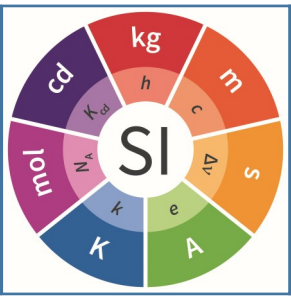
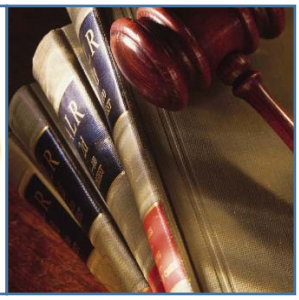
MEASUREMENT MATTERS

News from the Office of Weights & Measures





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Inside This Issue

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Notes from the Chief

Byline: Katrice A. Lippa

Hello from the NIST Office of Weights and Measures (OWM)! As the new OWM Chief, I have spent the last few weeks getting to the know the network of state officials, inspectors, device manufactures, and legal metrology experts across this vast weights and measures community. I look forward to continuing to meet and greet you all, and further engage (albeit virtually) at the upcoming regional Weights and Measures Association meetings.

This issue of *Measurement Matters* will highlight the continuation of our online training courses designed to benefit your programs and staff development. I have also been fortunate to participate in OWM virtual training classes this past month, including some recent courses related to the Metric System, Liquefied Petroleum Gas (Propane), and Regional Measurement Assurance Program (RMAP) training. Please see David Sefcik's article on the **Continued Demand for OWM Webinars.** In fact, OWM staff were recently awarded an internal NIST award for this outstanding service to the Weights and Measures community (**see article**). A continuous survey to capture community feedback on OWM's training efforts will be forthcoming.

We celebrate **National Metric Week** this month (October 10 - 16, 2021), and Elizabeth Benham provides you with some helpful resources and outreach publications. We also celebrate the winners of the **2021 U.S. Metric Association (USMA)/Blake Family Metric Awards**.

Also included are summaries on the draft changes to the NIST **Handbooks 133** and **143** and a NIST/OWM perspective article about the **Digital Transformation in Legal Metrology** by Katya Delak, Robert Hanisch, and Chuck Ehrlich, which is an emergent area in international legal metrology already underway in other countries and regional economies. NIST has begun to pivot our programs towards a "Digital NIST", and we welcome your feedback and engagement so we may build the most relevant services for U.S. interests and for the weights and measures community at-large.

Last but not least, OWM congratulates **Kenneth (Ken) Butcher** on his retirement and welcomes our newest staff members. **Elizabeth (Els) Koncki** has joined the Laboratory Metrology Program and brings deep expertise with regards to agricultural inspections, training, laboratory metrology, and stakeholder engagement with the weights and measures community. We also welcome back **Richard (Rick) Harshman** as a reemployed annuitant and he will be contributing to the development of standards for the legal metrology devices program.

Why the Recent Global Attention on Digital Transformation in (Legal) Metrology?

Byline: Katya Delak, Bob Hanisch, and Chuck Ehrlich

The last half-century has witnessed a sea change in how information technology affects our lives, largely enabled by the advent of increasingly cheap computing power and memory, along with interconnected networks. Computing technology has sought (and largely succeeded) to automate mundane tasks in that most people can share photographs or bank online without thinking about the underlying processes. Technology has matured enough that we are now poised for the emergence of driverless cars and sensor networks to enable smart homes and seamless manufacturing. We can all agree that much of our everyday activities have undergone and are continuing to undergo a digital transformation.

What then is digital transformation in legal metrology? Legal metrology relies on a set of tests, calibrations, and method assurances through a variety of established protocols. In some cases, calibrations are done by hand. Type evaluation occurs at a type evaluation authority, or in some cases by a manufacturer via in-house tests, that then provide a data set to a type approval authority for certification. Type evaluation certificates are then stored in digital form with the type evaluation authority and made publicly available through web access. In the case of modifications to a legal metrology instrument, type evaluation may also be updated. Field tests are carried out by state authorities or registered service organizations; the results of which are logged in ways that may vary from state to state. This might include paper documents, hard copy files, file scans, and nowadays digital files stored locally or remotely on a cloud-like system. In all, considerable variability exists in how data is collected, stored, maintained, and managed.

This process could certainly be streamlined, where many steps could be transformed to be carried out on digital systems. Similar enabling technologies that support constructs like smart factories could be used to enable a digitalization of the processes that support legal metrology, thus facilitating testing, calibration, certification, and reverification processes. Digital technologies could also help simplify the management of the supporting data and documentation, making it more accessible to users and more easily searchable and revisable when appropriate.

In this scenario, a person may still be required to review data associated with type testing or field testing reports and take appropriate action, but many steps in the system could be automated through the use of various digital technologies. In lieu of relying on field inspections, imagine a situation where a networked instrument would carry out an automated self-test to ensure it is still within calibration and tolerance specifications. The data would then be communicated to a state authority and automatically verified. In such a case, state authorities and business owners could also be notified of real-time instrument malfunctions, tampering, or out-of-specification conditions, and could intervene personally when necessary.

What is required for this transformation to happen in legal metrology? Like today's gadgetry, an underlying system would require that relevant parties can have access to system data. However, if the system is networked, or data is stored on a cloud, this will enable parties access to data without having to be on-site to examine a device. They could download stored calibration and type evaluation data, or even review audit trails. Greater flexibility becomes apparent if networked instruments can be updated remotely and re-verified virtually. However, this kind of system becomes complex quite quickly, and data privacy as well as security will require serious consideration. Still, certain concepts are being developed to help bring this scenario to reality.

The first of these concepts is a digital representation of a measuring instrument and could be as basic as instrument identifiers (model, serial number). Indeed, the **Research Data Alliance** has developed a recommendation for persistent identifiers (PIDs), a permanent reference to an instrument and its operational state at a given time, which could be used for such an application. The digital representation could also include a wealth of other information, such as the relevant legal information, including the type approval certificate; manufacturing information about the initial construction and testing; the instrument owner; field installation and verification information; and any repair,

(Continued on page 3)

Why the Recent Global Attention on Digital Transformation in (Legal) Metrology?

(continued from page 2)

recalibration, and reverification information. Such a digital representation might also include reference to the legal metrology laws and regulations for the jurisdiction under which it operates.

In order for digital representations to be usable and for relevant data to be retrievable by users, the data has to be formatted to be searchable. Thus, it is imperative to have agreed-upon or standardized data formats that are harmonized globally. Standardized data formats would also apply to metadata, which is the data that identifies what data is about. As an example, scale manufacturers would need to use the same data formats for specific parameters, such as common descriptions of what is being measured, consistent units of measurement, as well as other metadata related to the digital representation as described above. To this end, the International Bureau of Weights and Measures (Bureau International des Poids et Mesures, BIPM) hosted a workshop this last spring on **The International System of Units (SI) in Findable, Accessible, Interoperable and Reusable (FAIR) Digital Data**. Joint efforts such as these provide information on what is happening internationally towards providing a harmonized approach to formatting and reporting measurement data.

The digitalization of legal metrology is already taking place in other countries, and the most recent issue (July 2021) of the **OIML Bulletin** provides a worthwhile summary of these activities. The National Metrology Institute of Germany (Physikalisch-Technische Bundesanstalt, PTB) and the National Physical Laboratory (NPL) in the UK have developed Digital Calibration Certificates (DCCs) to collect and organize standardized metadata and data concerning a calibration. PTB has developed a **"European Metrology Cloud"** and the Interamerican System of Metrology (SIM) has a set of task forces devoted to **"Metrology for Digital Transformation" (M4DT)** that are sharing information on automating laboratory processes, the use of cloud technologies for metrology, and DCCs. In fact, manufacturers that are engaged in European and/or Latin American markets may have already considered how to integrate with these digital systems.

In the U.S., NIST has begun an effort towards realizing the "Digital NIST" with an initial focus on DCCs and their potential customization for Standard Reference Material (SRM®) Certificates of Analysis and NIST calibration reports. Future efforts will include a major overhaul and modernization of data acquisition, extraction, representation, and management throughout the organization. Beyond this, NIST has an eye towards the development of the NIST Metrology Cloud, that would be used by industry, governments, academia, and regulators as a source of information and a guarantee of quality for legal metrology, international trade, data exchange, and calibration of instruments, among many other applications. The overarching goal of the cloud is to support the growth of U.S. companies in the global marketplace.

Digital transformation in U.S. legal metrology is imminent, and in some cases is already here. As we prepare for our future, the NIST Office of Weights and Measures is interested in learning about your current and anticipated needs for digital transformation in your organization as we work towards realizing the NIST Metrology Cloud. Please reach out to us (email: **owm@nist.gov**) with any insights, recommendations, or issues that would help inform our efforts and better serve you and the weights and measures community at large.

NIST Handbook 130 Related to EPA Final Rule, Fuels Regulatory Streamlining

Byline: Lisa Warfield

The U.S. Environmental Protection Agency (EPA) published a Final Rule, Fuels Regulatory Streamlining, (**85 FR 78412**). The purpose of the rule was to update and modernize EPA's existing gasoline, diesel, and other fuel regulations and remove inconsistencies. Under the EPA Fuels Regulatory Streamlining Rule, the majority of fuels provisions were migrated from 40 CFR Part 80 to a new **40 CFR Part 1090**. Most of the EPA Fuels Streamlining provisions in the new Part 1090 went into effect on January 1, 2021.

In July 2021 at the 106th NCWM Annual Meeting, the Fuels and Lubricants Subcommittee apprised the Laws and Regulations Committee that a CFR Regulation cited within **NIST Handbook 130** (2020) *Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality* would need to reflect updated CFR citations.

NIST Handbook 130 Uniform Regulation for the Method of Sale of Commodities:

- **Section 2.20.2. Documentation for Dispenser Labeling Purposes** - Update the CFR citation 40 CFR 80.1503 to 40 CFR 109.1110
- **Section 2.20.3. EPA Labeling Requirements** - Update the CFR citation from 40 CFR 80.1501 to 40 CFR 1090.1510

NIST Handbook 130 Uniform Fuels and Automotive Lubricants Regulation:

- **Section 2.1.2. Gasoline-Ethanol Blends** - Update CFR citation 40CFR 80.27(d) to 40 CFR 1090.215(b)
- **Section 3.2.5. Documentation for Dispenser Labeling Purposes** - Update CFR citation 40 CFR 80.1503 to 40 CFR 1090.1110
- **Section 3.2.6. EPA Labeling Requirements** – Update CFR citation 40 CFR 80.1501 to 40 CFR 1090.1510

40 CFR Part 1090 is available at **Electronic Code of Federal Regulations (eCFR)** or type in **www.ecfr.gov** and search for 40 CFR Part 1090 using the drop-down menu.

Any questions regarding this notice should be directed to Lisa Warfield, NIST Technical Advisor to the NCWM Laws and Regulations Committee, at **lisa.warfield@nist.gov**.

Notice: No New Edition of Handbook 133

At the 105th and 106th NCWM Annual Meetings there were no items adopted or modifications made to NIST Handbook 133 (2020), *Checking the Net Contents of Packaged Goods*. The 2020 edition of NIST Handbook 133 will be recognized as the current edition of the handbook until NCWM and NIST agree to publish a new edition.

Please contact Lisa Warfield at **lisa.warfield@nist.gov** for additional information or assistance related to NIST Handbook 133.

NIST Handbook 143, Program Handbook for OWM Laboratory Recognition

Byline: Georgia Harris and Micheal Hicks

A draft of the 9th edition of NIST Handbook 143, Program Handbook (last published in 2019) has been posted for comments on the OWM website. You can download and review the document and submit comments via a Word comments document throughout the remainder of the year until December 31, 2021. Submitted comments should also include proposed language where necessary for suggested changes. The draft, comment form, and instructions for submitting comments can be found online **here**.

In addition to the proposed draft (in PDF), the prior and current publications of the technical content - as published - are also posted with a "track-change" version for your convenience in comparing prior, current, and proposed technical requirements. Please submit a separate comment form for reviewing the primary sections of the handbook, each appendix, and each annex. Significant technical discrepancies and/or disagreements will be reviewed by a working group made up of those who comment. Editorial comments will be resolved by OWM staff.

Major changes to this draft document include the reincorporation of technical requirements into NIST Handbook 143 as annexes, using the same approach as NVLAP Handbook 150-2 rather than referencing each measurement parameter in the NVLAP criteria. This is being done to (1) consolidate all technical content with program criteria for state labs in one document based on feedback from laboratories and (2) ensure the most recent technical content is being used for state weights and measures laboratories.

Several of the NVLAP annexes were adopted with very minor changes to ensure as much consistency as possible but with application additions appropriate for legal metrology. The mass and volume annexes proposed for NIST Handbook 143 have the most significant differences from the NVLAP criteria based on extensive comparisons of the NVLAP criteria, the Handbook 143 5th edition (2007) technical criteria, the latest content in the NIST Handbook 105 series, and review of OWM and other internationally accepted documentary standards and calibration procedures. Final track-change versions will be submitted to NVLAP for their consideration in future updates to Handbook 150-2 in hopes of ensuring consistent requirements and laboratory evaluations.

Demand for Webinar Offerings Continues to Grow

Byline: David Sefcik

Progress continues to be made to meet the needs of the state, county, and local weights and measures, as well as other stakeholders to provide virtual training.

This past fiscal year (October 1, 2020 – September 30, 2021), 1,742 students participated in webinars offered by the Laws and Metric Group, NIST Office of Weights and Measures. This represented a 12 percent increase in attendance over the prior fiscal year. In addition, we were able to add two new webinar offerings, "How to Test Packages of Mulch and Soils Labeled by Volume" and "LPG (Propane) – Verifying the Net Contents of 20 lb Cylinders (Part 1)".

Below is the breakdown of the number and types of webinar offerings delivered this fiscal year:

- 9 Weights and Measures Inspections – Evidence, Search & Seizure, and Due Process
- 7 How to Test Animal Bedding
- 6 Examination Procedure for Price Verification

(Continued on page 6)

Demand for Webinar Offerings Continues to Grow

(continued from page 5)

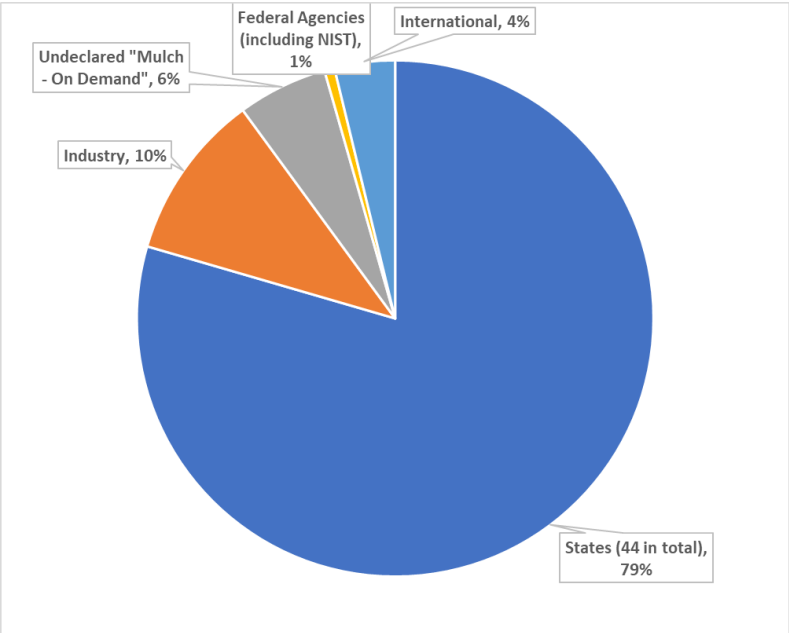
- 5 Overview of the Uniform Packaging and Labeling Regulation
- 3 LPG (Propane) – Verifying the Net Contents of 20 lb Cylinders (Part 1)
- 1 How to Test Packages of Mulch and Soils Labeled by Volume ("on demand")

Webinars are offered based on demand, but typically no less than once a quarter. A total of 37 webinars were presented last fiscal year. Eighty-six (86) percent of participants were state, county, or local officials, and 10 percent of participants were from industry.

There has been an increasing interest among the international weights and measures community who comprised 4 percent of the participants. International weights and measures included representation from across the Americas (Belize, Bolivia, Canada, Chile, Costa Rica, Ecuador, Uruguay), the Caribbean (Bahamas, Barbados, Haiti, Jamacia, St. Lucia, Trinidad, and Tobago), as well as from Africa (Nigeria), and Asia (China).

Our goal is to meet the needs of and help support your weights and measures programs and provide relevant training for your staff. We are currently evaluating which webinars are most needed by officials for the upcoming year and beyond.

We value and encourage your input. Please email your suggestions and recommendations to David Sefcik at **david.sefcik@nist.gov**. In addition, please feel free to address general training queries to **OWM@nist.gov** or phone (301) 975-4004 for additional assistance and information.



Celebrate National Metric Week

Byline: Elizabeth Benham

Do you know a Science, Technology, Engineering, or Math (STEM) educator looking for ideas to help celebrate **National Metric Week**, October 10 to 16, 2021? We're here to help!

Metric Week is a fun way for educators to focus on measurement skill development during the first weeks of school. National Metric Week is currently celebrated during the week that includes the tenth day of the tenth month, a play on the "powers of ten." The holiday was established by the National Council of Teachers of Mathematics (NCTM) and initially celebrated during the month of May. However, in 1984 Metric Week was moved to October to better compliment the K-12 academic calendar.

(Continued on page 7)

Celebrate National Metric Week

(continued from page 6)

NIST Outreach Publications

NIST Public Affairs Office (PAO) has recently issued an updated *SI Measurement Poster* featuring the *Guardians of the SI Superheroes* (Figure 1). The simplified SI base unit definitions correspond to each Superhero and are aimed at an upper elementary school audience. Companion outreach materials are available on the **NIST *Education* website**.

The ***SI Relationships Poster*** (SP 1247) illustrates the relationships of the SI derived units with special names and symbols and the seven base units (Figure 2). High school, higher education, and measurement scientists often post this handy guide in classrooms, offices, and laboratories. Hardcopies of both colorful posters can be requested by contacting **TheSI@nist.gov**.

USMA Resources

The USMA website provides a wealth of information to help promote metric measurements during the holiday, including **general principles for teaching the metric system**. USMA is celebrating STEM educators with a Metric Week give-away. The grand prize includes an annual USMA membership, 100 metric rulers, and liter cube demonstration model. Learn how U.S. teachers can enter the promotion on Instagram (@USMA_Metric).

This year, USMA's *Governor's Proclamation Project* is focused on recognizing Metric Week in every state and territory. Governor proclamations are used by local school districts and others to increase public awareness during Metric Week outreach activities. Is your state represented in this year's campaign? Access proclamation pdfs on 10 October from the **project webpage**.

Whether you're hosting a hands-on activity or daily outreach events this year, let us share in your success! When promoting your event or posting photos afterwards, tag us (@nist) on social media with the hashtag #MetricWeek.

Figure 1. The SI Measurement System poster. Credit NIST/Hanacek.

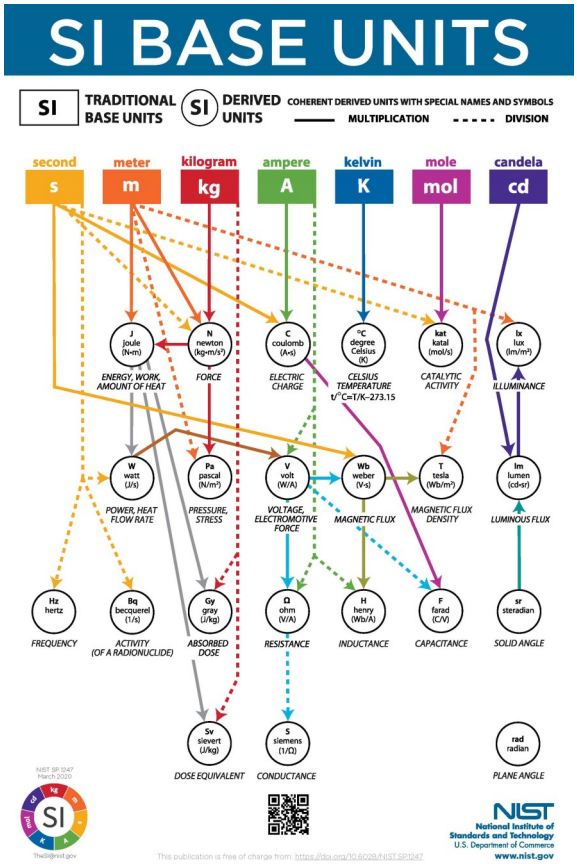


Figure 2. NIST SP 1247, SI Relationship Poster. Credit: NIST.

Congratulations to Yvonne Branden and David Sefcik, Outstanding Achievement in Measurement Services and Standards Award Recipients

OWM is pleased to announce that Yvonne Branden (Training Coordinator) and David Sefcik (Weights and Measures Coordinator) are 2021 recipients of the NIST Physical Measurement Laboratory (PML) Outstanding Achievement in Measurement Services and Standards Award. Yvonne and David were recognized for their outstanding service to the weights and measures community through adapting in-person training to on-line delivery following the 2020 COVID-19 pandemic. This provided training for 2,361 students from March 2020 to December, 2020 in 46 webinar classes.

Ken Butcher Retires from NIST OWM!

Byline: Tina Butcher

Kenneth (Ken) S. Butcher retired from the NIST Office of Weights and Measures (OWM) on September 16, 2021 after 30 years with NIST and a 47-year career in weights and measures. Ken began his career in 1974 as a field inspector in the state of West Virginia, where he inspected and tested a wide range of weighing and measuring devices and prepackaged commodities and worked part time in the state's metrology lab. He left the state to work as service manager in a local scale company for a year before returning to WV Weights and Measures, where he inspected large capacity scales and, in 1979, was appointed Director of Weights and Measures. As Director, Ken led the program in the development of new inspection areas and investigations into trade practices of precious metals sales and state procurements of products such as polyethylene bags and asphalt, working closely with industry to provide education and improve compliance. Ken was widely recognized for his work, which included an article on the front page of the *Wall Street Journal*.

Pictured is Ken Butcher with his daughter, Holly.

Ken joined Maryland Weights and Measures in 1985 as Scale Program Manager, later moving into the position of Assistant Director and then Director. During his time at Maryland, he was involved in the expansion of Maryland's grain inspection program, the establishment of Maryland's National Type Evaluation Program Laboratory, and the opening of a new metrology laboratory.

In 1991, Ken joined NIST's International Standards Program and, later, OWM. Upon joining OWM, Ken was appointed Program Leader for the Laws and Metric Program, in which capacity he served on numerous national and international technical committees, work groups, and other projects related to the development of model weights and measures laws, regulations, and test procedures and as editor to NIST Handbook 130. Over the years, Ken served as advisor of numerous U.S. National Work Groups to the International Organization of Legal Metrology (OIML), including OIML R 51 Automatic catchweighing instruments; OIML R 60 Load cells; OIML R76 Nonautomatic weighing instruments; OIML R 111 Weights; OIML R 79 Labeling requirements for packages; OIML R 87 Quantity of products in packages; R 150 Arched chute type weighing instruments; and other OIML recommendations.

(Continued on page 9)

Ken Butcher Retires from NIST OWM!

(continued from page 8)

A practiced speaker, Ken developed and delivered numerous presentations and training seminars on legal metrology topics ranging from weighing devices to packaged commodities. In recent years, he developed a number of webinars for the Laws and Metric Program focused on interpreting and applying legal metrology laws and regulations, inspecting prepackaged commodities, and conducting weights and measures inspections.

Ken forged many strong working relationships with federal agencies, weights and measures programs, and industry representatives who collaborated with him on the development of a wide range of test procedures and legal metrology guidance documents.

In 1994, Ken was awarded the U.S. Department of Commerce's Bronze Medal, the highest honorary award granted by a head of an operating unit (e.g., NIST) or Secretarial Officer or equivalent, for work done in the area of packaging and labeling. Ken is also a 1997 recipient of the Harvey Wiley Award, FDA's highest external award, for his work on labeling; ISWM's Miles D. Fishman Memorial Award for outstanding young person who significantly contributed to the scale industry; and an OIML medal of Recognition for his contributions to OIML.

Ken holds a bachelor's degree in business management from Hood College and earned his juris doctor degree from University of Maryland School of Law in 2004. He is widely read and shares a love of history with his family, which has taken them on many shared adventures. Ken plans to expand his law practice and serve as a consultant and expert witness on legal metrology issues. He is looking forward to spending more time with his wife (Tina), daughter (Holly), and other family and friends.

Elizabeth (Els) Koncki Joins OWM Laboratory Metrology Program

The Office of Weights and Measures (OWM) is pleased to introduce Elizabeth (Els) Koncki as the latest member of the Laboratory Metrology Program. Elizabeth joined the program this August 2021. She joins OWM with a breadth of weights and measures experience and knowledge from the Maryland Department of Agriculture. With the Maryland Weights and Measures program, she served as Assistant Chief and was responsible for the administration of the state field and lab programs, which built on the production and quality manager career she had before the state weights and measures work. Now she has moved not too far down the road from Annapolis, MD to join us at our Gaithersburg, MD location. She brings with her a deep expertise with regards to weights and measures inspections, training, laboratory metrology, and stakeholder engagement with the weights and measures community.

In her current position, she will serve as liaison to the state metrology labs across the country, providing general laboratory technical assistance and training while assisting with the recognition program. When asked "Why metrology?", she states she must confess the topic can be a bit dense and she does not think of herself as a metrologist, but more as a metrology logistician.

(Continued on page 10)

Elizabeth (Els) Koncki Joins OWM Laboratory Metrology Program

(continued from page 9)

This means she is interested in coordinating how the product (legal metrology) is achieved from start to finish. Her interest was twigged for this line of work from her experience with first working in a production facility, then receiving weights and measures training that cast her into the mold of an inspector, and lastly working in metrology to solidify the science and theory. Her ability to coordinate and deduce solutions can help OWM make a great contribution to the legal metrology community. She gets job satisfaction out of learning and understanding a process, and then meshing insight into disseminated knowledge to achieve a delivered product (aka training).

OWM Says "Welcome Back" to Richard (Rick) Harshman!

Byline: Tina Butcher

OWM is pleased to welcome Richard (Rick) Harshman back to our staff. Though Rick retired at the end of December 2020, NIST OWM was able to entice Rick to our ranks once again as a "retired annuitant," to provide assistance and support to our partners in the weights and measures community.

Those who worked with Rick in the past will recall his extensive expertise in a wide range of legal metrology topics, particularly in commercial weighing systems. While previously at NIST, Rick served as an editor of NIST Handbook 44; authored technical articles to provide guidance on inspecting and testing weighing and measuring devices, including high-precision weighing devices; developed and enhanced multiple NIST Examination Procedure Outlines; and worked with OWM staff to develop new methodologies for selecting and testing reference scales. Rick served as co-technical advisor to the NCWM Specifications and Tolerances Committee and other national working groups for many years, and he was instrumental in working with a U.S. Department of Transportation work group to develop a tentative NIST Handbook 44 Code for Weigh-in-Motion Systems used in highway weight enforcement. Rick is a proficient trainer, having developed and presented numerous training seminars in both small- and large-capacity weighing systems.

Upon Rick's return to NIST in mid-August, he hit the ground running. In recent weeks, Rick provided significant assistance to the Legal Metrology Devices Program filling the gaps created by the unexpected loss of OWM staff member John Barton, and he will assist OWM's International Legal Metrology Program to bridge the gap in another project. Upcoming projects for Rick include finalizing a long-awaited video on small capacity scale testing and developing virtual training offerings in the area of small capacity scales.

Rick can be reached at **richard.harshman@nist.gov** for those wanting to connect with him.

2021 USMA/Blake Family Metric Awards Announced

Byline: Elizabeth Benham

For five years, the U.S. Metric Association (USMA) and Blake Family Foundation have partnered to offer two **awards** recognizing efforts to increase awareness and usage of the International System of Units (SI) in the United States.

The $2,500 first-place student award scholarship is applied to tuition payments for a two or four-year undergraduate degree. The second-place student award was $,1000. The first and second place non-student awards were $500 and $250 respectively.

Congratulations to the 2021 award recipients! USMA recently reported a summary of each awardee's current efforts and future plans to promote the SI in the Metric Today newsletter. Highlights include:

- **Gavin Peduzzi** of New Market, MD (1st place, student), who actively advocates for metric system use in his community, including the USA Skills Design Competition, local Career and Technology Architectural Program, and county public school system.
- **Maura Spain** of Beloit, WI (2nd place, student) leads by example, using metric measurements in her visual art activities (painting and stretching canvases), baking with metric mass measurement techniques, and promoting **National Metric Week**.
- **Heather Scoville** of Ladora, IA (1st place, non-student) teaches high school science and exclusively uses metric laboratory equipment. Her plans for the award funds include purchasing additional classroom measurement tools and to help students celebrate fun events like Metric Day (10 October) and **Pi Day** (14 March).
- **Rickey Torrence II** of Riverdale, MD (2nd Place) teaches 9th grade Conceptual Physics and focuses on building scientific communicate skills. He uses student-led Socratic discussions to explore U.S. metrication to help his learners consider the impacts local decisions have on a global scale.

Be on the lookout for future announcements to apply next year (Twitter and Instagram: @USMA_Metric). The online application process typically occurs between 1 January through 31 March. **The U.S. Metric Association (USMA), Inc.,** is a national non-profit organization that was founded in 1916 and advocates completing the U.S. conversion to the metric system.

Calendar of Events

OWM Training Events

Date	Time (Eastern Time Zone)	Event Name	Online or Location	Class
October 4 to 7, 2021	1:00 p.m. to 5:00 p.m.	**MidAmerica Measurement Assurance Program (MidMAP)**	Online webinar	5706
October 7, 2021	11:00 a.m. to 1:00 p.m.	**NIST Handbook 130 - Overview of the Uniform Packaging and Labeling Regulation**	Online webinar	5760
October 14, 2021	11:00 a.m. to 1:30 pm.	**NIST Handbook 133 - Overview of Handbook 133**	Online webinar	5761
October 20, 2021	11:00 a.m. to 1:00 p.m.	**NIST Handbook 133 - How to Test Animal Bedding**	Online webinar	5762

(Continued on page 12)

Calendar of Events

OWM Training Events

(continued from page 11)

Date	Time (Eastern Time Zone)	Event Name	Online or Location	Class
October 21, 2021	10:00 a.m. to 4:00 p.m.	**LPG (Propane) -Verifying the Net Contents of 20 lb Cylinders (Part 1)**	Online webinar	5763
October 26, 2021	10:00 a.m. to 3:00 p.m.	**Weights and Measures Inspections - Evidence, Search and Seizure, and Due Process**	Online webinar	5764
November 4, 2021 to January 20, 2022	2:00 p.m. to 4:00 p.m.	**Laboratory Administration Workshop**	Online workshop	5754

Training events in this table are current as of October 1, 2021. Please refer to the OWM website for the most recent listing: ***www.nist.gov/pml/weights-and-measures/about-owm/calendar-events****.*

*To request training, visit the OWM Contacts System (****tsapps.nist.gov/WMD****).*

Calendar of Events

Meetings

NCWM and Regional Associations			
October 10 to 13, 2021	New Orleans, LA	Southern Weights and Measures Association (SWMA)	**www.swma.org**
October 18 to 21, 2021	Online	CWMA Interim Meeting	**www.cwma.net**
January 9 to 12, 2022	Tampa, FL	NCWM Interim Meeting	**www.ncwm.com**
May 23 to 26, 2022	Bismarck, ND	CWMA Annual Meeting	**www.cwma.net**
July 10 to 14, 2022	Tacoma, WA	NCWM Annual Meeting	**www.ncwm.com**

NIST OWM Staff Directory

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