WEIGHTS & MEASURES
CONNECTION
NIST
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Inside this Issue

This Month in History

June 8, 1893 - Cole Porter (1893 - 1964) is know for writing the music and lyrics for many Broadway musicals such as Let's Do It," "Something for the Boys," and "Kiss Me Kate" to name a few. He was born in Peru, Indiana, and wrote his first song at the age of ten.

June 11, 1913 - This is the birthdate of the legendary football coach, Vince Lombardi (1913-1970). A native of Brooklyn, New York, he led the Green Bay Packers to win five NFL titles and two Super Bowls within nine seasons. In 1968, he was coaxed out of retirement to coach the Washington Redskins.

June 14, 1777 - Flag Day. On this day, John Adams introduced to Congress a resolution stating, "... that the flag of thirteen United States shall be thirteen stripes, alternate red and white; that the union be thirteen stars, white on a blue field, representing a new constellation." The anniversary of this resolution is celebrated each year on Flag Day.

NIST Office of Weights and Measures Receives Important "Continuing Education" Accreditation

Byline: Mark Esser, NIST ***Tech Beat***, June 20, 2013

The International Association for Continuing Education and Training (IACET) has awarded the National Institute of Standards and Technology (NIST) Office of Weights and Measures (OWM) an "Authorized Provider" accreditation. IACET Authorized Providers are the only organizations approved to offer IACET Continuing Education Units (CEUs), which certify that IACET has evaluated the NIST OWM training program and found it to be compliant with internationally accepted standards.

Many states require that their weights and measures officials receive training throughout their careers. Using an accredited training organization gives those officials confidence that the training they will receive is of high quality.

"We're proud of our education programs, which train hundreds of metrologists and state and local weights and measures officials each year in important legal metrology skills so that the U.S. weights and measures system stays on the cutting edge," says Carol Hockert, chief of the Office of Weights and Measures at NIST. "Our new partnership with IACET is a demonstration of our commitment to lifelong learning and high standards for all of our programs."

The accreditation period extends for five years and includes courses offered or created that follow OWM procedures during that time. With this accreditation, the NIST OWM joins nearly 650 organizations around the globe that have had their programs vetted by third-party experts in continuing education to ensure the highest possible standards are met.

The NIST OWM analyzes weights and measures training needs, obtains input from the weights and measures community, designs and delivers training for laboratory metrologists and weights and measures officials, measures the impact and effectiveness of training to ensure ongoing continual improvement, and consults with the weights and measures community to ensure ongoing professional development.

In order to achieve Authorized Provider accreditation, NIST OWM completed

a rigorous application process, including a review by an IACET site visitor, and successfully demonstrated adherence to the ANSI/IACET 1-2007 Standard addressing the design, development, administration and evaluation of its training program.

Instructors José Torres and Phil Wright perform measurements during a dry run of the new Fundamentals of Metrology course being offered by the NIST Office of Weights and Measures.

Photo Credit: E. Gentry, NIST

Office of Weights and Measures – Laboratory Metrology Program Overview

By: Georgia Harris

There are often questions about what each program at the National Institute of Standards and Technology, (NIST), Office of Weights and Measures (OWM) does and what the program responsibilities are (sometimes even from within our office!). In fact, the OWM Laboratory Metrology Program held a Proficiency Testing Workshop in December 2012 and metrologists, who have been around for quite a while, had questions about how everything the OWM does fit together! Thus, we are providing this article about the OWM Laboratory Metrology Program.

Four Interrelated Program Areas

There are four key areas of responsibility in the OWM Laboratory Metrology Program: Laboratory Recognition, Proficiency Testing, Training, and Documentary Standards for weights and measures (Figure 1). Each functional area has a set of guiding documents as well as international documentary stan-

Calendar 2013

Registration for training in the NIST Office of Weights and Measures is handled by Yvonne Branden at yvonne.branden@nist.gov.

Course descriptions can be viewed on the Office of Weights and Measures website by clicking on the name of the course. http://www.nist.gov/pml/wmd/calendar.cfm

July 14 - 18 (5 days)
NCWM Annual Conference
The Seelbach Hilton Lousiville
Louisville, KY
Contact: info@ncwm.net

July 14 - 18 (5 days)
NCSLI
Nashville, TN
Contact: www.ncsli.org

August 1
Webinar - Calibration Report Evaluation
2:00 p.m. to 4:00 p.m.
Class No. 5245

August 8
Webinar - Contract Review
2:00 p.m. - 4:00 p.m.
Class No. 5246

August 12 - 16 (5 days)
Handbook 133, Checking the Net Contents *of Packaged Goods*
Class No. 5261
Scramento, CA

August 15
Webinar - Document Control and Recordkeeping
2:00 p.m. to 4:00 p.m.
Class No. 5247

August 19 - 23 (5 days)
Fundamentals of Metrology
Class No. 5248
NIST/Gaithersburg, MD

August 21 - 22 (2 days)
NTEP Grain Analyzer Sector Meeting
Chase Suites
Kansas City, MO
Contact: NCWM at info@ncwm.net

August 27 - 28 (2 days)
NTEP Weighing Sector Meeting
Albany, NY
Contact: NCWM at info@ncwm.net

August 27 - 28* (2 days)
Handbook 130, Price Verification
Orlando, FL
Class No. 5273

(continued pg 3)

dards used for benchmarking to enhance program recognition and credibility.

All four program areas are interrelated with each of the other four areas, but all four are also related to support for the weights and measures system. For example, laboratories that are recognized often support the weights and measures program requirements to ensure that measurement results have demonstrated metrological traceability while the Handbook 105-series (*Specifications and Tolerances for Reference Standards and Field Standard Weights and* Measures) documentary standards are often required by the weights and measures program for enforcement applications. To be recognized, the laboratory must successfully complete both training and proficiency testing requirements, in addition to all other published requirements that follow the ISO/IEC 17025 standard for calibration laboratories. Training on both proficiency testing and laboratory Recognition requirements is available. Then, proficiency testing is used not only to assess laboratory competency for Recognition and Accreditation, but also to assess the level of application of training concepts and its impact.

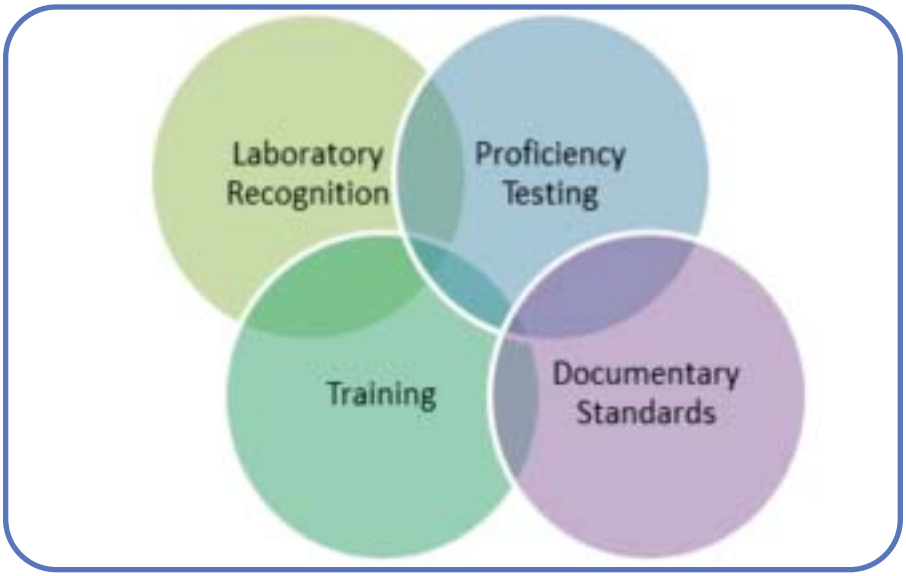

Figure 1. Laboratory Metrology Program Areas.

Program Area Descriptions

Laboratory Recognition

The Laboratory Recognition area is very narrow in scope and only supports weights and measures laboratories in the United States. Laboratory Recognition is provided for the weights and measures laboratories to help demonstrate evidence of metrological traceability that is required in the state and local jurisdictions. The model weights and measures laws in Handbook 130, *Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality,* or alternative laws, as adopted in the jurisdictions, often state that weights and measures programs are required to ensure metrological traceability to NIST or the International System of Units (SI). The latest model laws indicate that laboratory Recognition or Accreditation provides the demonstrated evidence of metrological traceability. One value-added impact of the OWM Laboratory Recognition over Accreditation alone is that we can target specific technical areas each year when and where problems have been identified as well as conduct national-level analysis to consider system-wide

August 29 - 30* (2 days)
Handbook 130, Price Verification
Miami, FL
Class No. 5272

September 9 - 13 (5 days)
NEMAP*
Class No. 5218
Harrisburg, PA

September 16 - 20
MidMAP*
Class No. 5219
Springfield, IL

September 18 - 19
Handbook 130, Price Verification*
Marlboro, MA
Class No. 5271

September 22 - 26
Western Weights and Measures Association (WWMA)
Kalispell, MT
Contact: Tim Lloyd at tlloyd@mt.gov

September 23 - 27
SWAP*
Class No. 5220
Phoenix, AZ

October 4 - 5
NTEP Measuring Sector Meeting
Embassy Suites Charleston
Charleston, WV
Contact: NCWM at info@ncwm.net

October 7 - 9
Southern Weights and Measures Association (SWMA)
Embassy Suites Charleston
Charleston, WV
Contact: Richard McComas at rich.d.mccomas@wv.gov

October 10
Webinar - State Laboratory Annual Submission Process**
2:00 p.m. to 4:00 p.m.
Class No. 5249

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

October 21 - October 25
Packaging and Labeling
Glendale, AZ
Class No. 5269

October 21 - November 1 (2 weeks)
Mass Metrology Seminar
Class No. 5250 *(continued on pg 4)*

needs assessments. Each year, NIST requests specific submission of laboratory quality system documents, internal audits, and management reviews, along with technical audits and measurement data. These annual assessments are conducted for all laboratories, and resources are periodically posted on the NIST website related to these annual assessments. Example technical audits that have provided national level summary assessments in the past few years include: facility audits, software verification and validation, succession planning, measurement assurance, uncertainties, and metrological traceability. Identified national or regional problems provide input into the training area.

The OWM Laboratory Metrology Program also interfaces with the NIST National Voluntary Laboratory Accreditation Program (NVLAP) for those state laboratories that are accredited. Within NVLAP, the current primary contact for state laboratories is Ms. Barbara Belzer. The primary contacts in OWM for Laboratory Recognition are Georgia Harris and Elizabeth Gentry.

Training

Hands-on training includes both courses that are taught at NIST in the OWM Demonstration and Training Laboratory as well as regionally in the Regional Measurement Assurance Program (RMAP) annual training sessions (Figure 2). The current core laboratory metrology courses that are offered include: Fundamentals of Metrology, Mass Metrology, Volume Metrology, and Advanced Mass Metrology. These courses were developed and updated from 2010 to 2012 as a part of a training redesign project to ensure that all training requirements needed by the laboratories are covered as well as to integrate more activities and adult learning concepts into the courses as a part of our goal in having an accredited training program. Previous courses (Basic Metrology for States, Intermediate Metrology) are no longer available.

In addition to the traditional hands-on training courses, the OWM Laboratory Metrology Program has developed an extensive series of two-hour webinars on a variety of high interest topics. Webinar tuition is funded by the OWM and provided free to U.S. weights and measures officials and metrologists to enhance legal metrology uniformity. These courses are held throughout the year, and include a special "week of webinars" held in June that was first offered in 2012.

Specific training and personnel competency requirements to support Laboratory Recognition are published in Handbook 143, *State Weights and Measures Laboratories Program Handbook*, Training at the RMAP sessions is selected each year based on training needs assessments with input gathered through laboratory requests and inquiries, assessments of annual submissions from the laboratories, and through an assessment of the reasons for proficiency testing failures. Numerous supplementary courses are taught throughout the year via webinar, covering many topics related to implementing content from Handbook 143, or to address training needs between other seminars that are scheduled. Registration for all courses is done through the NIST, OWM contact database, which also makes transcripts readily available to students. The primary contacts for Training are Val Miller and Georgia Harris from a program perspective, Yvonne Branden from an administrative perspective, and Isabel Chavez for the OWM contact database. Val Miller, Georgia Harris, and Elizabeth Gentry, plus qualified contract instructors from working laboratories provide course instruction at NIST and at the RMAP training sessions.

NIST/Gaithersburg, MD

October 31
Webinar - Internal Auditing Best Practices
2:00 p.m. to 4:00 p.m.
Class No. 5251

November 18 - 22 (5 days)
Volume Metrology Seminar
Class No. 5252
NIST/Gaithersburg, MD

2014

January 13 - 17 (5 days)
Fundamentals of Metrology Seminar
Class No. not available
NIST/Gaithersburg, MD

January 19 - 22 (4 days)
National Conference on Weights and Measures (NCWM) Interim Meeting
Albuquerque, NM
info@ncwm.net

February 6
Webinar - Conducting an Effective Management Review
2:00 p.m. to 4:00 p.m.
Class No. 5255

February 20
Webinar - Internal Auditing Best Practices
2:00 p.m. to 4:00 p.m.
Class No. 5256

March 3 - 14 (2 weeks)
Mass Metrology Seminar
Class No. not available
NIST/Gaithersburg, MD

March 31 - April 4 (5 days)
Fundamental of Metrology
Class No. not available
NIST/Gaithersburg, MD

April 17
Webinar - PT Follow-up and RCA
2:00 p.m. to 4:00 p.m.
Class No. not available

May 5 - 16 (2 weeks)
Mass Metrology Seminar
Class No. not available
NIST/Gaithersburg, MD

June 9 - 13 (5 days)
Lab Administration Workshop
Class No. not available
NIST/Gaithersburg, MD

*Invitation Only
**Limited to State Laboratory Program Participants

Figure 2. Regional Measurement Assurance Program (RMAP) Groups

Proficiency Testing

The Proficiency Testing area is primarily coordinated through the annual RMAP training sessions. Because laboratories are required to have a four-year plan of proficiency testing as a condition of Recognition or Accreditation, a four-year plan is developed within each RMAP group. The planning, analysis, and reporting takes place at each annual meeting, where laboratories are given opportunities to help create the plan to meet the needs of their measurement Scopes. An added benefit of group management of proficiency tests is the minimization of overall program costs through the use of volunteers to coordinate and analyze data. Program tools used in this area are also used by many other laboratories outside the program and outside the United States. Val Miller is the primary contact for Proficiency Testing.

Documentary Standards

Ideally, documentary standards would be reviewed on a periodic basis and updated as appropriate. This area of the program receives the least overall attention, but standards are selected for updates when issues arise indicating a need. At this time, an update to NIST Handbook 105-1 for field standard weights and Handbook 105-7 for small volume provers are in the development process. A new documentary standard is being considered for master meters. The program also participates with ASTM, USP, and OIML in standards development. Val Miller is currently the primary contact for Handbook 105-1 updates and Georgia Harris for the volumetric standards.

Program References

An intentional effort that has been made by the OWM Laboratory Metrology Program over the years (at least since the

1980s) is to adopt and use international standards and references to gain program credibility. For example, when NIST Handbook 143 was first published in 1986, it referenced ISO Guide 25, *General Requirements for the Competence of Calibration and Testing Laboratories,* and NBS Handbook 145, *Handbook for Quality Assurance of Metrological Measurements,* procedures referenced Mil-Std-45662A, *Military Standard: Calibration Systems Requirements*. Both ISO Guide 25 and Mil-Std-45662A were the internationally and nationally accepted standards at that time. Yet, full implementation of these and their current standard counterparts has taken time. The first documented guidance in the Proficiency Testing area followed ISO Guide 43, *Proficiency Testing by Interlaboratory Comparisons,* which has since become a formal standard rather than a guide.

Program Area	**Reference Documents**
Laboratory Recognition	NIST Handbook 143, Program Handbook (based on ISO/IEC 17025:2005)
Training	ANSI/IACET Standard for Continuing Education and Training Laboratory Procedures: NBS Handbook 145 (length), NISTIR 5672 (mass dissemination), NISTIR 6969 (mass), NISTIR 7383 (volume)
Proficiency Testing	ISO/IEC 17043, ISO 13528 (applicable portions) NISTIR 7082, Proficiency Testing Policy NISTIR 7214, Proficiency Testing Quality Manual
Documentary Standards	NIST Handbooks 105-1 through 105-8 for field standards used in weights and measures

Internal Processes and Strategic Assessments

Each OWM Laboratory Metrology Program area has documented internal processes that are followed to ensure consistency on an ongoing basis. At a high level, the Office of Weights and Measures conducts annual strategic planning and selects specific strategic and operational objectives. The Laboratory Metrology Program conducts an annual SWOT analysis (identifying strengths, weaknesses, threats, and opportunities) within each program area. This method has also been used to gather input from metrologists at the annual RMAP training sessions to ensure customer input is considered and that program efforts are responsive to current and emerging national needs.

Measuring Results

Specific concepts are used to measure results in each Laboratory Metrology Program area. At one time, the majority of the measures were output measures. These included a count of how many laboratories were recognized, how many students attended training and how many courses were held, how many proficiency tests were conducted and in what measurement areas, along with the status of how many 105-series handbooks were published or in the process of being updated. Gradually, these measures have moved to include outcome measures where improvements are tracked, especially quality and impact. For example, the maps published in the periodic laboratory workload survey show how many laboratories are recognized by OWM and accredited by NVLAP. In addition, a scoring model was instituted to assess all of the laboratories against standardized criteria to track whether or not improvements (or declines) are seen from year to year in the overall national quality of the laboratories. In the Training area, a Kirkpatrick-type course evaluation system is used to measure satisfaction, learning, application, and impact related to a training experience. In the Proficiency Testing area, pass-fail statistics are tracked and a periodic evaluation of the resulting follow-up corrective actions made by the laboratories is conducted. In the Documentary Standards area, the level of application and adoption within the weights and measures programs is considered.

If you have questions or comments about any of these program areas or the OWM Laboratory Metrology Program, please feel free to contact Georgia Harris at gharris@nist.gov.

Planting Season Is Here! How Can Consumers Identify the Best Value?

Byline: Lisa Warfield

Spring finally arrived and consumers headed outside to perform seasonal planting and landscaping. However, as they shopped from store to store to purchase flowers, plants and shrubs, were they able to determine what was the best value and were they getting what they paid for? In today's marketplace there is a wide selection of plant containers in various shapes and sizes. This makes it extremely difficult for a consumer to take similar items and compare them based just on the size and shape. Consumers can make better buying decisions when the proper labeling is affixed to each product.

In 2005, a complaint to a weights and measures official from a grower in Pennsylvania ultimately led the U.S. horticultural industry to acknowledge a need to provide consumers with the required information and what is needed to prevent unfair trade practices. As a result of a collaborative effort, which included growers, garden centers, several state weights and measures programs and the NIST Office of Weights and Measures, a voluntary set of guidelines were published in an effort to improve container measurements and labeling regulations.

The Uniform Packaging and Labeling Regulations (UPLR) require that package labels include a declaration of identity, net contents and a responsibility statement.

The Declaration of Identity – The principal display panel must declare the product identity. The identity requires the specific or common name of the product, the generic name or appropriate description, such as "rose bush" or a more specific description, for example, "sunshine rose bush."

The Declaration of Responsibility – The purpose of this requirement is to identify the responsible party, which would be needed if the package does not comply with the law. This requirement applies when you have a package that is kept, offered or exposed for sale, or sold at any place other than where it is packed. The declaration of responsibility does not apply if the product is offered for sale on the premises where it is packaged. The label of the package will have the name and address of the manufacturer, packer or distributor. The name shall be the actual corporate name, or when not incorporated, the name under which business is conducted. The address shall include the street address, city, state (or country if outside the United States) and zip code. You may only omit the street address if it is shown in the current city or regional or telephone directory. This information is not required to be displayed on the principal display panel, but it must be conspicuous on the package to enable the consumer to contact the manufacturer directly.

The Office of Weights and Measures

will glady include your weights and measures related events in our calendar.
Contact the Editor:
Linda.Crown@nist.gov

Flag Trivia

Old Glory - This flag of the United States was made for Captain Driver, a sea captain, by his mother with the help of several ladies in Salem, Massachusetts. The Captain flew the flag from the mast of his vessel. He is responsible for naming the flag "Old Glory." The actual year this occured is unknown but is reported to have been sometime in the 1820s.

Captain William Driver eventually retired from his sea travels to become a resident of Nashville, Tennessee, where the flag was displayed on special holidays. During the Civil War, the flag was sewn into the layers of a quilt to protect it from Confederate authorities. When Nashville was retaken by the Union, Captain Driver revealed the flag by flying it up the spire of the Tennessee state capitol. This is supposedly the last time the flag ever hung from a flagpole. The report of this event was recorded and published in many newspapers, which led to the fame of "Old Glory." The flag is now the property of the Smithsonian. The Smithsonian lent "Old Glory" out to the Tennessee State Museum for a short time in 2006. This was to be the flag's last trip as it is now too fragile to leave the Smithsonian.

Flag description: 10 ft by 17 ft; 24 stars; with a small anchor sewn in the corner of its blue canton.

HAPPY BIRTHDAY AMERICA

The Declaration of Net Contents – The declaration of net contents must appear on the principal display panel. This declaration must describe the contents in terms of weight, measure, or count. There are several methods that might be used by the industry for this declaration. Historically the method of sale for the container is volume (e.g., pint, quart and gallon.) Any net quantity statement that does not permit price and quantity comparison is forbidden. The declaration must be in both customary and SI units.

For market packs (multi units/cell packs) that are sometimes combined into a larger package (e.g., a "flat" that contains four packs) where units can be separated and sold separately, the net contents declaration on labeling or signage requires the count and volume of units in each pack, not the flat. Each pack would require a label/tag. Signage would need to refer to the individual market packs and pack count per flat with pricing by the flat.

Additional information regarding the above mentioned requirements can be found in the NIST Handbook 130 – *Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality, Uniform Packaging and Labeling Regulations (www.nist.gov/pml/owm).*

For additional information please contact the Laws and Metric staff at (301) 975-4004.

Weights and Measures in the News

Arizona - *The Investigators*
Moving company accused of overcharging new Tuscon Family
http://www.kvoa.com/news/nightmare-move-stopped-by-arizona-weights-and-measures/

Kansas - cjonline.com *The Topeka Capital-Journal*
Editorial: Weighing performace at weights and measures
http://cjonline.com/opinion/2013-06-17/editorial-weighing-performance-weights-and-measures

Kansas - cjonline.com *The Topeka Capital-Journal*
State schedules scales meeting
Agriculture officals cites need to improve scale accuracy rate
http://cjonline.com/news/2013-06-13/state-schedules-scales-meeting

Have a Safe and Happy 4th!

Reminder
The 98th NCWM Annual Meeting
July 14 - 18, 2013

The 2013 Annual Meeting will take place in Louisville, Kentucky. There is still time to register. Information can be obtained on the NCWM website at http://www.ncwm.net. Register today and share your valuable experience and knowlege with the membership. Federal, state, county, and industry participation is welcome. Contact: (402) 343-4880 or info@ncwm.net

Visit the National Weather Service for Heat Safety Tips

http://www.weather.gov/om/heat/index.shtml#safety

Topics
Child Safety Tips, Adult Heat Wave Safety Tips, Heat Disorder Symptoms, Community Guidance: Preparing for and Responding to Excessive Heat Events

Center for Disease Control and Prevention

http://www.cdc.gov/niosh/topics/heat-stress/

Topics
Heat Stress, Heat Stroke, Heat Exhaustion, Heat Syncope, Heat Cramps, Heat Rash, and the First Aid for these ailments.