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CELEBRATE**WEIGHTS
AND
MEASURES
WEEK****MARCH 1 – 7, 2015****OFFICE OF WEIGHTS AND
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THE OFFICE OF WEIGHTS AND MEASURES PROPOSES REVISIONS TO THE METHOD OF SALE FOR ANIMAL BEDDING AND RECOMMENDS NEW TEST PROCEDURES AND TEST MEASURES FOR USE IN VERIFYING THE QUANTITY DECLARATIONS ON PACKAGES OF PEAT MOSS AND ANIMAL BEDDING

Animal Bedding (bedding), also called pet or stall bedding, litter or simply bedding, is generally sold by dry volume in compressed or uncompressed packages. Based on numerous failed inspections of packaged animal bedding, the Office of Weights and Measures (OWM) conducted a study in which compressed and uncompressed packages of animal bedding were measured using a variety of procedures and test equipment. The results from those tests indicate that the current procedures in NIST Handbook 133, *Checking the Net Contents of Packaged Goods* the dimensional inspection procedure for testing compressed packages (e.g., peat moss); and the volumetric inspection procedure (e.g., mulch); are inadequate for use in testing animal bedding. Uncompressed volume measurements of animal bedding are dependent on a number of factors, including the size and shape of the measuring container, the method of filling the measuring container, and the means used to break up the bedding prior to measuring. Based on the findings of this study, draft procedures were developed for testing both the compressed and uncompressed volumes declared on packages of animal bedding. OWM also designed and constructed new test measures to be used with the procedure, and then brought these measures to several animal bedding packaging plants for on-site verification of the test methods. Preliminary findings indicate that the draft procedure provides more consistent measurement results. Further, the study shows that there is no correlation between compressed and uncompressed volumes of animal bedding, leading to the conclusion that the requirement for compressed volume statements on the package label is unnecessary. The full text of the proposal is posted on the OWM website under "Topic Areas" at www.nist.gov/pml/wmd/pubs/hb133.cfm and includes recommended changes to the method of sale for animal bedding in NIST Handbook 130, *Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality*, a revised test procedure for NIST Handbook 133 relating to the verification of the compressed volume of Peat Moss (which has been used with animal bedding), new test procedures for measuring the com-

pressed and uncompressed volumes of animal bedding, suggested test equipment, and a gravimetric auditing procedure that allows inspectors to avoid destroying all of the packages.

The complete proposal at www.nist.gov/pml/wmd/pubs/hb133.cfm provides background information to the proposed amendments to the Method of Sale of Commodities Regulation in NIST Handbook 130 and the recommended test procedures in NIST Handbook 133.

For more information please contact the Technical Advisors for the NCWM Laws and Regulations Committee: Lisa Warfield, at Lisa.warfield@nist.gov, (301) 975-3308, or David Sefcik, David.sefcik@nist.gov, (301) 975-4868.

Calibration Procedures Updated

Byline: Georgia Harris

Please be sure to regularly check the Calibration Procedures pages on the NIST website for updates (the short-cut is www.nist.gov/pml/wmd/labmetrology/index.cfm, and then select Calibration Procedures). During the 2014 Combined Regional Measurement Assurance Program (C-RMAP) training session in October 2014, printed copies of NISTIR 5672, *Advanced Mass Calibrations and Measurement Assurance Program for State Calibrations Laboratories*, NISTIR 6969, *Selected Laboratory and Measurement Practices, and Procedures to Support Basic Mass Calibrations*, and NISTIR 7383, *Selected Procedures for Volumetric Calibrations* were provided to participants. Subsequently, a new NISTIR 8028, *Selected Laboratory and Measurement Practices and Procedures for Length Calibrations*, was approved and circulated to all participants. Please see additional information for updates to each publication with associated history regarding OWM calibration procedures. Also, please be aware that the documents published on the web page are considered the "Official" versions of the documents and print copies are provided only as a convenience during training. Updates to the documents will be posted on the website with updated document control, but hard copies will not necessarily be provided for updates. Laboratory references to the documents, for example, Master List, must be updated to match the Official version of the documents.

Handbook 145 – Will not be updated.

NBS Handbook 145 (1986), *Handbook for the Quality Assurance of Metrological Measurements*, by John K. Taylor and Henry V. Oppermann has been out of print for many years. The majority of content has been updated and published in the publications noted below. Handbook 145 was developed as a source of calibration procedures for weights and measures laboratories and covered mass, length, and volume calibrations for field standards used in the commercial marketplace. The original Table of Contents and several Legacy sections are provided on the OWM website as reference only. The Good Laboratory Practices (GLPs), Good Measurement Practices (GMPs), and Standard Operating Procedures (SOPs) that have not been updated are available on the linked pages as scanned PDF copies and are dated 1986. The entire collection of SOPs, GLPs, and GMPs are all presented together for consistency

Training and Events Calendar 2015

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 at <http://www.nist.gov/pml/wmd/calendar.cfm> and clicking on the name of the course.

February 26
NTEP Belt-Conveyor Sector Meeting
St. Louis, MO
Contact: info@ncwm.net

February 26 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. to 4:00 p.m.
Class No. 5296

March 2 - 6 (5 days)
Fundamentos de Metrología
Class No. 5348
NIST/Gaithersburg, MD

March 9 - 12 (4 days)
Handbook 133, "Checking the Net Contents of Packaged Goods," Basic
Class No. 5363
South Gate, CA

March 16 - 27 (2 weeks)
Mass Metrology Seminar
Class No. 5333
NIST/Gaithersburg, MD

March 17 - 19 (3 days)
Administrator Workshop
Class No. 5368
NIST/Gaithersburg, MD

March 19 (2 hr)
Webinar - Contract Review
2:00 p.m. - 4:00 p.m.
Class No. 5343

March 24 - 26 (3 days)
Livestock and Animal Scales
Class No. 5369
Nashville, TN

March 26 (2 hr)
Webinar - Document Control and Record Keeping
2:00 p.m. - 4:00 p.m.
Class No. 5344

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in numbering; however, updates are published through the NISTIR series of publications with “selected procedures” combined by measurement parameters as shown below and described in subsequent sections.

NISTIR 6969, 2014, *Selected Laboratory and Measurement Practices, and Procedures to Support Basic Mass Calibrations*, Georgia L. Harris.

NISTIR 5672, 2014, *Advanced Mass Calibrations and Measurements Assurance Program for the State Calibration Laboratories*, Kenneth L. Fraley, Georgia L. Harris.

NISTIR 7383, 2013, *Selected Procedures for Volumetric Calibrations*, Georgia L. Harris

NISTIR 8028, 2014, *Selected Laboratory and Measurement Practices and Procedures for Length Calibrations*, Jose A. Torres, Georgia L. Harris

Suggested Action Item: Laboratories need to be sure their Quality Management Systems reference the correct publications, correct dates, and do not reference older or out of date publications in their Master List.

Suggested Action Item: Review and update the Master List to ensure that only procedures used by the laboratory are listed. GMPs, GLPs, and SOPs that don't support the laboratory measurement scope should not be listed.

NISTIR 6969, Selected Laboratory and Measurement Practices, and Procedures to Support Basic Mass Calibrations – Updated September 2014.

The collection of GLPs, GMPs, and SOPs published in this NISTIR were first published in 2003 in association with *SP 1001, Basic Mass Metrology CD-ROM* course. If downloading and using the Basic Mass course, be sure to reference the latest procedures rather than those that are integrated in the program files. This publication was also updated in 2012 with training provided at all of the Regional Measurement Assurance Program training sessions in 2012, where input was collected from laboratories regarding deviations from the procedures. Updates in 2014 included modifications that were appropriate based on laboratory applications of these procedures. Additional content from the OIML R111, *Weights of classes E₁, E₂, F₁, F₂, M₁, M₁₋₂, M₂, M₂₋₃ and M₃, Part 1: Metrological and technical requirements* was incorporated in the 2012 version as well, along with the latest internationally accepted calculations for air density. Updates in 2014 included: 1) removal of all example calculations because prior calculated values were rounded to digits appropriate for handheld calculators but not adequate for computerized calculations, and 2) the addition of detailed uncertainty budget tables for each SOP. Updates were also included to ensure consistency with the content presented in the updated two-week Mass Metrology Seminar.

Key procedures in this publication that were new to the GLP, GMP, and SOP series and not part of the original Handbook 145 include the following:

GMP 11, Assignment and Adjustment of Calibration Intervals for Laboratory Standards

GMP 12, Standard Operating Procedure Selections

April 1 (2 hr)
Webinar - NISTIR 6969, SOP 8, Part 1
2:00 p.m. - 4:00 p.m.
Class No. 5364

April 2 (2 hr)
Webinar - NISTIR 6969, SOP 8, Part 2
2:00 p.m. - 4:00 p.m.
Class No. 5365

April 8 (2 hr)
Webinar - NISTIR 7383, SOP 19 (18) Part 1
2:00 p.m. - 4:00 p.m.
Class No. 5366

April 9 (2 hr)
Webinar - NISTIR 7383, SOP 19 (18) Part 2
2:00 p.m. - 4:00 p.m.
Class No. 5367

April 13 - 17 (5 days)
Handbook 133, “Checking the Net Contents of Packaged Goods,” Basic
Class No. 5362
Indianapolis, IN

April 13 - 16 (4 days)
SEMAP**
Class No. 5357
Tallahassee, FL

April 14 - 16 (3 days)
Train the Trainer
Class No. 5353
NIST/Gaithersburg, MD

April 20 - May 1 (10 days)
Mass Metrology Seminar
Class No. 5374
NIST/Gaithersburg, MD

May 4 - 7 (4 days)
WRAP**
Class No. 5358
Olympia, WA

May 4 - 8 (5 days)
Northeast Weights and Measures Association (NEWMA) Annual Meeting
Saratoga Springs, NY
Contact: James Cassidy,
jcassidy@cambridgema.gov

May 18 - 22 (5 days)
Central Weights and Measures Association (CWMA) Annual Meeting
Columbus, OH
Contact: Sherry Turvey,
sherry.turvey@kda.ks.gov

June 1 - 5 (5 days)
Handbook 133, “Checking the Net Contents of Packaged Goods,” Basic
Class No. 5345
Indianapolis, IN

June 1 - 11 (9 days)
Advanced Mass Seminar (Rev 2015)
Class No. 5349
NIST/Gaithersburg, MD

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GMP 13, Ensuring Traceability

SOP 29, Assignment of Uncertainty

SOP 30, Process Measurement Assurance Program

SOP 33, Calibration of Weights Carts (first published in 2012)

SOP 34, Selection and Use of Sensitivity Weights and Tare Weights in Weighing Procedures (originally published as GMP 14, converted to SOP in 2014)

NISTIR 5672, Advanced Mass Calibrations and Measurements Assurance Program for the State Calibration Laboratories – Updated September 2014.

This publication includes SOPs 5 and 28 that are applicable for advanced dissemination and weighing designs. These procedures reference those in NISTIR 6969 with similar changes in the 2014 versions (examples were removed and uncertainty budget tables were added). Content from this publication is also used in the two-week Mass Metrology Seminar, but the 2014 updates also included the changes to support the Advanced Mass Metrology Seminar that will be presented in June 2015. SOP 5 was originally part of NIST Handbook 145, but SOP 28 was new to address advanced mass calibration methods.

NISTIR 7383, 2013, Selected Procedures for Volumetric Calibrations – April 2013.

This publication and the associated procedures were first published in 2006, again in 2012, and then in 2013 for the updated Volume Metrology Seminar. Updates in 2014 included: 1) removal of all example calculations because prior calculated values were rounded to digits appropriate for handheld calculators but not adequate for computerized calculations, and 2) the addition of detailed uncertainty budget tables for each SOP, just like the procedures for mass calibrations.

A key Standard Operating Procedure that is included in the publication was new to the SOP series in 2006 and underwent significant updates for the 2012 and 2013 versions: SOP 26, Gravimetric Calibration of Dynamic Volumetric Systems used as Standards. SOP 13 and 15 were combined in SOP 14 to maintain one calibration procedure for gravimetric volume calibrations, which was also updated to ensure greater consistency with the uncertainty components used in other international calibration guides. SOP 13 was based on single-pan mechanical balances and SOP 15 was based on equal-arm balances; however, most gravimetric calibrations in the past 20 years have been performed on electronic balances and mass comparators. GLP 10 on the purity of water needed for volume calibrations was updated in 2012 and in 2013 to adopt the latest versions of the internationally accepted water density calculations.

NISTIR 8028, Selected Laboratory and Measurement Practices and Procedures for Length Calibrations – Updated October 2014.

Draft versions of length procedures were presented in 1996, but based on the number of laboratories continuing to perform length calibrations, and limited use of the procedures, limited effort was put into finalizing and publishing the SOPs associated with length. These have now been updated and published.

July 18 - 21 (4 days)
National Conference on Weights and Measures (NCWM) Annual Meeting
Philadelphia, PA
Contact: info@ncwm.net

July 19 - 23 (5 days)
NCSL International Conference 2015
Metrology and the Quality of Life
Grapevine, TX
Information: www.ncsli.org

August 10 - 14 (5 days)
Fundamentals of Metrology
Class No. 5373
NIST/Gaithersburg, MD

August 13 (2 hr)
Webinar - Contract Review
2:00 p.m. - 4:00 p.m.
Class No. 5334

August 17 - 21 (5 days)
Volume Metrology Seminar
Class No. 5356
NIST/Gaithersburg, MD

August 19 - 20 (2 days)
NTEP Grain Analyzer Sector Meeting
Live Web Meeting
Details unavailable at this time.
Information to be posted at:
<https://www.ncwm.net/ntep/sectors/grain-analyzer/registration>

August 25 - 26 (2 days)
Weighing Sector Meeting
Denver, CO
Information at:
http://www.ncwm.net/sems/event_detail/2015_weighing

August 27 (2 hr)
Webinar - Document Control and Record Keeping
2:00 p.m. - 4:00 p.m.
Class No. 5335

September 14 - 17 (4 days)
NEMAP**
Class No. 5359
Needham, MA

September 15 - 16 (2 days)
NTEP Measuring Sector Meeting
Denver, CO
Information at:
<http://www.ncwm.net/meetings/ntep/measuring>

September 16 - 17 (2 days)
NTEP Software Section Meeting
Denver, CO
Information at:
<http://www.ncwm.net/meetings/ntep/software>

September 24 (2 hr)
Webinar - State Laboratory Annual Submission Process**
2:00 p.m. - 4:00 p.m.
Class No. 5355 (continued page 5)

SOP 23 was not part of the original Handbook 145 and covers the calibration of Pi Tapes.

Miscellaneous SOPs and OWM Input

A number of individual publications are in use in the laboratories, and have been through review among the laboratories and by NIST, but have never been officially published. Those procedures include the calibration of tuning forks, timing devices, and thermometers. Additional working groups and efforts will be established to review, update and publish these as a miscellaneous collection of SOPs. If you have suggestions for new SOPs or drafts of procedures that you would like considered for national publication, please submit them to Georgia Harris for review. Questions or comments regarding current calibration procedures may be directed to Georgia Harris at gharris@nist.gov or to Val Miller at val.miller@nist.gov.

New Best Practices Guide Shows Unit Pricing Is a Great Deal

Byline: Mark Esser

In an effort to help shoppers everywhere get the best value for their money, researchers at the National Institute of Standards and Technology (NIST) have produced a best practices guide for the layout and design of unit price labels. Based on the results of a two-year collaboration among industry and consumer groups, the guide can help retailers and governments improve the accuracy and usability of unit pricing information offered in retail stores, and ensure uniformity of unit pricing across participating retailers and states.

Shoppers have seen them before at the grocery store and many other retail outlets where products are sold by some unit of measure such as weight, volume, length, or count. For the most part, unit pricing labels usually display the name and size of the product; the price; the price per unit, e.g., how much you pay per gram or liter or ounce; and other information. Customers can use this information to make value comparisons.

For instance, shoppers wanting to buy a bottle of ketchup might think that buying the larger size will give them the best value, and for the most part that's true. However, stores sometimes levy a surcharge on larger items. Using the unit price labels, a consumer would quite easily be able to see that a 64-ounce bottle of ketchup selling for \$4.49 (\$0.07 per ounce) was not as good of a deal as a 38-ounce bottle selling for \$2.29 (\$0.06 per ounce).

Unit pricing also helps consumers make value comparisons in the age of package "downsizing," a practice where the package content is reduced without changing the price of the product.

Unit pricing has been around since the 1970s. Nine states and the District of Columbia require its use. Another 10 states have stipulated that, if a retailer chooses to use unit pricing labels, they have to use guidelines outlined in the Uniform Unit Pricing Regulation (UUPR) in NIST Handbook 130.

According to NIST researcher David Sefcik, the best practices guide was de-

September 27 - October 1 (5 days)
Western Weights and Measures Association (WWMA) Annual Meeting
Boise, ID
Contact: Jerry Buendel,
jbuendel@agr.wa.gov

September 28 - October 1 (4 days)
SWAP**
Class No. 5360
Columbia or Jefferson City, MO

October 5 - 7
Central Weights and Measures Association (CWMA) Interim Meeting
St. Charles, MO
Contact: Sherry Turvey,
sherry.turvey@kda.ks.gov

October 5 - 8 (4 days)
MidMAP**
Class No. 5361
Madison, WI

October 19 - 23 (5 days)
CaMAP**
Class No. 5372
San Juan, PR

October 19 - 23 (5 days)
HB 133, "Checking the Net Contents of Packaged Goods," Basic
Class No. 5346
Frankfort, KY

October 22 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. - 4:00 p.m.
Class No. 5339

October 26 - November 6 (2 weeks)
Mass Metrology Seminar
Class No. 5340
NIST/Gaithersburg, MD

2016

January 10 - 13
National Conference on Weights and Measures (NCWM) Interim Meeting
San Diego, CA
Information at:
http://www.ncwm.net/sems/event_detail/2016-interim-meeting

February 11 (2 hr)
Webinar - Conducting an Effective Management Review
2:00 p.m. - 4:00 p.m.
Class No. 5336

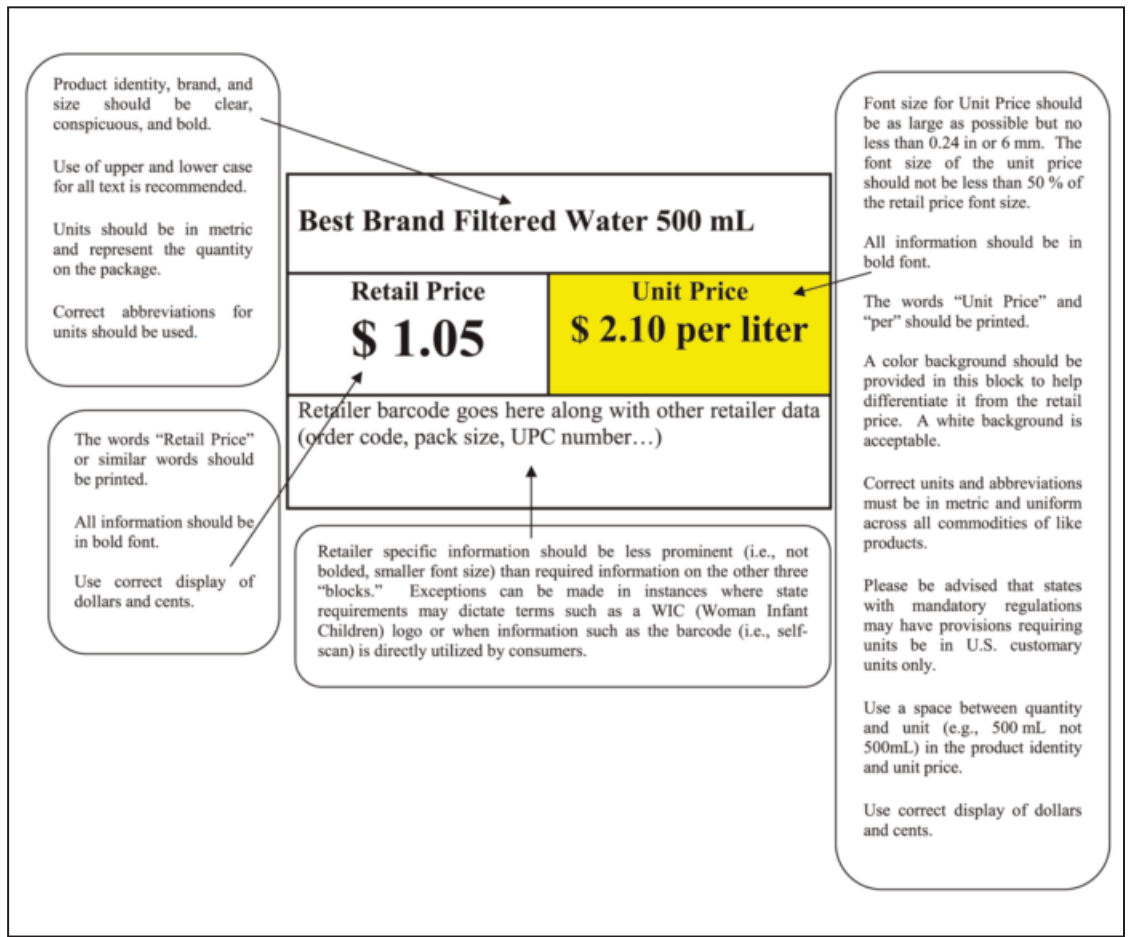
March 3 (2 hr)
Webinar - Internal Auditing Best Practices
2:00 p.m. - 4:00 p.m.
Class No. 5337

*Invitation Only

**Limited to State Laboratory Program Participants

veloped using the existing state mandatory unit pricing regulations, the UUPR from NIST Handbook 130, research and surveys done by Consumer Reports (May 2012 issue), the National Consumers League, the Australian Queensland Consumers Association, a Canadian Report on Unit Pricing, researchers at Michigan State University and the University of South Australia, and the knowledge and expertise of the Unit Pricing Best Practices Workgroup.

The guide will help ensure that unit price labels are as easy to read, informative, and as understandable as possible, which, incidentally, is something that consumers want. And giving consumers what they want turns out to be good for business.



View hi-resolution image: <http://patapsco.nist.gov/imagegallery/details.cfm?imageid=1404>

"Many retailers don't know the extent that consumers like and use unit pricing when it's available," says Sefcik. "And many don't realize how unit price labels could benefit them (the retailers) as well. Retailers that use unit pricing are perceived as being consumer friendly, improving customer satisfaction, and the shopping experience, which keeps customers coming back."

According to the guide, the unit price label has other benefits for retailers, including improved ordering, inventory control, pricing accuracy, and often eliminates the need for item pricing (the little price tag stickers put on the individual items), which saves money.

Unit price labels also can be used to promote special programs such as WIC (Women, Infants and Children), and to display certain kinds of nutritional information such as low-sodium or high-fiber foods.

Their research also revealed that unit pricing promotes and increases sales of store-brand items because they make it easier for consumers to see that they are getting the same amount of a virtually identical product, as compared to another brand, for less money.

"While many grocery stores already use unit pricing labels, there is room for improvement," Sefcik says. He also hopes that the new guide will inspire more retailers, such as auto part stores and drugstores, to adopt them.

Read NIST [Special Publication 1181, Unit Pricing Guide, "A Best Practice Approach to Unit Pricing."](#) (PDF)

Source: *NIST Tech Beat*, February 3, 2015