that are "U" Stamped and are electric are not considered to be boilers and may be externally inspected every two (2) years. Only Vaporizers that are "atmospheric" with no valves between the vaporizer and opening to the atmosphere may be considered exempt.)

- B. The Virginia Code exempts vessels with water less than MAWP of 300 psi or 210 degrees Fahrenheit, [(Section 40.1-51.8 (8)]. Both potable and non-potable water should be considered alike in compliance activities. Attached find a sketch to illustrate four examples.

When evaluating heat exchangers that have water on the lower pressure side consider the worst case. If the high pressure side fails and allows pressure to build up beyond 250 psi in the lower pressure side resulting in the entire

exchanger's volume to be over 5 cubic feet, the heat exchanger water side may not be considered exempt.

Vessels that contain particles such as water filter tanks should not be considered exempt for tanks containing water but come under the paragraph for standard pressure vessels [(Section 40.1-51.8 (12)] where the three (3) conditions of 250 psi and 5 cubic feet; 600 psi and 1.5 cubic feet, and inside diameter six (6) inches prevail.

While the 120 gallon limitation was deleted from exemption for vessels containing water in the early 1990's, good engineering practice should still be applied. Tanks containing large volumes of water less than 210 degrees Fahrenheit may not release the same energy as a boiler upon failure but there have been instances where people have drowned or been hurt.

The main point here is that many existing vessels being inspected should be reevaluated as certificates come due and be reported exempt on the state form if the vessel meets the above criteria.

Let me know if you have any questions on the above two (2) issues.

FPB/fs

Attachment