WEIGHTS & MEASURES
CONNECTION
NIST
National Institute of Standards and Technology
U.S. Department of Commerce
Volume 2 Issue 6
September 26, 2011

Inside this Issue

This Month in History

September 2, 1789 – The U.S. Treasury was established by Congress.

September 2, 1948 – Christa McAuliffe (1948 – 1986) was a high-school teacher who became the first civilian in space. She died in an explosion aboard the Shuttle Challenger. All aboard the shuttle perished.

September 3, 1783 – The American Revolutionary War officially ended with the signing of the Treaty of Paris.

September 4, 1609 – Henry Hudson discovered the island of Manhattan.

September 5, 1774 – The First Continental Congress met.

September 8, 1883 – The Northern Pacific Railroad was completed.

September 9, 1776 – The Continental Congress changed the name of the American colonies from United Colonies to the United States.

FROM THE EDITOR

Weights and Measures News

By Linda Crown

This began as a short article to reflect on our beginnings from the Office of Weights and Measures through today as the Weights and Measures Division and to announce that as of October 1, 2011, we will once again be known as the Office of Weights and Measures. Also, in this process, there was an idea to have a small filler item that would reflect on some past history of the development of uniform weights and measures laws, regulations, and standards. What were the hot topics in the early days of weights and measures?

In looking at the first report (1905) of the *First Conference on Weights and Measures* subtitled as the "Proceedings of the First Annual Meeting of the Sealers of Weights and Measures of the United States," there was an address given to the attendees by Dr. S. W. Stratton, Director of the Bureau of Standards. Dr. Stratton addresses the early history and concerns of the day so perfectly that maybe you would rather read his words.

> The relation between questions pertaining to standards and those arising in connection with the regulation and inspection of the weights and measures used in commerce and trade is so important that cooperation between the officials having these matters in charge is absolutely essential in order to secure uniform and efficient results. It was for this purpose that the various State custodians, inspectors, and sealers of weights and measures were invited to meet with the officials of the National Bureau of Standards, and as the representative of that institution it gives me great pleasure to welcome you to this conference, which cannot fail to be productive of the utmost good; and I hope that one of the results of the meeting will be a permanent organization of the officials throughout the country entrusted with the administration of the laws pertaining to weights and measures.
>
> In order to facilitate discussion and bring the subject clearly and concisely before you, the Bureau has compiled the laws concerning the weights and measures of the various States. A mere glance at this volume, which is before you, will show that the different States have enacted laws without regard to each other. In

many cases adjacent States have laws just different enough to encourage fraud on the part of those dealing with the public. Furthermore, in many States the laws are not enforced, and I fear that this is true in a large majority of them. However, the country is now awakening to the necessity for uniform laws pertaining to weights and measures.

The Bureau of Standards is the successor of the Office of Weights and Measures, which formerly existed in the United States Coast and Geodetic Survey. One of the largest and most important branches of the Bureau's work is the section of weights and measures. This section has charge of the fundamental standards of length, mass, and volume, and compares with these standards the working standards of States, educational and scientific institutions, manufacturers, and others, but has no control over local laws and regulations pertaining to the inspection or use of commercial weights and measures. Nevertheless, local authorities are continually coming to us for advice in such matters, and consequently the Bureau has made a study of the subject, both in this country and abroad, has devised apparatus for the use of local officials, and has placed these designs in the hands of manufacturers. A collection of the balances, weights, and measures used by the local inspectors in foreign countries has been made and may be seen in the rooms of the section of weights and measures.

In 1836 a law was enacted by Congress which directed that each State in the Union should be provided with a complete set of standards. In accordance with this act most of the States have been supplied with a set of standard weights and measures, but in only a few instances has any use been made of them. In most cases they are in the custody of some official whose other duties are so onerous that little or no time can be given to the inspection of the commercial weights and measures in use. In consequence of this condition the Bureau is called upon to make tests of ordinary weights and measures which should be tested by local authorities.

As you can see from the above quote, the Office of Weights and Measures was a founding cornerstone of the National Bureau of Standards (NBS). From NBS's birth on March 1, 1901, and forward, the area of weights and measures has changed tremendously. We have moved from using physical artifacts as the base units for weights and measures standards, to incorporating scientific technology. The mission is to have "standards and uniformity" within the states for all things measured and weighed – a mission that has not changed through the years. This is a simplified view, as we know; it involves an extensive knowledge base enhanced by years of experience. The bottom line is, we continue to work together to maintain and to develop uniform laws, regulations, standards, and test methods. This tough job is shared by our partners in state and local governments, industry, and the National Conference on Weights and Measures. *(continued on page 3)*

Calendar 2011

September 25 - 29
Western Weights and Measures Assocation (WWMA) Annual Meeting
San Luis Obisipo, CA
Contact: Brett Saum at bsaum@co.slo.ca.us

September 26 - 30 (Invitation Only)
OIML - TC 6 (Prepackaged Products)
NIST
Gaithersburg, MD
Contact: Kenneth Butcher at Kenneth.Butcher@nist.gov
301-975-4004

October 6
Annual Submission Process (Webinar)
(Limited to State Laboratory Participants)
Contact: Val Miller at val.miller@nist.gov

October 12 - 13
Northeastern Weights & Measures Association (NEWMA) Interim Meeting
Norwich, CT
Contact: James Cassidy at jcassidy@cambridgema.gov

October 13
Document Control & Recordkeeping (Webinar)
Contact: Val Miller at val.miller@nist.gov

October 21 - 22
NTETC Measuring Sector
Norfolk, VA
Contact: info@ncwm.net

October 23 - 26
Southern Weights & Measures Association
Norfolk, VA
Contact: Dale Saunders at dale.saunders@vdacs.virginia.gov

November 10
Annual Submission Process (Webinar)
(Limited to State Laboratory Participants)
Contact: Val Miller at val.miller@nist.gov

Calendar 2012

January 22 - 25
NCWM Interim Meeting
New Orleans, LA
Contact: info@ncwm.net

(continued on page 3)

In 1988, the National Bureau of Standards (NBS) became the National Institute of Standards and Technology (NIST) to address the organization's changing mission and the integration of technology. Around 2003, the Office of Weights and Measures (OWM) became a division although many still thought of us as OWM. On October 1, 2011, we will once again proudly revert back to our original name, the Office of Weights and Measures. This change reflects the status of the office under the reorganization that NIST put into place a year ago. While this change in name will not change our mission, it places us in a position that is more in line with our mission within the hierarchy of the Physical Measurements Laboratory.

So, as we embrace our return to the "Office of Weights and Measures," it will not change our commitment to support and serve the weights and measures community.

Tare Verification

"Ensuring the Accuracy of Pre-Packaged Tare"

By David Sefcik

NIST Weights and Measures Division continues to hear about increased instances of short-weighing in retail food stores from state weights and measures officials. The number one problem related to short weighing of random weight pre-packaged product at retail is inaccurate tare. There are many reasons and causes for this, from system errors (transmission errors) and manual errors (data input, incorrect tare determination, communication errors from suppliers, incorrect tray selection) to changes in packaging materials.

Understanding that Weights and Measures programs have limited resources and time, we suggest using the "tare verification procedure," an easy approach to identify problems with inaccurate tare. This will benefit both consumers and retailers by increasing the accuracy and understanding of proper tare.

The "tare verification procedure" involves checking unused dry tare at the store. Unused dry tare is all unused packaging materials (including tray, gel pads, wrapping, glue, labels, ties, etc.) that contain or enclose a product. It includes prizes, gifts, coupons, or decorations that are not part of the product.

The "tare verification procedure" involves collecting and determining the weight of unused random weight (e.g., store packed) dry tare materials in each merchandising department (i.e., meat, seafood, bakery). It is critical that the tare packaging material be created exactly as used in the packaging on the commodity. For example, if a product consists of a package that has a 5S tray, gel pad, poly wrap, scale label and a special promotional label (i.e., "ready for the grill"), then all tare materials should be combined as one to determine the package tare. It is recommended that a minimum of 5 tare samples be collected, though 10 are ideal. **Weigh all the tare**

January 26 - 27
NCSLI Technical Exchange
North Charleston, SC
Info: http://conference.ncsli.org/

May 14 - 17
Northeastern Weights & Measures Association (NEWMA) Annual Meeting
Seekonk, MA
Contact: James Cassidy at jcassidy@cambridgema.gov

May 20 - 24
Central Weights and Measures Association (CWMA)
Cedar Rapids, IA
Contact: Ivan Hankins at ivan.hankins@iowaagriculture.gov

September 16 - 20
Western Weights and Measures Association (WWMA)
Breckenridge, CO
Contact: Mahesh Albuquerque at mahesh.albuquerque@state.co.us

October 16 - 17
Northeastern Weights and Measures Association (NEWMA) Interim Meeting
TBD
Contact: James Cassidy at jcassidy@cambridgema.gov

Contacts for Webinars

- **Lab Metrology:** Val Miller at val.miller@nist.gov or view the Laboratory Metrology group webpage at: http://www.nist.gov/pml/wmd/labmetrology/webinars.cfm
- **Devices:** Tina Butcher at tina.butcher@nist.gov
- **Laws & Metric:** David Sefcik at david.sefcik@nist.gov or Lisa Warfield at lisa.warfield@nist.gov

Additional details on the above calendar items can be found at:
http://ts.nist.gov/WeightsAndMeasures/calendar3.cfm

The NIST
Office of Weights and Measures

homepage:

http://www.nist.gov/pml/wmd/index.cfm

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samples together then divide by the number of tare samples, rounding up the average, to determine the tare value.

You can then compare the tare value you calculated to the actual tare programmed in the scale system, the actual manual tare being taken by the store, and/or the actual tare of the packaged product. You may choose to collect and sample all unused dry tare available in the store during a single visit, a sampling across departments, or take a department by department approach. Collection of samples should be done in each department where tare materials are used in the determination of net weight.

A simple form can be devised to capture and document your results. Weigh and record each individual tare weight (to show the variations between tare), then weigh all the tare samples together and divide by the number of tare samples, rounding up the average, to determine the tare value.

SAMPLE TARE VERIFICATION FORM

Store _____ **Department**_____**Date**_____

Tare Description	Tare 1	Tare 2	Tare 3	Tare 4	Tare 5	Average Tare	Store Tare	Difference +/-
8/S Foam Tray	0.0355 lb	0.0365 lb	0.0375 lb	0.0370 lb	0.0360 lb	0.036 lb	0.04 lb	+0.004 lb

Doing tare verification will save a great amount of time and effort while easily identifying problem items and areas. Results can then be presented to the store for correction before further inspections are performed. The tare inspection could be part of an official inspection, with findings documented to support a package inspection discovery, and could also be used for future civil or judicial proceedings.

For more information on this topic, see the 1.5 hour Webinar available on our website titled "Ensuring the Accuracy of Tare in Retail Stores". The link is http://www.nist.gov/pml/wmd/metric/tare-verification-webinar.cfm This Webinar was developed for the retail industry at the suggestion of weights and measures officials. Officials have indicated that many of the retailers they have encountered could avoid problems if they were provided training on the legal requirements for selling on the basis of net weight and on good tare determination procedures.

The Webinar includes a brief review of:

- The legal requirements, importance, and the proper use of tare for selling on the basis of net weight.
- State Weights and Measures role and approach to inspections.
- The business case for ensuring accurate tare.
- The cost and value of tare including possible fines, penalties, negative publicity in the media, and multi- state investigation concerns.
- Common problems and how to avoid them using good quantity control processes.
- Routine checks and balances and examples of retailer best practices.
- How to read and respond to state weights and measures reports.

For more information please contact David Sefcik, dsefcik@nist.gov, (301) 975-4868.