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THE INSPECTOR

Fall 2003 Issue

Editor: Matt Keenan
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A Word From Our President

By: Don Mathes:

Shut Up I'm Trying to Communicate With You

Once again, another busy inspection season is behind us and the WBIA is getting together to exchange stories and discuss the various problems and situations they ran into during the summer. I'd like to thank the Fall Meeting Committee, Darrell Stumpf, Ken Becker, Craig Running and especially Mike Verhagen, for putting the Fall WBIA meeting together.

I hope all your inspections went well and you had a chance to discuss boiler and pressure vessel operations with the operators and that you gave the owners and operators an opportunity to ask questions and discuss how their equipment is operating. Often Inspectors are so pressed for time that they sometimes don't take a minute or two to ask if everything is okay. Many times we need a third person to tell us that we need to slow down a bit and make sure we are making the effort to do more than just meet the code requirements.

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If we take just a few moments to discuss the operating conditions of the boilers and pressure vessels with the owners and operators, we can very often identify a problem that may come up six months or a year after the inspection. If we take the time to thoroughly look at AND listen to the equipment we are inspecting, as well as those who own and operate the equipment, that is when we have done our job to the best of our ability.

The owners/operators of equipment also need to communicate with the Inspector. THE INSPECTOR should intimidate no one. Every day that an Inspector goes out, he or she learns something new or sees something that he or she has never experienced before. The inspection process is a never-ending learning process and communication is a key element.

The WBIA meetings are put together as a forum for Inspectors and owner/operators so we can all communicate and learn. I hope you enjoy the upcoming meeting and get the opportunity to meet new people and re-establish old acquaintances

The Chief's Words

By: Mike Verhagen, Chief Boiler Inspector

Wisconsin
Department of Commerce

The WBIA fall meeting is upon us and on behalf of the Department, I urge all Wisconsin Certified Boiler Inspectors to attend this important Seminar. In addition, we also encourage contractors and AIA Supervisors or their representatives to join us. The plan is to provide departmental policies, reporting/order and EDI (electronic data interface) info, and procedures to obtain Wisconsin codes, forms, equipment / permit to operate data from our website. Supply ordering may be accomplished via the internet by utilizing our material orders email address as printed in the Department correspondence section below. Be specific with your orders to prevent delays and assure fast and easy service.

OFFICE MOVE COMPLETED:

It has been over six months in the new 4th floor, Waukesha office with ample parking for visitors in front of the building. To eliminate delays for your mailings, please enter the correct address on your database records. Mail continues to arrive with the old address and the Post Office forwarding period ends soon. The new address is:

Safety and Buildings Division

141 NW Barstow St., 4th Floor

Waukesha, WI. 53186-3789

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Material orders for registration tags " B or U" #s, supply of report forms etc may be ordered preferably via email through our MATERIAL ORDERS address:

materialorders@commerce.state.wi.us

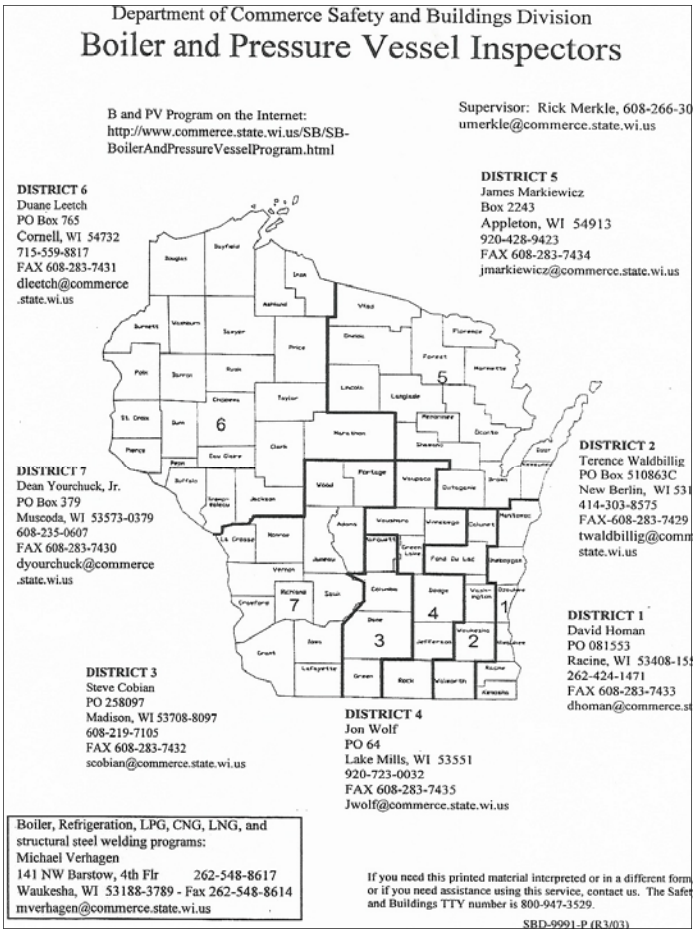
I wish everyone good health and safe travels while assuring public safety in Wisconsin. Thanks for your continued support and cooperation.

It is very Important that you attend the October Seminar. I would urge all of you to please pre-register.

WBIA Helps You Meet Your Training Needs

The Wisconsin Boiler Inspector's Association is offering training classes/seminars.

If you are interested in setting up boiler & pressure vessel training during the year let the WBIA know and we will tailor training to meet your needs. Certificates issued for all training hours. Contact Matt Keenan, Secretary @ 715-648-5506.



Department of Commerce Safety and Buildings Division

Boiler and Pressure Vessel Inspectors

B and PV Program on the Internet:
http://www.commerce.state.wi.us/SB/SB-BoilerAndPressureVesselProgram.html

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SBD-9991-P (R3/03)

Retirees

Anyone knowing of inspectors retiring please inform us so we can get their names in this Newsletter.

Advertising in the Inspector

To defray the cost of publishing "The Inspector" we will be accepting your advertisements. "The Inspector" is published twice a year and reaches boiler operators, Commissioned Inspectors, manufacturers, and many more. "The Inspector" is read by people in a 4 State area. These include Wisconsin, Minnesota, Iowa and Illinois.

Please help us reach more people, Advertise in "The Inspector".

Please contact a board member today to get registered or you can reach the WBIA Secretary at keenan@lakeland.ws.

Test Your Knowledge

Question:

Who is responsible for the paying of fees for inspection?

Answers on page 7:

"Hey, Lets Be Careful Out There"

By: Darrell Stumpf

This maybe a line from the start of an old Police series TV show but it still certainly holds true today.

As we go about the practice of our profession let's not forget the many potential and active hazards we encounter especially during the busy summer season and the variety of familiar and unfamiliar sites we visit.

Do we always lock out energy sources and hazards? Some of the more obvious are the steam valves, electricity and fuel supply. But are the blow down lines isolated from the other live or shared systems? And where does that chemical supply line come from?

Has the owner or operator convinced you that the white/grey fibrous insulating material is not asbestos or does he just think it's not?

Does the operator really understand his/her role during your proper confined space entry? Is this my aid in an emergency should I get stuck or woozy from fumes or even the heat? What did that tank have in it and how did they clean it? Convince me. Concerning CSE (Confined Space Entry), although I'm not always comfortable lugging around my gas analyzer there have been a number of times where I've found natural gas leaks, low oxygen levels and/or high CO levels in a space.

And who of us hasn't or doesn't still walk on that rounded top of that fire tube boiler, drum or tank without a walkway and hand rail or fall protection equipment? If there isn't a walkway or railing do you tie off? Yes, I realize how cumbersome that tie line and belt can be. Typically while I'm climbing that loose or creaking wood boiler room ladder is when I recall when I last scolded my kids for unsafe climbing, but they don't seem to get hurt, I do.

As inspectors and operators we all regularly see someone blowing down a water column of fuel cut off chamber into a bucket of boiler water while standing over it while being instructed don't stand too close so you don't get hit by the hot water and steam. Speaking of discharge, we all see testing of safety valves or doing blowing downs without checking where the discharge ends or who may be in the area and possibility of obstructions if it ends beyond a wall or outdoors.

Do those multiple boilers share a common stack and will a draft back through the open idle boiler I am in bring in combustion gases?

Yes it does take more time to go get that safety equipment from the locker, wait for some test information or worse yet the item from the bottom of the car trunk. But think how much longer it will take to get home if we had to visit the emergency room first, if you get home at all today.

Regarding water we regularly see 110 volt power cords lying on a wet deck and occasionally 110 volt drop cords, sometimes with an unprotected lamp, inside a boiler.

By the way I'm writing this with an ice pack on the newest bump on my hair growth impaired head from today's encounter with an open fire door and unforgiving iron handle.

And tomorrow I start this all over again. Our work environment is more dangerous than we think. I think we sometimes forget that our main reason for being at that site and this business is user and public safety in the first place.

Future Seminars

The Officers and Board of Directors are looking for ideas for seminars. Please contact an officer or board member and voice your suggestions on future training seminars.

The WBIA wants to ensure that good quality educational seminars are presented.

WBIA Officers & Board Members

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Don't let your boiler get away from you!

Thought of the Day

Pleasure in the job puts perfection in the work!

BOILERS AND PRESSURE VESSELS

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"The Inspector" Newsletter Supporters

PROVING THE GAGE GLASS

Don Smith - Garratt Callahan Co.
NIULPE Examiner, ASOPE Examiner, PE Instructor-NWTC

In many steam plants the three most important rules are:

1. Keep water in the boiler!
2. Keep water in the boiler!
3. Keep water in the boiler!

An understanding of how a gage glass functions and ***malfunctions*** *is essential to following the above three rules. A gage glass represents one leg of a manometer; the other leg being the water inside of the boiler. Its operation "assumes" that the steam and water pressures in the glass are the same as the steam and water pressures in the boiler. When this is true, the water level in the glass will be the same as the water level in the boiler. However, if the steam and water pressures in the glass and the boiler are not the same, the water level in the glass will not be the same as in the boiler.*

Any condition that causes a pressure drop between the boiler and the gage glass will result in a false water level indication. Obstructions or leaks at either end of the glass will cause such pressure drops and result in false water level indications. It is important to understand "how" such obstructions and leaks affect the gage glass. Will the glass read high or low?

Consider what happens when you close either of the gage glass shut-off valves:

If you close only the bottom valve: *steam continues to enter the glass, condenses and runs down the walls of the glass. The glass will fill to the top, i.e. flood, with condensate.*

If you close only the top valve: *the steam supply is now cut off. The steam in the glass totally condenses causing a pressure drop in the top of the glass. Boiler pressure pushes water in through bottom of the glass and causes the glass to flood.* ***Note:*** *the upper portion of the glass contained only steam, not air. When this steam condenses there is no vapor left in the glass.*

If either connection to the gage glass is completely closed, the glass will flood! *In fact this procedure can be used to test the gage glass valves to see if they will seal so you can change a glass on line. This test could be done as part of a normal boiler shut down procedure.* ***Note:*** *always wear a face shield if you are in close proximity to the glass.*

Now consider what happens when either of the connections to the glass are only "partially" closed or restricted due to an obstruction between the boiler and the glass:

If the steam side connection is partially obstructed, *the glass tries to flood but because some steam is still leaking in, the water level never reaches the top and* ***the glass indicates a "false high" water level.***

If the waterside connection is partially obstructed, *the glass tries to flood but because some condensate is still flowing out of the bottom, the water level never reaches the top and* ***the glass indicates a "false high" water level.***

When a gage glass is showing a "stable" high reading, not "bouncing" due to foaming, etc, the operator should ***Prove the Glass.*** ***IMPORTANT: BLOWING DOWN THE WATER COLUMN DOES "NOT" PROVE THE GAGE GLASS! Proving the Gage Glass involves a sequence of opening and closing each gage glass shut-off valve and the drain valve.*** *See procedure that follows.*

Operators have damaged boilers because they didn't prove the glass. *They erroneously trusted the glass and assumed that a low water trip occurred because of a failed low water cut-off, e.g. a waterlogged float. They then proceeded to jumper the low water cut-off to keep the plant running until repairs could be made.*

What about leaks at either end of the glass?

If ***a steam leak at the top of the glass*** *is severe enough to cause a pressure drop at the top of the glass, the glass* ***will indicate a false high water level****.*

If ***a water leak at the bottom of the glass*** *is severe enough to causes a pressure drop at the bottom of the glass, the glass* ***will indicate a false low water level.***

A leak in the gage glass drain valve will produce a false low water level.

In conclusion, GAGE GLASSES CAN LIE! *Proving the gage glass should be a periodically scheduled part of boiler room operations. It is also important to understand that simply testing a low water cut-off by blowing down the water column does* ***not*** *"prove the gage glass". There may be obstructions between the water column and the gage glass that are not apparent when only opening the water column drain valve.*

PROCEDURE FOR PROVING THE GAGE GLASS

1. *Open the gage glass drain valve and the gage glass steam valve thus blowing through the steam connection of the gage glass and proving it clear.*

1. *Close the gage glass steam valve and open the gage glass water valve thus blowing through the water connection and proving it clear.*

1. *Open the gage glass steam valve and close the gage glass drain valve putting the gage glass back into service.*

IMPORTANT: Visually observing and listening to what is happening while proving the glass is very important*. The operator should know how this test looks and sounds when everything is functioning properly. If the glass drains or refills slowly, it would indicate that something isn't normal and there may be a partial blockage. The same holds true if the steam noise during the test is quieter than normal. Also* ***make sure that both of the gage glass valves are open after Proving the Gage Glass.***

Tour of the Badger.

A tour of the Badger, Sponsored by the NAPE, was held on September 6th at the dock in Manitowoc, WI. Attending for the WBIA were Don Mathes, Jim Holter, Tracey Krueger, Matt Keenan, Darrell Stumpf, and Paul Wilcox.

Below is some information and pictures from our tour!

THANKS TO ALL FOR PARTICIPATING!

The Badger arriving in Manitowoc

Mike Verhagen, Wisconsin Chief Boiler Inspector

The S.S. Badger *offers the only cross-lake passenger-oriented service on the Great Lakes. A four hour 60-mile cruise takes passengers and their vehicles or bicycles across Lake Michigan between Ludington, Michigan and Manitowoc, Wisconsin.*

Dimensions
Length: *410 feet, 6 inches*
Width: *59 feet, 6 inches*
Height: *106 feet, 9 inches*
Weight: *7,500 gross tons*
42 staterooms, 84 berths
2 solid 4-blade cast steel propellers; 15' in diameter and weighing 15,400 lbs each.
4 Foster Wheeler WT Boilers, coal fired
2 Skinner 3500 hp Compound Unaflow Engine
Average Sea Speed: *18 miles per hour*
Number of Crew Members on each Trip: *60*

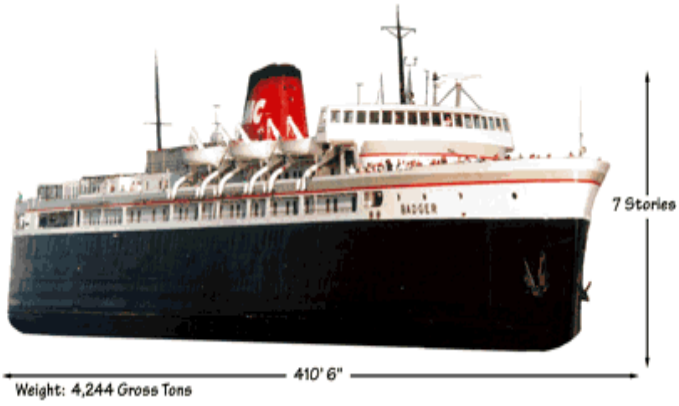
The ship *accommodates 620 passengers, 180 automobiles, tour buses, R.V.s and semi-trucks.*
The S.S. Badger *was built in 1952 by the Christy Corporation of Sturgeon Bay, Wisconsin at the cost of $5 million.*
The Ship *was first launched on September 6 1952, and began daily service on March 21, 1953. Ferry service between Michigan and Wisconsin has been in existence for over 100 years!*
After being idle *for a year-and-a -half, the Badger resumed cross-lake service on May 18,1992, under the new ownership of The Lake Michigan Car ferry Service, Inc.* ***The S.S. Badger*** *offers the only cross-lake passenger-oriented service on the Great Lakes. A four hour 60-mile cruise takes passengers and their vehicles or bicycles across Lake Michigan .*

One hot firebox!

Don Smith WBIA & NAPE member waiting to go onboard!

Dad, so this is a boiler I keep hearing you talk about.

Stand by to answer all bells!



Test Your Knowledge

Answer:

Comm 41.08

The owner shall be responsible for the payment of fees.