

Boiler Safety Bureau 2009-2010 Annual Report



Cherie Berry - Commissioner

Introduction

From utility boilers to small heating boilers and from chemical reactors to air tanks, these are all inspected by the commissioned boiler and pressure vessel inspectors in North Carolina. In addition, there are many old boilers such as locomotives and stationary portable boilers in which the plates of the boilers are riveted together rather than welded. State and insurance inspectors see them all. If they are operated in a business or public venue these items of pressure equipment are required to be inspected under the Uniform Boiler and Pressure Vessel Act of North Carolina, General Statute Chapter 95, Article 7A. For instance, that steam used to press your shirt at Joe's Cleaners is generated in a boiler. That air to fill your tire at a service station is stored in an air tank and by the way, very often that ride that has an arm that goes up into the air at the State Fair also has that air storage tank.

The users of pressure retaining equipment usually understand that the equipment they operate is a hazard if not operated and maintained properly. The way to provide a safe system is brought about by the following: 1. Proper design (ASME Boiler & Pressure Vessel Code or equal international code). 2. Constructed by a manufacturer that has a fully accredited quality system under ASME criteria. 3. Safe operation following proper procedures and keeping logs on each aspect of operation. 4. Proper and routine maintenance conducted by competent trained personnel, and with good procedural guidance. If the equipment develops leaks or needs to be altered and must be welded, only National Board of Boiler and Pressure Vessels "R" stamp holders may conduct the repairs. 5. Finally, a proper system of thorough inspections on a routine basis by a commissioned state or insurance inspector is a vital part. An owner-user may expect to operate pressure retaining equipment safely and for a proper number of years with this five step practice. All this saves money in down time, but more importantly, it helps prevent property damage and/or personnel injury.

When we work together we continue to see North Carolina free of catastrophic accidents due to failures of pressure retaining equipment. Boilers and pressure vessels are ticking bombs. Help us defuse them.

We have said this each year. Our people are our most valued asset. They are the people that make things work properly and smoothly. I cannot over emphasize that our office staff, field staff and supervision provide the greatest value of service to the people of North Carolina when it comes to boiler and pressure vessel safety. We need to add to that the great work that the insurance company inspectors do.

We recognize that as our inspection force ages, it will require great vigilance in hiring high quality replacements, training them properly, supervising them, and providing them with the tools necessary to excel.

The Bureau has always made people our first priority whether they are our team or they are the public we serve. We will continue that tradition of service now and in the future.

A handwritten signature in black ink that reads "Jack M. Given, Jr." The signature is written in a cursive, flowing style with a large initial 'J' and 'G'.

Jack M. Given, Jr.
Bureau Chief

Highlights

- 51,288 inspections were conducted
- 2,771 violations were identified
- 4,811 new items were inspected
- 0.43% combined state and insurance backlog down from 0.73% in 2008/2009
- No major boiler or pressure vessel accidents

Operations

The Boiler Safety Bureau's mandate is to administer the Uniform Boiler and Pressure Vessel Act of North Carolina and the Administrative Rules. This includes the inspection of boilers and pressure vessels and to identify any violations that might exist. Concurrently, we administer state law and rules examinations to new inspectors and, review R stamp (repair) programs.

Inspections and Violations

State and insurance commissioned inspectors conducted 17,758 boiler inspections and 33,530 pressure vessel inspections for a total of 51,288 inspections of regulated pressure equipment in 2009/2010. There were 2,771 violations identified. These violations were found in 1,757 boilers, 998 pressure vessels and 16 repair and alteration problems. The owner was given a period of time to correct the violation, and follow-up inspections were conducted. The potential for catastrophic failure is always there when it comes to equipment that stores energy, in other words, pressure retaining equipment. Boilers and pressure vessels are pressure retaining equipment. We were fortunate again in 2009/2010 that there were no injuries reported due to boiler or pressure vessel failures. This can be tied to on time inspections, identifying problems that might exist and getting the problems corrected.

We still had three boiler failures and one pressure vessel failure. The boiler failures were caused by a low water condition, a burner flare back, and combustion gases leaking from exhaust piping. The pressure vessel failure was a locking pin failure that allowed the head of a textile vessel to blow loose and cause property damage.

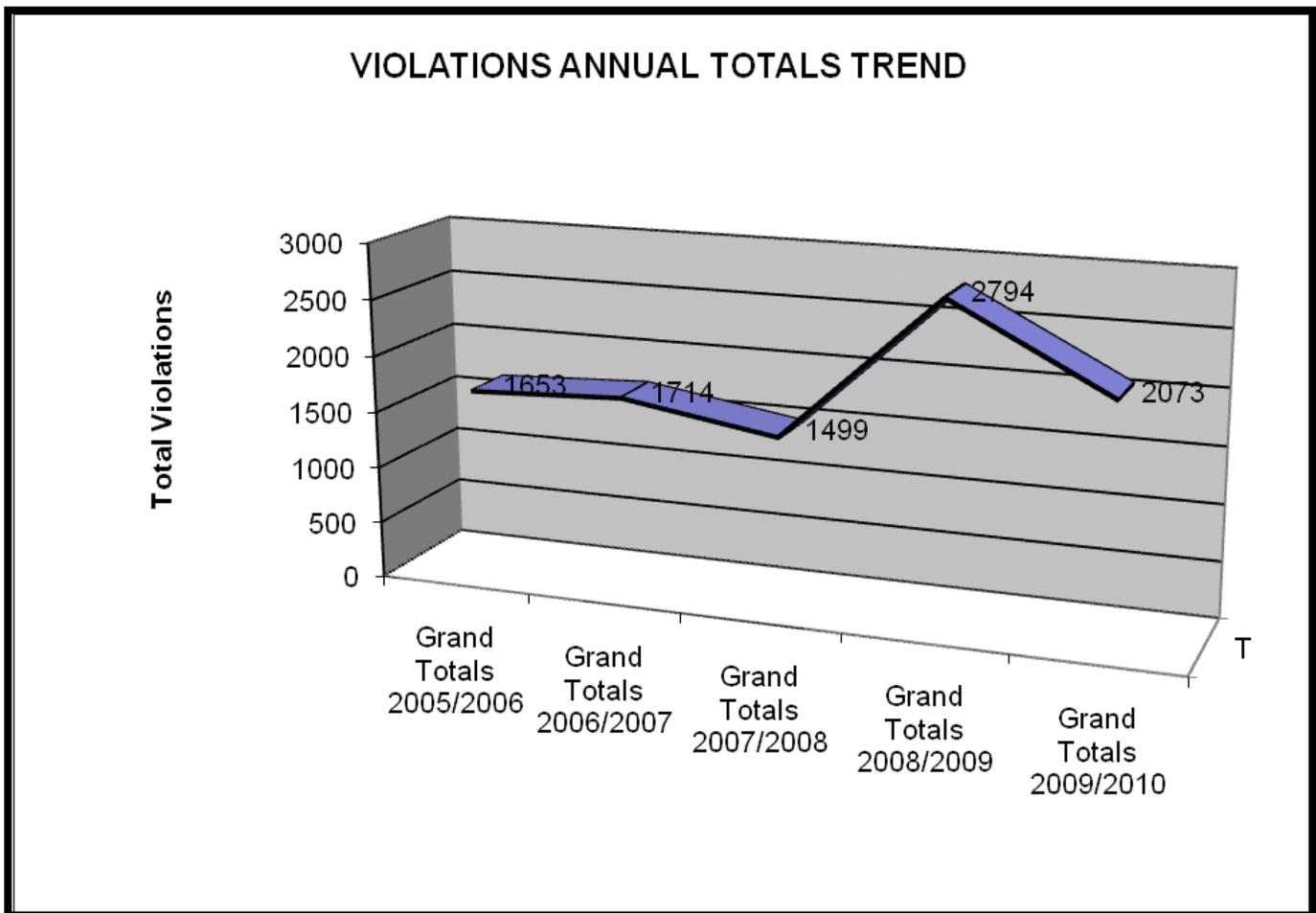
The violations mentioned above are detailed in the following table. The table is broken down into categories with specific subcategories. Following the table, the chart gives a pictorial view.

FISCAL YEAR 2009/2010 VIOLATIONS REPORT					
Category	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Totals
Boiler Controls					
Low Water Cutoff/Flow Sensing Devices	26	100	30	19	175
Pressure Gages	8	37	16	21	82
Water Gage Glass	37	49	20	20	126
Pressure Controls	4	32	9	1	46
Temperature Controls	25	58	27	29	139
Undefined Controls Violations	11	18	15	5	49

Total Boiler Controls Violations:	111	294	117	95	617
Boiler Piping and Other Systems					
Main Steam System	1	2	8	4	15
Bottom Blow/Drain Systems	2	9	9	7	27
Feedwater, Condensate/Return Systems	2	6	4	1	13
Expansion Tanks/Heating System Piping	2	3	0	3	8
Casing, Stack Breaching and Flue	2	14	8	4	28
Burners and Fuel Supply Systems	16	27	31	13	87
Undefined Boiler Piping/Other Systems	31	44	37	19	131
Total Boiler/Other Violations:	56	105	97	51	309
Boiler Mfg Data Report/Nameplate					
No Data Report	0	3	1	0	4
Nameplate Stamping Incorrect/Missing	1	11	7	1	20
Undefined MDR/Nameplate	0	0	0	0	0
Nonstandard Boiler	0	0	1	1	2
Total MDR Violations:	1	14	9	2	26
Boiler Components					
Fireside Water Leaks	15	23	13	17	68
Baffles and/or Refractory	3	4	0	4	11
Furnace and Fireside	3	6	3	4	16
Waterside	2	10	1	1	14
Superheaters	0	4	0	0	4
Economizers	0	0	0	0	0
Installation	0	2	5	0	7
Undefined Boilers	32	75	28	41	176
Total Boiler Violations:	55	124	50	67	296
Pressure Relieving Devices For Boilers					
Installation	45	83	67	43	238
Operation	52	97	44	46	239
Undefined Boilers PRD Valve	11	10	3	8	32
Total PRD Violations:	108	190	114	97	509
Vessels					
Installation	1	2	0	1	4
Material Condition	4	6	6	5	21
PV Mfg Data Report/Nameplate	2	21	7	6	36

PV Pressure Relieving Devices	154	273	148	162	737
Undefined Pressure Vessel	33	87	49	31	200
Total Pressure Vessel Violations:	194	389	210	205	998
Repairs and Alterations					
Unqualified Organization	1	0	1	5	7
Unauthorized Repair	0	1	2	1	4
Code Deficiencies	2	0	0	0	2
Undefined Repairs and Alterations	0	0	0	3	3
Total Repairs and Alterations	3	1	3	9	16
Grand Totals	528	1117	600	526	2771

The following chart shows the violations for the last five fiscal years. Note that the greatest number of violations was identified in 2008/2009 and 2009/2010.

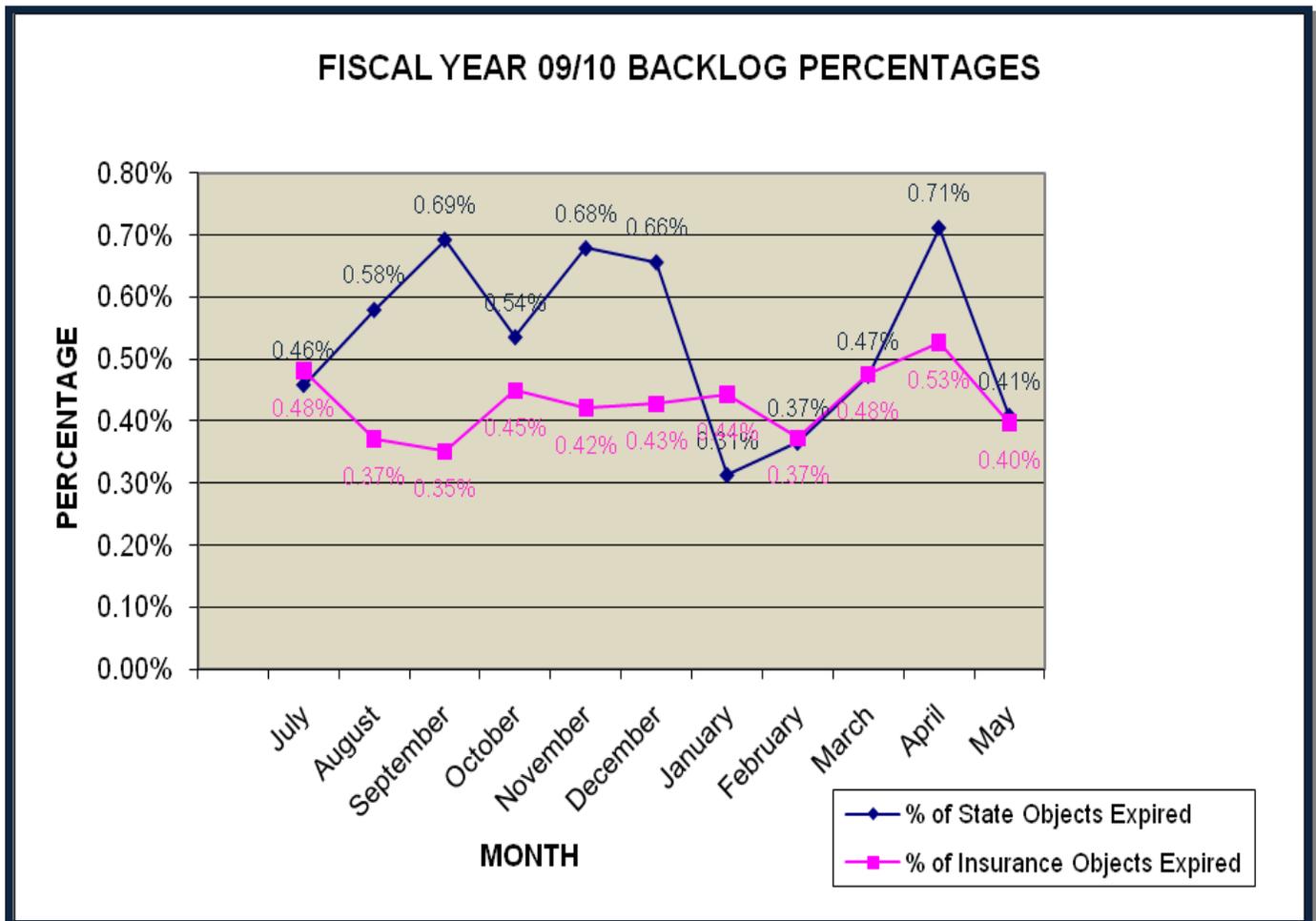


We continue to identify many violations. This shows that we are getting better at identifying violations, and, because there are so many, reinforces the need for inspections of boilers and pressure vessels in North Carolina. The benefit provided can be counted in dollars and cents in downtime and the lack of property damage that could be caused by faulty equipment, as well as the absence of personnel injury and death.

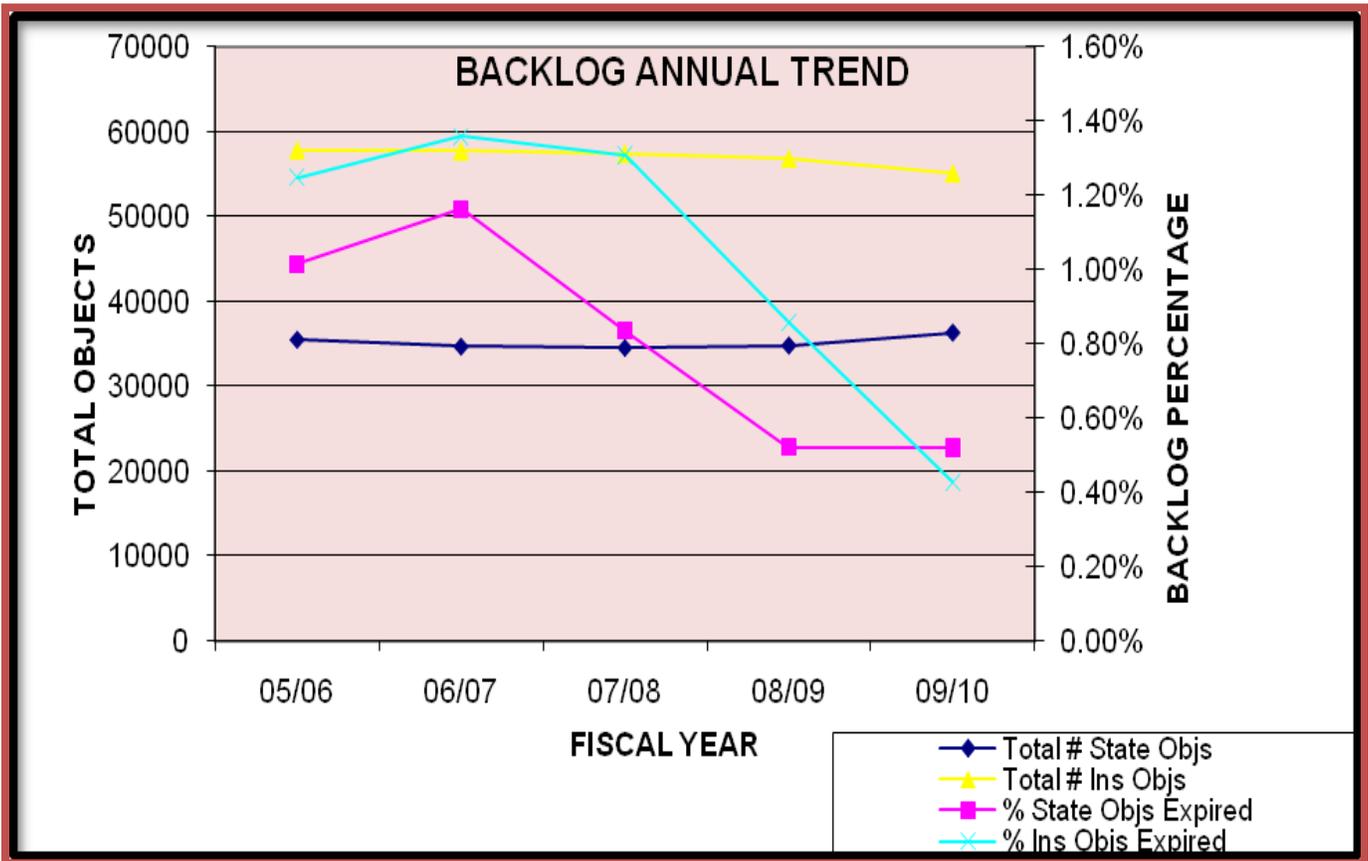
Backlogs

In spite of trying to make sure we inspect everything on time, there can still be a backlog. This is caused by a number of reasons, most often due to lack of access. The following chart shows that the combined state/insurance inspection force kept the backlog of inspections down to much less than one percent. When equipment is inspected on time and potential problems identified and eliminated, it is clear that a low backlog helps us to maintain a year that is essentially free of serious damage and injury.

The chart allows you to see the flow of the backlog percentages through the year, this chart gives a very good perspective of how the backlog decreased through the year until we achieved a final .47% combined average percentage.



As can be seen by the following chart, a look back over the last five years shows the backlog steadily shrinking. This is as a result of both state and insurance personnel giving the backlog emphasis. We are particularly proud of our insurance inspection partners in the great job they have done.



Additional Work

In addition to the inspections of equipment in businesses and institutions throughout the state, inspectors with special training and endorsements carried out ASME Boiler and Pressure Vessel Code third-party inspections in manufacturing facilities that construct boilers and pressure vessels as well as pressure equipment repair firms or National Board “R” Stamp holders.

Add to this, our support staff entered the collected data from hard copy reports into the data system and conducted quality reviews of data entered directly by inspectors. They then printed and mailed invoices and certificates and answered numerous questions from inspectors as well as the citizens being served.

What Is Ahead

The Boiler Safety Bureau is looking forward in these challenging times of shrinking budgets and looking for ways to increase efficiencies in our operations while still providing the quality of service expected. We will be looking into methods whereby our inspectors will be able to enter inspections directly into the data system from the field.

Our database resources are constantly being examined for improvements and we always look for faster, better processes at a lower internal cost of doing business. We feel that this is not only good business, but it is the proper stewardship of the public’s resources.

Soon through our data system Jurisdiction Online provider, Praeses, Inc., we will have the capabilities for our customers to pay online. A portal will enable the customer to pay via credit card or E-pay. This system should be operating by the end of calendar year 2010.

First and foremost, we will continue to strive to meet goals and serve our citizens well.