NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

Interim Meeting of the 91st NCWM

January 22 - 25, 2006
Omni Jacksonville Hotel
Jacksonville, Florida

NCWM Publication 15

National Conference on Weights and Measures

Interim Meeting of the 91st NCWM

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National Conference on Weights and Measures, Inc.
Organization Chart
2005/2006

Board of Directors		
Office Representation	**Name/Affiliation**	**Term Expires**
Chairman:	Don Onwiler, NE*	2006
Chairman-Elect:	Michael Cleary, CA	2006
NTEP Committee Chair:	James Truex, OH*	2006
Treasurer:	Thomas Geiler, MA	2006
Active Membership/Northeastern:	Charles Carroll, MA*	2009
Active Membership/Central:	Judy Cardin, WI	2010
Active Membership/Southern:	Stephen Pahl, TX*	2008
Active Membership/Western:	Joe Gomez, NM	2007
At-Large:	Christopher Guay, Procter & Gamble	2008
At-Large:	Russ Wyckoff, OR	2006
Associate Membership:	Darrell Flocken, Mettler-Toledo	2007
*National Type Evaluation Program (NTEP) Committee Member		
Honorary NCWM President:	Dr. William A. Jeffrey, NIST Director	
NCWM Executive Secretary:	Chief, NIST Weights & Measures Division	
NCWM Executive Director:	Beth Palys, CAE, NCWM Headquarters	
BOD Advisor:	Gilles Vinet, Measurement Canada	
NTEP Director:	Stephen Patoray, NCWM Headquarters	

Committees			
Laws & Regulations Committee		**Specifications & Tolerances Committee**	
Position	**Name/Affiliation (Term Expires)**	**Position**	**Name/Affiliation (Term Expires)**
Chair:	Joe Benavides, TX (2006)	Chair:	Clark Cooney, OR (2006)
Members:	James Cassidy, MA (2007)	Members:	Michael Sikula, NY (2007)
	Vickey Dempsey, OH (2008)		Carol Fulmer, SC (2008)
	Dennis Johannes, CA (2009)		Todd Lucas, OH (2009)
	Stephen Benjamin, NC (2010)		Brett Saum, CA (2010)
Associate Member Rep:	Vincent Orr, ConAgra Foods	Associate Member Rep:	TBD
Canadian Tech Advisors:	Doug Hutchinson	Canadian Tech Advisor:	Ted Kingsbury
	Brian Lemon		
NIST Tech Advisors:	Tom Coleman, NIST/WMD	NIST Tech Advisors:	Richard Suiter, NIST/WMD
	Kathryn Dresser, NIST/WMD		Juana Williams, NIST/WMD

Committees (continued)

Professional Development Committee

Chair:	Celeste Bennett, MI (2006)
Members:	Kenneth Deitzler, PA (2007) Agatha Shields, OH (2008) Gerald Buendel, WA (2009) Richard Wotthlie, MD (2010)
Safety Liaison:	Charles Gardner, NY
Staff Liaison:	Linda Bernetich, NCWM
Associate Member Rep:	Gary Lameris, Hobart Corp.

Metrology Committee

Chair:	TBD
Co-Chair:	TBD
Members:	TBD
NIST Tech Advisor:	Val Miller, NIST/WMD

Nominating Committee

Chair:	Dennis Ehrhart, AZ
Members:	Ross Andersen, NY Maxwell Gray, FL Thomas Geiler, MA Steven Malone, NE Aves Thompson, AK James Truex, OH

Legislative Liaison

Chair:	TBD
Members:	TBD

Credentials Committee

Chair:	Raymond Johnson, NM (2006)
Members:	William Cobb, WV (2007) Mark Buccelli, MT (2008)
Coordinator:	Linda Bernetich, NCWM Staff

Appointed Officers

Parliamentarian:	Aves Thompson, AK
Chaplain:	F. Michael Belue, Belue Associates
Sergeants-At-Arms:	Thomas Malesh, City of Chicago Javier Ortiz, City of Chicago
Presiding Officers:	J. Junkins, WV S. Pedersen, IA B. Timmons, MA Kristen Young, CO

Associate Membership Committee

Chair:	Gary Lameris, Hobart Corporation (2006)
Vice Chair:	Stephen Langford, Cardinal Scale (2007)
Secretary/Treasurer:	Vincent Orr, ConAgra Foods (2008)
Members:	Robert Murnane, Jr., Seraphin Test Measures (2006) William Sveum, Kraft Foods (2007) Darrell Flocken, Mettler-Toledo (2008) Cary Frye, International Dairy Foods Assoc. (2008) Paul Lewis, Rice Lake Weighing Systems (2009) Michael Gaspers, Farmland Foods, Inc. (2009)

Regional Weights and Measures Associations Contacts	
Northeastern Weights and Measures Assn. (NEWMA): Annual Meeting 2006: May 22 - 25 Trump Plaza Atlantic City, NJ	Stephen Agostinelli Town of Barnstable Weights & Measures 200 Main Street (508) 862-4669 steve.agostinelli@town.barnstable.ma.us
Southern Weights and Measures Assn. (SWMA): Annual Meeting 2006: October 22 - 25 Radisson Hotel Annapolis Annapolis, MD	Richard (Will) Wotthlie Maryland Department of Agriculture (410) 841-5790 wotthlrw@mda.state.md.us
Central Weights and Measures Assn. (CWMA): Annual Meeting 2006: April 30 - May 3 Holiday Inn – Dayton Mall Miamisburg, OH	Vicky Dempsey Montgomery County Weights & Measures (937) 225-6309 DempseyV@mcohio.org
Western Weights and Measures Assn. (WWMA): Annual Meeting 2006: September 10 - 14 Radisson Downtown Salt Lake City, UT	Brett Gurney Utah Department of Agriculture & Food (801) 538-7158 bgurney@utah.gov

National Type Evaluation Technical Committees (NTETC)	
Weighing Sector	**Measuring Sector**
Chair: Darrell Flocken, Mettler-Toledo	Chair: Michael Keilty, Endress & Hauser Flowtec AG
NIST Tech Advisor: Steven Cook	NIST Tech Advisor: Richard Suiter
Public Sector Members: Cary Ainsworth, GIPSA Ross Andersen, NY William Bates, GIPSA Andrea Buie, MD Luciano Burtini, Measurement Canada Tina Butcher, NIST/WMD Charles Carter, OK Gary Castro, CA Terry Davis, KS Jack Kane, MT Don Onwiler, NE Ken Jones, CA James Truex, OH James Vanderwielen, GIPSA William West, OH Juana Williams, NIST/WMD Russ Wyckoff, OR	Public Sector Members: Ross Andersen, NY Tina Butcher, NIST/WMD Jerry Butler, NC Gary Castro, CA Steve Hadder, FL Ted Kingsbury, Measurement Canada John Makin, Measurement Canada Steven Malone, NE Dan Reiswig, CA William West, OH Richard Wotthlie, MD
Private Sector Members: Doug Biette, Sartorius North America John Elengo, Contractor Robert Feezor, Norfolk Southern Corp. William GeMeiner, Union Pacific RR David Hawkins, Thurman Scale Co. Scott Henry, NCR John Hughes, Avery Weigh-Tronix, Inc. Rafael Jimenez, Association of American Railroads Gary Lameris, Hobart Corp. Stephen Langford, Cardinal Scale Mfg. Paul Lewis, Rice Lake Weighing Systems Thomas Luna, Scales Unlimited, Inc. L. Edward Luthy, Brechbuhler Scales, Inc. Naresh Puri, NMB Technologies, Inc. David Quinn, Weighing Consultants, Inc. Louis Straub, Fairbanks Scales, Inc. Jerry Wang, A&D Engineering, Inc. Otto Warnlof, Consultant Walter Young, Emery Winslow Scale	Private Sector Members: F. Michael Belue, Belue Associates Joseph Beyer, Liquid Controls Marc Buttler, Emerson Process Management - Micro Motion Joe Buxton, Daniel Measurement & Control Rodney Cooper, Actaris Neptune Maurice Forkert, Tuthill Transfer Systems Mike Gallo, Clean Fueling Technologies Paul Glowacki, Murray Equipment Melvin Hankel, MCH Engineering Assoc. David Hoffman, TopTech Systems Gordon Johnson, Gilbarco, Inc. Yefim Katselnik, Dresser Wayne, Inc. Randal Kretzler, Dresser Wayne, Inc. Douglas Long, RDM Industrial Electronics Wade Mattar, Invensys/Foxboro Richard Miller, FMC Measurement Solution Robert Murnane, Jr., Seraphin Test Measure Andre Noel, Neptune Technology Charlene Numrych, Liquid Controls Johnny Parrish, Brodie Meter Company, LLC David Rajala, Veeder-Root Company Otto Warnlof, Consultant

National Type Evaluation Technical Committees (NTETC) (continued)			
Belt Conveyor Scales Sector		**Grain Analyzer Sector**	
Chair:	TBD	Chair:	Cassie Eigenmann, DICKEY-john Corp.
NIST Tech Advisor:	Steven Cook	Tech Advisors:	G. Diane. Lee, NIST/WMD John Barber, J. B. Associates
Public Sector Members:	Andrea Buie, MD	Public Sector Members:	Randy Burns, AR Tina Butcher, NIST/WMD Don Onwiler, NE Richard Pierce, GIPSA Edward Szesnat, Jr., NY Cheryl Tew, NC Robert Wittenberger, MO
Private Sector Members:	Rafael Jimenez, Assoc. of American Railroads Lars Marmsater, Merrick Industries Bill Ripka, Thermo Electron Peter Sirrico, Thayer Scale - Hyer Industries, Inc. Thomas Vormittag, Sr, SGS Minerals Services Otto Warnlof, Consultant	Private Sector Members:	James Bair, NA Miller's Association Helmut Biermann, Bizerba GmbH & Co KG Martin Clements, The Steinlite Corp. Victor Gates, Shore Sales Company Andrew Gell, Foss North America Charles Hurburgh, Jr., Iowa State University David Krejci, Grain Elevator & Processing Society John Kennedy, Perten Instruments Thomas Runyon, Seedboro Equipment

General Conference Information

Introduction

This document contains the Board of Directors and Standing Committee agendas for the **Interim Meeting of the National Conference on Weights and Measures, Inc.,** (NCWM) scheduled for January 22, 2006, at the Omni Jacksonville, Jacksonville, Florida. To reserve a room, call the hotel directly at (904) 355-6644 and ask for the National Conference on Weights and Measures meeting rate of $81 single/double – prevailing federal government per diem. The reservation cut-off date is December 22, 2005.

Agenda items to be addressed by the Standing Committees are assigned Reference Key numbers as follows:

Committee	Reference Key
Board of Directors	100 series
Laws and Regulations	200 series
Specifications and Tolerances	300 series
Professional Development Committee	400 series
National Type Evaluation Program Committee	500 series

The subject matter listed on each Standing Committee's agenda will be open for discussion as noted. Each committee may also take up routine or miscellaneous items brought to its attention after the preparation of this document. At its discretion, each committee may decide to accept items for discussion that are not listed in this document.

The agendas:

1. Include items brought to the attention of the Standing Committees prior to the submission deadline of November 1, 2005, and approved for inclusion in their agendas by the Committees, and

2. Serve as the basis for the Standing Committee Interim Reports (to be printed in the Program and Committee Reports of the National Conference on Weights and Measures 91st Annual Meeting, NCWM Publication 16). The final reports of the committees will be published in the NIST Special Publication Report of the 91st Annual Meeting of the NCWM, following the Annual Meeting in 2006 scheduled for July 9 - 13 at the Chicago Marriott, Chicago, Illinois.

The Committees have not determined whether the items presented will be voting or informational in nature; these determinations will result from their deliberations at the Interim Meeting.

Special Meetings

Several Annual Committees and other organizations are conducting meetings concurrently with the Standing Committees of the Conference.

Joint Meetings for All Committees

A joint meeting for all committees will be held on Wednesday, January 25, 2006. Each Standing Committee will highlight the major decisions made during the week, and the Nominating Committee will present its report.

Participation

Sunday meetings are scheduled for Committee members to review their agendas (see the particular committee agenda for details). Although the sessions are open to all delegates, participation in discussions during agenda reviews is normally limited to Committee members. Comments and input are welcome when specific topics are scheduled in the Committee agendas.

All sessions of NCWM meetings are normally open to members of the Conference. If a Committee chairman recognizes a special situation involving a proprietary issue (e.g., NTEP appeals) or sensitive issue or other substantive need, that portion of the session dealing with the special issue may be closed, provided that: (1) the Conference chairman (or in his absence the chairman-elect) approves, and (2) announcement of the closed meeting is posted on or near the door to the meeting session and on the announcement board at the registration desk. If at all possible, the posting will be done at least a day prior to the planned closed session. Please note that the one-day notice will not always be possible if a closed meeting is called on Sunday. Since Sunday is a day for agenda reviews and participants may make their travel reservations in order to observe these agenda reviews, if a closed meeting becomes necessary on Sunday, every effort will be made to limit such a meeting to only part of the day.

To request an appearance with a Standing Committee, contact the appropriate technical advisor by December 31, 2005:

Board of Directors	Chief, Weights & Measures Division	(301) 975-4004
Laws and Regulations Committee	Kathryn M. Dresser	(301) 975-3289
Specifications & Tolerances Committee	Juana Williams or	(301) 975-3989
	Richard Suiter	(301) 975-4406
Professional Development Committee	Celeste Bennett	(517) 655-8202
National Type Evaluation Program Committee	Steve Cook	(301) 975-4003

You may also contact the Executive Secretary at the following address and telephone number:

Weights and Measures Division
National Institute of Standards and Technology
100 Bureau Drive, STOP 2600
Gaithersburg, MD 20899-2600
Telephone: (301) 975-4004

Contact for More Information

If you have questions about the program, registration, lodging, or meeting arrangements, contact NCWM Headquarters at the following address and telephone number:

National Conference on Weights and Measures
15245 Shady Grove Road, Suite 130
Rockville, MD 20850
Telephone: (240) 632-9454

Reports

There will **not** be a transcript made of the proceedings of the Interim Meetings. Each committee will prepare its report to the NCWM containing its recommendations based upon the presentations, discussions, and deliberations on all matters on its agenda that were addressed during the Interim Meetings. These reports will be published in the Committee Reports for the 91st Annual Meeting, NCWM Publication 16, to be mailed to the NCWM membership in May 2006.

91st Annual Meeting of the National Conference on Weights and Measures

The National Conference on Weights and Measures 91st Annual Meeting will be held at the Chicago Marriott Hotel, Chicago, Illinois, from July 9 - 13, 2006. The room rate for the Annual Meeting will be $155 per night (Federal Government per diem), single or double, plus tax. For reservations please call the hotel at (312) 836-0100. The reservation cut-off date is Friday, June 9, 2006.

Units of Measurement

In keeping with the provisions of the Omnibus Trade and Competitiveness Act of 1988, which establishes the metric system as the preferred system of measurement for commerce and trade, units of the metric system have been used in this document, except where industry has not yet converted from the inch-pound system. In some instances, proposals are quoted in the Committee agendas; they may appear in inch-pound units only.

2006 NCWM Interim Meeting Agenda

January 22 - 25, 2006
Omni Jacksonville Hotel ♦ Jacksonville, FL
(as of November 3, 2005)

SCHEDULE

Saturday, January 21

8:30 a.m. - 5:00 p.m.	Board of Directors Meeting

Sunday, January 22

8:30 a.m. - 5:00 p.m.	Registration and Tabletop Exhibits
	OTHER MEETINGS
9:00 a.m. - 11:00 a.m.	Industry Committee on Packaging & Labeling
11:00 a.m. - 12:00 p.m.	Associate Membership Committee
12:00 p.m. - 1:00 p.m.	Lunch on your own
	STANDING COMMITTEES REVIEW SESSIONS
1:00 p.m. - 5:00 p.m.	Board of Directors/NTEP Committee Laws & Regulations Committee Professional Development Committee Specifications & Tolerances Committee
5:30 p.m. - 7:00 p.m.	Chairman's Reception

Monday, January 23

7:30 a.m. - 9:00 a.m.	Morning Coffee
7:30 a.m. - 5:00 p.m.	Registration and Tabletop Exhibits
8:30 a.m. - 5:00 p.m.	**STANDING COMMITTEES OPEN HEARINGS** *(Note: Times of hearings are not firm; when one committee finishes, the next committee will begin)* Board of Directors/NTEP Committee Laws & Regulations Committee Professional Development Committee Specifications & Tolerances Committee
12:00 p.m. - 1:00 p.m.	Lunch on your own

2006 NCWM Interim Meeting Agenda

January 22 - 25, 2006
Omni Jacksonville Hotel ♦ Jacksonville, FL
(as of November 3, 2005)

Tuesday, January 24

7:30 a.m. - 9:00 a.m.	Morning Coffee
7:30 a.m. - 5:00 p.m.	Registration and Tabletop Exhibits
8:30 a.m. - 12:00 p.m.	**STANDING COMMITTEES OPEN HEARINGS** *(Note: Times of hearings are not firm; when one committee finishes, the next committee will begin)* Board of Directors/NTEP Committee Laws & Regulations Committee Professional Development Committee Specifications & Tolerances Committee **TECHNICAL SESSION** Improving the Standards Development Process: Review Panel Procedures Discussion Each committee will begin its individual work sessions at the conclusion of the Open Hearing/Technical Session.
12:00 p.m. - 1:00 p.m.	Lunch on your own
1:00 p.m. - 5:00 p.m.	**STANDING COMMITTEES WORK SESSIONS** Board of Directors/NTEP Committee Laws & Regulations Committee Professional Development Committee Specifications & Tolerances Committee

Wednesday, January 25

7:30 a.m. - 9:00 a.m.	Morning Coffee
8:30 a.m. - 11:00 a.m.	**STANDING COMMITTEES WORK SESSIONS** Board of Directors/NTEP Committee Laws & Regulations Committee Professional Development Committee Specifications & Tolerances Committee
11:00 a.m. - 12:00 p.m.	**JOINT MEETING – ALL STANDING COMMITTEES**

NOTE: 2006 Interim Meeting schedule of events is tentative and subject to change.

Board of Directors
Interim Agenda

Don Onwiler
Program Manager, Division of Weights and Measures
Nebraska Department of Agriculture

INTRODUCTION

The Board will hold its quarterly Board of Directors meeting on Saturday, January 21, 2006, and continue that meeting during work periods throughout the remainder of the Interim Meetings. Except when posted, all meetings are open to the membership. The Board of Directors and NTEP Committee will hold open hearings at the Interim Meeting and members will be invited to engage in dialogue with the Board on issues the Board and NTEP Committee have on their agenda. The Board of Directors is currently working on the following issues: conformity assessment, NCWM voting procedures, the use of work groups, the National Training Program, and participation internationally, i.e., International Organization on Legal Metrology (OIML), the OIML Mutual Acceptance Arrangement (MAA) the Canadian Forum on Trade Measurement (CFTM), the Asia-Pacific Legal Metrology Forum (APLMF), and U.S. National Work Groups.

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Monday, January 23

During the Board of Directors/NTEP Committee's Open Hearing, the membership is invited to provide feedback on the following issues:

Details of all Items
(In order by Reference Key Number)

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1. Improving Standards Development

Technical issues forwarded to the NCWM standing committees appear in various stages of development and degrees of technical complexity. The following are some of the concerns that have been raised regarding the NCWM's ability to properly develop such issues:

- The NCWM may need to draw in additional technical expertise on occasion.
- More outreach may be necessary to inform stakeholders.
- Development of issues needs to occur throughout the year, not just at Annual and Interim meetings.
- New proposals need proper development and supporting documentation prior to reaching standing committees.

The NCWM and NIST have developed a plan to address these concerns in an effort to improve the NCWM standards development process. A Review Panel has been formed to study all new items forwarded to the NCWM standing committees. The Panel will assess the needs of each new item to gain proper development and consensus within the NCWM. For each new proposal, the Panel will provide the standing committee with a recommendation for the proper course of action. Recommendations may include utilizing a work group of experts, returning the item to the source for further development, developing the item through the routine open hearings of the NCWM and regional associations, etc.

Don Onwiler and Henry Oppermann presented this plan at the 2005 NCWM Annual Meeting and at the 2005 Annual Meetings of each of the regional associations. The NCWM will give the plan a trial run in the fall of 2005. All new proposals forwarded to the NCWM standing committees for consideration at the 2006 Interim Meeting will be assessed by the Review Panel and recommendations will be provided to the standing committees. The recommendations will be posted on the NCWM website and be made available to Interim Meeting attendees. They will be included in NCWM Publication 16 and become part of the NCWM Annual Report following the Annual Meeting.

A panel discussion will be held on Tuesday, January 24, following open hearings of the standing committees. This will provide an opportunity to address questions or concerns and learn how the plan may be improved.

2. Marketplace Surveys

The NCWM is planning to conduct a market survey in the coming year. Market surveys are a method used to benchmark levels of compliance and will provide a tool to evaluate the effect of weights and measures presence in a given area of regulation. Surveys can be done on a specific device type, on net quantity verification of various commodities, scanner accuracies, tare on sales from bulk, etc. The BOD hopes jurisdictions may be able to use this data to demonstrate the need for sufficient funding for a comprehensive weights and measures program.

The NCWM will follow NCWM Protocol for National Surveys. There is a team in place within the Board that is making decisions regarding the direction of our first survey. NIST has also pledged involvement to the degree that it will coordinate and present training as needed to officials who participate in the survey. This will ensure uniform methods of testing, documenting, and reporting results.

3. Meetings

Interim Meetings

January 21 - 24, 2007	Omni Jacksonville, Jacksonville, FL
January 27 - 30, 2008	Hyatt Regency Albuquerque, Albuquerque, NM

Annual Meetings

July 9 - 13, 2006	Chicago Marriott, Chicago, IL
July 8 - 12, 2007	Snowbird Resort, Salt Lake City, UT
July 13 - 17, 2008	Sheraton Burlington Hotel & Conference Center, Burlington, VT

4. Membership Marketing

The Board recognizes the need to address membership and meeting attendance. The NCWM management company, MSP, has hired Judy Markoe to assist the various associations it serves to gain public recognition and membership. Judy met with the Board of Directors during its 2005 Fall Meeting, and she will present a marketing plan to the Board at the 2006 Interim Meeting. The plan is intended to increase public awareness of the NCWM and weights and measures activities. The Board is hopeful that the regional associations will also realize some of the benefits reaped by the NCWM.

5. NCWM Website – www.ncwm.net

Many positive comments have been received regarding recent improvements to the NCWM website. The site continues to evolve in order to better serve the members and gain the interest of first-time viewers. As always, the Board is accepting suggestions to further improve the website.

One suggestion is to include mailing addresses in the Membership Directory. This directory is available through the "Members Only" portion of the website. Currently, this section provides members' names, company affiliation, city, state, phone, fax, and email. Mailing addresses have not been provided to protect members from unwanted solicitation. The Board is accepting input from members prior to making this decision.

6. Electronic Copies of NCWM Publication 14

At the request of our industry membership, the NCWM has developed an electronic version of Publication 14 and made it available on CD. The CD contains Publication 14 Administrative Policy and all NTEP technical policies, checklists and test procedures. An order form is available on the NCWM website at www.ncwm.net.

7. Mutual Acceptance Arrangements

The purpose of Mutual Acceptance Arrangements is to establish bilateral and multilateral agreements. Under such agreements and arrangements, manufacturers would be able to submit their equipment to any of the participating countries for testing to OIML-recommended requirements. The resulting test data would be accepted by other participants as a basis for issuing each country's own type approval certificate.

NTEP Director, Stephen Patoray attended an MAA Seminar for Assessors September 5 - 6, 2005. During this seminar, Mr. Patoray provided the attendees an overview of the additional requirements in the United States for both OIML R76 and R60. He will update the attendees at the 2006 NCWM Interim meeting regarding the current status of the MAA and other developments. The next scheduled meeting of the Committee on Participation Review (CPR) for R76 and R60 is scheduled for March 7 - 10 in Sydney, Australia.

The NTEP Committee discussed the MAA during the fall 2006 NTEP Committee meeting. Based on previous input from the NCWM membership and other discussions on this topic, the NTEP Committee believes the United States should be a Country A (issuing participant) with full laboratory capabilities for OIML R76 "non-automatic weighing instruments" and should not participate in a Declaration of Mutual Confidence (DoMC) as a Country B (utilizing participant) for R76. However, the NTEP Committee recognizes that currently there are no identified resources available to be able to move forward with a laboratory for R76 at this time.

The NTEP Committee discussed the NIST Force Group's position not to participate as a testing laboratory for OIML R60 "load cells." The Committee also recognizes relatively few load cell evaluations are requested on an annual basis.

It would not be reasonable to invest in such laboratory facilities, as the costs of doing so are not justified by the demand for services.

8. Participation in International Standard Setting

As the international community continues to draw closer together in legal metrology issues, the NCWM is receiving requests for participation at various meetings and conferences. The NTEP director is participating in international meetings of the Committee on Participation Review (CPR) for the Mutual Acceptance Arrangements for R60 and R76. The NCWM has also received an invitation to attend the Milestones Metrology Congress in May 2006 in the Netherlands to speak on the philosophy of the United States in the MAA process, explain the NCWM system, and provide a broad understanding of our legal metrology system.

The Board discussed identifying appropriate individuals to represent the NCWM in the international arena based on the nature of the event and the type of input requested. NCWM participation is primarily requested for one of two reasons:

1) To provide technical input on standards alignment or mutual recognition of testing data, or
2) To provide insight into the legal metrology system of the United States.

It is the decision of the NCWM Board of Directors that the NTEP director will continue to represent U.S. interests in the international arena as it pertains to technical discussions. It will be the role of the NCWM chairperson or the chairperson's designated appointee to represent the United States in the international arena when the purpose is to represent the U.S. legal metrology system.

Don Onwiler, Nebraska, NCWM Chair
Michael Cleary, California, NCWM Chairman-Elect
Jim Truex, Ohio, NTEP Committee Chair
Judy Cardin, Wisconsin
Charles Carroll, Massachusetts
Tom Geiler, Town of Barnstable, Massachusetts
Joe Gomez, New Mexico
Stephen Pahl, Texas
Russell Wyckoff, Oregon
Christopher B. Guay, Procter & Gamble Co.
Darrell Flocken, Mettler-Toledo, Inc.
NCWM Staff: Beth Palys, CAE
NIST: Chief, Weights and Measures Division

Board of Directors

Appendix A

Report on the Activities of the International Organization of Legal Metrology (OIML) And Regional Legal Metrology Organizations

Weights and Measures Division, NIST

The Weights and Measures Division (WMD) of the National Institute of Standards and Technology (NIST) is responsible for coordinating U.S. participation in OIML and other international legal metrology organizations. Learn more about OIML at the OIML website at http://www.oiml.org and the WMD website at http://www.nist.gov/owm on the Internet. Dr. Charles Ehrlich, Group Leader of the ILMG, can be contacted at charles.ehrlich@nist.gov or at (301) 975-4834 or by fax at (301) 926-0647.

Please note: OIML publications are available without cost at http://www.oiml.org

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II. Mutual Acceptance Arrangement (MAA) on OIML Type Evaluations
III. Report on the 40th Meeting of the International Committee of Legal Metrology (CIML)

I. Report on the Activities of the OIML Technical Committees

This section reports on recent activities and the status of work in OIML Technical Committees (TCs) and Technical Subcommittees (SCs) of specific interest to members of the NCWM. Also included are schedules of future planned activities of the Secretariats, the U.S. National Work Groups (USNWGs), and the International Work Groups (IWGs) of the Committees and Subcommittees.

TC3/SC1 "Pattern Approval and Evaluation" (United States)
The subcommittee approved the U.S. proposal for a combined revision of OIML D19 "Pattern evaluation and pattern approval" and D20 "Initial and subsequent verification of measuring instruments and processes" into a single document entitled "Principles of metrological control of measuring instruments: type approval and verification." Key elements of OIML D3 "Legal Qualification of Measuring Instruments," R34 "Accuracy Classes of Measuring Instruments," and R42 "Metal Stamps for Verification Officers" will also be incorporated into the combined revision of OIML D19 and D20. The revised documents will incorporate recent developments such as the OIML certificate system, D27 "Initial verification of measuring instruments utilizing the manufacturer's quality management system," and the "Framework for a mutual acceptance arrangement (MAA) on OIML type evaluations." Consideration will be given to the appropriate conformity assessment options developed by the ISO Council Committee on Conformity Assessment (ISO CASCO), including quality systems, product certification, and accreditation. Consideration needs to be given as well to information technology and statistical methods to increase or decrease verification intervals based upon proven instrument performance. For more information on this activity, contact Dr. Ambler Thompson at (301) 975-2333 or at ambler@nist.gov.

TC5/SC2 Software (Germany and France)
In May 2004, all OIML TCs and SCs that were revising an OIML Recommendation were contacted to ensure that software aspects are considered in revised Recommendations. All OIML Documents and Recommendations published since 1990 were reviewed for terms and requirements related to software. A pre-draft of the document "Software in Legal Metrology" was circulated in October 2004 by the Secretariat. This document will serve as guidance for OIML technical committees addressing software requirements in Recommendations for software-controlled instruments. The ILMG submitted U.S. comments on the pre-draft in February 2005, and the U.S. is waiting for the 1st CD of this document. Please contact Wayne Stiefel at (301) 975-4011 or at stiefel@nist.gov if you would like to participate in this project.

TC8/SC1 "Static Volume and Mass Measurement" (Austria)
The Secretariat submitted 1st CD revisions in January 2005 for OIML R71 "Fixed Storage Tanks," R80 "Road and Rail Tankers," and R85 "Automatic Level Gages for Measuring the Level of Liquid in Fixed Storage Tanks." U.S comments, including those of the American Petroleum Institute, on all three of these documents were sent in April 2005. The Secretariat held a subcommittee meeting in April 2005 in Vienna, Austria. The U.S. is waiting for the 2nd CD of all of these documents, and another meeting of the subcommittee is scheduled for March 2006. Please contact Wayne Stiefel at (301) 975-4011 or at stiefel@nist.gov if you would like copies of the documents or to participate in these projects.

TC8/SC3 "Measuring Instruments for Liquids other than Water." (Germany) and TC8/SC4 "Dynamic Mass Measurements (Liquids other than Water)" (United States)
OIML R117 "Measuring Instruments for Liquids other than Water" is undergoing an extensive revision, incorporating new instrument technologies and merging the document with OIML Recommendations R86 "Drum Meters" and R105 "Mass Flowmeters." This is a high priority project for OIML. ILMG is working with the U.S. National Work Group on flowmeters, Germany, and the Netherlands on this effort. Meetings of the U.S. National Work Group on flowmeters were held during the NCWM Interim Meeting in January 2005 in Santa Monica, CA, and the NCWM Annual Meeting in July 2005 in Orlando, FL. Measurement Canada has been a strong contributor to this effort. A 2nd CD of R117 was circulated to the two international subcommittees and received over 90 % international "yes" votes. The Draft Recommendation (DR) was circulated to OIML member nations in 2005 with an objective of receiving full CIML approval on R117 in 2006. If you have questions or would like to become involved in this effort, please contact Ralph Richter (301) 975-4025 or at ralph.richter@nist.gov.

TC8/SC7 "Gas Metering" (Belgium and France)
The Secretariat circulated a 3rd CD of the Recommendation "Measuring Systems for Compressed Natural Gas (CNG) for Vehicles" and annexes covering performance tests for electronic devices and basic test procedures. In April 2003, the United States cast a negative ballot on the 3rd CD because the testing requirements were considered to be unrealistic. A 4th CD is being prepared by the Secretariat.

A ballot was circulated on the 4th CD "Measuring Systems for Gaseous Fuel" and U.S. comments were returned in November 2005. This Recommendation is intended for large pipelines with large flowrates and high operating pressures, or systems not fitted with diaphragm gas meters. Different types of measuring systems are covered by the Recommendation: measuring systems providing indications of volume at base conditions or mass converted from a volume of gas determined at metering conditions, measuring systems providing directly the mass of gas, and measuring systems providing indication of energy corresponding to a volume at base conditions or a mass of gas. The United States voted "no" on the 3rd CD of this document in June 2004, finding that many sections needed clarification and the test requirements needed to be improved. Please contact Wayne Stiefel at (301) 975-4011 or at stiefel@nist.gov if you would like to obtain a copy of these documents or to participate in these projects.

TC8/SC8 "Gas Meters" (Netherlands)
Based on a poll of TC8/SC8 members, R6 "General provisions for gas volume meters," R31 "Diaphragm Gas Meters", and R32 "Rotary Piston Gas Meters and Turbine Gas Meters" were revised and combined into a single Recommendation. The Secretariat circulated a 2nd CD of this document, and U.S. comments were returned in March 2005. A subcommittee meeting to discuss the document was held in June 2005 in the Netherlands. Comments on a 3rd CD of this document are due to the Secretariat in January 2006. Please contact Wayne Stiefel at (301) 975-4011 or at stiefel@nist.gov if you would like to participate in this project.

TC9/SC1 "Nonautomatic Weighing Instruments" (Germany and France)
The current review cycle of R76 "Non-automatic Weighing Instruments" is of major importance to U.S. interests because the Recommendation serves as the foundation for a majority of the laws and regulations that governs weighing instruments around the world. This review is significant for U.S. weighing instrument manufacturers because international harmonization of requirements would eliminate technical barriers to trade and reduce the delays and the cost of getting new weighing instruments into the global marketplace. The United States returned comments on the 1st CD of the revised R76 in April 2005. The revision included new language addressing metrological controls for type evaluations, conformity, and initial and subsequent inspections. The USNWG held a meeting in July 2005 and is being consulted concerning proposals to harmonize Handbook 44 and R76. A 2nd CD was circulated to the USNWG, and the U.S. vote and comments are to be returned to the Secretariat in January 2006. If you would like to participate in this effort, please contact Steve Cook at (301) 975-4003 or steven.cook@nist.gov.

TC9/SC2 "Automatic Weighing Instruments" (United Kingdom)
The Recommendation R134-1 "Automatic Instruments for Weighing Road Vehicles in Motion – Total Load and Axle Weighing" is having its final comments incorporated and should be published in early 2006. The test report format of this document, R134-2, has been distributed in the United States and comments are due to the Secretariat in January 2006. Two other documents in this subcommittee are now starting their review cycle. The United States has returned comments on earlier working drafts (WD) of both R106 "Automatic Rail-weighbridges" and R107 "Discontinuous Totalizing Automatic Weighing Instruments (Totalizing Hopper Weighers)." If you would like to receive copies of any of these documents or work on these projects, please contact Richard Harshman at (301) 975-8107 or at harshman@nist.gov.

TC17/SC1 "Humidity" (China)
The Secretariat (China) is working closely with the United States and a small international work group (IWG) to revise OIML R59 "Moisture Meters for Cereal Grains and Oilseeds." All drafts have been distributed to the U.S. National Work Group, which for the most part is a subset of the NTEP Grain Sector. In October 2003 China hosted a meeting of the TC17/SC1 subcommittee in Beijing to review and discuss this revised document. A 2nd CD that incorporated U.S. comments was circulated in May 2004 by the Secretariat. A meeting of the IWG was held in Paris in September 2004 to resolve conflicts on the document. U.S. comments on the 3rd CD of R59 were returned to the Secretariat in August 2005 and are being incorporated into the next draft. Please contact Diane Lee at (301) 975-4405 or at diane.lee@nist.gov if you would like to participate in this work group.

TC17/SC8 "Quality Analysis of Agricultural Products" (Australia)
A new subcommittee has been formed to study the issues and write a working draft document "Measuring Instruments for Protein Determination in Grains." Australia is the Secretariat for this new subcommittee. A work group meeting was held in May 2004 in Sydney. A 2nd WD of this document was received in August 2004, and a 3rd WD was received in May 2005. A work group meeting was held in June 2005 in Berlin to discuss the latest round of comments on the 3rd WD. Please contact Diane Lee at (301) 975-4405 or at diane.lee@nist.gov if you would like to participate in this work group.

II. Mutual Acceptance Arrangement (MAA) on OIML Type Evaluations

The OIML MAA has now entered the implementation phase. The first "provisional" Committee on Participation Review (CPR) has been established for OIML R60 (Load Cells) and R76 (Non-automatic Weighing Instruments). The CPR is being called 'provisional' to reflect the fact that the participants are under no obligation to sign either of the Declarations of Mutual Confidence (DoMCs) that are expected to result.

The first meeting of the CPR was held June 15 - 16, 2005, in Lyon, France, in conjunction with the 40th CIML Meeting and the 50th Anniversary Celebration of OIML. Mr. Stephen Patoray represented the NCWM, Mr. Steve Cook represented the Secretariat of OIML TC9 responsible for OIML R60, and Dr. Charles Ehrlich represented the Secretariat for OIML TC3/SC5 responsible for the MAA. Twenty-one countries had representatives at the meeting, with eight of the countries indicating interest in participating as an 'Issuing Participant' for at least one of the two DoMCs. (An 'Issuing Participant' is one that performs tests and issues certificates under the DoMC.) The CPR reviewed the application files of the eight countries wishing to be Issuing Participants, and decided that two of the countries needed to have peer reviews conducted. (For reasons of confidentiality, no countries are being identified by name until the DoMC is signed.) A Seminar (training course) for peer review assessors was held on September 5 - 6, 2005, in Paris, and the peer reviews are expected to be completed by January 2006. Signing of the DoMCs for R60 and R76 is envisioned for 2006, after the second CPR meeting, to be held in March 2006 in Sydney. At that time countries who do not sign at least one of the DoMCs will no longer be members of the CPR (the CPR will then no longer be 'provisional'). It was proposed that countries may subsequently apply to join the CPR during two specified periods per year (the CIML is voting on this with a deadline of December 15, 2005).

Also at the first CPR meeting, a draft 'Operating Rules for CPRs' was discussed, and it was agreed among CPR members that an 80 % voting rule would apply, with no more than one negative vote from an 'Issuing Participant' allowed. The 'Operating Rules', containing this and other proposals, will be put forward to the CIML for postal vote. A draft implementation document on using ISO/IEC 17025 (requirements for testing laboratories), to be used for conducting the legal metrology audits, was also discussed. Another implementation document on ISO Guide 65

(requirements for issuing authorities) was circulated to the CPR for comment after the meeting. These implementation documents are being distributed as Working Drafts to OIML TC3/SC5 to be developed as OIML Documents.

The NCWM Board of Directors (BOD) had indicated to the International Bureau of Legal Metrology (BIML) its desire to participate on the CPR, primarily to help answer many of the NCWM's questions and concerns, and realized that many details regarding the implementation of the MAA will be developed through discussions of the CPR. The NCWM also indicated to the BIML that the NCWM anticipated it would sign a DoMC only when it is prepared to do so as an OIML Issuing Authority that issues test data and OIML Certificates under the MAA (i.e., as an Issuing Participant). The BIML allowed the NCWM to participate on the CPR under this arrangement. In order not to pay the 1500 Euro fee for "examination of their candidacy" as an Issuing Participant, the United States has for now been considered as a country that will not issue OIML Certificates under the MAA, but rather will utilize those issued by other countries (a 'Utilizing Participant'). This arrangement could change as negotiations continue and the CPR discussions advance. At the July 2005 Annual Meeting in Orlando, the Board began considering whether NCWM should be a Utilizing Participant for R60 since all of the necessary load cell testing capability to be an Issuing Participant is not available in the United States. A final decision is anticipated at the January 2006 Interim Meeting in Jacksonville, FL.

At the meeting in Berlin, Germany, in 2004, the CIML instructed OIML TC3/SC5 to start revising both publication B10-1 (*MAA*) and publication B3, "OIML Certificate System for Measuring Instruments" after some experience with the MAA has been gained. Further implementation of the MAA may require that other detailed regulations be developed.

For further information on the MAA and its implementation, please contact Dr. Charles Ehrlich at charles.ehrlich@nist.gov or at (301) 975-4834 or by fax at (301) 975-5414.

III. Report on the 40th Meeting of the International Committee of Legal Metrology (CIML) (held June 2005)

The 40th CIML meeting was held in conjunction with the 12th International Metrology Congress, June 18 – 20, 2005, in Lyon, France. Representatives from 52 OIML member states participated in the meeting that also included a celebration of the 50th Anniversary of OIML.

Opening addresses at the meeting were given by both the (outgoing) Acting CIML President Manfred Kochsiek (Germany) and the recently elected CIML President Alan Johnston (Canada). Discussions at the meeting included concerns on implementing new financial regulations at the BIML, activities of the Presidential Council, and the OIML long-term strategy and action plan. A report was given on the activities of the Permanent Work Group on Developing Countries. Dr. Steve Carpenter, Director of the NIST Office of International and Academic Affairs, represented the United States on the Work Group. Reports were also given by representatives of several liaison organizations (such as BIPM and ISO) and several Regional Legal Metrology Organizations (such as SIM and APLMF).

The BIML director gave a presentation on the organization and activities of the Bureau. Another presentation concerned efforts of the BIML to improve communication, coordinate the production of OIML publications, and improve the OIML website.

Technical Activities
The Committee decided:

- to disband and discontinue the work of TC 10/SC 6 *Strain gauges*,
- to merge TC8/SC1 Static volume measurement and TC8/SC2 Static mass measurement under the Co-secretariat of Austria and Germany with the title TC8/SC1 Static volume and mass measurement, (disbanding the old TC8/SC2),
- to allocate the Secretariat of TC10/SC3 Barometers to China,
- to withdraw the following work projects:
    - TC 7/SC 1: p 1 revision R 30 *End standards of length (gauge blocks)*,
    - TC 10/SC 4: p 2 *Requirements for force measuring instruments for verifying material testing machines* in favor of the utilization of ISO 376,
    - TC 17/SC 6: p 1 *Calibration procedure for mine methanometers* and p 2 *Procedure for calibration of alarms of combustible gasses and vapors*.

The Committee approved the proposal from TC3/SC5 to use the Guides for the application of ISO 17025 and Guide 65 drawn up by the CPR on R60 and R76 as a first Working Draft and to proceed with their development following the Directives for Technical Work. The Committee authorized the BIML, together with the TC4 Secretariat (Slovakia), to decide together with ILAC on the best way of publishing the revised D10 *Recalibration intervals for measuring equipment used in testing laboratories*. The Committee instructed the BIML to organize a meeting with the Secretariats of TC8/SC7 and TC8/SC8 (*Gas Meters*) and to redefine the scope of these Subcommittees' projects so as to avoid unnecessary discrepancies and the duplication of work.

The Committee took note of a report presented by Mrs. Gaucher, MAA Project Leader at the BIML, showing the progress in the implementation of the MAA and the outcome of the first CPR Meeting. *[Details on the MAA and the CPR are given in the MAA section of this report.]*

The Committee elected Mr. Stuart Carstens (South Africa) for a six-year term as First Vice-President. He will take over his duties immediately. President Kochsiek (Germany) will remain Vice-President until the 41st CIML Meeting in 2006. The Committee approved the renewal of the contract of Mr. Magaña as BIML Director from January 1, 2006, to December 31, 2010. A new Assistant Director will be appointed in 2007, and a selection committee for that position was chosen; Dr. Ehrlich is on the selection committee.

Future CIML Meetings
The 41st CIML Meeting will be hosted by South Africa in Capetown in October 2006. The Committee noted that the People's Republic of China was considering inviting the CIML to hold its 42nd Meeting in China in October 2007. A decision on this will be made at the 41st CIML Meeting.

Appendix B

Interim Agenda of the Associate Membership Committee (AMC)

Gary Lameris, Hobart Corporation

- Call to Order
- Financial Condition
- NCWM Board of Director's Report

  Darrell Flocken
- AMC Fund Disbursement Requests

  Report on Difficulties in Using the Training Funds

  Special Event

  AMC Reserve

  Training Requests
- Agenda Review Report

  Gordon Johnson

  Lou Straub

  Mark Galletta
- New Business
- Adjourn

Gary Lameris, Hobart Corporation, Chair
Stephen Langford, Cardinal Scale, Vice Chair
Vincent Orr, ConAgra Foods, Secretary/Treasurer

Robert Murnane, Jr., Seraphin Test Measures
William Sveum, Kraft Foods
Darrell Flocken, Mettler-Toledo
Cary Frye, International Dairy Foods Assoc.
Paul Lewis, Rice Lake Weighing Systems
Michael Gaspers, Farmland Foods, Inc.

Associate Membership Committee

Laws and Regulations Committee
Interim Agenda

Joe Benavides, Chairman
Texas Weights and Measures

Reference
Key Number

200 INTRODUCTION

The Laws and Regulations Committee (Committee) will address the following items at its Interim Meeting. Table A identifies agenda items by Reference Key Number, title, and page number. The first three digits of the Reference Key Numbers of the items are assigned from the subject series listed below. The fact that an item may appear on the agenda does not mean it will be presented to the NCWM for a vote, The Committee may withdraw some items, present some items for information and further study, issue interpretations, or make specific recommendations for changes to the publications listed below. The recommendations presented in this agenda are statements of proposal and not necessarily recommendations of the Committee. The appendices to the report are listed in Table B.

This agenda contains recommendations to amend National Institute of Standards and Technology (NIST) Handbook 130, "Uniform Laws and Regulations," 2006 edition, and NIST Handbook 133, "Checking the Net Contents of Packaged Goods," Fourth Edition. Revisions proposed for the handbooks are shown in **bold face print** by ~~crossing out~~ information to be deleted and <u>underlining</u> information to be added. Additions proposed for the handbooks are designated as such and are shown in **bold face print**. Proposals presented for information only are designated as such and are shown in *italic* type. "SI" means the International System of Units. "FPLA" means the Fair Packaging and Labeling Act. The section mark, "§," is used in most references in the text and is followed by the section number and title, (for example, Section 1.2. Weight). When used in this report, the term "weight" means "mass."

Subject Series

Introduction ..... 200 Series
NIST Handbook 130 – General ..... 210 Series

Uniform Laws ..... 220 Series
Weights and Measures Law (WML) ..... 221 Series
Weighmaster Law (WL) ..... 222 Series
Engine Fuels, Petroleum Products, and Automotive Lubricants Inspection Law (EFL) ..... 223 Series

Uniform Regulations ..... 230 Series
Packaging and Labeling Regulation (PLR) ..... 231 Series
Method of Sale Regulation (MSR) ..... 232 Series
Unit Pricing Regulation (UPR) ..... 233 Series
Voluntary Registration Regulation (VRR) ..... 234 Series
Open Dating Regulation (ODR) ..... 235 Series
Uniform National Type Evaluation Regulation (UNTER) ..... 236 Series
Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation (EFR) ..... 237 Series

Examination Procedure for Price Verification ..... 240 Series

Interpretations and Guidelines ..... 250 Series

NIST Handbook 133 ..... 260 Series

Other Items ..... 270 Series

Table A
Index to Reference Key Items

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232-2	Biodiesel and Fuel Ethanol Labeling	5
237	**ENGINE FUELS, PETROLEUM PRODUCTS, AND AUTOMOTIVE LUBRICANTS REGULATION**	**6**
237-1	Premium Diesel Lubricity	6
250	**INTERPRETATIONS AND GUIDELINES**	**8**
250-1	Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory	8
250-2	Guideline for the Method of Sale of Fresh Fruits and Vegetables	8
260	**NIST HANDBOOK 133**	**11**
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Table B
Appendices

Appendix	Title	Page
A	New (Proposed) Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory Guidelines	A1
B	Current (2006) Handbook 130 Interpretation and Guidelines Section 2.3.2	B1
C	Current (2005) Handbook 133 Section 2.3 on Moisture Allowances	C1

Daily Schedule

Sunday, January 22

1:00 p.m. - 5:00 p.m. **Committee Review Session:** This session is open to all NCWM members but participation in the discussion is generally limited to members of the Committee.

Monday, January 23

8:30 a.m. - 5:00 p.m. **Committee Open Hearings:** Comments will be accepted on the following topics:

232 Method of Sale Regulation
237 Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation
250 Interpretations and Guidelines
260 NIST Handbook 133

Tuesday, January 24

8:30 a.m. - 12:00 p.m. **Committee Open Hearings (continued):** Comments will continue to be accepted on the above topics.

1:00 p.m. - 5:00 p.m. **Committee Work Session:** This session is open to all NCWM members but participation in the discussion is generally limited to members of the Committee.

Wednesday, January 25

8:30 a.m. - 11:00 a.m. **Committee Work Session:** This session is open to all NCWM members but participation in the discussion is generally limited to members of the Committee.

11:00 a.m. - 12:00 p.m. **Joint Session with all Standing Committees**

Details of all Items
(In order by Reference Key Number)

232 METHOD OF SALE REGULATION

232-1 Temperature Compensation for Petroleum Products

Source: Southern Weights and Measures Association (SWMA). (See item 232-4 in the Report of the 89th NCWM Annual Meeting in 2004.)

Proposal: Amend the Method of Sale Regulation in Handbook 130 by adding the following:

2.XX. Temperature Correction For Petroleum Products Other Than LPG. – All petroleum products other than LPG shall be sold by liquid volume.

2.XX.1. Petroleum products sold in volumes greater than 18,927 liters (5,000 U.S. gallons) may be corrected to the volume at 15 °C (60 °F), provided:

2.XX.1.1. The correction is made through automatic means; and

2.XX.1.2. The measuring device and all associated documents clearly indicate the volume has been corrected for temperature.

2.XX.2. Petroleum products sold in volumes less than or equal to 18,927 liters (5,000 U.S. gallons) through *(list specific device(s))* may be corrected to the volume at 15 °C (60 °F), provided:

2.XX.2.1. The correction is made through automatic means;

2.XX.2.2. The measuring device and all associated documents clearly indicate the volume has been corrected for temperature; and

2.XX.2.3. All sales by the same vendor within a state are corrected over at least a 12-month period.

2.XX.3. The volume of petroleum products sold through retail motor fuel devices and in all transactions not covered in 2.XX.2. or 2.XX.3. shall be the volume at the conditions at the time of sale. Products shall not be artificially heated prior to sale.

Discussion: Selling fuel adjusted to the volume at 15 °C (60 °F) throughout the distribution system is the most equitable way fuel can be sold without the buyer or seller gaining a competitive advantage. Allowing a distributor to buy product at wholesale by gross volume and sell it at retail by net volume is not equitable. A single method of sale should be required so a prospective customer can make a value comparison. There is no practical way customers can make value comparisons when some locations sell product temperature compensated and other locations sell the same product without temperature compensation.

This item is considered in conjunction with a temperature compensation item that is before the Specifications and Tolerances (S&T) Committee, Item 331-1, although the S&T Committee's item is limited to vehicle-tank meters. The Committee believes this is an important issue that should be given careful consideration. The Committee also believes this item needs to be discussed with parties that may be affected by its adoption. The Committee has requested authorization and funding from the Board of Directors to establish a work group to bring together interested parties and build a consensus on the best way to resolve this issue.

A similar proposal was made by NEWMA in 2000 that mirrored a temperature compensation item before the S&T Committee at the time. In 2000 NEWMA noted that Pennsylvania, New Hampshire, Maine, and Canada permit

temperature compensation in sales of products like home heating fuel and retail gasoline. In 2001 the Committee withdrew this item after hearing testimony from several jurisdictions that opposed it.

The Committee heard several comments opposing the original language of this item and received an alternate recommendation from NEWMA. The Committee voted to accept and circulate the NEWMA language for comments.

Regarding the NEWMA language, a comment was made that the 5000-gallon threshold proposed in Section 2.XX.2. is too large because, although the capacity of a tanker truck is more than 5000 gallons, many trucks are compartmentalized. The compartmentalization of the trucks results in the delivery of a single product (e.g., grade of fuel) that is significantly less than 5000 gallons; 1500 gallons was proposed as an appropriate alternative.

Regarding the NEWMA language, it was suggested to the Committee that language would need to be inserted into Section 2.XX.3. to recognize the need to heat certain viscous products, like Heating Oil #4 and Heating Oil #6, in order to allow them to flow properly.

The Committee also heard several comments opposing the permissive nature of the NEWMA language. There is concern that permitting temperature compensation without mandating it will lead to some companies choosing to compensate while others choose not to. How is a consumer to make an informed purchasing decision when faced with choosing between competitors who are selling the same product using different methods of sale? Related to this, the Committee received an alternate proposal to go back to the original language but mandate temperature compensation for those devices capable of pumping at a rate in excess of 20 gallons per minute, and prohibit it for everything else. This would effectively require temperature compensation for all vehicle tank meters, wholesale and terminal meters, and large volume diesel dispensers while prohibiting it for standard retail motor-fuel devices.

The Committee listened to other comments expressing support for the permissive nature of the NEWMA language. Some comments expressed concern about the burden of educating consumers about what temperature compensation is and how it will affect their evaluation of options when making purchasing decisions.

The Committee will retain this item as a developing item until a consensus can be reached on the language to be considered for adoption.

232-2 Biodiesel and Fuel Ethanol Labeling

Source: Central Weights and Measures Association (CWMA)

Proposal: Add the biodiesel and fuel ethanol labeling requirements that currently appear in the Handbook 130 Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation to the Handbook 130 Method of Sale Regulation.

Add the following text to the Method of Sale Regulation in Handbook 130:

2.XX. Biodiesel.

2.XX.1. Identification of Product. – Biodiesel and biodiesel blends shall be identified by the capital letter B followed by the numerical value representing the volume percentage of biodiesel fuel. (Examples: B10; B20; B100)

2.XX.2. Labeling of Retail Dispensers Containing Between 5 % and 20 % Biodiesel. Each retail dispenser of biodiesel blend containing more than 5 % and up to and including 20 % biodiesel shall be labeled with either:

2.XX.2.1. The capital letter B followed by the numerical value representing the volume percentage of biodiesel fuel and ending with 'biodiesel blend.' (Examples: B10 biodiesel blend; B20 biodiesel blend), or;

2.XX.2.2. The phrase 'biodiesel blend between 5 % and 20 %' or similar words.

2.XX.3. Labeling of Retail Dispensers Containing More Than 20 % Biodiesel. – Each retail dispenser of biodiesel or biodiesel blend containing more than 20 % biodiesel shall be labeled with the capital letter B followed by the numerical value representing the volume percentage of biodiesel fuel and ending with either 'biodiesel' or 'biodiesel blend.' (Examples: B100 Biodiesel; B60 Biodiesel Blend)

2.XX.4. Documentation for Dispenser Labeling Purposes. – The retailer shall be provided, at the time of delivery of the fuel, with a declaration of the volume percent biodiesel on an invoice, bill of lading, shipping paper, or other document. This documentation is for dispenser labeling purposes only; it is the responsibility of any potential blender to determine the amount of biodiesel in the diesel fuel prior to blending.

2.XX.5. Exemption. – Biodiesel blends containing 5 % or less biodiesel by volume are exempted from requirements 2.XX.1 through 2.XX.4.

2.YY. Fuel Ethanol.

2.YY.1. How to Identify Fuel Ethanol. – Fuel ethanol shall be identified by the capital letter E followed by the numerical value volume percentage. (Example: E85)

2.YY.2. Retail Dispenser Labeling. – Each retail dispenser of fuel ethanol shall be labeled with the capital letter E followed by the numerical value volume percent denatured ethanol and ending with the word 'ethanol.' (Example: E85 Ethanol)

2.YY.3. Additional Labeling Requirements. – Fuel ethanol shall be labeled with its automotive fuel rating in accordance with 16 CFR Part 306.

Discussion: This proposal does not impose any new requirements. These requirements have already been adopted and are published in the Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation in Handbook 130. This proposal would simply place duplicate requirements into the Method of Sale Regulation in Handbook 130.

Section 2.20 of the Method of Sale Regulation in Handbook 130 currently contains requirements for the disclosure of oxygenates in gasoline blends. Including requirements for the disclosure of biodiesel in diesel blends and ethanol in gasoline blends is consistent with this practice and should be required in order to ensure the consumer is fully informed when making a purchasing decision.

237 ENGINE FUELS, PETROLEUM PRODUCTS, AND AUTOMOTIVE LUBRICANTS REGULATION

237-1 Premium Diesel Lubricity

Source: Southern Weights and Measures Association (SWMA)

Proposal: Forward the following proposal to the Petroleum Subcommittee to review and consider.

Amend Section 2.2.1. in Handbook 130 Uniform Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation as follows:

2.2.1. Premium Diesel Fuel – All diesel fuels identified on retail dispensers, bills of lading, invoices, shipping papers, or other documentation with terms such a premium, super, supreme, plus, or premier must conform to the following requirements:

(a) Cetane Number – A minimum cetane number of 47.0 as determined by ASTM Standard Test Method D 613.

(b) Low Temperature Operability – A cold flow performance measurement which meets the ASTM D 975 tenth percentile minimum ambient air temperature charts and maps by either ASTM Standard Test Method D 2500 (Cloud Point) or ASTM Standard Test Method D 4539 (Low Temperature Flow Test, LTFT). Low temperature operability is only applicable October 1 - March 31 of each year.

(c) Thermal Stability – A minimum reflectance measurement of 80 % as determined by ASTM Standard Test Method D 6468 (180 min, 150 °C).

(d) Lubricity – A maximum wear scar diameter of 520 µm as determined by ASTM D 6079. ~~**If an enforcement jurisdiction's singe test of more than 560 µm is determined, a second test shall be conducted. If the average of the two tests is more than 560 µm, the sample does not conform to the requirements of this part.**~~

Discussion: A member of the petroleum industry believes that the test and associated tolerances for lubricity on premium diesel specified in Section 2.2.1.(d) are inconsistent with that for regular diesel. Effective January 1, 2005, the test tolerance for regular diesel lubricity will be the ASTM D 6079 reproducibility of 136 µm (see ASTM D 975-04b). NCWM has chosen to accept the ASTM reproducibility limits for all diesel (D 975) and gasoline (D 4814) properties (see Section 7.2.2., Reproducibility), but has chosen a different reproducibility limit for premium diesel lubricity without providing any explanation as to why the ASTM reproducibility limit is insufficient. If the NCWM intends to impose a stricter lubricity requirement for premium diesel, it should designate a tighter specification for this property instead of a different test tolerance (e.g., for regular and premium gasoline, premium has a different octane specification than regular but the test tolerance is the same). ASTM reproducibility limits are, by definition, based on establishing a 95 % probability that product that should pass, will pass. Applying an average test as specified in Section 2.2.1.(d) reduces this probability to only 80 %.

The Committee received comments from several members of the Premium Diesel Work Group (Work Group) who do not support the item as presented by the petroleum industry member. Work Group members felt that the process that led to the current definition was very thorough and complete, and that the premium diesel lubricity requirements were established with a full understanding of their implications. The Work Group members felt that knowledgeable individuals provided input to the process, which lead to the consensus position contained in the current regulation. The work being done by the Work Group was reported at meetings of ASTM Subcommittee E-2 every six months. The current regulation has been endorsed by the American Petroleum Institute, the Engine Manufacturer's Association, and the NCWM.

Prior to this requirement being adopted, the ASTM Lubricity Task Force conducted a great deal of research on this topic. Based on their research, the ASTM Lubricity Task Force had concluded that a limit of 520 microns would meet the requirements of equipment in the field. Since the passage of this model regulation, ASTM included a lubricity requirement for No. 1 and No. 2 diesel fuel effective January 1, 2005. The ASTM requirement is also 520 microns.

Work Group members reported that when this regulation was being written fuels with adequate lubricity provided a functional benefit to the end user. The Work Group agreed with the ASTM Lubricity Task Force that 520 microns was the correct limit to set for premium diesel. However, the Work Group's review process also indicated increased pump wear for fuels with High-Frequency Reciprocating Rig (HFRR) values greater than 560 microns. The current reproducibility value of the HFRR test method would have placed enforcement well beyond the 560 micron level, essentially allowing fuels with little lubricity protection to be sold as Premium. The Work Group felt they could not recommend a premium fuel standard that would permit excessive pump wear. Using the statistical tools provided in ASTM D 3244, the Work Group evaluated an enforcement limit of 560 microns. The statistical tools indicated that a single laboratory reporting the assigned test value would have an enforcement limit of approximately 80 % probability of acceptance, while the average of two separate laboratories reporting the assigned test value would have an enforcement limit of approximately 90 % probability of acceptance. It was agreed that for a premium fuel the average of two test results was the best approach given the current test methods and precision available. Therefore, if a test exceeds 560 microns, then a second test must be run. The average of the two tests must exceed 560 microns before a violation would occur. At this time, the Work Group members believe this remains the best approach.

The Committee believes it lacks the expertise necessary to adequately evaluate this proposal. The Committee voted to forward this proposal to the Petroleum Subcommittee for its review and consideration, and requests that the Subcommittee provide the Committee with its recommendation.

250 INTERPRETATIONS AND GUIDELINES

250-1 Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory

Source: Western Weights and Measures Association (WWMA)

Proposal: Remove the Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory Guidelines from Handbook 130 and instead make an updated version (see Appendix A) available on the Internet.

Amend Handbook 130 Interpretations and Guidelines Section 2.6.6. by striking all of the current text and replacing it with the following:

> **2.6.6. Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory**
> **(Developed by the Petroleum Subcommittee)**
>
> **The petroleum fuels and lubricant laboratory is an integral element of an inspection program and is generally developed to satisfy the testing requirements as described in the laws and rules of the regulating agency. Guidelines have been developed to assist States in evaluating their options of employing a private lab or building or expanding their own lab. This information has been placed on the NIST website and can be found at http://www.nist.gov/owm .**

Discussion: Handbook 130 Interpretations and Guidelines Section 2.6.6., Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory, was adopted in 1994. Since that time it has not been updated despite the fact that laboratory equipment and costs change continually. It is believed that posting these guidelines on the Internet will allow for them to be updated in a more expedient manner than what is permitted by the National Conference process. Eliminating the National Conference process from the updating of these guidelines is not believed to be detrimental because the guidelines are informative, not regulatory.

It has also been suggested that the Petroleum Subcommittee be made responsible for reviewing and updating these guidelines on no less than a biannual basis.

250-2 Guideline for the Method of Sale of Fresh Fruits and Vegetables

Source: Northeast Weights and Measures Association (NEWMA)

Proposal: Amend Handbook 130 Interpretations and Guidelines Section 2.3.2. by striking all of the current text (reproduced in Appendix B) and replacing it with the following:

> **2.3.2. Fresh Fruits and Vegetables**
> (Added 1979, Amended 1980, 1982, and **200X**)
>
> **This guideline applies to all sales of fruits and vegetables. There are two tables, one for specific commodities and one for general commodity groups. Search the specific list first to find those commodities that either don't fit into any of the general groups or have unique methods of sale. If the item is not listed find the general group in the second table. The item may be sold by any method of sale marked with an X.**

Specific Commodity	Weight	Count	Head or Bunch	Dry Measure (any size)	Dry Measure (1 dry qt or larger)
Artichokes	X	X			
Asparagus	X		X		
Avocadoes		X			
Bananas	X	X			
Beans (green, yellow, etc.)	X				X
Brussels Sprouts (loose)	X				
Brussels Sprouts (on stalk)			X		
Cherries	X			X	X
Coconuts	X	X			
Corn on the Cob		X			X
Dates	X				
Eggplant	X	X			
Figs	X				
Grapes	X				
Melons (cut in pieces)	X				
Mushrooms (small)	X			X	X
Mushrooms (Portobello, large)	X	X			
Okra	X				
Peas	X				X
Peppers (bell and other varieties)	X	X			X
Pineapples	X	X			
Rhubarb	X		X		
Tomatoes (except cherry)	X	X			X

General Commodity Group	Weight	Count	Head or Bunch	Dry Measure (any size)	Dry Measure (1 dry qt or larger)
Berries and Cherry Tomatoes	X			X	
Citrus Fruits (oranges, grapefruits, lemons, etc.)	X	X			X
Edible Bulbs (onions, garlic, leeks, etc.)	X	X	X		X
Edible Tubers (Irish potatoes, sweet potatoes, ginger, horseradish, etc.)	X				X
Flower Vegetables (broccoli, cauliflower, brussel sprouts, etc.)	X		X		
Gourd Vegetables (cucumbers, squash, melons, etc.)	X	X			X
Leaf Vegetables (lettuce, cabbage, celery, etc.)	X		X		
Leaf Vegetables (parsley, herbs, loose greens)	X		X	X	
Pitted Fruits (peaches, plums, prunes, etc.)	X	X			X

General Commodity Group	Weight	Count	Head or Bunch	Dry Measure (any size)	Dry Measure (1 dry qt or larger)
Pome Fruits (apples, pears, mangoes, etc.)	X	X			X
Root Vegetables (turnips, carrots, radishes, etc.)	X		X		

Discussion: The following information is provided as received by the submitter of this item:

The present Handbook 130 guidelines concerning the sale of fresh fruits and vegetables is outdated and in need of revision.

The current guidelines do not recognize or support innovation in modern retail food marketing approaches at all forms of outlets from typical grocery stores to upscale urban markets to the age-old farm markets. The present guidelines were primarily aimed at grocery stores. A while ago a local W&M jurisdiction went into a major, urban farm market complex and was about to issue multiple violations for using methods of sale not in conformance with the present guidelines. State level enforcement officials felt unable to support that action since the guideline was only a guideline and since many of the methods of sale could also fit under the exemption in the Method of Sale Regulation for traditional methods of sale.

The current guideline is presently in the form of a laundry list. It does not include many forms of exotic and unusual fruits and vegetables now readily available in the marketplace. As new items enter the market the Conference would be forever adding items to the list.

There are apparent contradictions in the present guideline that some greens can be sold by the bunch while others can't. For example, spinach can and kale can't.

The present guideline seems to ignore the typical limitations of the farm market. With few exceptions the present guideline accepts weight as an appropriate method of sale for almost all fruits and vegetables. Weight at the farm market is often not an option, as many do not even have scales, even at some of the urban farm market complexes. This leaves count, heads and bunches, and dry measure as the only options. However, in the case of dry measure, they don't recognize anything less than a peck. This is out of touch with the reality of today's consumer. They are not buying to can or preserve or to feed an army, they are buying for the family's needs for the next day or two. Marketers at small stores in our major cities tell us their customers often shop only for that day and shop almost every day. Many vendors sell vegetables like tomatoes and potatoes in heaped dry quart baskets. Why should this be precluded?

Even if a scale is used in a farmer's market situation, it is used in a completely different manner from a grocery store. If you bring just over two pounds of tomatoes to the front end in a grocery store, you get weighed to the 1/100th of a pound. You pay for the fraction over the two pounds. At the farm market they use a hanging dial scale in 1/2 ounce increments and ignore the fraction over the two pounds. Customers get that for free. At the same time, customers would complain bitterly if the weight didn't get over the two pound mark. People often shop at both types of outlets and have no objection to those differences.

New York reviewed the traditional methods of sale presently used at locations as diverse as they could find. Based on their findings, they began with the old guideline and developed a more simple form of guideline that they believe is far better than the old laundry list. New York started by looking at the four major methods of sale: weight, count, head or bunch, and dry volume. They then made it a goal to simplify the guideline classes and only leave a laundry list for the really unique items.

The major obstacle was the size of the dry measure. Traditionally this break occurred at two dry quarts. Berries were not to be sold in larger containers and all other dry measure items in containers that size or larger. New York found berry sales in containers of four quarts were common and even found them as large as six quarts. New York's research

found that many farm stands were using one dry quart containers for many items like tomatoes and peppers. In all of these instances the measure was heaped rather than struck. Consumers universally accepted this method of sale. New York assumes that this is because they can readily see what they are paying for. You can't say that about a grocery store, even with an estimator scale.

260 NIST HANDBOOK 133

260-1 Moisture Loss

Source: Northeast Weights and Measures Association (NEWMA)

Proposal: Amend Handbook 133 Section 2.3, Moisture Allowances (pages 17 through 19 of the Handbook) by striking all of the current text (reproduced in Appendix C) and replacing it with the following:

Moisture Allowances

Which products have an established moisture allowance?

The allowances listed below are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be in compliance or more information must be collected before deciding lot compliance.

1. Flour and dry pet food have a moisture allowance of 3 % of the labeled net weight. Note: Dry pet food means all extruded dog and cat foods and baked treat products packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at the time of pack.

2. Meat and poultry products from a USDA inspected plant are permitted no moisture allowance when tested under a Category A sampling plan with Used Dry Tare.

3. Meat and poultry products from a USDA inspected plant are permitted the following moisture allowances when tested under a Category A sampling plan with Wet Tare. Note: When there is free-flowing liquid or absorbent packaging materials in contact with the product all free liquid is part of the wet tare.

- **For packages of fresh poultry that bear a USDA seal on inspection, the moisture allowance is 3 % of the labeled net weight. For net weight determinations only, fresh poultry is defined as poultry above 3 °C (26 °F). This is a product that yields or gives when pushed with the thumb.**
- **For packages of franks or hotdogs that bear a USDA seal of inspection, the moisture allowance is 2.5 % of the labeled net weight.**
- **For packages of bacon, fresh sausage, and luncheon meats that bear a USDA seal of inspection, there is no moisture allowance if there is no free-flowing liquid or absorbent materials in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves, jellied products, cured products, and any sliced sandwich-style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready-to-eat sliced product. When there is no free-flowing liquid inside the package and there are no absorbent materials in contact with the product, Wet Tare and Dried Used Tare are equivalent.**

How do you determine the allowance for products without an established moisture allowance?

For any product subject to moisture loss/gain, you may determine the appropriate moisture loss allowance based on a scientific study for that product. Many packers have conducted studies that they can provide in support of any claim that the product lost/gained moisture.

Where the packer measures and records the moisture content of product in each lot, you may be able to measure the actual moisture loss since the time of pack. This method only applies to single lot codes. Select a random sample of two packages of the product offered for sale and have it tested for moisture content using a scientifically verified test procedure, e.g. like those in the Official Methods of Analysis of the Association of Official Analytical Chemists (see Appendix E). At the same time, request a copy of the moisture content data for that lot code from the packer. The actual moisture loss, in percent, is calculated as the moisture content (%) at time of pack minus the average moisture content (%) at time of sale from the two sample packages. In the case of moisture gain, this value will be a negative number.

Calculations

How do you apply a moisture allowance when conducting a test?

Moisture allowances may be applied either prior to measuring the package errors or after. The two methods are mathematically equivalent means of adjusting both the individual package errors and the sample average. It is common practice to apply the moisture correction prior to the test for those products with established moisture allowances like flour and dry pet food. In most other cases the correction is made after the test since moisture loss data will probably be obtained as part of the follow-up investigation after the initial test has failed.

How do you apply a moisture allowance before conducting a test?

To apply the moisture loss allowance prior to measuring the package errors, you correct the nominal gross weight in Box 14 (Handbook 133, Appendix E) for moisture loss. Find the value of the allowance by multiplying the labeled quantity by the decimal percent value of the allowance. Enter this value in Box 13a on the form. The nominal gross weight is found by adding the average tare (Box 13) to the label quantity (Box 1) and subtracting the moisture allowance (Box 13a). Lot compliance is evaluated in the normal way using decision criteria in Boxes 16 and 24 on the report form.

> **Example: Labeled quantity of a bag of flour is 2 lb and average tare is 0.04 lb (Box 13)**
>
> - **Moisture Allowance is 3 % (0.03) of 2 lb = 0.06 lb**
> - ***Nominal Gross Wt. = 2 lb + 0.04 lb - 0.06 lb = 1.98 lb Record this value in Box 14.***

Measure the package errors and evaluate the inspection lot compliance following the normal procedure.

How do you apply a moisture allowance after conducting a test?

To apply the moisture loss allowance after testing, you correct only the MAV and SEL for moisture loss. The initial test will have been performed with no moisture allowance

in Box 13a. When moisture loss data becomes available, find the moisture loss allowance in weight units by multiplying the labeled quantity by the decimal percent value of the actual moisture loss. If using dimensionless units on the form, divide that number by the unit of measure in Box 2 to convert weight to dimensionless units. Add the computed moisture allowance to the MAV (Box 4) and SEL (Box 23) and record these new moisture corrected values in the remarks section.

Compare minus package error to the moisture corrected MAV. Record the number of minus error exceeding the moisture corrected MAV in the remarks section. Evaluate compliance by comparing this number to Box 8. The lot fails if the number of MAVs exceeds the number in Box 8.

Compare the lot average in Box 19 to the moisture corrected SEL. The lot fails if the sample average is greater than the SEL (ignoring the sign).

Sample Calculations: Labeled quantity of a package of rice is 2 lb, average tare is 0.04 lb (Box 13), MAV is 70 (Box 4) and SEL is 0.023 lb (Box 23).

- **Moisture content at time of pack was 13.4 % (packer data)**
- **Moisture content at time of sale is 10.6 % (average of lab data)**
- **Moisture loss is (13.4 % - 10.6 %) = 2.8 %**
- **Moisture allowance is 0.028 x 2 lb = 0.056 lb or 56 in dimensionless units for 0.001 lb unit of measure**
- **Moisture Corrected MAV is 70 + 56 = 126**
- **Moisture Corrected SEL is 23 + 56 = 79**

Discussion: The following information is provided as received by the submitter of this item:

The issue of moisture loss is complex and many components have to work together for a regulatory official to properly evaluate compliance of an inspection lot. The proposed changes affect four interrelated components of the issue. The specific issues are identified below with some justification for the changes that were proposed to the proposal.

1. Shouldn't all the established moisture allowances be listed in one place, rather than being listed as separate items? The proposal changes the questions from one of how you apply the allowance for a specific product to one of what products have established allowances. This brings these all together in one section that is easily found by the inspector. Bringing all the established allowances in one section is essentially editorial but it accentuates the void for all those other commodities for which no established moisture loss allowance exists.

2. How do you find moisture allowances for products that are not in the list in 1 above? The Handbook provides no guidance whatsoever! In the last line at the bottom of page 17, the text directs the inspector to follow steps if the product is listed, but says nothing about a product not listed. This is a huge omission that has many officials wondering what to do? The result is that some packers bluff by playing the moisture loss card even when not entitled to a loss (e.g., canned goods) and many officials back away from these products for lack of direction. The proposal includes the provision for comparing time of pack data with time of sale data for moisture content that was in the 3rd Edition and noticeably absent in the 4th Edition. It also would permit using data from a scientific study provided by the manufacturer in support of any claim of moisture loss.

3. When do you apply the moisture allowance in the test process? The proposal attempts to clarify that you can make the correction either before or after measuring the packages. Before works great for products with established moisture loss allowances like flour and dry pet foods. However, you can't possibly apply a correction before the test when dealing with other products. For other products, you must do additional investigation to determine the magnitude of the moisture

loss and you must apply it after the field official has completed the testing. The proposal provides procedures to follow for each case and examples of the calculations.

4. Why do we have different methods for evaluating the lot compliance depending on whether moisture allowances are applied before or after the tests? The basic procedure for evaluating test results calls for evaluating the individual packages against the MAV, and evaluating the sample average against the SEL. On page 19, that procedure is no longer used for the average and instead you have to look at a difference between the sample average and the SEL and now compare it to the moisture allowance. This minor change is confusing and unnecessary. Officials should always compare sample average to the SEL and this can be accomplished easily be adjusting the SEL rather than looking at differences. Thus, inspectors would follow the same process in evaluating the results in all cases. The change proposed is to add the moisture allowance to the SEL just as the Handbook now adds it to the MAV. In the proposed procedure after the test, you calculate a moisture-corrected MAV and a moisture-corrected SEL and simply reevaluate the original test data as you would any inspection. A few years ago the NCWM changed the method of calculating the Rc for tare variability to avoid having different methods for standard and random packages. Consistency helps inspectors apply the standard uniformly. The same argument may be invoked here.

The L&R Committee apparently found the complex issue difficult to follow and thus broke the original proposal into two items. It was suggested that the item be further split to assist in understanding it. In preparing this revision of the proposal, New York has tried to simplify it and has eliminated several of the original changes to focus on the critical issues. The Committee has two options. The first is a single complete revision of the part of Section 2.3 dealing with Moisture Loss (pages 17 - 19). The other is to treat this as two proposals. Proposal one would deal with the issue of products with an established moisture allowance and those without. Proposal two would deal with the issue of applying the allowance before or after the test and the procedures necessary to do each.

Joe Benavides, Texas, Chairperson
James Cassidy, Cambridge, Massachusetts
Vicky Dempsey, Montgomery County, Ohio
Dennis Johannes, California
Stephen Benjamin, North Carolina

Vince Orr, ConAgra Foods, Associate Member Representative
Doug Hutchinson, Canada, Technical Advisor
Brian Lemon, Canada, Technical Advisor
Kathryn Dresser, NIST, Technical Advisor

Laws and Regulations Committee

Appendix A

New (Proposed) Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory Guidelines

Introduction

The petroleum fuels and lubricant laboratory is an integral element of an inspection program and is generally developed to satisfy the testing requirements as described in the laws and rules of the regulating agency. This document outlines the basic facets of such a laboratory and can be used as a model to initiate or upgrade a program. Since a testing program is of little value unless recognized standards and methods are utilized, this description of a model laboratory has been developed under the assumption that recognized ASTM International and SAE International standards and test methods have been incorporated into the laws, rules, and policies of the regulating agency.

This document provides sufficient information to investigate cost associated with the development of a fuels and lubricant laboratory. Information pertaining to facility needs, recommended ASTM test procedures, test equipment, and the number of personnel required for staffing has been included. Hidden costs associated with the unique working environment of laboratories are often overlooked during initial evaluations; therefore sections have also been included dealing with quality assurance, safety, and hazardous materials.

Laboratories may be required to perform additional analysis outside the purview of consumer regulations, e.g., analyses pertaining to environmental regulations or tax fraud investigations. This document will not address those areas specifically; however, information presented here may assist in the determination of general costs and requirements.

State-Operated or Contract

The decision to operate a State testing laboratory, to enter into a contractual agreement with a private testing laboratory, or to have a hybrid of the two depends on a variety of factors: the scope of the program, funding sources, political climate, etc. The question is often asked: "Is there a point at which it is cheaper for a State to operate its own fuels laboratory?" The Motor Fuel Task Force assembled in 1984 concluded that a program testing 6000 samples per year (500 samples per month) is the minimum level to justify building and equipping a fuel laboratory.

Consideration must be given to the time required for the laboratory to complete the analyses. The value of any inspection program is diminished if laboratory turnaround time is so great that the product is consumed before the results of an analysis are known. If a contract laboratory is chosen, analysis time should be given consideration during negotiations to ensure an effective program. Because of the hazardous nature of fuels, transportation can be difficult and costly and should be factored into the decision. A State-owned laboratory should be assured the proper resources, e.g., a full staff and well maintained instruments, to be able to meet satisfactory turnaround time.

Laboratory Facility

A testing laboratory requires a unique building designed to accommodate laboratory instruments ranging from a delicate gas chromatograph to octane engines capable of producing severe vibrations. In addition, extremely flammable liquids will be stored and tested throughout the facility. Obviously, the facility design must minimize the chances for explosion and fire and also be capable of withstanding the forces of an explosion. National Fire Protection Association (NFPA) 45, "Standard on Fire Protection for Laboratories Using Chemicals," should be reviewed with contractors to ensure minimum standards are met.

The actual design of the laboratory is dependant upon the products which will be tested. For example, if the octane or cetane number is to be determined, special considerations must be made for foundation and utilities.

Special considerations should be given to the following:

1. Sufficient ventilation to ensure that workers are not unduly exposed to gasoline fumes and other toxic vapors.

2. Fume hoods and exhaust systems in laboratory areas.

3. Drain lines resistant to acid and petroleum products.

4. Traps to prevent petroleum products from entering the sewer system.

5. Special foundations for ASTM/Cooperative Fuel Research Committee (CFR) engines. It is recommended that sufficient foundations for future expansion be installed during initial construction.

6. Necessary safety equipment, such as fire blankets, fire extinguisher, eyewash stations, etc.

7. Automatic fire extinguishing system for laboratory areas. The extinguishing system's design should include considerations regarding the susceptibility of laboratory instruments to damage when exposed to water or dry chemicals.

8. An adequate heating, ventilation, and air conditioning (HVAC) system to handle excess heat generated by distillation instruments and octane engines.

9. A properly designed and sized electrical system.

10. The laboratory's design to ensure all fuel testing can be performed in accordance with ASTM requirements. Volume 05.04 of the Annual Book of ASTM Standards contains valuable information regarding the design of a knock-testing laboratory.

11. Automatic hydrocarbon monitors to warn of critical accumulation of explosive vapors.

Several fixed equipment items are necessary for the laboratory's operation, including:

1. Air compressor, vacuum pump and piping of sufficient size to supply the entire laboratory's needs.

2. Gas and water piped to all areas of the laboratory.

3. Storage area for retained evidence, reference fuel and excess fuel and lubricant after analysis. Depending on the number of samples, this may consist of a properly ventilated storage area with locking storage cabinets and 55-gallon drums, to a flammable storage room and several 500-gallon storage tanks. (Larger tanks may be needed if they are to supplement the program's vehicle's needs.)

The size of the laboratory will depend upon the products tested and the estimated sample flow. The following space listing is for a small laboratory capable of testing approximately 6000 fuel samples per year. Some space requirements, such as those for octane testing, may seem large, but it is strongly recommended that two additional engine foundations be installed during initial construction.

1. Office, bathroom facilities, conference room, etc. (as required). No space requirements are listed as this must be determined by the user based on program needs and local building codes.

2. Octane laboratory–designed for four engines (75 m^2 [750 ft^2]).

3. General laboratory (70 m^2 [750 ft^2]).

4. Distillation laboratory (37 m^2 [400 ft^2]).

5. Shipping and receiving (includes preparation area for empty sample containers) (37 m^2 [400 ft^2]).

6. Flash point laboratory (19 m^2 [200 ft^2]).

7. Shop area (23 m^2 [225 ft^2]).

8. Storage for supplies (23 m^2 [225 ft^2]).

9. Secured, cooled, and ventilated sample and flammable storage area (23 m^2 [225 ft^2]). (Insulation and a dedicated ventilation and cooling system should be considered for this room.)

Total square footage (exclusive of item 1) - 30 m^2 (3225 ft^2). Including offices, bathroom facilities, hallways, etc., the total building size may exceed 372 m^2 (4000 ft^2). It is not necessary to isolate each testing operation into separate laboratories. However, because of the noise generated, it is recommended that the test engines (octane and cetane) be placed in a separate room.

If lubricant testing is to be performed, the size of the general laboratory will need to be increased. The amount of increase is dependant upon the tests which will be performed. However, if work is limited to viscosity measurement, an additional 37 m^2 (400 ft^2) should be sufficient.

Tests and ASTM Test Procedures

Careful consideration should be given to the selection of laboratory test procedures since these selections will affect instrument costs, number of personnel, timeliness of samples, and confidence in results. As previously mentioned, ASTM and SAE specifications and test methods are universally recognized standards for fuels and lubricants and should be the primary choice for test procedures. The ASTM Subcommittee D 02 on Petroleum Products and Lubricants is responsible for developing specifications and test procedures and is generally comprised of representatives from the petroleum industry, automotive manufacturers, and regulating agencies. This representation ensures that test procedures have been reviewed by each segment of the testing community and laboratory results obtained utilizing these procedures will be widely accepted.

New instrumental methods are often introduced to facilitate testing. Chemical methods have been devised to replace or screen physical methods which may enhance efficiency by reducing staff or analysis time necessary to perform physical methods. These methods are normally devised for a controlled environment, such as a processing plant, where physical parameters may be drawn with confidence. A new laboratory is cautioned to refrain from investing in this instrumentation and the laboratory expertise necessary to perform the test procedures until they are approved by ASTM. Screening methods have been employed by State laboratories to maintain or increase sample coverage. Screening procedures are a deviation of accepted ASTM procedures; certain sections of a procedure may be excluded or modified, such as chilling a sample to the appropriate temperature or accurately timing a distillation analysis. When a screen sample exceeds a predetermined parameter, the sample is analyzed using the proper ASTM procedure. Screening should be discouraged as a means to increase sample coverage. Strategies, such as selective sampling and testing, should be employed as a means for effective regulation.

Following are references to ASTM and SAE specifications and testing procedures which form an effective nucleus for a testing laboratory with regulatory responsibilities. ASTM test methods listed here do not necessarily exclude other ASTM procedures that are designed for the purpose and that give comparable results. The significance of each of these analyses is included in the ASTM specifications. Some of the test procedures listed make provisions to allow the use of automated equipment. Such equipment is usually more expensive. However, the increased cost can be recovered in a high production lab by reduced labor costs. The asterisks after test methods indicate a preferred method due to cost or ease of implementation.

Spark Ignition Engine Fuel Specifications – D 4814

1.	Distillation	D 86
2.	Octane (Antiknock Index)	
	Research	D 2699
	Motor	D 2700
3.	Vapor Pressure	
	Dry Method	D 4953
	Automatic Method	D 5190*

Mini Method	D 5191*
Mini Method - Atmospheric	D 5482*

4. Oxygenate Content

GC with TC or FID	D 4815
GC with OFID	D 5599
Infrared Spectroscopy	D 5845

5. Sulfur Content (Due to environmental law and regulations, the sulfur limits shown in D 4814 may be significantly higher than specified. The detection limit and precision of each method should be considered when selecting a test method.)

X-Ray Spectrometry	D 2622
Microcoulometry	D 3120
Ultraviolet Fluorescence	D 5453

6. Water Tolerance — D 6422

7. Workmanship — D 4814

Diesel Fuel Specifications – D 975

1. Flash Point — D 93

2. Distillation — D 86

3. Sulfur Content (The appropriate test method is dependent upon the grade. The forthcoming reduction in sulfur content by EPA starting in June, 2006, will require equipment with lower detection limits and better precision.)

X-Ray Spectrometry	D 2622
Microcoulometry	D 3120
X-Ray Fluorescence	D 4294

4. Cloud Point

Manual Method	D 2500
Stepped Cooling (Automatic)	D 5771
Linear Cooling Rate (Automatic)	D 5772
Constant Cooling Rate (Automatic)	D 5773

5. Water and Sediment — D 2709

6. Cetane — D 613

7. Lubricity — D 6079

Kerosene Specifications – D 3699

1. Flash Point — D 56

2. Distillation — D 86

3. Sulfur Content

X-Ray Spectrometry	D 2622
X-Ray Fluorescence	D 4294*
Ultraviolet Fluorescence	D 5453

4. Color D 156

5. Water and Sediment D 1796

Aviation Turbine Fuel - D 1655

1. Flash Point D 56

2. Distillation D 86

3. Water Reaction D 1094

4. Freeze Point D 2386

Motor Oil – SAE J300

1. Kinematic Viscosity D 445

2. Cold Cranking Simulator D 5293

Gear Oil – SAE J306

1. Kinematic Viscosity D 445

2. Brookfield Viscosity D 2983

Automatic Transmission Fluid

1. Kinematic Viscosity D 445

2. Brookfield Viscosity D 2983

Laboratory Equipment and Supplies

Scientific instrumentation is typically more expensive than initially anticipated even when one has experience purchasing equipment. ASTM has approved methods utilizing automated instruments which may prove to be a better long-term investment when the cost of operating personnel is included. The costs of equipment and supplies change, therefore, providing estimates in this document would be of little value. Because of the relatively small demand for laboratory equipment, it is common to have only one source. However, when possible, obtaining competitive bids can reduce costs. Purchasing used equipment from other labs or vendors can provide a source of equipment at reduced costs.

Information Management System

No recommendations are made for an information management system. However, it should be noted that an information management system is an effective tool to manage data and statistical information when devising sampling strategies and when measuring the general effectiveness of a program.

Minimum requirements for an information management system include a database server and database adequate to handle sample biographical and analyses information. A means to network technicians and staff to the information is necessary to facilitate transfer of information. Considerations for software security and equipment security (limited access to the database server) should be given to ensure the integrity of the data.

Many departments have established information management centers which are consulted for this information. Generally, these departments have a particular protocol for developing information management systems.

Office Equipment and Supplies

No listing is given since needs are determined by the program's scope. However, the costs of items such as desks, filing cabinets, computers, forms, and miscellaneous office supplies must be considered when planning an initial budget.

Quality Assurance/Quality Control

The previous sections have addressed structural aspects of an engine fuels testing laboratory: building requirements, testing procedures, and analytical instruments. The management system for a laboratory is as unique as the structural requirements. Quality assurance/quality control programs were originally devised to give statistical verification of analytical results; however, they are now evolving to become the standard management model for laboratories. Chain of custody procedures, sample retention procedures, sample distribution procedures, and documentation of each step has been integrated into the quality assurance program.

ASTM has developed two documents which provide quality assurance guidelines for a petroleum laboratory. They are ASTM D 6792, Quality System in Petroleum Products and Lubricants Testing Laboratories and ASTM D 6299, Applying Statistical Quality Assurance Techniques to Evaluate Analytical Measurement System Performance. The first document, D 6792, provides a guide to the essential aspects of a quality assurance program. It includes such issues as sample management, record management, accurate test data, proficiency testing, corrective actions, and training. The second document, D 6299, describes in great detail methods to assure test precision and accuracy.

Another source of information in establishing a quality assurance program is the International Organization for Standardization (ISO) model quality assurance program, ISO 9000. There is no accreditation program specifically for State testing laboratories, and ISO 9000 accreditation is currently quite expensive; however, the ISO 9000 is an excellent model to use in developing a management system.

One excellent method to evaluate the performance of a laboratory is to compare the results obtained with other laboratories. ASTM has developed an Interlaboratory Crosscheck Program to achieve this goal. Samples are periodically sent to participating labs for analysis. The results are submitted to the summarizer and statically compared to other participating laboratories. The summarized results are then compared to the published precision statements. Coded summary reports (to maintain confidentiality) are sent to each participant. The program includes automatic transmission fluid, aviation turbine fuel, engine oil, gear oil, gasoline and diesel fuel as well as other products.

ASTM operates a National Exchange Group (NEG) to distribute fuels among participating laboratories and provides a statistical report of the results. There are three subgroups of the NEG: the Motor Fuel Exchange Group, the Diesel Fuel Exchange Group, and the Aviation Gasoline Exchange Group. Of the three types of participation, only two will concern a state laboratory: a member laboratory receives monthly samples and agrees to participate in special method research; and a "quarterly participant" receives two sets of samples every 3 months but is not bound to run special tests. The NEG will provide a means for assessment of quality at the national level. There are also regional groups which provide similar quality assessment exchange programs: Appalachian, Atlantic, Great Lakes, Mid-Continent, Northwest, Pacific Coast, Rocky Mountain, Texas Regional and LA Gulf Coast, Sabine, and Texas City-Houston Subgroups.

Safety Program

A laboratory can be an extremely hazardous work environment, so safety must be integrated into all operations of a laboratory. The Occupational Safety and Health Administration (OSHA) established a requirement effective January 1, 1991, for laboratories to develop a Chemical Hygiene Plan (29 CRF 1910.1450). The guidelines for the Chemical Hygiene Plan were intentionally left general so that an organization's plan could be customized for unique situations in individual laboratories. The Chemical Hygiene Plan details an organization's responsibilities for safety training, supply and maintenance of safety equipment and personal protective equipment, monitoring employees' exposure level to hazardous chemicals, medical consultation and examination, and availability of documents addressing safety procedures and emergency response. The Chemical Hygiene Plan is required to be reviewed annually which provides a format to plan and track improvements.

Reference documents are an essential part of an effective safety program. Safety procedures should accompany and complement testing procedures to ensure an employee is performing functions in an acceptable manner. Emergency

response manuals address hazardous or potentially hazardous situations. Proper procedures for handling large spills, evacuation of work areas, and employees who have been overexposed to hazardous materials are typically found in the emergency response manual. Material Safety Data Sheets (MSDS) contain pertinent information regarding the hazards of chemicals and the necessary precautions. These documents should be distributed to employees or located in an easily accessible location.

Coordination with local fire and hazmat (hazardous material) departments is essential to ensure rapid emergency response. A chemical inventory and a diagram of the laboratory space are often requested by these departments to expedite their response. Periodic review of the chemical inventory will ensure unnecessary chemicals will be disposed of in a timely manner.

The most effective safety tool is thorough training of employees. Each new employee should be trained with the Chemical Hygiene Plan, safety procedures, emergency response manual, and MSDS's. Subsequent review sessions should be scheduled to ensure familiarity of individual responsibilities and actions. Educational videos are available specifically addressing laboratory safety which can assist in the training process. Hands-on training should be utilized to demonstrate the proper use of fire extinguishers, fire blankets, and other safety equipment in the laboratory. An effective safety program will produce aware employees who can suggest enhancements to the safety of the laboratory.

Personal safety equipment should be provided to all laboratory personnel. Eye protection, lab coats/aprons, and gloves will provide minimum protections. If the use of a fume hood is not practical and an employee is exposed to petroleum or chemical fumes, organic respirators should be provided to minimize exposure. Determination of which equipment is necessary for handling particular chemicals can be found in the MSDS accompanying the chemicals.

General laboratory safety equipment should be considered during the design or selection of a building. In addition to a good ventilation system, fume hoods should be provided where practical to isolate fumes from the laboratory. Due to the explosive nature of gasoline, even safety equipment needs to be evaluated for safety; for example, explosion-proof motors should be installed to evacuate fumes from a hood. Eyewash stations, fire extinguishers, emergency shower, and fire blankets should all be placed strategically for maximum protection.

In the event of a spill, several safety items will prove useful. Activated charcoal, sold under a variety of names, is effective for absorbing small petroleum spills with the added benefit of quickly reducing vaporization. Other companies offer pads to quickly absorb spills. Similar products are offered to neutralize and absorb acids and bases. Safety signs should be posted at the entrance of each laboratory room listing possible hazards and restricted activities (e.g., No Smoking, Flammables, Eye Protection Required, etc.). These signs assist visitors and emergency response personnel to identify hazards quickly.

Hazardous Waste

Testing laboratories generate quantities of hazardous waste. Waste chemicals from various analyses and residual samples must be stored and disposed in an appropriate manner. The majority of regulations for storage, disposal, and documentation of hazardous materials may be found in EPA's SARA Title III, 40 CFR 1500. Additional regulations and permits may be required by State, county or municipal agencies. Familiarity with the regulations will be advantageous when considering the design of the laboratory. Specific expenses related to hazardous waste disposal will often be determined by local regulations and the availability of hazardous waste handlers. Some companies provide disposal services which recycle products. This type of service is usually less expensive and provides protection from future "cradle to grave" liabilities. Therefore, waste materials should be segregated to take advantage of recycling services.

Personnel

The staffing requirements for a testing laboratory will be dependent on the number of samples, the number of tests performed on the samples, and the testing instruments chosen. The staff recommended here will be suitable for a fuels testing laboratory with moderate automation (auto-sampler for the gas chromatograph, automated RVP instrument, etc.) running approximately 6000 to 8000 samples per year.

1 Laboratory Administrator

2 Chemists

2 CFR Engine Operators

2 Laboratory Technicians

1 Clerk

The laboratory administrator should have strong management skills and familiarity with laboratory operations and chemical techniques. The administrator's responsibilities include the development and implementation of the quality assurance program, safety program, and hazardous waste program, as well as providing guidance for the daily operation of the laboratory.

The chemists should have a strong chemistry background and familiarity with instrumental techniques. In addition to normal analytical responsibilities, chemists should assist with the review of analytical results by technicians. Chemists also can assist in the development and implementation of the quality assurance, safety, and hazardous waste programs.

The engine operators are the most difficult positions to fill. The ideal operator will have petrochemical experience with a mechanic's background since the majority of the engine maintenance will be performed by the operators. The petroleum industry estimates approximately 5 years of engine operation is necessary to develop an expertise. To expedite this process, engine operators should periodically attend training workshops and regional exchange group meetings. Laboratory technicians should have laboratory experience and a familiarity with scientific methods. Cross training of these individuals is an effective means of maintaining an even workflow through the laboratory.

Concluding Note

There is no better way to understand the complexities of testing than to visit a state with an active program. Several States, such as Arkansas, California, Florida, Georgia, Maryland, North Carolina, Missouri, Michigan, Washington and Tennessee (a contractual laboratory) have active programs and are willing to host tours of their facilities. Interested parties are encouraged to make such a visit.

References:

John E. Nunemaker, "Planning Laboratories: A Step by Step Process" *American Laboratory* March 1987, 19 (4), 104-112.

Jerry Koenigsberg, "Building a Safe Laboratory Environment" *American Laboratory* June 1987, 19 (9), 96-106.

Appendix B

Current (2006) Handbook 130 Interpretation and Guidelines Section 2.3.2.

2.3.2. Fresh Fruits and Vegetables
(L&R, 1979, p. 176; 1980; 1982, p. 152)

Guideline

Recognizing the difficulty faced by consumers when more than one method of sale is employed in the same outlet for the same product, noncomparable methods of sale (e.g., weight and measure) for the same produce item in the same outlet should be minimized.

The methods of retail sale for fresh fruits and vegetables should be:

Commodity	Method of Sale	Commodity	Method of Sale
Apples	Weight or count, or by dry measure in units not less than 1 peck	Lettuce	Weight or count
Apricots	Weight	Limes	Weight or count
Artichokes	Weight or count	Mangoes	Weight or count
Asparagus	Weight or bunch	Melons (whole)	Weight or count
Avocados	Count	Melons (cut or pieces)	Weight
Bananas	Weight	Mushrooms	Weight or measure
Beans	Weight or dry measure, in units not less than 1 peck	Nectarines	Weight or count
Beets	Weight or bunch	Okra	Weight
Berries (all) [*NOTE 1*, see page 226]	Weight or measure	Onions (spring or green)	Weight or bunch
Broccoli	Weight or bunch	Onions (dry)	Weight
Brussels sprouts	Weight	Oranges	Weight or count
Cabbage	Weight	Papaya	Weight or count
Cantaloupes	Weight or count	Parsley	Weight or bunch
Carrots	Weight or bunch	Parsnips	Weight
Cauliflower	Weight or bunch	Peaches	Weight or count, or by dry measure in units not less than 1 peck
Celery	Weight or count	Pears	Weight or count, or by dry measure in units not less than 1 peck
Cherries [*NOTE 1*, see page 226]	Weight or measure	Peas	Weight
Coconuts	Weight or count	Peppers	Weight or count
Corn on cob	Count	Persimmons	Weight or count
Cranberries	Weight or measure	Plums	Weight or dry measure, in units not less than 1 peck
Cucumbers	Weight or count	Pineapples	Weight or count
Currants [*NOTE 1*, see page 226]	Weight or measure	Pomegranates	Weight or count

Commodity	Method of Sale	Commodity	Method of Sale
Dates	Weight	Potatoes (Irish or sweet)	Weight
Eggplant	Weight or count	Prunes	Weight
Escarole	Weight or bunch	Pumpkins	Weight or count
Figs	Weight	Radishes	Weight
Garlic	Weight or count	Rhubarb	Weight
Grapefruits	Weight or count	Rutabagas	Weight
Grapes	Weight	Spinach	Weight or bunch
Greens (all)	Weight	Tangerines	Weight or count
Kale	Weight	Tomatoes	Weight or dry measure, in units not less than 1 peck
Kohlrabi	Weight	Tomatoes (cherry) [*NOTE 1*, see page 226]	Weight or measure
Leeks	Weight	Turnips	Weight or bunch
Lemons	Weight or count		

NOTE 1: *Commodities sold by measure must be sold in containers standardized by the Berry Basket and Box Code in Handbook 44.*

Appendix C

Current (2005) Handbook 133 Section 2.3 on Moisture Allowances

Moisture Allowances

How is reasonable moisture loss allowed?

If the product tested is subject to moisture loss, provide for the moisture allowance by following the steps listed below.

Determine the value of the moisture allowance if the product is listed below.

What is the moisture allowance for flour and dry pet food?

The moisture allowance for flour and dry pet food is 3 % of the labeled net weight.

Note: Dry pet food means all extruded dog and cat foods and baked treat products packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at the time of pack.

What moisture allowance is used with Used Dry Tare when testing packages that bear a USDA Seal of Inspection?

There is no moisture allowance when inspecting meat and poultry from a USDA inspected plant when Used Dry Tare and a Category A sampling plan are used.

What moisture allowance is used with wet tare when testing packages bearing a USDA seal of inspection?

- Use the following guideline when testing meat and poultry from any USDA inspected plant using Wet Tare and a Category A sampling plan.

- For packages of fresh poultry that bear a USDA seal of inspection, the moisture allowance is 3 % of the labeled net weight. For net weight determinations only, fresh poultry is defined as poultry above -3 ºC (26 ºF). This is a product that yields or gives when pushed with the thumb.

- For packages of franks or hotdogs that bear an USDA seal of inspection, the moisture allowance is 2.5 % of the labeled net weight.

- For packages of bacon, fresh sausage, and luncheon meats that bear a USDA seal of inspection, there is no moisture allowance if there is no free-flowing liquid or absorbent materials in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves, jellied products, cured products, and any sliced sandwich style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready-to-eat sliced product. When there is no free-flowing liquid inside the package and there are no absorbent materials in contact with the product, Wet Tare and Dried Used Tare are equivalent.

When there is free flowing liquid or absorbent packaging materials in contact with the product, all free liquid is part of the wet tare.

Calculations

How is moisture allowance computed and applied to the average error?

To compute moisture allowance, multiply the labeled quantity by the decimal percent value of the allowance.

Example: Labeled net quantity of flour is 907 g (2 lb)

Moisture Allowance is 3 % (0.03)

Moisture Allowance = 907 g (2 lb) x 0.03 = 27 g (0.06 lb). Record this value in Box 13a. (Handbook 133, Appendix E)

How is the Maximum Allowable Variation corrected for the moisture allowance?

- Adjust the MAV by adding the moisture allowance to the MAV.

  Example: 907 g (2 lb) package of flour: moisture allowance added to the MAV = 31.7 g (0.07 lb) (MAV for 907 g [2 lb] package) + 27 g (0.06 lb) moisture allowance = a corrected MAV of 58.7 g (0.13 lb)

- Correct MAV in dimensionless units by converting the moisture allowance to dimensionless units = 0.06 lb ÷ 0.001 lb = 60. Go to Box 4 and add the moisture allowance in dimensionless units to the MAV in dimensionless units.

  Example: MAV = 70 (MAV for 2 lb where the unit of measure = 0.001 lb) + 60 (moisture allowance in dimensionless units) = 130. Minus package errors must exceed the MAV + gray area before they are declared "unreasonable errors."

- If the number of unreasonable errors exceeds the allowed number (recorded in Box 8) the inspection lot fails.

How is the average error for the moisture allowance corrected?

If the minus average error (Box 18) is larger (disregarding the sign) than the SEL (Box 23) and moisture loss applies, compare the difference between Box 18 and Box 23 with the moisture allowance recorded in Box 13a. (Make sure that all the values are in units of weight or in dimensionless units before making this comparison.) If Box 13a is larger than the difference between Box 18 and 23, then the lot is considered to be in the gray area.

Example: Box 13a for 2 lb flour is 60 (dimensionless units); Box 18 is 2 (dimensionless units); Box 23 is 0.550 (dimensionless units). The difference between Box 18 and Box 23 is 1.450 (dimensionless units). Since Box 13a is 60 (dimensionless units), 13a is larger than the difference between Box 18 and Box 23, the lot is considered to be in the gray area and further investigation is necessary before ruling out moisture loss as the reason for shortweight.

When the average error of a lot of fresh poultry, franks, or hot dogs from a USDA-inspected plant is minus, but does not exceed the established "moisture allowance" or "gray area," contact the appropriate USDA official and/or plant management personnel to determine what information is available on the lot in question. Questions to the USDA official and/or plant management representative may include:

(a) Is a quality control program in place?
(b) What information is available concerning the lot in question?
(c) If net weight checks were completed, what were the results of those checks?
(d) What adjustments, if any, were made to the target weight?

Note: If USDA or plant management has data on the lot, such data may help to substantiate that the "lot" met net content requirements at the point of manufacture.

This handbook provides "moisture allowances" for some meat and poultry products, flour, and dry pet food. These allowances are based on the premise that when the average net weight of a sample is

found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or further investigation can be conducted.

Deviations from net quantity of contents caused by the loss or gain of moisture from the package are permitted when caused by ordinary and customary exposure to conditions that occur under good distribution practices. If evidence is obtained and documented to prove that the lot was shipped from the packaging plant in a shortweight condition or was distributed under inappropriate or damaging distribution practices, appropriate enforcement action should be taken.
(Amended 2002)

Specifications and Tolerances Committee
Interim Agenda

Clark Cooney, Chairman
Oregon Department of Agriculture
Oregon

300 INTRODUCTION

The Specifications and Tolerances (S&T) Committee ("Committee") will address the following items at its Interim Meeting. All items are listed below in Table A by Reference Key Number. The headings and subjects apply to NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." The Appendices to the Report are listed in Table B. The acronyms for organizations and technical terms used throughout the agenda are identified in a glossary in Table C. In some cases background information will be provided for an item. The fact that an item appears on the agenda does not mean that the item will be presented to the Conference for a vote. The Committee will review its agenda at the Interim Meeting and may withdraw some items, present some items for information meant for additional study, issue interpretations, or make specific recommendations for change to NIST Handbook 44 which will be presented for a vote at the Annual Meeting.

The recommendations are statements of proposals and are not necessarily those of the Committee. Suggested revisions to the handbook are shown in **bold face print** by ~~**striking out**~~ information to be deleted and **underlining** information to be added. Requirements that are proposed to be nonretroactive are printed in **bold-faced *italics.***

Note: The policy of NIST is to use metric units of measurement in all of its publications; however, recommendations received by the NCWM technical committees have been printed in this publication as they were submitted and may, therefore, contain references to inch-pound units.

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Table C
Glossary of Acronyms

CC	Certificate of Conformance	NIST	National Institute of Standards and Technology
CWMA	Central Weights and Measures Association	NTEP	National Type Evaluation Program
EPO	Examination Procedure Outline	NTETC	National Type Evaluation Technical Committee
GPMA	Gasoline Pump Manufacturers Association	RMFD	Retail Motor-Fuel Dispenser
LMD	Liquid-Measuring Device	SMA	Scale Manufacturers Association
LPG	Liquefied Petroleum Gas	SWMA	Southern Weights and Measures Association
MMA	Meter Manufacturers Association	VTM	Vehicle-Tank Meter
MFM	Mass Flow Meter	WMD	Weights and Measures Division
NCWM	National Conference on Weights and Measures	WWMA	Western Weights and Measures Association
NEWMA	Northeastern Weights and Measures Association, Inc.		
"Handbook 130" means the 2006 Edition of NIST Handbook 130 "Uniform Laws and Regulations in the areas of legal metrology and fuel quality."			
Note: NIST does not imply that these acronyms are used solely to identify these organizations or technical topics.			

Details of All Items
(In Order by Reference Key Number)

310 GENERAL CODE

310-1 G-S.1. (d) Identification ; Software for Not-Built-for-Purpose Devices

Source: Western Weights and Measures Association (WWMA)

Recommendation: Modify paragraph G-S.1. (d) as follows:

G-S.1. Identification. - All equipment, except weights and separate parts necessary to the measurement process but not having any metrological effect, shall be clearly and permanently marked for the purposes of identification with the following information:

(a) the name, initials, or trademark of the manufacturer or distributor;

(b) a model designation that positively identifies the pattern or design of the device;

1. The model designation shall be prefaced by the term "Model," "Type," or "Pattern." These terms may be followed by the term "Number" or an abbreviation of that word. The abbreviation for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., No or No.). The abbreviation for the word "Model" shall be "Mod" or "Mod." Prefix lettering may be initial capitals, all capitals or all lower case.
[Nonretroactive as of January 1, 2003]
(Added 2000) (Amended 2001)

(c) a nonrepetitive serial number, except for equipment with no moving or electronic component parts and not-built-for-purpose, software-based devices;
[Nonretroactive as of January 1, 1968]
(Amended 2003)

1. The serial number shall be prefaced by words, and an abbreviation, or a symbol, that clearly identifies the number as the required serial number.
[Nonretroactive as of January 1, 1986]

2. Abbreviations for the word "Serial" shall, as a minimum, begin with the letter "S," and abbreviations for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., S/N, SN, Ser. No., and S. No.).
[Nonretroactive as of January 1, 2001]

(d) the current software version designation for not-built-for-purpose, software- based devices;
[Nonretroactive as of January 1, 2004]
(Added 2003)

1. The version designation shall be prefaced by words, an abbreviation, or a symbol, that clearly identifies the number as the required version designation.
[Nonretroactive as of January 1, 200X]
(Added 200X)

2. Abbreviations for the word "Version" shall, as a minimum, begin with the letter "V" and may be followed by the term Number or Designation or an abbreviation of these terms. The abbreviation

for the term "Number" shall, as a minimum, begin with the letter "N." The abbreviation for the term "Designation" shall, as a minimum, begin with the letter "D" (e.g., V/N, VN, Ver. No., and V. No., V/D, VD, Ver. Des., and V.Des.).
[Nonretroactive as of January 1, 200X]
(Added 200X)

(e) an NTEP Certificate of Conformance (CC) number or a corresponding CC Addendum Number for devices that have a CC. The CC Number or a corresponding CC Addendum Number shall be prefaced by the terms "NTEP CC," "CC," or "Approval." These terms may be followed by the term "Number" or an abbreviation of that word. The abbreviation for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., No or No.)
[Nonretroactive as of January 1, 2003]

The required information shall be so located that it is readily observable without the necessity of the disassembly of a part requiring the use of any means separate from the device.
(Amended 1985, 1991, 1999, 2000, 2001, and 2003)

Discussion: At its September 2005 Annual Meeting, the WWMA reviewed a proposal to add requirements for identifying the required software version designation in paragraph G-S.1. with acceptable words, abbreviations, or symbols. This is consistent with the current requirements to identify other required markings such as the serial number or model designation. The WWMA modified the original proposal and agreed to forward the modified version as shown above to the Committee for consideration.

At its 2005 fall meeting, the CWMA agreed with the intent of the WWMA proposal, but suggested that the word "designation" for software be changed to "identification." NEWMA supported the WWMA proposal as a developing item. The SWMA recommended the proposal be a voting item on the Committee's 2006 agenda.

310-2 G-S.1.1. Location of Marking Information for Not-Built-for-Purpose Software-Based Devices

Source: Western Weights and Measures Association (WWMA)

Recommendation: Modify paragraph G-S.1.1. as follows:

G-S.1.1. Location of Marking Information for Not-Built-For-Purpose, Software-Based Devices. *- For not-built-for-purpose, software-based devices, the* ~~***following shall apply:***~~ ***required information in G-S.1. Identification.(a), (b), (d), and (e)***

~~***the manufacturer or distributor and the model designation***~~ *shall be continuously displayed* ~~***or marked on the device (see note below),***~~ *or*

~~***the Certificate of Conformance (CC) Number***~~ *shall be* ~~***continuously***~~ *displayed* ***after the "Help" menu*** ~~***or marked on the device (see note below)***~~ ***has been selected***~~***,***~~ *or*

~~***all required information in G-S.1. Identification. (a), (b), (d), and (h) shall be continuously displayed. Alternatively, a clearly identified "view only" System Identification, G-S.1. Identification, or Weights and Measures Identification shall be accessible through the "Help" menu. Required information includes that information necessary to identify that the software in the device is the same type that was evaluated***~~. *shall be accessible through the "Help" menu,* ***and if necessary a submenu which shall be identified as "System Identification," "G-S.1. Identification," or "Weights and Measures Identification" or***

Note: *Clear instructions for accessing the remaining required G-S.1. information shall be listed on the CC. Required information includes that information necessary to identify that the software in the device is the same type that was evaluated.*

have the G-S.1 identification be permanently marked on the device.
[Nonretroactive as of January 1, 2004]
(Added 2003)**(Amended 200X)**

Note: *Clear instructions for accessing the remaining required G-S.1. information shall be listed on the CC. Required information includes that information necessary to identify that the software in the device is the same type that was evaluated.*

Discussion : At its September 2005 Annual Meeting, the WWMA reviewed a proposal to modify paragraph G-S.1.1. that clarifies what information must be marked, displayed or accessible through the help menu on not-built-for-purpose software-based devices. The WWMA modified the original proposal and agreed to forward the revised proposal shown above to the Committee for consideration.

At their 2005 fall meetings, the CWMA supported the concept of the WWMA proposal, but suggested the proposal remain a developing item pending input from the new NTETC Software Sector scheduled to begin activities in 2006. The SWMA supported the WWMA proposal, but questioned if the word "Help" is the only word that can be used to identify the function that accesses the weights and measures menu.

310-3 G-S.8.1. Multiple Weighing or Measuring Elements with a Single Provision for Sealing

Source: Western Weights and Measures Association (WWMA)

Recommendation: Add a new paragraph G-S.8.1. as follows:

G-S.8.1. Multiple Weighing or Measuring Elements with a Single Provision for Sealing. - A change to the adjustment of any measuring element shall be individually identified.
[Nonretroactive as of January 1, 200X]

Note: Examples of acceptable identification of a change to the adjustment of a weighing or measuring element include, but are not limited to:

(1) a broken, missing, or replaced physical seal on an individual measuring element;
(2) a change in a calibration factor for each measuring element;
(3) a display of the date of or the number of days since the last calibration event for each measuring element; or
(4) a counter indicating the number of calibration events per measuring element.
(Added 200X)

Discussion: At its September 2005 Annual Meeting, the WWMA reviewed a proposal to add to all the liquid-measuring devices codes requirements for identifying when an adjustment is made to any measuring element in a device which has multiple measuring elements but that is only equipped with a single provision for sealing. The proposed requirement is similar to the requirements in Section 3.30. Paragraph S.2.2.1. The submitter of the proposal suggested an alternative approach in which the requirement would be added to the General Code to address all weighing and measuring devices. The WWMA favored the alternative proposal to modify the General Code and received no opposition from either the weighing industry or the measuring industry representatives present at the meeting. Therefore, the WWMA agreed to forward the proposal to the Committee for consideration.

At their 2005 fall meetings, the CWMA and the SWMA both supported the proposal and recommended it be added to the Committee's 2006 Agenda.

310-4 G-T.1. (e) Acceptance Tolerances

Source: Carryover Item 310-2. (This item originated from the National Type Evaluation Technical Committee (NTETC) Measuring Sector and first appeared on the Committee's 2005 agenda.)

Recommendation: Modify paragraph G-T.1. (e) as follows:

G-T.1. Acceptance Tolerances. - Acceptance tolerances shall apply to:

(a) equipment to be put into commercial use for the first time;

(b) equipment that has been placed in commercial service within the preceding 30 days and is being officially tested for the first time;

(c) equipment that has been returned to commercial service following official rejection for failure to conform to performance requirements and is being officially tested for the first time within 30 days after corrective service;

(d) equipment that is being officially tested for the first time within 30 days after major reconditioning or overhaul; and

(e) equipment undergoing type evaluation **(special test tolerances are not applicable)**.
(Amended 1989 **and 200X**)

Discussion/Background: At its October 2004 meeting, the NTETC Measuring Sector noted that the intent of paragraph G-T.1. (e) is to specify that acceptance tolerances apply to all equipment undergoing type evaluation; however, the language is not clear regarding what tolerance would apply during "special tests."

Special test tolerances are intended to recognize that a larger tolerance for test drafts conducted under certain conditions, such as at a slow flow rate, is appropriate. Normal wear of the measuring elements frequently produces larger performance errors at a slow flow rate, compared to performance errors at full flow rate. The Sector agreed that devices submitted for NTEP evaluation should be held to a higher standard than devices in normal service and special test tolerances should not be applicable during an NTEP evaluation.

At the 2005 NCWM Annual Meeting, the MMA indicated they had not understood that the proposal submitted to the Committee from the Measuring Sector would apply to all types of liquid-measuring devices submitted for NTEP evaluation. The MMA thought the proposed requirement would apply only to retail motor-fuel dispensers. The MMA stated that without special test tolerances, most meters, especially those installed in vehicle-mounted applications, would not meet tolerances for tests conducted at lower flow rates during both field and NTEP evaluations. The Committee agreed to make the proposal an information item to allow the MMA and the Measuring Sector additional time to develop the proposal.

At its October 2004 meeting, the NTETC Measuring Sector agreed to forward a recommendation to the Committee that it withdraw this item and instead amend Section 3.30 as shown in Item 330-4.

In 1991 this issue was brought before the NCWM as an informational item. The intent at that time was to provide guidance for states in the interpretation of General Code Paragraph G.UR.4.1. Maintenance of Equipment. In 1993, the State of Wisconsin adopted a policy that defined predominance. That policy was similar to the one proposed in 1991 except that Wisconsin was felt that one-third acceptance tolerance was too stringent as there was a need to take into account normal variability in testing procedures, equipment, and environmental conditions found in the field. Wisconsin therefore adopted a greater than one-third of maintenance tolerance guideline. In 2003 the Wisconsin policy was further defined by deleting the language "all devices are found to be in error in a direction favorable to the device user." And "Sixty percent or more of the devices are found to be in error in favor of the device owner/user by more than one-third of the maintenance tolerance." Both of these criteria were seldom used in the field because they made the policy confusing.

Recently NIST conducted a national survey of RMFD testing and the results point to a need to gain more uniformity in the application of tolerances. There is a wide variation in how different states handle the "predominance" question. Strides should be continually made to gain uniformity. It is felt that the adoption of the proposed requirement G-UR.4.1.1. would be one step toward gaining greater uniformity. With more than 5 years of history Wisconsin sees a relatively low number of devices rejected on the basis of "predominance" and most station owners and all service companies have a working understanding of predominance.

At its September 2005 Interim Meeting, the CWMA reviewed a proposal to add a new paragraph G-UR.4.1.1. Proper Operating Condition to the General Code Section of NIST Handbook 44. The CWMA agreed with the proposal, but modified the original proposal by changing the word "device" to "equipment" in the first sentence as shown above. The CWMA agreed to submit the proposal with a recommendation that it be a voting item on the Committee's 2006 Agenda.

320 SCALES

320-1 S.1.1. (c) Zero Indication; Requirements for Markings or Indications for Other than Digital Zero Indications

Source: Carryover Item 320-1. (This item originated from the Committee and first appeared on its 2004 agenda.)

Recommendation: Amend paragraph S.1.1. (c) as follows:

S.1.1. Zero Indication.

(a) On a scale equipped with indicating or recording elements, provision shall be made to either indicate or record a zero-balance condition.

(b) On an automatic-indicating scale or balance indicator, provision shall be made to indicate or record an out-of-balance condition on both sides of zero.

(c) A zero-balance condition may be indicated by other than a continuous digital zero indication, provided that an effective automatic means is provided to inhibit a weighing operation or to return to a continuous digital indication when the scale is in an out-of-balance condition **and is marked or includes supplemental indications or markings to indicate that the "other than digital zero indication" represents a no-load condition of the scale.**
Added 1987 **(**Amended 1993 **and 200X)**

[Note: The markings or supplemental indications in S.1.1.(c) are not required if, prior to the start of a transaction: (1) operator intervention is required to verify the zero balance condition with a digital zero indication, or (2) the scale automatically represents the zero-balance condition with a digital zero indication.]
(Added 200X)
(Amended 1987)

Background/Discussion: Past inconsistencies and ongoing disagreements about the interpretation of paragraph S.1.1.(c) warranted an effort to clarify the intent of the requirement. The proposed changes to the requirement specify that all primary indicators on scales that use anything other than a digital zero indication (e.g., scrolling messages, dashes, etc.) to indicate zero require additional markings or indications to inform customers that the scales are at a zero-balance condition. No markings are necessary on these devices when operator intervention is required to return the indication to a digital zero before conducting a transaction.

The Committee agreed that General Code paragraphs G-S.6. Marking Operational Controls, Indications, and Features, and S.1.1. require weighing devices to be marked or provide an indication that states the zero-balance is represented by other than a digital zero indication. Historically, this position is supported by the 1993 amendment to paragraph S.1.1.(c) as well as type evaluation requirements and other requirements adopted to ensure that customers have sufficient information about displays and recorded transaction information to make an informed decision during a direct sale transaction.

At the July 2005 NCWM Annual Meeting, the Committee changed the status of the item from "voting" to "information" to allow additional time to determine: (1) if the proposed markings could be displayed as part of the indication rather than being physically marked on the device and (2) if self-service systems provide information on the zero-load condition of the scale prior to each weighment.

In the fall of 2005, several regional associations and the NTETC Weighing Sector reconsidered the proposal. After hearing opposition to the proposal from the Scale Manufacturers Association, the WWMA indicated that the proposal should remain an information item pending a review by the Weighing Sector. The CWMA restated its earlier position that the proposal should be withdrawn because appropriate protections and labeling criteria are applied during type evaluation. A majority of the Sector's membership voted against the proposal because they do not believe labeling is necessary if a scale has an automatic means to inhibit a transaction when it is out-of-balance.

For more background information, refer to the 2004 and 2005 S&T Final Reports.

320-2 S.1.4.6. Height and Definition of Minimum Reading Distance, UR.2.10. Primary Indicating Elements Provided by the User, UR.2.11. Minimum Reading Distance, and Definitions of Minimum Reading Distance and Primary Indications

Source: National Type Evaluation Technical Committee Weighing Sector

Recommendation: Add a new paragraphs S.1.4.6., UR.2.10., and UR.2.11. to the Scales Code.

S.1.4. Indicators.

S.1.4.6. Height. - All primary indications shall be indicated clearly and simultaneously.

(a) On digital devices that display primary indications during direct sales to the customer, the numerical figures displayed to the customer shall be at least 9.5 (1/3 in) mm high.

(b)* The units of mass and other *descriptive markings or indications, such as lb, kg, gross, tare, net, etc., shall be clearly and easily read and shall be at least 2 mm high.

[Nonretroactive as of January 1, 2007]
(Added 200X)

UR.2. Installation Requirements

UR.2.10. Primary Indicating Elements Provided by the User. – Primary indicating elements that are not the same as the primary indicating elements provided by the original equipment manufacturer (e.g. video display monitors) shall comply with the following:

(a) On digital devices that display primary indications during direct sales to the customer, the numerical figures displayed to the customer shall be at least 9.5 mm high.

(b) The units of mass and other descriptive information, such as gross, tare, net, etc., shall be displayed or marked on the device and shall be at least 2 mm high.

UR.2.11 Minimum Reading Distance - On digital devices that display primary indications, the height of the numbers expressed in millimeters should be not less than 3 times the minimum reading distance expressed in meters, without being less than 2 mm. (Example: If the height of the primary indications is 10 mm, then the minimum reading distance should not be greater than 30 m).

Add new definitions of "minimum reading distance" and "primary indications" to Appendix D as follows:

minimum reading distance. The shortest distance that an observer is able freely to approach the indicating device to take a reading under normal conditions of use. This approach is considered to be free for the observer if there is a clear space of at least 0.8 m in front of the indicating device. However, if the minimum reading distance "S" in figure X is less than 0.8 m, then the minimum reading distance is "L" in figure X. [2.20]
(Added 200X)

primary indications. Weight or other units of measurement values that are displayed by a primary indicating element. The primary indications are used as the determining factor in arriving at the sale representation when the device is used commercially. (Examples of primary indications include the measurement value, unit price or count, and total price on instruments capable of price computing. Primary indications do not include indications from auxiliary indicating devices such as totalizing registers and pre-determined stop mechanisms.) [1.10], [2.20]

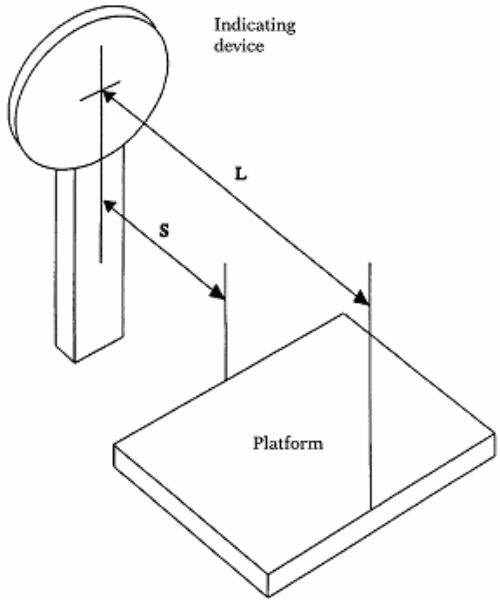


Figure X

(Added 200X)

Discussion: The size of weight indications and the values that define transaction information are becoming increasingly small, as demonstrated in the following example of a weight display where the actual size of the weight values are 9.5 mm in height, but the unit of measurement (g) is 4 mm in height.

How does the field and laboratory official determine if indications are suitable for the environment in which the device is used? The Weighing Sector developed and voted on a proposal which provides guidelines for determining whether or not indications are appropriate in a particular installation. OIML R76 requirements for visibility of indications to the customer in direct sale applications, minimum height of lettering for identification information, and the minimum height of numbers for analog indicating devices were used in developing the proposed language. The Weighing Sector ballot was developed as two voting items. The first voting item proposed a new paragraph S.1.4.6. Height *(of indicator)* and a

new definition for "primary indications." The result of the first voting item was eight in favor and two opposed to the proposed language. The comments opposing the item stated that the minimum 2 mm height for the "units" indication was too small to be clearly read under normal conditions. The second voting item proposed two new user requirements that provided additional guidelines for installations that use not-built-for-purpose separable indicating elements and guidelines on establishing on the minimum reading distance based on the size of the primary weight indications, and a new definition for minimum reading distance. The result of the second voting item was four in favor and two opposed to the proposed language. The comments opposing the item stated that it would be difficult for field officials to enforce the "minimum reading distance" and that the example is confusing and does not reflect what is in the proposed language.

Currently only the Taximeters, Grain Moisture Meters, and Near-Infrared Grain Analyzers Codes include requirements that specify the minimum height of figures, words, and symbols. NIST Handbook 44 and NCWM Publication 14 include no uniform size requirements or guidelines on how to evaluate display information for clarity and readability. The size requirements for all three device technologies were developed primarily because of concerns about the visibility of indications from the customer's position.

In 1999, a similar proposal to amend General Code paragraph G-S.5.2.3 Size and Character to include minimum height requirements was considered, but later withdrawn. GPMA expressed strong opposition to the 1999 proposal because many of their devices were equipped with quantity displays that would not meet the proposed 9.5 mm size requirement. Officials need uniform guidelines that are not ambiguous as to which transaction information must meet size requirements. It was felt that any future proposals should address a specific device technology since it is difficult to address all device configurations and the environmental conditions that exist at each installation site.

320-3 N.1.3.1. Bench or Counter Scales, N.1.3.8. All Other Scales Except Crane Scales, Hanging Scales, Hopper Scales, Wheel–Load Weighers, and Portable Axle-Load Weighers, and Appendix D; Definitions of Bench Scale and Counter Scale

Source: Carryover Item 320-6. (This item originated from the National Type Evaluation Technical Committee (NTETC) Weighing Sector and first appeared on the Committee's 2005 agenda.)

Recommendation: Delete paragraph N.1.3.1. and renumber subsequent paragraphs.

N.1.3. Shift Test.

~~**N.1.3.1. Bench or Counter Scales. - A shift test shall be conducted with a half-capacity test load centered successively at four points equidistant between the center and the front, left, back, and right edges of the load-receiving element.**~~

Renumber and amend paragraph N.1.3.8. All Other Scales Except Crane Scales, Hanging Scales, Hopper Scales, Wheel–Load Weighers, and Portable Axle-Load Weighers as follows:

N.1.3.~~8~~7. All Other Scales Except Crane Scales, Hanging Scales, Hopper Scales, Wheel-Load Weighers, and Portable Axle-Load Weighers. A shift test shall be conducted using the following prescribed test loads and test patterns.

(a) For ~~**livestock**~~ scales~~**, the**~~ **with a nominal capacity greater than 150 kg (300 lb), a** shift test ~~**load shall not exceed one-half the rated section**~~ **may be conducted by either using one-third nominal** capacity ~~**or one-half the rated concentrated load**~~ **test load centered as nearly as possible at the center of each quadrant of the load-receiving element as shown in Figure 1 below, or by using one-quarter nominal** capacity~~**, whichever is applicable. A shift** test **shall be conducted using either:**~~ **load centered as nearly as possible, successively over each corner of the load-receiving element as shown in Figure 2 below.**

(~~a~~b)~~**A one-quarter**~~ **For scales with a** nominal capacity **of 150 kg (300 lb) or less, a shift** test ~~**load**~~ **shall be conducted using one-third nominal capacity test load. The** ~~**centered as nearly as possible, successively over each main**~~ load **shall be applied centrally in the quadrant if a single weight is used, or applied uniformly over the quadrant if several weights are used.**~~**support as shown in the diagram below; or**~~

(~~b~~c) ~~**A one-half nominal capacity**~~ **For livestock scales, the shift** test load ~~**centered as nearly as possible, successively at the center of each quarter of the load-receiving element**~~ **shall not exceed one-half the rated section or concentrated load capacity using the prescribed test pattern** as shown in ~~**the diagram**~~ **Figure 1, or one-quarter the section or concentrated load capacity as shown in Figure 2** below.

(Added 2003)
(Amended 1987**,** ~~**and**~~ 2003**, and 200X)**

Figure 1

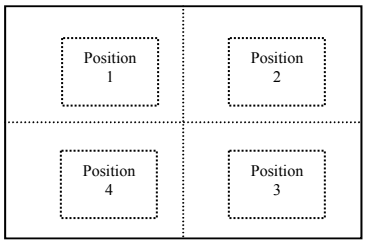
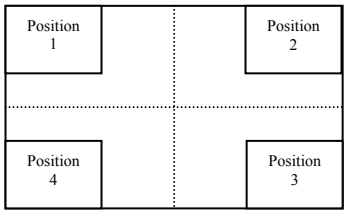


Figure 2



Delete Appendix D definitions for "bench scale" and "counter scale" as follows:

~~**bench scale. See "counter scale."[2.20]**~~

~~**counter scale. One that, by reason of its size, arrangement of parts, and moderate nominal capacity, is adapted for use on a counter or bench. Sometimes called "bench scale."[2.20]**~~

The CWMA recommended an alternate proposal to modify paragraph N.1.3.8. as follows:

N.1.3.~~8~~7. All Other Scales Except Crane Scales, Hanging Scales, Hopper Scales, Wheel-Load Weighers, and Portable Axle-Load Weighers. A shift test shall be conducted using the following prescribed test loads and test patterns.

(a) For ~~**livestock**~~ scales~~**, the**~~ **with a nominal capacity greater than 150 kg (300 lb) a** shift test ~~**load shall not exceed one-half the rated section**~~ **may be conducted by either using one-third nominal** capacity ~~**or one-half the rated concentrated load**~~ **test load centered as nearly as possible at the center of each quarter of the load-receiving element as shown in Figure 1 below, or by using one-quarter nominal** capacity~~**, whichever is applicable. A shift**~~ **test** ~~**shall be conducted using either:**~~ **load centered as nearly as possible, successively over each corner of the load-receiving element as shown in Figure 2 below.**

(~~a~~b) ~~**A one-quarter**~~ **For scales with a** nominal capacity **of 150 kg (300 lb) or less, a shift** test ~~**load**~~ **shall be conducted using one-third nominal capacity test load. The** ~~**centered as nearly as possible, successively over each main**~~ load **shall be applied centrally in the segment if a single weight is used, or applied uniformly over the segment, if several small weights are used** ~~**support**~~ **as shown in** ~~**the diagram**~~ **Figure 1 below**~~**; or**~~**.**

(~~b~~c) ~~**A one-half nominal capacity**~~ **For livestock scales the shift** test load ~~**centered as nearly as possible, successively at the center of each quarter of the load-receiving element**~~ **shall not exceed one-half the rated section or concentrated load capacity using the prescribed test pattern** as shown in ~~**the diagram**~~ **Figure 1, or one-quarter of the section or concentrated load capacity as shown in Figure 2** below.

(Added 2003)
(Amended 1987**,** ~~**and**~~ 2003**, and 200X)**

Figure 1

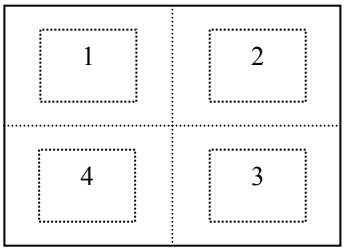
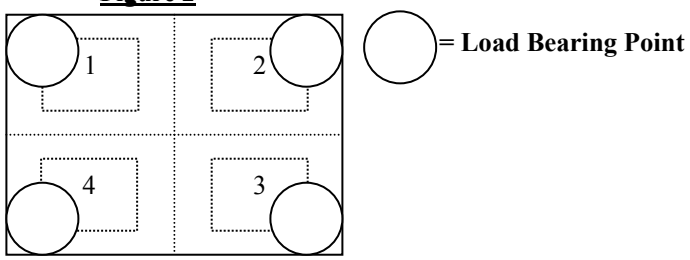


Figure 2



Discussion: The proposal is intended to clarify the appropriate shift test pattern and test loads for bench/counter scales and other platform type scales. Currently, bench and counter scale shift tests are conducted with a one-half capacity test load centered successively at four points equidistant between the center and the front, left, back, right edges of the load-receiving element. Other platform scale shift tests are conducted with a one-half capacity test load centered, as nearly as possible, successively at the center of each quadrant. The proposal eliminates references to bench and counter scales and instead prescribes that the shift test load and test pattern used be based on either the scale's nominal capacity or whether or not the scale is used to weigh livestock.

The proposal was kept on the agenda as an information item in response to comments indicating that data should be collected on shift tests to verify that the proposed test loads and positions are equivalent to existing test patterns. In spring 2005, NTEP Laboratories and jurisdictions were asked to send test results to Steve Cook, NIST Technical Advisor to the NTETC Weighing Sector, at steven.cook@nist.gov, by fax at (301) 926-0647 or via mail to NIST WMD, 100 Bureau Drive MS 2600, Gaithersburg, MD 20899-2600.

The WWMA and CWMA encouraged the Committee to keep the proposal an information item until more data could be collected and reviewed by the Weighing Sector, NIST, and the NTEP Laboratories. The Weighing Sector reported that it is still collecting data. For more background information, refer to the Committee's 2005 Final Report.

320-4 Table 4. Minimum Test Weights and Test Loads

Source: Northeastern Weights and Measures Association (NEWMA)

Recommendation: Modify Table 4. Minimum Test Weights and Test Loads as follows:

Table 4.
Minimum Test Weights and Test Loads[1]

Device capacity	Minimums (in terms of device capacity)		(where practicable)
	Test weights (greater of)	Test loads[2]	
0 to 150 kg (0 to 300 lb)	100 %		
151 to 1 500 kg (301 to 3 000 lb)	25 % or 150 kg (300 lb)	75 %	Test weights to dial face capacity, 1 000 d, or test load to used capacity, if greater than minimums specified
1 501 to 20 000 kg (3 001 to 40 000 lb)	12.5 % or 500 kg (1 000 lb)	50 %	
20 001 kg~~+~~ **to 250 000 kg** (40 001 lb~~+~~ **to 500 000 lb**)	**12.5 % or 5 000 kg (10 000 lb)**	25 %[3]	During initial verification, a scale should be tested to capacity.

[1] If the amount of test weight in Table 4 combined with the load on the scale would result in an unsafe condition, then the appropriate load will be determined by the official with statutory authority.

[2] The term "test load" means the sum of the combination of field standard test weights and any other applied load used in the conduct of a test using substitution test methods. Not more than three substitutions shall be used during substitution testing, after which the tolerances for strain load tests shall be applied to each set of test loads.

[3] The scale shall be tested from zero to at least 12.5 % of scale capacity using known test weights, and then to at least 25 % of scale capacity using either a substitution or strain load test that utilizes known test weights of at least 12.5 % of scale capacity. Whenever practical, a strain load test should be conducted to the used capacity of the scale. When a strain load test is conducted, the tolerances apply only to the test weights or substitution test loads.
(Amended 1988, 1989, 1994, ~~and~~ 2003 **and 200X**)

[**Note:** GIPSA requires devices subject to their inspection to be tested to at least "used capacity," which is calculated based on the platform area of the scale and a weight factor assigned to the species of animal weighed on the scale. "Used capacity" is calculated using the formula:

Used Scale Capacity = Scale Platform Area x Species Weight Factor

Where species weight factor = 540 kg/m^2 (110 lb/ft^2) for cattle, 340 kg/m^2 (70 lb/ft^2) for calves and hogs, and 240 kg/m^2 (50 lb/ ft^2) for sheep and lambs]

Discussion: Some jurisdictions encounter scales with 1 000 000-lb nominal capacities and must determine the minimum test loads needed to conduct an acceptable test. NEWMA believes that NIST Handbook 44 is flexible but that it does not provide any definitive guidelines on test loads for scales with high capacities. NEWMA modified its original proposal by reducing the scale maximum capacity from 1 000 000 lb to 500 000 lb and removing a footnote that permitted officials to establish the minimum test load. Industry and other regional associations have developed alternate proposals to address their concerns that the original proposal does not address the minimum test weights and test load requirements for a scale with a nominal capacity greater than 500 000 lb.

This issue was part of the Developing Issues agenda. However, the submitter agreed that it was ready for national consideration. In the fall of 2005, three regional weights and measures associations took separate positions on the proposal. The WWMA recommended the proposal remain a developing item. The CWMA recommended withdrawing the proposal since the current table already addresses most installations. NEWMA supports the proposal being on the Committee's 2006 agenda as a voting item.

320-5 Table 6. Maintenance Tolerances

Source: Carryover Item 320-7. (This item originated from the NIST Weights and Measures Division (WMD) and first appeared on the Committee's 2005 agenda.)

Recommendation: Amend Table 6 Maintenance Tolerances as follows:

Table 6. ~~Maintenance~~ Tolerances (All values in this table are in verification scale divisions e)				
Tolerance in verification scale divisions e				
	1	**2**	**3**	**~~5~~**
Class	**Test Load**			
I	0 - 50 000	50 001 - 200 000	200 001 +	
II	0 - 5 000	5 001 - 20 000	20 001 +	
III	0 - 500	501 - 2 000	2 001+ ~~- 4 000~~	~~4 001 +~~
IIII	0 - 50	51 - 200	201+ ~~- 400~~	~~401 +~~
III L	0 - 500	501 - 1 000	(Add 1 ~~d~~e for each additional 500 ~~d~~e or fraction thereof)	

(Amended 200X)

Discussion: The proposal modifies Table 6 in an attempt to return to the original intent of the step tolerances, which was to provide a relationship between scale accuracy and scale resolution. The USNWG agreed that NIST Handbook 44 Class III and Class IIII tolerances should be aligned with OIML R76. Manufacturers have indicated that they build identically performing instruments and load cells for both U.S. and international markets. However, some industry representatives questioned the ability of many scales and load cells with an n_{max} greater than 5000 e to comply with the temperature effect at zero in U.S. and OIML requirements.

The Class III L tolerance structure in NIST Handbook 44 deviates most from the intent of the step tolerances. For example if a Class III L scale has an e = 20 lb, then at 80 000 lb the maintenance tolerance would be ± 8 e, whereas a Class III scale with an e = 50 lb would have a ± 3 e maintenance tolerance at 80 000 lb. The uncertainty when reading indications for the Class III scale where e = 50 lb and there is a 150 lb (3 e) allowable error results in a more appropriate relationship than that of the Class III L scale where e = 20 lb and there is a 160 lb (8 e) allowable error. It should be noted that the tolerance values, zero-tracking limit, and motion detection requirements in NIST Handbook 44 are roughly equivalent to an R76 instrument when e = 50 lb.

During the 2005 NCWM Interim Meeting, the Committee agreed that the proposal has merit. However, the Committee made the proposal an information item in response to requests from jurisdictions for more time to examine data from test results using the proposed tolerances and to determine if there are devices that cannot comply, without the additional 5 d tolerance presently in Table 6.

Currently, only NEWMA is recommending the proposal move forward for a vote. The WWMA and CWMA recommend the proposal remain an information item until more data is gathered to determine whether or not it creates any problems regarding field equipment or how field officials apply the requirement. For more background information, refer to the Committee's 2005 Final Report.

320-6 T.N.4.5.1. Time Dependence; Class II, III, and IIII Non-automatic Weighing Instruments

Source: Southern Weights and Measures Association (SWMA)

Recommendation: Modify paragraph T.N.4.5.1. Time Dependence as follows:

> **T.N.4.5.1. Time Dependence; Class II, III, and IIII Non-automatic Weighing Instruments. -** A non-automatic weighing instrument of Classes II, III, and IIII shall meet the following requirements at constant test conditions**; during type evaluation, this test shall be conducted at 20 °C.**:
>
> (a) When any load is kept on an instrument, the difference between the indication obtained immediately after placing the load and the indication observed during the following 30 minutes shall not exceed 0.5 e.

(b) However, the difference between the indication obtained at 15 minutes and that at 30 minutes shall not exceed 0.2 e. If these conditions are not met, the difference between the indication obtained immediately after placing the load on the instrument and the indication observed during the following 4 hours shall not exceed the absolute value of the maximum permissible error at the load applied.

(c) The deviation on returning to zero as soon as the indication has stabilized, after the removal of any load which has remained on the instrument for 30 minutes, shall not exceed 0.5 e.

For a multi-interval instrument, the deviation shall not exceed 0.5 e_1 (first weighing segment).

On a multiple range instrument, the deviation on returning to zero from Max_i (load in the applicable weighing range) shall not exceed 0.5 e_i (interval of the weighing segment). Furthermore, after returning to zero from any load greater than Max_1 (capacity of the first weighing range) and immediately after switching to the lowest weighing range, the indication near zero shall not vary by more than e_1 (interval of the first weighing range) during the following 5 minutes.
(Added 2005) **(Amended 200X)**

Discussion: The proposal is intended to further harmonize the test conditions in U.S. requirements for time dependence tests with procedures included in OIML requirements. OIML requires that factors such as temperature, which might contribute to errors in test results, be kept constant. Consequently, the SWMA proposes to modify paragraph T.N.4.5.1. to specify that a constant temperature of 20 °C must be maintained during laboratory test conditions for type evaluation. The Committee might consider a further modification of paragraph T.N.4.5.1. that is less restrictive than the proposal to include a range of temperatures representative of a typical laboratory environment.

320-7 T.N.4.6.(b) Apportionment Factors, Table T.N.4.6. Maximum Permissible Error (mpe)* for Load Cells During Type Evaluation, T.N.4.7. Creep Recovery for Load Cells During Type Evaluation, and Appendix D; Definitions of Dmin

Source: National Type Evaluation Technical Committee (NTETC) Weighing Sector

Recommendation: Modify paragraph T.N.4.6.(b) and Table T.N.4.6. as follows:

T.N.4.6. Time Dependence (Creep) for Load Cells During Type Evaluation. – A load cell (force transducer) marked with an accuracy Class shall meet the following requirements at constant test conditions:

(a) Permissible Variations of Readings. - With a constant maximum load for the measuring range (D_{max}) between 90 % and 100 % of maximum capacity (E_{max}), applied to the load cell, the difference between the initial reading and any reading obtained during the next 30 minutes shall not exceed the absolute value of the maximum permissible error (mpe) for the applied load (see Table T.N.4.6.). The difference between the reading obtained at 20 minutes and the reading obtained at 30 minutes shall not exceed 0.15 times the absolute value of the mpe (see Table T.N.4.6.).

(b) Apportionment Factors. - The mpe for creep shall be determined from Table T.N.4.6. Maximum Permissible Error (mpe) * for Load Cells using the following apportionment factors (p_{LC}):

p_{LC} = 0.7 for load cells marked with S (single load cell applications), ~~**and**~~
p_{LC} = 1.0 for load cells marked with M (multiple load cell applications)**, and**
p_{LC} = 0.5 for Class III L load cells marked with S or M
(Amended 200X)
(Added 2005)

Table T.N.4.6. Maximum Permissible Error (mpe)* for Load Cells During Type Evaluation			
mpe in Load Cell Verifications Divisions (v) = p_{LC} x Basic Tolerance in v			
Class	p_{LC} x 0.5 v	p_{LC} x 1.0 v	p_{LC} x 1.5 v
I	0 - 50 000 v	50 001 v - 200 000 v	200 001 v +
II	0 - 5 000 v	5 001 v - 20 000 v	20 001 v +
III	0 - 500 v	501 v - 2 000 v	2 001 v +
IIII	0 - 50 v	51 v - 200 v	201 v +
III L	0 - 500 v	501 v - 1 000 v	(Add 0.5 v to the basic tolerance for each additional 500 v or fraction thereof up to a maximum load of 10 000 v)

v represents the load cell verification interval
p_{LC} represents the apportionment factors applied to the basic tolerance
p_{LC} = 0.7 for load cells marked with S (single load cell applications)
p_{LC} = 1.0 for load cells marked with M (multiple load cell applications)
p_{LC} = 0.5 for Class III L load cells marked with S or M
* mpe = p_{LC} x Basic Tolerance in load cell verifications divisions (v)

(Table Added 2005) **(Amended 200X)**

Add new paragraph T.N.4.7. as follows:

T.N.4.7. Creep Recovery for Load Cells During Type Evaluation. – The difference between the initial reading of the minimum load of the measuring range (D_{min}) and the reading after returning to minimum load subsequent to the maximum load (~~E~~D_{max}) having been applied for 30 minutes shall not exceed :

0.5 times the value of the load cell verification interval (0.5 v) for Class I, II, III, and IIII load cells or,

1.5 times the value of the load cell verification interval (1.5 v) for Class III L load cells.
(Added 200X)

Add new definitions of D_{min} and E_{min} to Appendix D as follows:

D_{min} (minimum load of the measuring range). Smallest value of a quantity (mass) which is applied to a load cell during test or use. This value shall not be less than E_{min}.[2.20]
(Added 200X)

E_{min} (minimum dead load). Smallest value of a quantity (mass) which may be applied to a load cell during test or use. This value shall not be less than E_{min}.[2.20]
(Added 200X)

Discussion: In 2005 the NIST Handbook 44 Scales Code was modified to include requirements for time dependence tests and to adapt U.S. requirements and OIML test procedures. Creep recovery test procedures and the appropriate apportionment factor for Class III L load cells were inadvertently omitted from the proposal to modify NIST Handbook 44. This current proposal modifies the test notes to include the necessary procedures and to add corresponding terminology that applies to values read from the creep recovery test.

320-8 UR.1.6. Computing Scale Interfaced to a Cash Register

Source: Carryover Item 320-3. (This item originated from the Southern Weights and Measures Association (SWMA) and first appeared on the Committee's 2005 agenda.)

Recommendation: Add a new paragraph UR.1.6. to the Scales Code as follows:

UR.1.6. Computing Scale Interfaced to a Cash Register. – A computing scale may interface with a cash register provided all displayed and recorded indications agree:

(a) the cash register only records (serves as printer) the information received from the scale,

(b) the computing scale has tare capability,

(c) the computing scale is not equipped with PLU capability,

(d) The electronic cash register does not have any input to the computing scale in the process of determining the total price of a weighed item.

(Added 200X)

Discussion: This proposal is intended to add new device-specific code requirements to the Scales Code to address the proper interface of computing scales with electronic cash registers (ECRs) and to clarify how each component must display transaction information, function in taking tare, and operate with Price-Look-Up (PLU) capability. The current NIST Handbook 44 General Code provisions specifying that weighing and measuring equipment and associated devices shall not facilitate fraud are not sufficient to clarify how a computing scale interfaced with an ECR should operate.

The proposal was developed in response to reports of computing scales interfaced with ECRs, where the ECR accepts weighing results from the computing scale and uses the ECR's price look-up (PLU) feature to retrieve tare and unit price information and calculate the total price. In this instance a different unit price, tare, and total price may already be manually entered and displayed on the computing scale. What customers view on the computing scale as the net weight, unit price, and total price may not be what is actually used by the ECR to calculate the customer's charge. In this example, the NTEP CC for field devices found out of compliance did not list the interface as an approved application.

The proposal began as a new specification (rather than a user requirement) with the exact same wording as shown above. It was thought that the language should clarify that it is acceptable for the ECR and computing scale to communicate the total price, but not to the point where the input process involves the ECR calculating the total price. The Committee recommended that jurisdictions, if they have not already done so, establish clear examination procedures (e.g., enter a new price per pound at the ECR) so that officials also have field examination procedures to verify that an ECR and computing scale interface are in compliance.

The Committee heard numerous comments that the proposed specification would be too restrictive to new technology. Industry believed the proposal written as a specification might limit future technology used to interface equipment. Manufacturers indicated the proposed subparagraphs were too restrictive when a point-of-sale system (POS) reads UPC codes and recomputes prices for frequent shopper discounted prices. The Committee heard that, since type evaluation already verifies the requirements proposed in the new paragraphs, the Committee should consider an alternate proposal that only specifies "all indications must agree." The Committee believed the term "input" should be expanded to provide more detail to the field official about how the interface works. The Committee concluded that a requirement is needed to ensure equipment is properly interfaced as approved by NTEP and as intended by the manufacturer's design once it is in commercial use. Consequently, the Committee modified the proposal making it a user requirement with the recommendation that it be adopted by the NCWM.

During the 2005 NCWM Annual Meeting, the Committee heard that there are instances in which a computing scale may be inappropriately interfaced with an ECR to create a point-of-sale system contrary to the intended device application covered on the device's CC. Neither proposal addresses computing scales with multiple sales accumulation capability. The current definition of a POS may also require some modification to clarify the specific type of weighing element that is permitted as part of the POS assembly. The Committee believes this becomes a design issue rather than one involving the user; however, a user requirement might also be appropriate. The Committee changed the item status from "voting" to "information" and recommended SWMA rework the proposal as a specification that (1) provides more detail to the field official about how the cash register must function, (2) is readily available as a specification in NIST Handbook 44 to assist device manufacturers who are considering design modifications to a computing scale or cash register, and

(3) ensures there are no conflicts with requirements in corresponding paragraphs such as S.1.8.4. Recorded Representations, Point-of-Sale Systems.

The WWMA recommends withdrawing the item since there is sufficient language in General Code paragraphs G-S.2. Graduations, Indications, and Recorded Representation, G-S.5.2.2. Digital Indication and Representation, and G-UR.1.1. Suitability of Equipment to address the proper interface of a POS with an ECR. NEWMA indicated the item should be withdrawn because it needs further development. SWMA received limited comments on the proposal and decided to take no further position on the item.

For more background information, refer to the Committee's 2005 Final Report.

320-9 UR.2.6.1. Vehicle Scales; Approaches

Source: Central Weights and Measures Association (CWMA)

Recommendation: Modify paragraph UR.2.6.1. as follows:

> ***UR.2.6.1. Vehicle Scales.*** *- On the entrance and exit* ***end or*** *ends of a vehicle scale installed in any one location for a period of 6 months or more, there shall be a straight approach as follows:*
>
> *(a) the width at least the width of the platform,*
>
> *(b) the length at least one-half the length of the platform but not required to be more than 12 m (40 ft), and*
>
> *(c) not less than 3 m (10 ft) of any approach adjacent to the platform shall be constructed of concrete or similar durable material to ensure that this portion remains smooth and level and in the same plane as the platform. However, grating of sufficient strength to withstand all loads equal to the concentrated load capacity of the scale may be installed in this portion. Any slope in the remaining portion of the approach shall ensure (1) ease of vehicle access, (2) ease for testing purposes, and (3) drainage away from the scale.*
>
> *[Nonretroactive as of 1976]*
> (Amended 1977, 1983, ~~and~~ 1993 **and 200X**)

Discussion: The CWMA proposal was developed to clarify that the wording in paragraph U.R.2.6.1. recognizes installations that have a combination entrance and exit. Space limitations at the installation site or the scale's design may dictate that the vehicle must be driven on and off the load receiving element from the same end of the scale. NEWMA does not support the proposal because it believes the current language can be interpreted to permit installations with an approach that is a combination entrance and exit.

320-10 UR.3.7. Minimum Load on a Vehicle Scale

Source: Southern Weights and Measures Association (SWMA)

Recommendation: Modify paragraph UR.3.7.(a) Minimum Load on a Vehicle Scale as follows:

> UR.3.7. Minimum Load on a Vehicle Scale. - A vehicle scale shall not be used to weigh net loads smaller than:
>
> (a) 10 d when weighing scrap material for recycling **and for refuse materials at landfills**;
>
> (b) 50 d for all other weighing.
>
> As used in this paragraph, scrap materials for recycling shall be limited to ferrous metals, paper (including cardboard), textiles, plastic, and glass.
> (Amended 1988 ~~and~~ 1992 **and 200X**)

Discussion: SWMA believes the same 10 d minimum load requirement granted in 1992 for the weighing of certain scrap materials and recyclables should apply to refuse hauled to landfills. SWMA found that both types of material are redeemed or disposed of in small quantities and are awkward and sometimes unsafe (long, sharp, protruding edges) to handle and, thus, fall under the earlier rationale that allowed the 10 d minimum load. Because of the low value of this material, it is not profitable for centers to accept those materials nor does it make it feasible for them to purchase a suitable scale. SWMA notes that many municipal landfills accept those materials in quantities that are in violation of paragraph UR.3.7., but do so to prevent citizens from improperly disposing of materials. SWMA believes that expanding the 10 d minimum load requirement is sensible and environmentally responsible.

NEWMA supports an alternative proposal which would require a 20 d minimum load for all commodities weighed on a vehicle scale. NEWMA reports that some jurisdictions do not enforce the 50 d minimum load requirement at municipal landfills and other sites because of the low cost of the commodity. NEWMA suggested several points for consideration when there is a 10 d minimum load requirement. First, the price of the commodity should be a factor in deciding the minimum load limit. It is also inappropriate to have a 10 d minimum load requirement especially for large-capacity scales where rounding errors may contribute to uncertainties in the measurement.

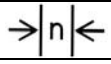
320-11 List of International Symbols Noted as Acceptable

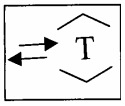
Source: Carryover Item 320-9. (This item originated from the Southern Weights and Measures Association (SWMA) and first appeared on the Committee's 2005 agenda.)

Recommendation: Add a new Appendix E as follows:

Appendix E

List of Acceptable Abbreviations/Symbols

Device Application	Term	Acceptable	Not Acceptable
The following symbols are intended for operator controls, indications, and features. When they are also intended for the customer (including customer-operated devices), they cannot be used without additional descriptions, directions, or marks displayed or marked on the device.			
Operational Controls, Indications, Features:	**zero key or center of zero indicator**		**"z" alone is not acceptable unless term is defined on device**
	Off (Power)		
	On (Power)		
	On/Off (Power)		
	Print		
	Weighing		
	Scale n (n = 1. 2. ...)		
	Range n (n = 1, 2, ...)		
	High resolution		

Device Application	Term	Acceptable	Not Acceptable
The following symbols are intended for operator controls, indications, and features. When they are also intended for the customer (including customer-operated devices), they cannot be used without additional descriptions, directions, or marks displayed or marked on the device.			
Operational Controls, Indications, Features:	**enter key**		
	tare enter key		
	tare clear key		
	tare enter/tare clear		
	verify tare		
	Not for direct sales to the public		
	Combined zero/tare – See S.2.1.6. for additional information		
	Taring		
	Mass/Weight		
	Money		
	Price Per weight unit		
	Piece count		
	Counter		
	Read Counter		
	Print certificate		
	Information		

(Table Added 200X)

Discussion: The proposed list of symbols introduces the U.S. weights and measures official to a set of international symbols for use in marking operator controls, indications, and device features. Recognition and use of these symbols are consistent with efforts to harmonize U.S. and international device requirements.

Currently, the list of symbols is part of NCWM Publication 14 "Technical Policy, Checklists, and Test Procedures" for Weighing Devices. NTEP uses international symbols whenever possible. Style differences, such as variations in the shape of arrows, are acceptable.

The Committee heard various recommendations for making the symbols readily accessible. The recommendations ranged from posting the list on a weights and measures website to placing the list in NIST Handbook 44 as an appendix.

The Committee agreed with the need to familiarize U.S. officials with international symbols and recommended the proposed list of acceptable new symbols be a new Appendix E in NIST Handbook 44. During the 2005 NCWM Annual Meeting, the Committee agreed that unless the table references a specific code, then the table applies to all types of devices. The Committee believes that if the table is to be used as an enforcement tool, then only symbols in the proposed list would be considered acceptable. The Committee preferred an all-inclusive list of acceptable symbols. If the table is intended to be all-inclusive, other acceptable symbols currently in use for all device types, such as the dollar sign ($) on retail motor-fuel dispensers and taxi meters, must be added to the list. The Committee changed the status of the item from voting to an information item to allow time to develop language that will link the table to specific codes and to fully assess whether or not the table should be all-inclusive.

At their fall 2005 meetings, the regional weights and measures associations differed in their positions. The WWMA recommends withdrawing the proposal since the owner's manual or NCWM Publication 14 can be referenced for symbols and other markings and any device that holds a CC must have approved markings. The CWMA recommends listing the symbols in NIST Handbook 44. NEWMA suggests an alternate title "List of Acceptable Commonly Used Abbreviations/Symbols."

For more background information, refer to the Committee's 2005 Final Report.

321 BELT-CONVEYOR SCALE SYSTEMS

321-1 N.1.1. Official Test, N.4. As-found Inspection and Tests, and UR.4.1. As-found Inspection and Tests

Source: Western Weights and Measures Association (WWMA)

Recommendation: Modify paragraph N.1.1. as follows:

> **N.1.1. Official Test.** - A~~n~~ **complete** official test of a belt-conveyor scale system **performed by the official with statutory authority** shall ~~be a~~ **include N.3.1. Zero Load Test, N.3.2. M**~~m~~aterials **T**~~t~~est, **and if applicable, N.3.3. Simulated Load Tests**.
> **(Amended 200X)**

Add new paragraphs N.4. and UR.4.1. as follows:

> **N.4. As-found Inspection and Test. – The official with statutory authority may inspect the belt-conveyor scale system as-found in normal operation without notice prior to receiving the written notification provided the owner or his agent that the system is in compliance and ready for material testing as required in UR.4. Compliance. During the as-found inspection, the official may conduct zero-load and simulated load tests. The official with statutory authority will require that an official material test be conducted within a time frame established by the offical[1].**
> **(Added 200X)**
>
> **[1]The official material test may be scheduled sooner than the normal frequency of testing based upon areas of non-compliance and the condition of the installation during the as-found inspection and tests.**
>
> **UR.4.1. As-found Inspection and Tests. As a result of the tests and inspections performed according to paragraph N.4. As-found Inspection and Tests, the scale owner and/or his agent shall correct any deficiencies identified by the official prior to the official material test. They may also continue performing scheduled or routine maintenance (e.g., cleaning, and checking alignment, pulleys, idlers, etc.) prior to the official material tests provided these activities are documented as part of the operational procedures**

for the installation. The scale owner and/or his agent shall notify the official with statutory authority when the areas of non-compliance have been corrected and if repairs or adjustments are required or performed due to conveyor or scale equipment damage or failure.
(Added 200X)

Discussion: Most commercial weighing and measuring devices are subject to unannounced inspections by weights and measures officials. However, the nature of the inspection and test described in paragraph N.1.1. usually requires advance scheduling to arrange the logistics for testing the reference scale(s) and, if necessary, procurement of vehicles or railcars to transport the pre-weighed or post-weighed material. This practice provided many owner/users of belt-conveyor scales with an opportunity to inspect, clean, and prepare the systems in advance of the test. The owner/user of the scale is required to notify the official with statutory authority that the scale is ready for test in accordance with paragraph UR.4. Compliance. As a result, the official cannot verify compliance with NIST Handbook 44 General Code paragraph G-UR.4.1. Maintenance of Equipment since the as-found condition and performance of the scale does not represent its as-used condition and performance.

The proposal encourages officials to perform as-found inspections and zero-load and simulated load tests to assess compliance with G-UR.4.1. Maintenance of Equipment rather than relying solely on the inspection conducted during the official material tests. The proposal further encourages scale owners and users to perform and document routine inspections and maintenance of the belt-conveyor scale system if they know they are subject to unannounced inspections. The WWMA modified the proposal before recommending it for consideration by the Committee. The SWMA asked for additional input from parties affected by the proposal before it takes a position.

321-2 UR.2.2.(n) Belt Alignment

Source: Southern Weights and Measures Association (SWMA)

Recommendation: Modify paragraph UR.2.2.(n) as follows:

UR.2.2. Conveyor Installation

(n) Belt Alignment. – The belt shall be centered on the idlers in the weighing area and shall track in practically the same position whether empty or loaded. The belt shall not extend beyond the edge of the idler roller in any area of the conveyor.
(Amended 1998 **and 200X**)

Discussion: The WWMA considered the proposed changes to paragraph UR.2.2. to provide needed guidance on belt tracking before, during, or after a material tests. Ideally, the belt should be in the same location at full load or empty conditions. If the belt location or belt tension is not constant, scale accuracy is affected. Consequently, the WWMA agreed to recommend a proposal to modify paragraph UR.2.2. to make the scale user/owner aware that the belt position must be monitored and maintained. The WWMA suggested the proposal as a developing item.

The CWMA supports the proposal but recommends removing any ambiguity by deleting the word "practically" from the proposed text. The SWMA supports the proposal being a voting item on the Committee's 2006 agenda.

330 LIQUID-MEASURING DEVICES

330-1 S.1.2. Units

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify paragraph S.1.2. Units as follows:

S.1.2. Units. - A liquid-measuring device shall indicate, and record if the device is equipped to record, its deliveries in liters, gallons, quarts, pints, **fluid ounces,** or binary-submultiples or decimal subdivisions of the liter or gallon.
(Amended 1987, 1994**, and 200X**)

Background/Discussion: NTEP issued a CC for a liquid-measuring device that displays its deliveries in fluid ounces. The device currently in use always makes a delivery of 4 fl oz. A jurisdiction would not approve the use of the devices stating that those units of measurement are not recognized in paragraph S.1.2. in the LMD code. However, because paragraph S.1.2. allows binary submultiples of the liter or gallon, an indication of 1/32 gallon would be acceptable.

At the spring 2005 NTEP Laboratory Meeting, the laboratories agreed that consumers would understand 4 fl oz better than 1/32 gallon and asked the Measuring Sector to review the proposal as shown above.

At its October 2005 Meeting, the NTETC Measuring Sector reviewed the proposal and agreed to forward it to the Committee for consideration. At its October 2005 meeting, the SWMA supported the Measuring Sector's recommendation and recommended that the item move forward to the Committee.

330-2 S.1.2.3. Value of the Smallest Unit

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify NIST Handbook 44, paragraph S.1.2.3. as follows:

> **S.1.2.3. Value of Smallest Unit.** - The value of the smallest unit of indicated delivery, and recorded delivery if the device is equipped to record, shall not exceed the equivalent of:
>
> (a) 0.5 L **(~~1 pt~~ <u>0.1 gal</u>)** on ~~**retail**~~ devices **<u>with a maximum rated flow rate of 750 L/min (200 gal/min) or less.</u>**
>
> (b) 5 L (1 gal) on ~~**wholesale**~~ devices **<u>with a maximum rated flow of more than 750 L/min (200 gal/min)</u>.**
>
> This requirement does not apply to manually operated devices equipped with stops or stroke-limiting means. (Amended 1983**<u>,</u>** ~~**and**~~ 1986**<u>, and 200X</u>**)

Background/Discussion: In 2004 the definition of a "retail device" in NIST Handbook 44 was modified to include all devices used to measure product for the purpose of sale to the end user. At that time, the Committee believed all affected parties were aware of the proposal and there was no opposition to the change. However, after the 2005 edition of the handbook was published and distributed, WMD received a comment from a weights and measures jurisdiction that routinely tests large meters used to deliver fuel to fishing fleets and other large ocean going boats. The jurisdiction stated that the average delivery is approximately 300 000 gallons and may be as much as 1 million gallons. Prior to the revision of the definition of "retail," the value of the smallest unit of the indicated delivery for these devices was permitted to be 1 gallon. Most of the devices have mechanical registers which make it impractical to have a smallest unit of 0.1 at the high flow rates used for such large deliveries. Because the fuel is being delivered to the end user, the jurisdiction believes this is a retail delivery. However, with the revisions to the definition of retail device, NIST Handbook 44 now requires a smallest unit of delivery of not more than 0.5 L (1 pint) for these devices.

At its October 2005 meeting, the NTETC Measuring Sector reviewed the proposal and agreed to forward the proposal to the Committee for consideration. At its October 2005 meeting, the SWMA agreed with the Measuring Sector's recommendation and recommended that the item move forward to the Committee.

330-3 Table S.2.2. Categories of Device and Methods of Sealing

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify Table S.2.2. as follows:

Table S.2.2. Categories of Device and Methods of Sealing	
Category of Device	**Method of Sealing**
Category 1: No remote configuration capability.	*Seal by physical seal or 2 event counters: 1 for calibration parameters and 1 for configuration parameters.*
~~***[Category 2 applies only to devices manufactured prior to January 1, 2005. Devices with remote configuration capability manufactured after that date must meet the sealing requirements outlined in Category 3. Devices without remote configuration capability manufactured after that date must meet the minimum criteria outlined in Category 1.]***~~ *Category 2: Remote configuration capability, but access is controlled by physical hardware.* *The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.*	*[The hardware enabling access for remote communication must be on-site. The hardware must be sealed using a physical seal or an event counter for calibration parameters and an event counter for configuration parameters. The event counters may be located either at the individual measuring device or at the system controller; however, an adequate number of counters must be provided to monitor the calibration and configuration parameters of the individual devices at a location. If the counters are located in the system controller rather than at the individual device, means must be provided to generate a hard copy of the information through an on-site device.]** *[*Nonretroactive as of January 1, 1996]*
Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password). *[Nonretroactive as of January 1, 1995]* *The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.* *[Nonretroactive as of January 1, 2001]* ~~***Nonretroactive as of January 1, 2005, all devices with remote configuration capability must comply with the sealing requirements of Category 3.***~~	*An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required. (**Note**: Does not require 1000 changes to be stored for each parameter.)*

[Nonretroactive as of January 1, 1995]
(Table Added 1993) (Amended 1995, 1998, ~~and~~ 1999, and 200X)

Background/Discussion: At its 1998 Annual Meeting, the NCWM adopted a proposal to eliminate Category 2 as an option for devices that fall under the sealing requirements for Liquid-Measuring Devices Code and the Mass Flow Meters Code. Effective January 1, 2005, all devices falling under these two codes must be designed as a Category 1 device or, if equipped with remote configuration capability, must be a Category 3 device.

At its October 2005 meeting, the NTETC Measuring Sector discussed NIST Handbook 44 codes for liquid-measuring devices that do not have specific provisions for electronic sealing (i.e., audit trails) in the code, such as the Vehicle-tank Meters Code or the LPG and Anhydrous Ammonia Liquid-Measuring Devices Code. At the meeting, manufacturers of these devices stated that they have designed metering systems with electronic sealing capability with remote configuration capability. They are currently seeking an NTEP CC for these systems. Currently the specific NIST Handbook 44 code for these devices does not address electronic sealing, but it is recognized in the General Code and under the provisions of G-A.3. Special and Unclassified Equipment. Accordingly NTEP has made an "ad hoc" decision to apply the criteria in the LMD code to these devices; however, the manufacturers would prefer that specific language similar to that in the Liquid-Measuring Devices (LMD) Code. During the discussion, the Sector concluded that some of these new applications and other applications currently in use in fact would have been classified as the former device Category 2 device. The Sector agreed that the decision to remove Category 2 from the LMD Code and the Mass-flow

Meters Code should be reversed and that provisions for electronic sealing should be added to all appropriate liquid-measuring devices code as proposed in items 330-3, 331-2, 332-1, 334-1, 335-1, and 338-1 and agreed to forward that proposal to the Committee for consideration.

330-4 S.3.1. Diversion of Measured Liquid

Source: Central Weights and Measures Association (CWMA)

Recommendation: Amend Paragraph S.3.1. as follows:

S.3. Discharge Lines and Valves.

S.3.1. Diversion of Measured Liquid. - No means shall be provided by which any measured liquid can be diverted from the measuring chamber of the meter or its discharge line. Two or more delivery outlets may be installed only if automatic means are provided to ensure that:

(a) liquid can flow from only one outlet at a time, and

(b) the direction of flow for which the mechanism may be set at any time is clearly and conspicuously indicated.

A**n** ~~**manually controlled**~~ outlet that may be opened for purging or draining the measuring system or for recirculating**, if recirculation is required in order to maintain the** product in **a deliverable state,** ~~**suspension**~~ shall be permitted ~~**only when the system is measuring food products or agri-chemicals.**~~ Effective means shall be provided to prevent passage of liquid through any such outlet during normal operation of the measuring system and to inhibit meter indications (or advancement of indications) and recorded representations while the outlet is in operation.

(Amended 1991, 1995, ~~**and**~~ 1996 **and 200X**)

Background/Discussion: The CWMA noted that the requirements in paragraph S.3.1. of Section 3.30 Liquid Measuring Devices and paragraph S.4.1. Diversion of Measured Product of Section 3.37 Mass Flow Meters of NIST Handbook 44 (2005) are not consistent with each other. Paragraph S.3.1. bans manual valves for re-circulating product or purging or draining the measuring system except for foods and agri-chemicals. Paragraph S.4.1. allows manual valves but appears to ban automatic valves by omission, and makes no distinction for types of products measured as long as the system meets the specified requirements.

Cold weather and physical characteristics make recirculation necessary for a number of products not currently allowed in paragraph S.3.1. of Section 3.30. (#6 Fuel oil and B100 Biodiesel, for example). Although liquid-measuring devices exist which have NTEP CCs for these high viscosity products, the current wording of the handbook restricts vendors of these products to using mass flow technology if they wish to recirculate their product in order to keep it in a deliverable state. This appears to be the unintended result of the fact that the two codes were written at different times with different input from industry lobbies. The CWMA recommends that retailers of these products not be restricted to using only mass flow meters for commercial measurements if other suitable technologies are available. Likewise, both manual and automatic valves are suitable for recirculating product in discharge lines of these devices, and the use of either type should be allowed.

At the CWMA 2005 Interim Meeting, it was noted that adopting this proposal will create a logical and consistent standard of enforcement for mass flow meters and liquid-measuring devices, which are used for identical applications and products, thus ending an unintentional bias in favor of one technology over the other.

By stating the uniform guidelines for when it is acceptable to allow purge lines and recirculation lines (i.e., the necessity for such lines is to keep the product in a deliverable state), this proposal would eliminate the need for industry to petition the NCWM for each product which requires such special handling. The CWMA agreed to forward the proposal with the recommendation that it be a voting item on the Committee's 2006 agenda.

330-5 Table T.2. Accuracy Classes for Liquid Measuring Devices Covered in NIST Handbook 44 Section 3.30

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify Table T.2. as follows:

Table T.2. Accuracy Classes for Liquid Measuring Devices Covered in NIST Handbook 44 Section 3.30

Accuracy Class	Application	Acceptance Tolerance	Maintenance Tolerance	Special Test Tolerance[1]
0.3	Petroleum products delivered from large capacity (flow rates over 115 L/min (30 gpm))** devices including motor fuel devices, heated products at or greater than 50° C asphalt at or below temperatures 50° C, all other liquids not shown where the typical delivery is over 200 L (50 gal)	0.2 %	0.3 %	0.5 %
0.3A	Asphalt at temperatures greater than 50° C	0.3 %	0.3 %	0.5 %
0.5*	Petroleum products delivered from small capacity (at 4 L/min (1 gpm) through 115 L/min (30 gpm))** motor-fuel devices, agri-chemical liquids, and all other applications not shown where the typical delivery is # 200 L (50 gal)	0.3 %	0.5 %	0.5 %
1.1	Petroleum products and other normal liquids from devices with flow rates** less than 1 gpm and devices designed to deliver less than 1 gallon	0.75 %	1.0 %	1.25 %

*For 5-gallon and 10-gallon test drafts, the tolerances specified for Accuracy Class 0.5 in the table above do not apply. For these test drafts, the maintenance tolerances on normal and special tests **(except for retail motor-fuel dispensers)** for 5-gallon and 10-gallon test drafts are 6 cubic inches and 11 cubic inches, respectively. Acceptance tolerances on normal and special tests **(except for retail motor-fuel dispensers)** are 3 cubic inches and 5.5 cubic inches. **[1] Special Test Tolerances are not applicable to retail motor-fuel dispensers.**

** Flow rate refers to designed or marked maximum flow rate.

(Added 2002)**(Amended 200X)**

Background/Discussion: Prior to the addition of Table T.2. "Accuracy Classes for Liquid Measuring Devices Covered in NIST Handbook 44 Section 3.30" in the LMD Code of NIST Handbook 44 in 2002, the applicable tolerances in T.2.1. Tolerance Values for "retail devices" of any flow rate, including RMFDs, were the same for normal and special tests. Special test tolerances were only applicable to "wholesale devices" measuring liquids other than agri-chemicals and asphalt.

At its October 2005 meeting, the NTETC Measuring Sector reviewed a proposal that would remove the special test tolerance for RMFDs and wholesale meters measuring agri-chemicals and asphalt. The Sector agreed that some devices measuring agri-chemicals and asphalt should have a special test tolerance. The current definition of "retail" in Handbook 44 now applies to devices that, prior to 2004 when the definition of "retail" was changed, would have met the definition for a wholesale device with regard to flow rate. When the wholesale devices measuring agri-chemicals and asphalt were classified as "wholesale," they were permitted to have a special test tolerance. Those same devices may now meet the criteria to be classified as "retail"; however they should still be allowed to have a special test tolerance. The Sector agreed to limit the proposal to only RMFDs and to forward the proposal shown above to the Committee for consideration. At its October 2005 Annual Meeting, the SWMA agreed with the Measuring Sector that special test tolerances should not be applicable to RMFDs of any flow rate.

331 VEHICLE-TANK METERS

331-1 S.1.1.3. Value of Smallest Unit

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify Paragraph S.1.1.3. as follows:

S.1.1.3. Value of Smallest Unit. - The value of the smallest unit of indicated delivery, and recorded delivery if the meter is equipped to record, shall not exceed the equivalent of:

(a) 0.5 L (0.1 gal) or 0.5 kg (1 lb) on milk-metering systems**,**

(b) 0.5 L (0.1 gal) on meters with a rated maximum flow rate of ~~**500**~~ **750** L/min **(**~~**100**~~ **200** gal/min) or less used for ~~**retail**~~ deliveries of liquid fuel, or
(**Amended 200X)**

(c) 5 L (1 gal) on meters with a rated maximum flow of 575 L/min (150 gal/min) or more used for jet fuel aviation refueling systems,
(Added 200X)

(~~**e**~~**d)** 5 L (1 gal) on other meters.

Discussion/Background: Paragraph S.1.1.3. in the VTM Code requires the smallest unit of indicated delivery to be not greater than 0.5 L (0.1 gal) for deliveries on meters with a rated maximum flow rate of 500 L/min (100 gal/min) or less used for retail deliveries of liquid fuel and 5 L (1 gal) for all other meters (except milk-metering systems). VTMs with rated maximum flow rates up to approximately 150 gallons per minute are being introduced into the marketplace for use in making deliveries of approximately the same amount as those previously made with devices that had maximum flow rates of 100 gallons per minute or less. The amount of the increase in flow rate and the amount of product being delivered do not warrant a tenfold increase in the required value of the smallest unit of measurement.

At its 2005 meeting, the NTETC Measuring Sector reviewed a proposal to increase the rated maximum flow rate criteria in S.1.1.3. from 100 gallons per minute to 200 gallons per minute. Some manufacturers of aviation refueling systems suggested that these systems need a separate criterion due to the unique nature of their application. The Sector agreed with the aviation refueler manufacturers and agreed to forward the proposal to the Committee for consideration. At its October 2005 meeting, the SWMA supported the Measuring Sector's proposal and recommended the item move forward to the Committee.

331-2 S.2.2. Provision for Sealing and Table S.2.2. Categories of Device and Methods of Sealing

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify paragraph S.2.2., delete S.2.2.1., and add new Table S.2.2. Categories of Device and Methods of Sealing as follows:

S.2.2. Provision for Sealing. – ~~**Except on devices for metering milk, a**~~**A**dequate provision shall be made for ~~**applying security seals in such a manner that no**~~ **an approved means of security (e.g., data change audit trail) or for physically applying a security seal in such a manner that requires the security seal to be broken before an** adjustment may be made of:

(a) any measurement element, **indicating element,** and

(b) any adjustable element for controlling delivery rate, when such rate tends to affect the accuracy of deliveries.

~~**S.2.2.1. Milk Metering Systems. – Adequate provision shall be made for applying security seals to the adjustment mechanism and the register. The adjusting mechanism shall be readily accessible for purposes of affixing a security seal.**~~

When applicable, the adjusting mechanism shall be readily accessible for purposes of affixing a security seal.

Audit trails shall use the format set forth in Table S.2.2.
[Nonretroactive as of January1, 200X]

Table S.2.2. Categories of Device and Methods of Sealing	
Category of Device	**Method of Sealing**
Category 1: No remote configuration capability.	***Seal by physical seal or 2 event counters: 1 for calibration parameters and 1 for configuration parameters.***
Category 2: Remote configuration capability, but access is controlled by physical hardware. ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***[The hardware enabling access for remote communication must be on-site. The hardware must be sealed using a physical seal or an event counter for calibration parameters and an event counter for configuration parameters. The event counters may be located either at the individual measuring device or at the system controller; however, an adequate number of counters must be provided to monitor the calibration and configuration parameters of the individual devices at a location. If the counters are located in the system controller rather than at the individual device, means must be provided to generate a hard copy of the information through an on-site device.]***
Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password). ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)***

[Nonretroactive as of January 1, 200X]
(Table Added 200X)

Background/Discussion: At its October 2005 meeting, the NTETC Measuring Sector discussed Handbook 44 codes for liquid-measuring devices that do not have specific provisions for electronic sealing (i.e., audit trails) in the code, such as the VTM Code or the LPG and Anhydrous Ammonia Metering-Devices Code. At the meeting, manufacturers of these devices stated that they have designed metering systems with electronic sealing capability with remote configuration capability. They are currently seeking an NTEP CC for these systems. Currently the specific NIST Handbook 44 code for these devices does not address electronic sealing, but it is recognized in the General Code and under the provisions of G-A.3. Special and Unclassified Equipment. Accordingly, NTEP has made an "*ad hoc*" decision to apply the criteria in the LMD Code to these devices. The manufacturers would prefer specific language similar to that in the LMD Code be applied to the VTM and the LPG and Anhydrous Ammonia Metering-Devices Codes. During the discussion, the Sector concluded that some of these new applications and other applications currently in use would have been classified as the former Category 2 device. The Sector agreed that the decision to remove Category 2 from the LMD Code and the MFM

Code should be reversed and that provisions for electronic sealing should be added to all appropriate liquid-measuring devices codes as proposed in S&T Items 330-3, 331-2, 332-1, 334-1, 335-1, and 338-1. The Sector agreed to forward that proposal to the Committee for consideration.

331-3 Temperature Compensation

Source: Carryover Item 331-1 (This item originated from the Western Weights and Measures Association (WWMA) and first appeared on the Committee's 2000 agenda.)

Recommendation: Modify Section 3.31. Vehicle-Tank Meters (VTM) Code by adding the following new paragraphs to recognize temperature compensation as follows:

S.2.4. Automatic Temperature Compensation for Refined Petroleum Products.

S.2.4.1. Automatic Temperature Compensation for Refined Petroleum Products. - A device may be equipped with an automatic means for adjusting the indication and registration of the measured volume of product to the volume at 15 °C (60 °F), where not prohibited by State Law.

S.2.4.2. Provision for Deactivating. - On a device equipped with an automatic temperature-compensating mechanism that will indicate or record only in terms of liters (gallons) compensated to 15 °C (60 °F), provision shall be made for deactivating the automatic temperature-compensating mechanism so that the meter can indicate and record, if it is equipped to record, in terms of the uncompensated volume.

S.2.4.3. Gross and Net Indications - A device equipped with automatic temperature compensation shall indicate and record, if equipped to record, both the gross (uncompensated) and net (compensated) volume for testing purposes. If both values cannot be displayed or recorded for the same test draft, means shall be provided to select either the gross or net indication for each test draft.

S.2.4.4. Provision for Sealing Automatic Temperature-Compensating Systems. - Adequate provision shall be made for an approved means of security (e.g., data change audit trail) or physically applying security seals in such a manner that an automatic temperature-compensating system cannot be disconnected and that no adjustment may be made to the system.

S.2.4.5. Temperature Determination with Automatic Temperature Compensation. - For test purposes, means shall be provided (e.g., thermometer well) to determine the temperature of the liquid either:

(a) in the liquid chamber of the meter, or

(b) immediately adjacent to the meter in the meter inlet or discharge line.

(Added 200X)

S.5.6. Temperature Compensation for Refined Petroleum Products. - If a device is equipped with an automatic temperature compensator, the primary indicating elements, recording elements, and recording representation shall be clearly and conspicuously marked to show that the volume delivered has been adjusted to the volume at 15 °C (60 °F).
(Added 200X)

N.4.1.3. Automatic Temperature-Compensating Systems for Refined Petroleum Products. - On devices equipped with automatic temperature-compensating systems, normal tests shall be conducted:

(a) by comparing the compensated volume indicated or recorded to the actual delivered volume corrected to 15 °C (60 °F); and

(b) with the temperature-compensating system deactivated, comparing the uncompensated volume indicated or recorded to the actual delivered volume.

The first test shall be performed with the automatic temperature-compensating system operating in the "as-found" condition. On devices that indicate or record both the compensated and uncompensated volume for each delivery, the tests in (a) and (b) may be performed as a single test.
(Added 200X)

N.5. Temperature Correction for Refined Petroleum Products. - Corrections shall be made for any changes in volume resulting from the differences in liquid temperatures between the time of passage through the meter and time of volumetric determination in the prover. When adjustments are necessary, appropriate petroleum measurement tables should be used.
(Added 200X)

T.2.1. Automatic Temperature-Compensating Systems. - The difference between the meter error (expressed as a percentage) for results determined with and without the automatic temperature-compensating system activated shall not exceed:

(a) 0.4 % for mechanical automatic temperature-compensating systems; and

(b) 0.2 % for electronic automatic temperature-compensating systems.

The delivered quantities for each test shall be approximately the same size. The results of each test shall be within the applicable acceptance or maintenance tolerance.
(Added 200X)

UR.2.5. Temperature Compensation for Refined Petroleum Products.

UR.2.5.1. Automatic.

UR.2.5.1.1. When to be Used. - In a State that does not prohibit, by law or regulation, the sale of temperature-compensated product a device equipped with an operable automatic temperature compensator shall be connected, operable, and in use at all times. An electronic or mechanical automatic temperature-compensating system may not be removed, nor may a compensated device be replaced with an uncompensated device, without the written approval of the responsible weights and measures jurisdiction.

[Note: This requirement does not specify the method of sale for product measured through a meter.]

UR.2.5.1.2. Invoices. - An invoice based on a reading of a device that is equipped with an automatic temperature compensator shall show that the volume delivered has been adjusted to the volume at 15 °C (60 °F).
(Added 200X)

Discussion/Background: When this item was originally submitted, several officials reportedly were confused about the specific applications of a meter covered by an NTEP CC that included the temperature-compensation feature. The WWMA acknowledged some jurisdictions permit temperature compensated deliveries in applications that are not addressed by NIST Handbook 44. Some states do not allow the use of automatic temperature compensation for the delivery of products using a VTM. At the 2002, 2003, and 2004 NCWM Annual Meetings, this proposal did not achieve a majority vote to pass or fail and was, therefore, returned to the Committee for further consideration.

At the 2005 NCWM Interim Meeting, the Committee participated in a combined open hearing with the NCWM L&R Committee for discussion of this item and L&R Item 232-1 Temperature Compensation for Petroleum Products. A special forum was also held on the first day of the Interim Meeting to discuss temperature compensation issues. However, the Committee was informed that the L&R Committee kept its Item 232-1 as a developing issue. The L&R Committee considered modifying Item 232-1 to separately address the method of sale for other meter types. However, the L&R Committee decided not to split the item and instead modified Item 232-1 to allow temperature compensation for the sale of petroleum products, other than LPG and petroleum products sold through retail motor-fuel devices, and

changed the status of the item to a "Developing" issue. At the forum and the open hearings, the Committee received little or no new information on this item and considered withdrawing it from its agenda. However, because the L&R Committee continues to have a related item on its agenda, the Committee agreed to leave item 331-3 on its agenda as an information item.

During the 2005 NCWM Annual Meeting a manufacturer stated that the number of requests for retail motor-fuel dispensers with temperature compensation capability is increasing. The Committee agreed to maintain this item on its agenda until the L&R Item 232-1 is further developed.

At its September 2005 Interim Meeting, the CWMA agreed on the technical merit of the proposal and agreed that requirements are needed in NIST Handbook 44; however, the CWMA also agreed this is also a "method of sale" issue and the proposal should be retained as an information item until an accompanying method of sale requirement is added to Handbook 130.

At its September 2005 meeting, the WWMA reaffirmed its strong support of this proposal and recommended this item go forward for adoption by the NCWM.

At its October 2005 Meeting, NEWMA recommended withdrawing this item. NEWMA feels there is not enough support for this item and that, if it went for a vote again in July, it would still not pass.

For additional background on this item, see the Committee's 2000 through 2005 Final Reports.

332 LIQUEFIED PETROLEUM GAS AND ANHYDROUS AMMONIA LIQUID-MEASURING DEVICES

332-1 S.2.2. Provision for Sealing and Table S.2.2. Categories of Device and Methods of Sealing

Recommendation: Modify paragraph S.2.2. and add new Table S.2.2. as follows:

S.2.2. Provision for Sealing. - Adequate provision shall be made for ~~**applying security seals in such a manner that no**~~ ***an approved means of security (e.g., data change audit trail) or for physically applying a security seal in such a manner that requires the security seal to be broken before an*** adjustment may be made of:

(a) any measurement element, and

(b) any adjustable element for controlling delivery rate, when such rate tends to affect the accuracy of deliveries.

When applicable, ~~*T*~~*the adjusting mechanism shall be readily accessible for purposes of affixing a security seal.*

Audit trails shall use the format set forth in Table S.2.2.
[Nonretroactive as of January 1, 200X
(Amended 200X)

Table S.2.2. Categories of Device and Methods of Sealing	
Category of Device	**Method of Sealing**
Category 1: No remote configuration capability.	***Seal by physical seal or 2 event counters: 1 for calibration parameters and 1 for configuration parameters.***
Category 2: Remote configuration capability, but access is controlled by physical hardware. ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***[The hardware enabling access for remote communication must be on-site. The hardware must be sealed using a physical seal or an event counter for calibration parameters and an event counter for configuration parameters. The event counters may be located either at the individual measuring device or at the system controller; however, an adequate number of counters must be provided to monitor the calibration and configuration parameters of the individual devices at a location. If the counters are located in the system controller rather than at the individual device, means must be provided to generate a hard copy of the information through an on-site device.]***
Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password). ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)***

[Nonretroactive as of January 1, 200X]
(Table Added 200X)

Background/Discussion: At its October 2005 meeting, the NTETC Measuring Sector discussed NIST Handbook 44 codes for liquid-measuring devices that do not have specific provisions for electronic sealing (i.e., audit trails), such as the VTM Code or the LPG and Anhydrous Ammonia Metering-Devices Code. At the meeting, manufacturers of these devices stated that they have designed metering systems with electronic sealing capability with remote configuration capability. They are currently seeking an NTEP CC for these systems. Currently, the specific NIST Handbook 44 code for these devices does not address electronic sealing, but it is recognized in the General Code and under the provisions of G-A.3. Special and Unclassified Equipment. Accordingly NTEP has made an "*ad hoc*" decision to apply the criteria in the LMD Code to these devices. The manufacturers would prefer that specific language similar to that in the LMD Code be applied to the VTM and the LPG and Anhydrous Ammonia Metering-Devices Code. During the discussion, the Sector concluded that some of these new applications and other applications currently in use would have been classified as the former Category 2 device. The Sector agreed that the decision to remove Category 2 from the LMD Code and the MFM Code should be reversed and that provisions for electronic sealing should be added to all appropriate liquid-measuring devices codes as proposed in S&T Items 330-3, 331-2, 332-1, 334-1, 335-1, and 338-1. The Sector agreed to forward that proposal to the Committee for consideration.

332-2 S.4.3. Location of Marking Information; Retail Motor-Fuel Dispensers

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Add a new paragraph S.4.3. and renumber subsequent paragraphs as follows:

S.4.3. Location of Marking Information; Retail Motor-Fuel Dispensers. - The required marking information in the General Code, Paragraph G-S.1. Identification shall appear as follows:

(a) within 60 cm (24 in) to 150 cm (60 in) from the base of the dispenser;

(b) either internally and/or externally provided the information is permanent and easily read; and

(c) on a portion of the device that cannot be readily removed or interchanged (i.e., not on a service access panel).

Note: ***The use of a dispenser key or tool to access internal marking information is permitted for Retail Liquid-Measuring Devices.***
[Nonretroactive as of January 1, 200X]
(Added 200X)

S.4.~~3~~4. Temperature Compensation. - If a device is equipped with an automatic temperature compensator, the primary indicating elements, recording elements, and recorded representation shall be clearly and conspicuously marked to show that the volume delivered has been adjusted to the volume at 15 °C (60 °F).

Background/Discussion: At the spring 2005 NTEP Laboratory meeting it was recommended that the location of markings requirement from the LMD code be added to Sections 3.32. LPG and Anhydrous Ammonia Liquid-Measuring Devices and 3.37. Mass Flow Meters. Both codes have other requirements for retail motor-fuel dispensers similar to those in the liquid-measuring devices code. The Laboratories agreed to forward its proposal to the NTETC Measuring Sector for consideration.

At their October 2005 meetings, the NTETC Measuring Sector and the SWMA reviewed the proposal and both agreed to forward the proposal to the Committee for consideration.

334 CRYOGENIC LIQUID-MEASURING DEVICES

334-1 S.2.5. Provision for Sealing and Table S.2.5. Categories of Device and Methods of Sealing

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify paragraph S.2.5. and add Table S.2.5. as follows:

S.2.5. Provision for Sealing. - Adequate provision shall be made for ~~**applying security seals in such a manner that no**~~ ***an approved means of security (e.g., data change audit trail) or for physically applying a security seal in such a manner that requires the security seal to be broken before an*** adjustment or interchange may be made of:

(a) any measurement element,

(b) any adjustable element for controlling delivery rate when such rate tends to affect the accuracy of deliveries, and

(c) any automatic temperature or density compensating system.

When applicable ~~A~~a~~ny~~ adjusting mechanism shall be readily accessible for purposes of affixing a security seal.

Audit trails shall use the format set forth in Table S.2.5.
[Nonretroactive as of January 1, 200X]
(Amended 200X)

Table S.2.5. Categories of Device and Methods of Sealing	
Category of Device	**Method of Sealing**
Category 1: No remote configuration capability.	***Seal by physical seal or 2 event counters: 1 for calibration parameters and 1 for configuration parameters.***
Category 2: Remote configuration capability, but access is controlled by physical hardware. ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***[The hardware enabling access for remote communication must be on-site. The hardware must be sealed using a physical seal or an event counter for calibration parameters and an event counter for configuration parameters. The event counters may be located either at the individual measuring device or at the system controller; however, an adequate number of counters must be provided to monitor the calibration and configuration parameters of the individual devices at a location. If the counters are located in the system controller rather than at the individual device, means must be provided to generate a hard copy of the information through an on-site device.]***
Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password). ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)***

[Nonretroactive as of January 1, 200X]
(Table Added 200X)

Background/Discussion: At its October 2005 meeting, the NTETC Measuring Sector discussed Handbook 44 codes for liquid-measuring devices that do not have specific provisions for electronic sealing (i.e., audit trails), such as the VTM Code or the LPG and Anhydrous Ammonia Metering-Devices Code. At the meeting, manufacturers of these devices stated that they have designed metering systems with electronic sealing capability with remote configuration capability. They are currently seeking an NTEP CC for these systems. Currently the specific Handbook 44 Code for these devices does not address electronic sealing, but it is recognized in the General Code and under the provisions of G-A.3. Special and Unclassified Equipment. Accordingly NTEP has made an "*ad hoc*" decision to apply the criteria in the LMD code to these devices. The manufacturers would prefer that specific language similar to that in the LMD Code be applied to the VTM and the LPG and Anhydrous Ammonia Metering-Devices Codes. During the discussion, the Sector concluded that some of these new applications and other applications currently in use would have been classified as the former Category 2 device. The Sector agreed that the decision to remove Category 2 from the LMD Code and the MFM Code should be reversed and that provisions for electronic sealing should be added to all appropriate liquid-measuring devices codes as proposed in items 330-3, 331-2, 332-1, 334-1, 335-1, and 338-1. The Sector agreed to forward that proposal to the Committee for consideration.

335 MILK METERS

335-1 S.2.3. Provision for Sealing and Table S.2.3. Categories of Device and Methods of Sealing

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify S.2.3. and add new Table S.2.3. as follows:

S.2.3. Provision for Sealing. - Adequate provision shall be made for ~~applying security seals to the adjustment mechanism and the register.~~ ***an approved means of security (e.g., data change audit trail) or for physically applying a security seal in such a manner that requires the security seal to be broken before an adjustment may be made of:***

(a) any measurement element, and

(b) any adjustable element for controlling delivery rate, when such rate tends to affect the accuracy of deliveries.

When applicable the adjusting mechanism shall be readily accessible for purposes of affixing a security seal.

Audit trails shall use the format set forth in Table S.2.3.
[Nonretroactive as of January 1, 200X]

Table S.2.3. Categories of Device and Methods of Sealing	
Category of Device	**Method of Sealing**
Category 1: No remote configuration capability.	***Seal by physical seal or 2 event counters: 1 for calibration parameters and 1 for configuration parameters.***
Category 2: Remote configuration capability, but access is controlled by physical hardware. ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***[The hardware enabling access for remote communication must be on-site. The hardware must be sealed using a physical seal or an event counter for calibration parameters and an event counter for configuration parameters. The event counters may be located either at the individual measuring device or at the system controller; however, an adequate number of counters must be provided to monitor the calibration and configuration parameters of the individual devices at a location. If the counters are located in the system controller rather than at the individual device, means must be provided to generate a hard copy of the information through an on-site device.]***
Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password). ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)***

[Nonretroactive as of January 1, 200X]
(Table Added 200X)

Background/Discussion: At its October 2005 meeting, the NTETC Measuring Sector discussed NIST Handbook 44 codes for liquid-measuring devices that do not have specific provisions for electronic sealing (i.e., audit trails), such as the VTM Code or the LPG and Anhydrous Ammonia Metering-Devices Code. At the meeting, manufacturers of these devices stated that they have designed metering systems with electronic sealing capability with remote configuration capability. They are currently seeking an NTEP Certificate CC for these systems. Currently, the specific NIST Handbook 44 code for these devices does not address electronic sealing, but it is recognized in the General Code and under the provisions of G-A.3. Special and Unclassified Equipment. Accordingly NTEP has made an "*ad hoc*" decision to apply the criteria in the LMD Code to these devices. The manufacturers would prefer that specific language similar to that in the LMD Code be applied to the VTM and the LPG and Anhydrous Ammonia Metering-Devices Codes. During the discussion, the Sector concluded that some of these new applications and other applications currently in use would have been classified as the former Category 2 device. The Sector agreed that the decision to remove Category 2 from the LMD Code and the MFM Code should be reversed and that provisions for electronic sealing should be added to all appropriate liquid-measuring devices codes as proposed in items 330-3, 331-2, 332-1, 334-1, 335-1, and 338-1. The Sector agreed to forward that proposal to the NCWM S&T Committee for consideration.

336 WATER METERS

336-1 Table N.4.2. Flow Rate and Draft Size for Water Meters Special Tests

Source: Carryover Item 336-1. (This item originated from the Northeastern Weights and Measures Association (NEWMA) and first appeared on the Committee's 2005 agenda.)

Recommendation: Amend Table N.4.2. as follows:

Table N.4.2. Flow Rate and Draft Size for Water Meters Special Tests

Meter size (inches)	Intermediate Rate			Minimum Rate		
	Rate of flow (gal/min)	Meter indication/Test Draft		Rate of flow (gal/min)	Meter indication/Test Draft	
		gal	ft^3		Gal	ft^3
Less than or equal to 5/8	2	10	1	1/4	~~5~~**10**	1
3/4	3	10	1	1/2	~~5~~**10**	1
1	4	10	1	3/4	~~5~~**10**	1
1 1/2	8	50	5	1 1/2	10	1
2	15	50	5	2	10	1
3	20	50	5	4	10	1
4	40	100	10	7	~~50~~**100**	5
6	60	100	10	12	~~50~~**100**	5

(Table Added 2003) **(Amended 200X)**

Discussion/Background: At the fall 2004 NEWMA meeting, a manufacturer submitted the above proposal. The manufacturer stated that a test draft of 5 gallons is not large enough to provide repeatability for dial indicating water meters sized 1 inch and smaller. The dial indicator for these devices has 100 graduations of 1/10 gallon, which means one complete revolution equals 10 gallons. The effect of parallax on the reading and gear backlash both contribute to the lack of repeatability of indications when using a 5-gallon test draft. The manufacturer recommended that any test of the device include, at a minimum, at least one complete revolution of the dial indicator. None of the jurisdictions represented at the NEWMA meeting routinely test water meters; therefore, they could not provide any input on the technical merits of the proposal. However, NEWMA agreed to forward the proposal to the Committee for consideration.

At the 2005 NCWM Interim Meeting, the only concern the Committee heard was that the time required for some tests would increase significantly if the current test draft size were doubled. The manufacturer that submitted the proposal to NEWMA was not at the Interim Meeting. The Committee agreed to make the proposal an information item to provide the opportunity for review and comment from the regional associations, especially jurisdictions routinely conducting water meter tests. If additional support and comments were not received, the Committee may withdraw this item.

At the 2005 NCWM Annual Meeting, there was no discussion on this item.

At its September 2005 Annual Meeting, the WWMA heard comments opposing the proposal. Since no data or comments were presented to support the proposal, the WWMA recommends this item be withdrawn.

At its October 2005 Meeting, NEWMA continued to support this proposal. Attached below is a portion of the submitter's original documentation package submitted to NEWMA.

"For water meters sized 5/8", 3/4" and 1" indicating in U.S. gallons, a test draft of only 5 gallons CANNOT give proper resolution and is inconsistent with good metering practice that says that test drafts should be selected to yield nominally whole revolutions of the test dial. Only 50 dial divisions are passed utilizing this test draft size. Normal reading

parallax and gear backlash would yield resolution of ONLY ± 1.5 % under the best conditions. Handbook 44 and good testing practice suggests that a resolution of 1/3rd of the normal tolerance band is needed."

337 MASS FLOW METERS

337-1 S.3.5. Provision for Sealing and Table S.3.5. Categories of Devices and Methods of Sealing

Recommendation: Modify Table S.3.5. as follows:

Table S.3.5. Categories of Device and Methods of Sealing	
Category of Device	***Method of Sealing***
Category 1: No remote configuration capability.	*Seal by physical seal or 2 event counters: 1 for calibration parameters and 1 for configuration parameters.*
~~***[Category 2 applies to only devices manufactured prior to January 1, 2005. Devices with remote configuration capability manufactured after that date must meet the sealing requirements outlined in Category 3. Devices without remote configuration capability manufactured after that date must meet the minimum criteria outlined in Category 1].***~~ *Category 2: Remote configuration capability, but access is controlled by physical hardware.* *The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.*	*[The hardware enabling access for remote communication must be on-site. The hardware must be sealed using a physical seal or an event counter for calibration parameters and an event counter for configuration parameters. The event counters may be located either at the individual measuring device or at the system controller; however, an adequate number of counters must be provided to monitor the calibration and configuration parameters of the individual devices at a location. If the counters are located in the system controller rather than at the individual device, means must be provided to generate a hard copy of the information through an on-site device.]** *[*Nonretroactive as of January 1, 1996]*
Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password). *[Nonretroactive as of January 1, 1995]* *The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.* *[Nonretroactive as of January 1, 2001]* ~~***Nonretroactive as of January 1, 2005, all devices with remote configuration capability must comply with the sealing requirements of Category 3.***~~	*An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)*

Nonretroactive as of January 1, 1995]
(Table Added 1995) (Amended 1995, 1998, ~~and~~ 1999**, and 200X**)

Background/Discussion: At its October 2005 meeting, the NTETC Measuring Sector discussed NIST Handbook 44 codes for liquid-measuring devices that do not have specific provisions for electronic sealing (i.e., audit trails), such as the VTM Code or the LPG and Anhydrous Ammonia Metering-Devices Code. At the meeting, manufacturers of these devices stated that they have designed metering systems with electronic sealing capability with remote configuration capability. They are currently seeking an NTEP CC for these systems. Currently the specific NIST Handbook 44 code for these devices does not address electronic sealing, but it is recognized in the General Code and under the provisions of G-A.3. Special and Unclassified Equipment. Accordingly NTEP has made an "*ad hoc*" decision to apply the criteria in the LMD code to these devices. The manufacturers, however, would prefer that specific language similar to that in the LMD Code be applied to the VTM and the LPG and Anhydrous Ammonia Metering-Devices Codes. During the

discussion, the Sector concluded that some of these new applications and other applications currently in use would have been classified as the former Category 2 device. The Sector agreed that the decision to remove Category 2 from the LMD Code and the MFM Code should be reversed and that provisions for electronic sealing should be added to all appropriate liquid-measuring devices codes as proposed in items 330-3, 331-2, 332-1, 334-1, 335-1, and 338-1. The Sector agreed to forward that proposal to the Committee for consideration.

337-2 S.4.1. Diversion of Measured Product

Source: Central Weights and Measures Association **(**CWMA)

Recommendation: Modify paragraph S.4.1. as follows:

S.4. Discharge Lines and Valves.

S.4.1. Diversion of Measured Product. - No means shall be provided by which any measured product can be diverted from the measuring instrument. However, two or more delivery outlets may be permanently installed and operated simultaneously, provided that any diversion of flow to other than the intended receiving receptacle cannot be readily accomplished or is readily apparent. Such means include physical barriers, visible valves or indications that make it clear which outlets are in operation, and explanatory signs if deemed necessary.

~~**A manually controlled**~~ **An** outlet that may be opened for purging or draining the measuring system, or for recirculating product if recirculation is required in order to maintain the product in a deliverable state**,** shall be permitted. Effective means shall be provided to prevent the passage of liquid through any such outlet during normal operation of the measuring system and to inhibit meter indications (or advancement of indications) and recorded representations while the outlet is in operation.
(Amended 2002 **and 200X)**

Background/Discussion: The CWMA noted that the requirements in paragraph S.3.1. of Section 3.30 Liquid Measuring Devices and paragraph S.4.1. Diversion of Measured Product of Section 3.37 Mass Flow Meters in NIST Handbook 44 (2005) are not consistent. Paragraph S.3.1. prohibits manual valves for re-circulating product or purging or draining the measuring system except for foods and agri-chemicals. On the other hand Paragraph S.4.1. permits manual valves but appears to ban automatic valves by omission, and makes no distinction for types of products measured as long as the system meets the specified requirements.

Cold weather and physical characteristics make recirculation necessary for a number of products not currently allowed in paragraph S.3.1. of Section 3.30. (#6 Fuel oil and B100 Biodiesel, for example). Although liquid-measuring devices exist which have NTEP CCs for these high viscosity products, the current wording of NIST Handbook 44 restricts vendors of these products to using mass flow technology if they wish to recirculate their product in order to keep it in a deliverable state. This appears to be the unintended result of the fact that the two codes were written at different times with different input from industry lobbies. The CWMA recommends that retailers of these products not be restricted to using only mass flow meters for commercial measurements if other suitable technologies are available. Likewise, both manual and automatic valves are suitable for recirculating product in discharge lines of these devices, and the use of either type should be allowed.

At the CWMA 2005 Interim Meeting, it was noted that adopting this proposal will create a logical and consistent standard of enforcement for mass flow meters and liquid-measuring devices, which are used for identical applications and products, thus ending an unintentional bias in favor of one technology over the other.

By stating the uniform guidelines for when it is acceptable to allow purge lines and recirculation lines (i.e., the necessity for such lines is to keep the product in a deliverable state), this proposal would eliminate the need for industry to petition the NCWM for each product which requires such special handling. The CWMA agreed to forward the proposal with the recommendation that it be a voting item on the Committee's 2006 agenda.

(See also item 330-4)

337-3 S.5.1. Location of Marking Information; Retail Motor-Fuel Dispensers

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Add a new paragraph S.5.1. as follows and renumber subsequent paragraphs:

S.5.1. Location of Marking Information; Retail Motor-Fuel Dispensers. - The required marking information in the General Code, Paragraph G-S.1. Identification shall appear as follows:

(a) within 60 cm (24 in) to 150 cm (60 in) from the base of the dispenser;

(b) either internally and/or externally provided the information is permanent and easily read; and

(c) on a portion of the device that cannot be readily removed or interchanged (i.e., not on a service access panel).

Note: ***The use of a dispenser key or tool to access internal marking information is permitted for Retail Liquid-Measuring Devices.***
[*Nonretroactive as of January 1, 200X]
(Added 200X)

Background/Discussion: At the 2005 meeting of the NTEP Laboratories it was recommended that the location of markings requirement from the LMD Code be added to Sections 3.32. LPG and Anhydrous Ammonia Liquid-Measuring Devices and 3.37. Mass Flow Meters. Both codes have other requirements for retail motor-fuel dispensers similar to those in the LMD Code. The Laboratories agreed to forward its proposal to the NTETC Measuring Sector for consideration.

At their October 2005 meetings, the NTETC Measuring Sector and the SWMA reviewed the proposal and both agreed to forward it to the Committee for consideration.

338 CARBON DIOXIDE LIQUID-MEASURING DEVICES

338-1 S.2.5. Provision for Sealing and Table S.2.5. Categories of Device and Methods of Sealing

Source: National Type Evaluation Technical Committee (NTETC) Measuring Sector

Recommendation: Modify paragraph S.2.5. and add new Table S.2.5. Categories of Device and Methods of Sealing as follows:

S.2.5. Provision for Sealing. - Adequate provision shall be made for ~~**applying security seals in such a manner that no**~~ ***an approved means of security (e.g., data change audit trail) or for physically applying a security seal in such a manner that requires the security seal to be broken before an*** adjustment or interchange may be made of:

(a) any measurement element,

(b) any adjustable element for controlling delivery rate when such rate tends to affect the accuracy of deliveries, and

(c) any automatic temperature or density compensating system.

When applicable, ~~*A*~~*any adjusting mechanism shall be readily accessible for purposes of affixing a security seal.*

Audit trails shall use the format set forth in Table S.2.5.
(Amended 200X)

Table S.2.5. Categories of Device and Methods of Sealing	
Category of Device	**Method of Sealing**
Category 1: No remote configuration capability.	***Seal by physical seal or 2 event counters: 1 for calibration parameters and 1 for configuration parameters.***
Category 2: Remote configuration capability, but access is controlled by physical hardware. ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***[The hardware enabling access for remote communication must be on-site. The hardware must be sealed using a physical seal or an event counter for calibration parameters and an event counter for configuration parameters. The event counters may be located either at the individual measuring device or at the system controller; however, an adequate number of counters must be provided to monitor the calibration and configuration parameters of the individual devices at a location. If the counters are located in the system controller rather than at the individual device, means must be provided to generate a hard copy of the information through an on-site device.]***
Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password). ***The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode or shall not operate while in this mode.***	***An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)***

[Nonretroactive as of January 1, 200X]
(Table Added 200X)

Background/Discussion: At its October 2005 meeting, the NTETC Measuring Sector discussed NIST Handbook 44 codes for liquid-measuring devices that do not have specific provisions for electronic sealing (i.e., audit trails), such as the VTM Code or the LPG and Anhydrous Ammonia Metering-Devices Code. At the meeting, manufacturers stated that they have designed metering systems with electronic sealing capability with remote configuration capability. They are currently seeking an NTEP CC for these systems. Currently the specific NIST Handbook 44 code for these devices does not address electronic sealing, but it is recognized in the General Code and under the provisions of G-A.3. Special and Unclassified Equipment. Accordingly NTEP has made an "*ad hoc*" decision to apply the criteria in the LMD Code to these devices. The manufacturers, however, would prefer that specific language similar to that in the LMD Code be applied to the VTM and the LPG and Anhyrdrous Ammonia Metering-Devices Codes. During the discussion, the Sector concluded that some of these new applications and other applications currently in use would have been classified as the former Category 2 device. The Sector agreed that the decision to remove Category 2 from the LMD Code and the MFM Code should be reversed and that provisions for electronic sealing should be added to all appropriate liquid-measuring devices codes as proposed in items 330-3, 331-2, 332-1, 334-1, 335-1, and 338-1. The Sector agreed to forward that proposal to the Committee for consideration.

360 OTHER ITEMS

360-1 International Organization of Legal Metrology (OIML) Report

Many issues before the OIML, the Asian-Pacific Legal Metrology Forum (APLMF), and other international groups are within the purview of the Committee. Additional information on OIML activities will appear in the 2006 Board of Directors Interim Agenda and on the OIML website at http://www.oiml.org. WMD staff will provide updates on OIML activities during the open hearing session at the 2006 NCWM Interim Meeting. For more information on specific OIML-related device activities contact the WMD staff listed in the table below:

NIST Weights and Measures Division
Contact List

Staff	Telephone	Email	Responsibilities	Postal Mail or Fax
Dr. Charles Ehrlich (ILM)	(301) 975-4834	charles.ehrlich@nist.gov	Mutual Acceptance Arrangement (MAA) & Uncertainty in Measurement	NIST WMD 100 Bureau Dr MS 2600 Gaithersburg, MD 20899-2600 Tel: (301) 975-4004 Fax: (301) 926-0647
Steven Cook (LMD)	(301) 975-4003	steven.cook@nist.gov	R76 "Non-automatic Weighing Instruments" R60 "Load Cells" R50 "Continuous totalizing automatic weighing instruments (belt weighers)" R51 "Checkweighing and weight grading machines	
Richard Harshman (LMD)	(301) 975-8107	richard.harshman@nist.gov	R134 "Weighing Road Vehicles In-Motion" R160 "Automatic rail-weighbridges" R107 "Discontinuous totalizing automatic weighing instruments"	
Diane Lee McGowan (LMD)	(301) 975-4405	diane.lee@nist.gov	R 59 "Grain Moisture Meters" & "Near Infrared Grain Analyzers" TC17/SC8 "Instruments for Quality Analysis of Agricultural Products"	
Ralph Richter (ILM)	(301) 975-3997	ralph.richter@nist.gov	R 117 & R 105 "Measuring Systems for Liquids Other Than Water (includes Direct Mass)"	
Wayne Stiefel (ILM)	(301) 975-4011	s.stiefel@nist.gov	Software in Legal Metrology R6, R31, and R32 "Gas Meters " R49 "Water Meters"	
Dr. Ambler Thompson (ILM)	(301) 975-2333	ambler@nist.gov	D1 "Electronic Measuring Instruments," D19 & D20 "Metrological Control of Measuring Instruments: Type Approval and Verification" R46 "Electrical Energy Meters"	
Juana Williams (LMD)	(301) 975-3989	juana.williams@nist.gov	R21-"Taximeters" Electronic Taximeters	

LMD - Legal Metrology Devices Group
ILM - International Legal Metrology Group

360-2 Appendix A – Fundamental Considerations Section 11 Health and Safety Considerations

Source: Western Weights and Measures Association (WWMA)

Recommendation: Add a new Section 11. Health and Safety Considerations during inspection to NIST Handbook 44 Appendix A as follows:

11. Health and Safety Considerations

11.1. Health and Safety. - This handbook cannot address all of the health and safety issues associated with device inspections. During the inspection and testing of weighing and measuring equipment safety is a major consideration in conducting inspections. If the inspection cannot be conducted in a safe manner, the inspector will terminate the inspection.

The inspector is responsible for determining appropriate safety and health hazards before beginning an inspection. The inspector should make himself/herself familiar with all warnings associated with the equipment and facility prior to conducting any inspection and must comply with Federal, state, local and agency laws, regulations and policies in effect at the time of the inspection. Inspectors will bring hazards or deficiencies to the attention of the business owner/operator and to the appropriate Weights and Measures supervisor. It is only through good judgment and conscientious adherence to safety regulations and procedures on a regular basis that the inspector can decrease the likelihood of personal injury and damage to property and equipment.
(Added 200X)

Discussion: At its September 2005 Annual Meeting, the WWMA reviewed a proposal to add safety considerations to the General Code section of NIST Handbook 44. While the WWMA supported the concept, it believed that Appendix A, Fundamental Consideration was a more appropriate place to add the proposed language. Therefore, the WWMA submitted the proposal to the Committee for consideration.

At their 2005 fall meetings, the remaining regional associations reviewed the WWMA proposal. The CWMA did not believe that safety is a NIST Handbook 44 issue. NEWMA supported the proposal as a developing item and recommended the NCWM L&R Committee consider a similar proposal for inclusion in NIST Handbook 130 "Uniform Laws and Regulations…." The SWMA recommends the item be withdrawn because safety considerations are already adequately addressed in the EPOs.

360-3 Add International Terms that are Synonymous to NIST Handbook 44 Terms in Appendix D; Definitions

Source: Carryover Item 360-4. (This item originated from the Northeastern Weights and Measures Association (NEWMA) and first appeared on the Committee's 2002 agenda.)

Discussion: Many NIST Handbook 44 and OIML technical concepts and procedures are in harmony, yet there are significant differences in terminology used by the two organizations. The harmonization of language is not necessary to obtain uniform legal requirements provided the intent of the requirements are essentially equivalent; however, improvements should be considered to revise language that is confusing or has the potential for misinterpretation. Currently, the U.S. National Work Group (USNWG) on R76 "Non-automatic Weighing Instruments" is working on a proposal to amend NIST Handbook 44 Appendix D, Definitions to include international terminology that is synonymous with Handbook 44 definitions. This item is intended to familiarize the public and private sectors with the proposed approach to modify Appendix D. The USNWG will identify terms or definitions that are equivalent to international vocabulary by placing the corresponding OIML term in parentheses adjacent to the NIST Handbook 44 term.

The further development of this proposal to amend Appendix D will also clarify terminology for international participants in the proposed Mutual Acceptance Arrangement (MAA), where it is imperative that all affected parties are aware of and understand each other's requirements. Terms can have an entirely different meaning in NIST Handbook 44 than they do in R76. NIST Handbook 44 is also inconsistent in the use of many terms such as "division," "increment,"

and "interval." One additional goal is to eliminate any confusion about other frequently used terms such as "device," "element," "mechanism," "scale," "weigher," and "balance."

Several regional weights and measures associations stated their positions on the proposal. NEWMA supports this item. The WWMA requested the proposal remain an information item. The CWMA believes this is not a field issue and indicated that the issue is covered in NCWM Publication 14; therefore, it recommends that it be withdrawn from the Committee's agenda.

360-4 Developing Issues

The NCWM established a category of items called "Developing Issues" as a mechanism to share information about emerging issues which have merit and are of national interest, but that have not received sufficient review by all parties affected by the proposal or that may be insufficiently developed to warrant review by the Committee. The developing issues are currently under review by at least one regional association or technical committee.

Developing issues are listed in Appendix A according to the specific NIST Handbook 44 Code section under which they fall. Periodically, proposals will be removed from the developing item agenda without further action because the submitter recommends that it be withdrawn. Any remaining proposals will be renumbered accordingly.

The Committee encourages interested parties to examine the proposals included in Appendix A and send their comments to the contact listed in each item. The Committee asks that the regional associations and NTETC Sectors continue their work to fully develop each proposal. Should an association or Sector decide to discontinue work on an item, the Committee asks that it be notified.

Clark Cooney, Oregon, Chairman (1)

Carol P. Fulmer, South Carolina (3)
Todd R. Lucas, Ohio (4)
Brett Saum, San Luis Obispo County, California (5)
Michael J. Sikula, New York (2)

Ted Kingsbury, Canada, Technical Advisor
Richard Suiter, NIST, Technical Advisor
Juana Williams, NIST, Technical Advisor

Specifications and Tolerances Committee

Appendix A

Item 360-4: Developing Issues

Part 1, General Code G-UR.4.1.1. Proper Operating Conditions for Retail Motor-Fuel Devices

Source: Central Weights and Measures Association (CWMA)

Recommendation: Add a new paragraph G-UR.4.1.1. as follows:

G-UR.4.1.1. Proper Operating Condition for Retail Motor-Fuel Devices. - The equipment ~~A device~~ will not be considered maintained in proper operating condition if one or more of the following conditions are met.

(a) Multiple (four or more) devices, defined as grades or types of fuel, in service at a single place of business shall not be considered in proper operating condition under any of the following:

(1) The calculated average error of all devices is in favor of the device owner/user by more than one-third the maintenance tolerance.
(2) Any particular grade or type of fuel averages in favor of the device owner/user by more than one-third the maintenance tolerance.

(b) Special tests should not be included in calculations unless the special test alone is in favor of the device owner/user by more than one-third the maintenance tolerance.
(Added 200X)

Discussion: At its 2005 CWMA Interim Meeting the association membership reviewed a proposal for adding specific language to aid field officials in determining if retail motor-fuel dispensers are being maintained in accordance with G-UR.4.1. Maintenance of Equipment. The CWMA believed the proposal has merit and agreed to forward it to the Committee as a developing issue.

Part 2, Item 1 Scales: S.2.1.7. Tare Rounding on a Multiple Range Scale

Source: Southern Weights and Measures Association (SWMA)

Recommendation: Add new paragraph S.2.1.7. as follows:

S.2.1.7. Tare Rounding on a Multiple Range Scale. - A multiple range scale with tare capability must indicate and record values that satisfy the equation: net = gross - tare
and round the tare value up to the larger division size when entering the larger division.
(Added 200X)

Discussion: Currently, there may be a conflict between NIST Handbook 44 requirements and NCWM Publication 14 policy for rounding tare values on multiple range scales. NIST Handbook 44 General Code paragraph G-S.5.2.2.(c) Digital Indication and Representation requires that digital values round off to the nearest minimum unit that can be indicated or recorded. Also in question is a possible conflict with NIST Handbook 130 guidelines which specify that in no case shall rounded values result in overstating the net quantity. NTEP policy permits the operation of tare on a multiple range scales to round down thus overstating the quantity. The proposal was developed to eliminate any conflict in the operation of the tare function on multiple range scales. NTEP is also revising its tare criteria to ensure there is no further conflict with NIST Handbook 44. The SWMA recognizes that OIML permits rounding tare down, but believes that customers are not able to make adjustments in unit prices for overhead whereas businesses can adjust the price to compensate for expenses and losses.

To comment on this proposal contact Carol Fulmer, South Carolina Department of Agriculture, Weights and Measures by telephone at (803) 737-9690 or at cfulmer@scda.sc.gov or by fax at (803) 737-9703.

Part 3, Item 1 Belt-Conveyor Scale Systems: UR.3.2.(c) Maintenance; Zero Load Tests

Source: Western Weights and Measures Association (WWMA)

Recommendation: Modify UR.3.2.(c) as follows:

UR.3.2. Maintenance. - Belt-conveyor scales and idlers shall be maintained and serviced in accordance with manufacturer's instructions and the following:

.
.
.

(c) **Zero-load tests, ~~S~~s**imulated load tests or material tests, ~~**and zero-load tests**~~ shall be conducted at periodic intervals between official tests in order to provide reasonable assurance that the device is performing correctly.
(Amended 200X)

The action to be taken as a result of the zero-load tests is as follows:
(Added 2000X)

- **if the change in the zero-load reference is greater than ± 0.25 %, inspect the conveyor and weighing area to be sure it conforms to UR.2 and correct any deficiencies;**
  (Added 200X)

- **if the change in the zero-load reference is greater than 0.5 % in a 24-hour period, inspect the conveyor and weighing area to be sure it conforms to UR.2 Installation Requirements, correct any deficiencies, and repeat the zero-load test.**
  (Added 200X)

The action to be taken as a result of the material tests or simulated load tests is as follows:
~~**(Amended 2002)**~~

- if the error is less than 0.25 %, no adjustment is to be made;

- if the error is at least 0.25 % but not more than 0.6 **%, inspect the conveyor and weighing area to be sure it conforms to UR.2 Installation Requirements, correct any deficiencies, and repeat the simulated or materials test.**
  (Amended 1991 **and 200X**)

  An adjustment **to the span calibration** may be made if **no deficiencies were identified during the above inspection, any correction to the installation did not result in errors less than or equal to ∀ 0.25 %. T~~t~~he** official with statutory authority is notified **if an adjustment is made to the span calibration;**
  (Amended 1991 **and 200X**)

- if the error is greater than 0.6 % but does not exceed 0.75 %, **inspect the conveyor and weighing area to be sure it conforms to UR.2 Installation Requirements, correct any deficiencies, and repeat the simulated or materials test;**

  A~~a~~djustments **to the span calibration** shall be made only by a competent service person and the official with statutory authority shall be notified **if no deficiencies were identified during the above inspection and any correction to the installation did not result in errors less than or equal to ± 0.25 %.** After such an adjustment **to the span calibration**~~**, if the results of a subsequent test require adjustment in the same direction**~~, **the official with statutory authority shall be notified and** an official test shall be conducted;
  (Amended 1991 **and 200X**)

- if the error is greater than 0.75 %, an official test is required.
  (Amended 1987 and 200X)

Discussion: NIST Handbook 44 gives limited guidance on what to do with zero-load test results. In addition to belt loss, the operator of the scale may need to make physical adjustments to the belt-conveyor system. For example, a dirty scale structure or a worn belt scraper will increase the zero reference number and the test results may exceed tolerances.

The scale user/owner has to protect his interest between weighing transactions. At present, some belt-conveyor systems may have error greater than 0.5 % in zero reference in 24 hours. The belt is part of tare (net load) on any empty running system, and the system must be maintained to within tolerance at all times.

The WWMA indicated that, based on comments heard in September 2005, only part of the proposal has merit. Consequently, the WWMA recommends the proposal become a developing item.

To comment on this proposal, contact Brett Saum, San Luis Obispo County Weights and Measures California, by telephone at (805) 781-5922, by fax at (805) 781-1035, or at bsaum@co.slo.ca.us.

Part 4, Item 1 Automatic Weighing Systems: Temperature Limits

Source: National Type Evaluation Technical Committee (NTETC) Weighing Sector

Recommendation: The Weighing Sector asks for the Committee's interpretation of how to apply marking requirements for temperature limits based on the thermal conditions developed during type evaluation laboratory testing and those conditions that exist in real-world environments. The Sector also questions why paragraphs to address instances where equipment operates in temperatures that are outside of the -10 °C to 40 °C temperature range such as Scales Code T.N.2.3. Subsequent Examination Verification is not included in all weighing code sections. The Sector also noted there are inconsistencies in the language that specifies temperature requirements throughout the weighing code sections. The Sector agreed this is an important issue, yet recognizes the Committee may require time to research the codes and policies established on this topic. Consequently, the Sector recommended this as a developing item.

To comment on this proposal, contact Steve Cook, NIST Technical Advisor to the NTETC Weighing Sector, at steven.cook@nist.gov, by fax at (301) 926-0647 or at NIST WMD, 100 Bureau Drive MS 2600, Gaithersburg, MD 20899-2600.

Professional Development Committee
Interim Agenda

Celeste Bennett, Chairman
Michigan Department of Agriculture
Williamston, Michigan

Reference
Key Number

400 INTRODUCTION

The Professional Development Committee (Committee or PDC) will address the following items at the National Conference on Weights and Measures (NCMW) 2006 Interim Meeting. Table A identifies the agenda items in the Report by Reference Key Number, Item Title, and Page Number. An item marked with an **"I"** after the reference key number is an informational item. An item marked with a **"D"** after the reference key number is a developing issue. The developing designation indicates an item has merit; however, the item was returned to the submitter for further development before any action can be taken at the national level. Table B lists the Appendices to the Agenda.

Table A
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Table B
Appendix

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Details of All Items
(In Order by Reference Key Number)

401 EDUCATION

401-1 I National Training Program (NTP)

Source: The Committee (2003)

Background: The Board of Directors established the Committee at the 2003 NCWM Annual Meeting in Sparks, Nevada. The first critical charge given to the Committee was to develop a national weights and measures professional development program in cooperation with its partners including:

- State and local weights and measures departments;
- Private industry; and
- Technical advisors from National Institute of Standards and Technology Weights and Measures Division (NIST WMD) and Measurement Canada.

The NTP will address the following tasks in order of priority:

1. The education and professional development of weights and measures officials and the promotion of uniformity and consistency in the application of weights and measures laws and regulations;
2. The education of all industry personnel with regard to weights and measures laws and regulations;
3. Quality standards for weights and measures activities and programs;
4. Safety awareness for weights and measures-related activities; and
5. Development of a firm partnership with the state and local weights and measures departments, private industry, and the NCWM. It is critical that NIST Weights and Measures Division (NIST WMD) partner with the Committee and, where appropriate, provide technical advice. Measurement Canada is also encouraged to participate in Committee activities.

The Committee began developing the concept of a National Certification Program for weights and measures officials during the 2004 NCWM Annual Meeting. In December 2004, several Committee members met in Harrisburg, Pennsylvania, to further develop the Committee's overall strategic direction of a National Certification Program. The participants agreed the NTP should take the following directions:

- Training responsibility should fall directly on state and local jurisdictions.
- Administrator training must be added to the curriculum.
- The Committee should consider looking outside the NCWM for training and structure.
- The Central Weights and Measures Association (CWMA) will assist the Committee in determining what knowledge and prerequisites are required for three tiers of the NTP: beginning, intermediate, and advanced.
- The Western Weights and Measures Association (WWMA) recommended the Committee establish identifiable course outlines that would result in shorter training courses.

The strategic direction is summarized in Appendix A.

Discussion:

There has been continued support for the Committee's direction on this item. While the primary need is for field inspector training, the Committee doesn't want to lose sight of also training supervisors, managers, and service personnel. Recommendations have been received to have the Committee set parameters and benchmarks and let the states train the inspectors.

WWMA: Individual regional associations are encouraged to take it upon themselves to dedicate a portion of their annual meeting towards the National Training Program (NTP). This time should be spent developing at least one of the weights and measures core competencies defined by the NCWM PDC. The resulting document should be forwarded to the NCWM PDC in order to complete the overall project. To this end the WWMA PDC made a commitment to the development of the retail motor fuel dispensers curriculum.

CWMA: State Associations reported receiving comments from industry sectors that they would find it valuable to have the training expanded to include the addition of industry personnel. Focus should remain on establishing a training program for regulatory personnel but inclusion of industry in training has merit since many jurisdictions report better overall compliance when industry receives education and training.

401-2 I Create a Curriculum Plan (Carryover Item 401-4)

Source: The Committee (2003)

Background: The Committee agreed the following steps must be addressed for the NTP to be viable:

1. Develop and maintain a curriculum plan in cooperation with our partners that establishes uniform and consistent training objectives for weights and measures professionals in all fields and at all levels.

2. Develop objectives of the curriculum plan representative of a consensus of our partners and organize those objectives by scope, sequence, and level of complexity to assist those developing the curriculum materials.

The development of a training program should follow the steps below:

1. Study training programs of outside agencies, as well as those of state and local jurisdictions.

2. Establish knowledge goals for weights and measures officials and administrators.

3. Develop curriculum based upon the findings and results of the steps 1 - 2 above.

   (a) Coordinate the development of curriculum materials to be used in the delivery of training (i.e., lesson plans, digital presentations, slide shows, testing guides, etc.) using a variety of formats (e.g., self-study, traditional instruction).

   (b) Consider creating a network of interested parties to establish priorities, share training resources, foster cooperation to reduce redundancy, and promote uniformity and consistency.

4. Develop examinations, quizzes, or tests based on the content of the materials developed under Item 3.

5. Gather and share information from trainers on highly effective techniques, visual aids and other materials that have been used to facilitate learning. Use as many of these resources as available.

The Committee reviewed the notes from the NIST-sponsored administrators' workshops held in Denver, Colorado, and Baltimore, Maryland, and plans to explore many of these ideas.

During the 2004 Annual Meeting, the Committee discussed the idea of using work groups to develop courses that could be used for self-study or for traditional classroom settings. The Committee agreed that the initial priority should be high-profile devices (e.g., motor-fuel dispensers and retail computing scales). The Committee will study the survey results to determine the membership's needs and desires.

There were several recommendations submitted by the regional associations. The CWMA commented that the Committee should draw upon other sources, both external and internal, for establishment of curricula. The WWMA recommended the Committee review current training courses on the NIST website at http://www.nist.gov/owm to establish and identify various levels of training. They also suggested the Committee review and update all existing NIST

training courses and post them on the NIST website. The Northeast Weights and Measures Association (NEWMA) recommended the Committee set standards for education that include provisions for field tests.

During the 2005 Interim Meeting the Committee received recommendations to develop course curricula with specific learning objectives and develop tests to determine mastery of the learning objectives. The responsibility for providing training to meet the objectives would rest with the jurisdictions. It was also recommended the Committee develop tests to be administered at the end of each course. Upon successful completion of the tests, individuals would be issued certificates. Schemes for controlling the tests and preserving the integrity of the system would need to be developed.

Discussion:

NEWMA: The State of New York has provided the PDC with a draft curriculum for small scales. It is not in final form but can be used as a basis for comments. New York also provided a proposed training outcome hierarchy. Work will continue on this project and an electronic version will be provided when it is ready for release.

CWMA: PDC members are working on a framework for the RMFD curriculum and hope to have a draft for soliciting comments at the Interim Meeting. The draft will include the guidelines and curriculum framework; the training details will be the responsibility of the state conducting the training.

WWMA: Developing a curriculum plan is one of the most important components of a national training program. Individual regional associations should be encouraged to dedicate a portion of their annual meetings to this work. This time should be spent developing at least one of the weights and measures core competencies defined by the NCWM PDC. The resulting document should be forwarded to the NCWM PDC in order to complete the overall project. The WWMA PDC is working on a retail motor-fuel dispenser curriculum to be submitted for comments at the NCWM Interim Meeting.

401-3 D Instructor Improvement (Carryover Item 401-7)

Source: The Committee (2003)

Background: One goal of the Committee is to coordinate with all interested parties activities to improve the competence of instructors and the uniformity of delivery of the curriculum.

The Committee concluded there are two parts of an instructor-improvement strategy. The first part is educating trainers in effective methods of instruction. A variety of courses and training methods is available from state, federal, and private sources to develop instructional skills and techniques. Jurisdictions are encouraged to seek out and send selected staff to this type of training.

The second area of instructor improvement is to provide trainers with the knowledge of the technical aspects of all types of devices. The Committee will look to NIST WMD for leadership and participation as a valuable asset in this aspect of training and recommends that WMD assume the task of providing the technical training of instructors. The Committee will look to WMD as a resource to consult with trainers and to work with the Committee on keeping the curricula current as changes to the Handbooks occur, new technologies are deployed, and emerging issues develop. The Committee invites discussion from WMD on this topic. The Committee decided this is currently a low priority for 2005. However, the item will be retained as a developing item.

Industry has continued to support and sponsor training on new technology for weighing and measuring devices. NIST indicated they would continue to provide technical training for the trainers.

Discussion:

WWMA: The NCWM PDC should consider the NTEP laboratories and their personnel as a valuable instructional resource.

401-4 D Certification (Carryover Item 401-8)

Source: The Committee (2003)

Background: The Committee believes that an NCWM certification program should be developed based on the curriculum plan with measurable levels of competency.

The Committee agrees that weights and measures officials must pass written examinations to receive certification. Certificates could be presented at the Annual Meeting to administrators and weights and measures officials who complete training classes and pass the course examination. In 2004 Chairman Dennis Ehrhart expressed his support for certification and indicated the Board of Directors would consider requests to fund training. The Committee is exploring certification of weights and measures officials as a means to demonstrate competency.

The WWMA and CWMA submitted extensive comments and recommendations regarding this item prior to the 2004 NCWM Annual Meeting. The Committee has designated this item as developmental.

At the 2005 Annual Meeting the Committee considered and agreed to include the following proposal on state-issued certification:

State-Issued NCWM Certification Proposal

Background: The PDC strategic direction has established a plan for a certification program for individuals and programs. The Professional Development Committee has been charged with developing an NCWM certification program based on the curriculum plan with measurable levels of competency.

A full certification proposal was developed and submitted for consideration at the NCWM 2005 Interim Meeting. Questions were raised over the availability of NCWM resources needed to maintain a full certification program. Feedback from the membership in attendance showed there was interest in development of the state-issued certificate of competency since the states already have responsibility for maintaining training records and are ultimately responsible for the competency of inspectors in their jurisdictions. This proposal is for a state-issued certificate based upon a national certification-testing program.

During the open discussion some members indicated they would prefer NCWM issue the certificates and the states be responsible for the training.

Implementation:

Step One: Each State Director will <u>identify a State Certification Coordinator (SCC) for its state</u> to work with the PDC and NCWM. The SCC would be the main state contact and collection point for materials and information related to certification. The SCC would be responsible for:

1. Assisting the PDC in developing:
    (a) Test protocol
    (b) Certification criteria
    (c) Certification templates
    (d) Implementing certification testing in their state
2. Test questions (or recommending work group members who could)
3. Maintaining confidentiality of testing and test materials
4. Scoring certification tests
5. Issuing state certificates
6. Reviewing their state's submitted questions annually for adherence to the handbook changes

7. Maintaining state certification files

Step Two: The PDC will establish work groups to identify core competencies and knowledge requirements for basic (beginning) and advanced (journey level) inspectors for a general W&M inspector, for specific devices and W&M disciplines as identified in the training outline already developed by the PDC. The PDC and SCC can work together to assist in establishing work groups for specialty areas to ensure the correct level of expertise.

Step Three: The work groups will develop certification tests and field competency verification methods to test the core competencies and knowledge requirements as established in step two. The NCWM would allow members of the work groups to utilize a secure area of the NCWM website to conduct their work without having costly meetings or conference calls. Each work group would submit questions to be used in the development of the test that would demonstrate the core competencies and knowledge requirements. This will establish a pool of potential questions for the PDC and SCC to use in the development of certification tests. Use the ISWM 900-Question model and others for "developing," "recycling" and "updating" test questions as needed. SCCs should review the questions they developed annually and update if necessary. This will ensure that as handbook requirements change all questions will remain current and in agreement with the Conference documents. Reviewing only a few questions should not be overly burdensome on any one jurisdiction or organization. Development of the tests must also include the testing minimums for certification of every test for each device and discipline for certification (i.e., must pass 75 % of the questions to be certified).

PDC would maintain a master list of questions for each test to be given, who submitted each question, when it was last reviewed and then generate the test questions using a random selection method. The test would be changed annually. Once a test has been developed, the PDC would submit the test questions (along with the answers) to the SCC for their use in certification.

Step Four: The PDC will establish confidentiality, testing and field verification protocol for the tests to ensure the integrity of the test and testing validity are maintained. This is crucial given the wide scope of testing and the need to offer testing in every state. This ISWM testing protocol and other successful testing procedures should be studied to build on current successes. PDC or BOD determines what, if any, involvement the NCWM will have in the actual printing and issuance of Certificates and what recognition, if any, the NCWM will give to certificate holders. The SCC in each state will be responsible for printing all testing materials and instructions, giving the tests, and grading the tests; the SCC must monitor the certification program to assure testing protocol is followed.

Certification program expected outcome: consistency of enforcement, uniformity, respect, integrity, and acceptance of end product. Inspectors will be able to compete in marketplace for fair wages and be recognized as professionals in their field.

Other things to consider:

1. How will each state ensure field competency along with certification?
2. Should certificates be required to be renewed?
3. Should there be a fee associated with certification as a revenue source or to cover the basic cost of administering the test?
4. Should study guides or workshops be developed as a revenue source for the NCWM or as increased value to NCWM membership and attendance at meetings?

Discussion:

CWMA: Certification is necessary for uniformity and professional development. The certification program should be for individuals. Accreditation of jurisdictions is a separate program that could be addressed at a later time. Certification testing could be administered by the state. NCWM issuance of certificates would carry a higher level of credibility and more prestigious recognition if given in conjunction with NCWM meetings. The development of both the training program and certification program could be effectively developed concurrently.

WWMA: The WWMA supports having the states meet the requirements established by the NCWM. After demonstrating competency the NCWM would be the appropriate entity to issue the certificate. By exposing weights and measures inspectors to standardized training methodology, the certification process will lead to uniformity. Per the implementation plan WWMA has identified the following State Certification Coordinators (SCC). The WWMA PDC recommends other Regional Associations assist the NCWM, PDC by providing a similar list.

Alaska:	Mike Campbell	mike_Campbell@dot.state.ak.us
Arizona:	Shawn Marquez	smarquez@azdwm.gov
California:	Ron Flores	rflores@cdfa.ca.gov
Colorado:	Jonathan Handy	Jonathan.handy@ag.state.co.us
Hawaii:	William Pierpont	william.e.Pierpont@hawaii.gov
Idaho:	Tom Schafer	tschafer@agri.idaho.gov
Montana:	Al Page	(406) 841-2240
Nevada:	Dave Walch	(702) 486-4690
New Mexico:	Raymond Johnson	rjohnson@nmda.nmsu.edu
Oregon:	Clark Cooney	ccooney@odo.state.or.us
Utah:	Brett Gurney	bgurney@utah.gov
Washington:	Bruce Fagen	wsdabruce@earthlink.net
Wyoming:	Albie Mickelson	amicke@state.wy.us
Nebraska:	Don Onwiler	donwiler@agr.ne.gov

Attendees at the Interim Meeting should be prepared to provide an SCC name and contact information to the PDC.

401-5 D Recommended Topics for Conference Training (Carryover Item 401-10)

Source: The Committee (2003)

Background: At the 2005 Interim Meeting, the Committee recommended a number of topics for possible training seminars, roundtables, or symposia that would be suitable for presentation at the 2006 National Conference.

They are:

- Risk-based inspections,
- Marketplace surveys,
- Auditing the performance of field staff,
- Device inspections using a sampling model, and
- Emerging issues.

Will Wotthlie, MD, volunteered to lead a session on auditing field staff.
Robert Williams, TN, volunteered to present their state's RMFD testing program.
Jerry Buendel, WA, volunteered to lead a session on marketplace surveys.

All members are encouraged to submit their ideas for topics to the Committee members and to volunteer to lead, present or moderate a topic.

402 PROGRAM MANAGEMENT

402-1 I Safety Awareness (Carryover Item 402-3)

Source: The Committee (2003)

Background: In the past the Committee's responsibility extended to the identification of safety issues in the weights and measures field and included efforts to increase safety awareness.

At the 2005 Annual Meeting Past-Chairman Dennis Ehrhart explained that the Voluntary Quality Assurance Assessment program, the NCWM Associate Membership Scholarships, and Safety Awareness efforts were carryover items from the Committee on Administration and Public Affairs (A&P) and recommended the Committee make training its highest priority.

The Committee encourages jurisdictions to send the safety reports and issues to their regional safety liaison, who in turn forwards them to Charles Gardner, the NCWM Safety Coordinator, for recommendation of the reports or summaries of the reports to be published in the NCWM newsletter. At the 2005 NCWM Interim Meeting a CD-ROM on safety produced for the U.S. Environmental Protection Agency was made available for review. The Committee agreed to ensure that safety awareness is a part of every aspect of training for NCWM stakeholders.

Discussion:

CWMA: Posting of the safety report to the website is recommended. Electronic submission is desirable. Safety training should be routinely incorporated into the Conference agendas. The incident and accident report could be printed in the Conference documents and e-mailed to state directors annually to facilitate access, submission, and discussion at meetings. Several topics for safety presentations were suggested such as homeland security, preventing back injuries, and dealing with hostile situations.

402-2 I Standard Categories of Weighing and Measuring Devices (Carryover Item 402-4)

Source: Western Weights & Measures Association (WWMA) (2005)

Background: The WWMA recommended that standard categories of weighing and measuring devices be adopted to facilitate development of technical standards, inspector training, data collection, and program management.

The final report of the *Survey of Inspection Statistics Collected by State Weights and Measures Programs [2002]*, conducted during mid-2003, observed the absence of standard categories for weighing and measuring devices was a serious obstacle to data collection. For example, the way weights and measures programs categorize scales by type, use, or capacity and capacity ranges often vary considerably. Retail motor-fuel dispensers are currently being counted either by dispenser, grade, or number of hoses or meters. The need for reliable weights and measures statistics is summarized in the final report as follows:

> Accurate statistics would be helpful in many ways at both the state and national level. For instance, it is difficult to develop performance measures without statistics. Also, work plans require accurate and detailed statistics. In addition, budget, staffing, and other elements of each state program demand statistics on inspection workloads. Finally, neither individual states nor the NCWM will be able to estimate and advertise the value of the nation's weights and measures programs unless reliable statistics are available.

To correct this problem, the WWMA has developed *Standard Categories for Weighing and Measuring Devices* and recommends that standard categories for weighing and measuring devices be adopted to facilitate the development of technical standards, inspector training, inspection data collection, and weights and measures program management.

At the 2005 Interim Meeting the Committee agreed this item should remain informational at this time because standardized categories of weighing and measuring devices have merit and should be considered in the future.

Discussion:

CWMA: The PDC should clarify the intended purpose of this list. For example: compiling information for inspection time data would be different from compiling a device count. Add hopper as an example under large-scale category. Add GM for Grain Moisture Meters and MD for Multiple Dimensional Devices. Add MV as a designation for a vehicle LPG meter and leave MG to designate Meter, LPG for a stationary meter.

NEWMA recommended use of the categories from Handbook 44 instead of creating new ones.

The WWMA drafted the following recommendation for consideration by the Committee. The standard categories of weighing and measuring devices are based on capacity ranges rather than type or use. It is assumed that the inspection test procedures for scales and meters within these capacity ranges are generally similar. Weights and measures programs can adopt the recommended standard categories without changing the manner in which they presently keep records of device inspections by simply adding an extra data field.

NCWM Device Category Codes

Device Code	Category	Capacity	Examples
SP	Scale, Precision	< 5 g scale division	jewelry, prescription scales
SS	Scale, Small	< 100 lbs.	retail computing scales
SM	Scale, Medium	100 - 5000 lb	dormant, platform scales
SL	Scale, Large	> 5000 lb	livestock, recycler scales
SV	Scale, Vehicle	>40 000 lb	vehicle, railway track scales
MS	Meter, Small	<30 gpm[1]	retail motor fuel dispensers
MM	Meter, Medium	30 -100 gpm	loading rack, vehicle-tank meters
ML	Meter, Large	>100 gpm	agri-chemical meters
MF	Meter, Mass Flow	All	heated tanks of corn syrup (soft drinks)
MW	Meter, Water	All	water sub-meters for mobile homes & apartments
MG	Meter, LPG	All	propane sales
MT	Meter, Taxi	All	taximeters
DT	Device, Timing	All	clocks in parking garages
DL	Device, Length Measuring	All	cordage meters

[1] Retail motor-fuel dispenser counts should be based on meters except that mid-grades should be added for blenders.

Two-letter device category codes could be used to categorize devices in weights and measures jurisdictions for reporting to the NCWM during annual surveys. Otherwise, the data collection procedures already in place would be unaffected. It would be helpful also to add the two-letter device category code to inspection reports.

Other measuring devices (e.g., MFM, LPG, LMD, etc.) may not require capacity-based categories like scales or liquid measuring devices.

402-3 D PDC Publication

Source: The Committee (2005)

Discussion:

The Committee recognized that many aspects of their work would need to be documented and presented. The Committee and Board should consider the publication of a handbook or similar document.

Celeste Bennett, Michigan, Chair
Kenneth Deitzler, Pennsylvania
Agatha Shields, Ohio
Gerald Buendel, Washington
Richard W. Wotthlie, Maryland

C. Gardner, New York, Safety Liaison
Gary Lameris, Hobart Corporation, Associate Member Rep.
Linda Bernetich, NCWM Staff Liaison

Professional Development Committee

Appendix A

Strategic Direction for the Professional Development Committee

The Committee developed its strategic direction to define its roles and responsibilities to the NCWM and the weights and measures community. The Committee members wrote principles to guide them in their deliberations and defined four main areas to focus their efforts. The Committee recognizes that its direction and responsibilities may be changed by the Board of Directors.

The guiding principles of the group were:

- Keep things simple,
- Develop programs that are realistic and achievable,
- Minimize redundancy and administrative tasks,
- Recognize that no one size fits all, and
- Meet the needs of W&M officials, service companies, industry and manufacturers.

The four main areas for focusing their efforts are:

National Training Program – The focus of the national training program would be to increase technical knowledge, strengthen credibility and improve the professionalism of the individual weights and measures official. A strong national training program will work to promote uniformity across the nation.

National Certification System – A national certification system would be developed to recognize or accredit weights and measures programs as competent or capable. The program would include requirements around individual training, proper test standards, use of national handbooks and a data gathering system.

Conference Training Topics – The Committee would be the focal point for gathering and recommending workshops or symposia on leadership, management and emerging issues to be presented during the annual conference. These topics would provide a forum for the exchange of ideas and discussion of changes in the marketplace.

Uniformity of Data – The Committee would work to develop standard categories for devices and inspection areas so that such things as the number of devices, compliance rates, frequency of inspection and other areas could be compiled and compared at the national level. These statistics could be used to benchmark organizations and to communicate the value of weights and measures to the public and to decision makers (see Item 402-4).

National Type Evaluation Program (NTEP) Committee
Interim Agenda

James Truex
Chief, Division of Weights & Measures
Ohio Department of Agriculture

INTRODUCTION

The NTEP Committee will address the following items at its 2006 Interim Meeting. Except when posted, all meetings are open to the membership. The members will be invited to engage in dialogue with the NTEP Committee on issues that the NTEP Committee has on its agenda. The NTEP Committee is currently working on the following issues:

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Details of All Items
(In Order by Reference Key Number)

1. Test Data Exchange Agreements

Background/Discussion: This item was included on the committee's agenda in 1998 to provide an update on NTEP's work to establish bilateral and multilateral agreements. Under such agreements and arrangements, manufacturers would be able to submit their equipment to any of the participating countries for testing to OIML-recommended requirements. The resulting test data would be accepted by other participants as a basis for issuing each country's own type approval certificate. Following is a report on the three types of test data exchange agreements.

Mutual Acceptance Arrangement (MAA): NTEP Director, Stephen Patoray attended an MAA Seminar for Assessors on September 5 - 6, 2005. During this seminar, Mr. Patoray provided the attendees an overview of the additional requirements in the United States for both OIML R76 and R60. He will update the attendees at the 2006 NCWM Interim meeting regarding the current status of the MAA and other developments. The next scheduled meeting of the Committee on Participation Review (CPR) for R76 and R60 is now scheduled for March 7 - 10, 2006, in Sydney, Australia.

The NTEP Committee discussed the MAA during the fall 2006 NTEP Committee meeting. Based on previous input from the NCWM membership and other discussion on this topic, the NTEP Committee believes the United States should be a Country A (issuing participant) with full laboratory capabilities for OIML R76 "Non-automatic Weighing Instruments" and should not participate in a Declaration of Mutual Confidence (DoMC) as a Country B (utilizing

participant) for R76. However, the NTEP Committee recognizes that currently there are no identified resources available to be able to move forward with a laboratory for R76. Based on this fact and given the realities of the NIST Force Group's position to not participate as a testing laboratory for OIML R60 "load cells", the NTEP Committee is recommending the NCWM Board of Directors consider signing the DoMC as a Country B for R60 "load cells" only.

The MAA will also be on the Board's agenda for January at the Interim Meeting.

Bilateral Agreements: No additional discussions have been held on this topic, pending the outcome of the MAA discussions.

NTEP-Canada Mutual Recognition Program: No additional areas of MRA activities have been identified.

2. Adoption of Uniform Regulation for National Type Evaluation by States

Background/Discussion: The Scale Manufacturers Association (SMA) has hosted NTEP adoption and implementation meetings for state directors at each regional weights and measures association conference. These meetings enable jurisdictions to share information about adopting and implementing NTEP in their respective jurisdictions, encourage non-NTEP jurisdictions to adopt the regulation, and allow current NTEP jurisdictions to share ideas on how to make enforcement more effective and uniform among the states. The meetings also provide NTEP management with information related to areas in which the operation and implementation of the program can be improved. Several questions have been posed at these meetings about issues associated with NTEP interpretation or practice. Comments from 1997 to 2004 have been summarized, without attribution, and are available for review and download on the SMA website at http://www.scalemanufacturers.org.

During the most recent NCWM Annual meeting, SMA Representative, Darrell Flocken, indicated the SMA decided it would be more useful to show which states require NTEP Certificates before allowing weighing and measuring devices to be certified as legal for trade, regardless of their adoption of the NIST/NTEP URNTE. SMA developed a new map that shows that status. The SMA, deciding that it would be more useful to show which states require Registration of Service Agencies and Service Personnel regardless of their adoption of VRSA, developed separate maps that show that status. Such maps are available for review and download on the SMA website at http://www.scalemanufacturers.org.

Mr. Flocken will update the attendees on any additional developments in this area. Based on comments from the NCWM membership, the NTEP Committee will make a final decision to discontinue this item from the NTEP report.

3. NTEP Participating Laboratories and Evaluations Reports

At the 2006 NCWM Interim Meeting, Stephen Patoray, NTEP Director, will update the committee on NTEP laboratory and administrative activities since October 1, 2003. A report of NTEP laboratory activities will be distributed at the 2006 NCWM Interim Meeting.

The NTEP Weighing and Measuring Laboratories held a joint meeting in April 2005 in Columbus, OH. The NTEP Weighing Laboratories met again on September 25, 2005, before the Weighing Sector meeting in Columbus, OH, and the NTEP Measuring Laboratories met on October 21, 2005, prior to the Measuring Sector in Nashville, TN.

The next NTEP Laboratories meeting is scheduled April 2 - 5, 2006, in Annapolis, MD.

4. NTETC Sectors Reports

The committee will hear an update on the activities of the National Type Evaluation Technical Committee (NTETC) Sectors at the 2006 NCWM Interim Meeting. Outlined below is a brief summary of sector activities since the 2005 NCWM Annual Meeting.

Grain Analyzer Sectors: The NTETC Grain Analyzer Sector held a joint meeting in Kansas City, MO, on August 24 - 25, 2005. A draft of the final summary will be provided to the committee prior to the 2005 NCWM Interim Meeting for review and approval.

The next meeting of the Grain Analyzer Sector is tentatively scheduled for August 2006 in Kansas City, MO. For questions on the current status of sector work or to propose items for a future meeting, please contact the sector technical advisors:

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Gaithersburg, MD 20899-2600
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Jack Barber
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Measuring Sector: The NTETC Measuring Sector met October 21 - 22, 2005, in Nashville, TN. A draft of the final summary will be provided to the NTEP Committee prior to the 2006 NCWM Interim Meeting for review and approval.

The next meeting of the Measuring Sector is scheduled for October 2005 in conjunction with the Southern Weights and Measures Association's Annual Meeting. For questions on the current status of sector work or to propose items for a future meeting, please contact the sector technical advisor:

Richard Suiter
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100 Bureau Drive – Stop 2600
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Weighing Sector: The NTETC Weighing Sector met September 25 - 27, 2005, in Columbus, OH. A final draft of the meeting summary will be provided to the committee prior to the 2006 NCWM Interim Meeting for review and approval.

The next Weighing Sector meeting is scheduled for September 2006 in Annapolis, MD. For questions on the current status of sector work or to propose items for a future meeting, please contact the sector technical advisor:

Steven Cook
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100 Bureau Drive – Stop 2600
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Fax: (301) 926-0647
e-mail: stevenc@nist.gov

NTETC Sector Summaries: The NTEP Committee will receive copies of the summaries prior to the NCWM Interim Meeting for its review and approval. Past NTETC Sector summaries are available upon request from NCWM and the NIST Sector Technical Advisors:

NCWM Inc. or
Phone: (240) 632-9454
e-mail: ncwm@mgmtsol.com

NIST WMD Technical Advisor, Steve Cook
(See contact information above)

5. NTEP Participation in U.S. National Work Group on Harmonization of NIST Handbook 44, NCWM Publication 14 and OIML R76 and R60.

The Secretariat for OIML TC9/SC1 recently submitted the second Committee Draft (2CD) of OIML R76-1 "Non-automatic Weighing Instruments" to the participating members of TC9/SC1 for review, comment, and vote. The 2CD

was developed based on an analysis of the 1992 edition OIML R76, answers from OIML TC9/SC1 members to a questionnaire distributed in May 2002, and comments on the December 2003 Working Draft (WD) for R76. The 2CD includes the changes to the December 2003 WD and the December 2004 1CD based upon comments and recommendations of the U.S. National Work Group on R76 (USNWG) and other countries.

The United States submitted twenty-seven recommendations and requests for clarifications to the Secretariat of TC9/SC1 on the 1CD and opposed the 1CD being elevated to a Draft Recommendation. Eighteen of the U.S. recommendations and requests for clarification were accepted by the Secretariat, four recommendations resulted in alternate language proposed by the Secretariat, and five recommendations were not accepted by the Secretariat. The Secretariat provided the United States with a reason the remaining comments were not accepted

The secretariat has already registered the 2CD of R76-1 as a Draft Recommendation (DR) to not further prolong the revision process at the technical committee level provided that the 2CD receives approval.

NIST WMD has asked that the USNWG for R76 and other interested individuals, organizations, and associations review the 2CD and submit any comments, along with recommended language and technical justifications to NIST WMD by December 30, 2005, so that a U.S. position can be prepared by January 30, 2006. Comments should be submitted to the attention of Steven Cook at the address listed in agenda item 4 above.

Although this current review of R76 is likely to be completed shortly, OIML has indicated a willingness to revisit the Recommendation and to consider including a large-capacity class similar to the current Handbook 44 Class III L and the Canadian Class III HD at some point in the future. WMD will be working with our Canadian counterparts to develop a North American Heavy-Duty Device Class.

WMD has prepared a direct link to the documents referenced above on the NIST WMD home page that can be used to help in the review and analysis of the 2CD.

6. Software Sector

Background: During the 2005 NCWM Annual Meeting, general comments from the floor were supportive of developing this issue further. The NTEP Committee discussed the pros and cons of software evaluation. General concerns related to difficulties identifying software and determining traceability to an NTEP Certificate of Conformance during field verification and providing NTEP laboratories with a meaningful and functional checklist for evaluating software security and functions. NCWM staff presented the costs involved with forming a sector and the costs to conduct a sector meeting. This information, along with a detailed action plan for the development of the sector charges, was presented and reviewed by the NCWM Board of Directors. Based on this information, a decision was made at the 2005 Annual Meeting to form a Software Sector. Funding was provided for this sector in the 2006 Budget.

The first scheduled meeting of the Software Sector is set for April 5 - 7, 2006, in Annapolis, MD.

7. Conformity Assessment Program (CAP)

At the Fall 2006 NTEP Committee meeting the committee discussed the current status of the CAP project. The following items were noted:

Certificate Review: The question is how this would be accomplished given the limited resources of NCWM. It was suggested that this item may need to be put on a "back burner" until resources can be clearly identified to proceed with the project in an efficient, thorough, and accurate manner.

Initial Verification: This part of the project is moving forward. The work group chair, Lou Straub, has sent out requests to several states to act in the pilot program for Initial Verification. Several of the states have responded positively. The work group is currently waiting for data. There are still questions on what will be done with this data and how it will be tabulated.

Verified Conformity Assessment Program (VCAP): In the opinion of the NTEP Committee, additional information may be needed from the work group to move this area of the program forward. A request will be made to the work group chair for a report on the current status of this committee.

James Truex, Ohio, NTEP Committee Chair
Don Onwiler, Nebraska, NCWM Chair
Mike Cleary, California, NCWM Chair-Elect
Stephen Pahl, Texas
Charles Carroll, Massachusetts

NTEP Technical Advisor: S. Patoray, NTEP Director
NTEP Technical Advisor: S. Cook, WMD

National Type Evaluation Program Committee