**NCWM Specifications and Tolerances (S&T) Committee July 2019**

**Handbook 44**

(Summary by Michelle Wilson)

***VOTING ITEMS THAT PASSED IN THE S&T COMMITTEE***

**BLOCK 3 ITEMS (B3) ADDRESS DEVICES AND SYSTEMS ADJUSTED USING A REMOVABLE DIGITAL STORAGE DEVICE**

Purpose:

Expand the scope of definition to cover instances where the “other device,” as noted in the current definition, may be necessary to the operation of the weighing or measuring device or which may be considered a permanent part of that device.

B3: GEN-2 V G-S.8.2. Devices and Systems Adjusted Using Removable Digital Device Storage.

B3: BCS-1 V S.5. Provision for Sealing.

B3: SCL-5 V S.1.11. Provision for Sealing.

B3: ABW-2 V S.1.6. Provision for Sealing Adjustable Components on Electronic Devices.

B3: AWS-2 V S.1.3. Provision for Sealing.

B3: LMD-1 V S.2.2. Provision for Sealing.

B3: VTM-2 V S.2.2. Provision for Sealing.

B3: LPG-1 V S.2.2. Provision for Sealing.

B3: HGV-1 V S.2.2. Provision for Sealing.

B3: CLM-2 V S.2.5. Provision for Sealing.

B3: MLK-1 V S.2.3. Provision for Sealing.

B3: WTR-1 V S.2.1. Provision for Sealing.

B3: MFM-1 V S.3.5. Provision for Sealing.

B3: CDL-3 V S.2.5. Provision for Sealing.

B3: HGM-3 V S.3.3. Provision for Sealing.

B3: EVF-1 V S.3.3. Provision for Sealing.

B3: TIM-1 V S.4. Provision for Sealing.

B3: GMA-1 V S.2.5. Provision for Sealing.

B3: MDM-1 V S.1.11. Provision for Sealing.

**BLOCK 4 ITEMS (B4) AUTOMATIC TIMEOUT SPECIFICATIONS**

Purpose:

Prevent the facilitation of fraud on a vehicle fueling system equipped with the capability for authorization of a transaction by a credit card, debit card, or cash.

B4: MFM-3 V S.2.9. Automatic Timeout – Pay-At-Retail Motor-Fuel Devices.

B4: HGM-4 V S.2.8. Automatic Timeout – Pay-At-Vehicle Fuel Dispensers.

B4: EVF-2 V S.2.8. Automatic Timeout – Pay-At-EVSE.

**BLOCK 5 ITEMS (B5) REPEATABILITY TESTS AND TOLERANCES**

Purpose:

Address differences between NIST Handbook 44 and NCWM Publication 14 practices for repeatability testing.

B5: LMD-2 V N.4.1.2. Repeatability Tests; N.4.6. Repeatability Tests; and T.3. Repeatability.

B5: VTM-3 V N.4.1.2. Repeatability Tests; N.4.7. Repeatability Tests; and T.3. Repeatability.

B5: LPG-4 V N.4.1.2. Repeatability Tests; N.4.4. Repeatability Tests; and T.3. Repeatability.

B5: HGV-2 V N.4.1.2. Repeatability Tests; N.4.3. Repeatability Tests; and T.2. Repeatability.

B5: CLM-3 V N.5.1.1. Repeatability Tests; N.5.3. Repeatability Tests; and T.4. Repeatability.

B5: MLK-2 V N.4.1.1. Repeatability Tests; N.4.4. Repeatability Tests; and T.3. Repeatability.

B5: WTR-2 V N.4.1.1. Repeatability Tests and N.4.4. Repeatability Tests.

B5: MFM-6 V N.6.1.1. Repeatability Tests; N.6.3. Repeatability Tests; and T.3. Repeatability.

B5: CDL-4 V N.4.1.1. Repeatability Tests; N.4.5. Repeatability Tests; and T.2.1. Repeatability.

B5: HGM-5 V N.6.1.1. Repeatability Tests; N.6.2. Repeatability Tests; and T.3. Repeatability.

**SCL – SCALES**

SCL-1 V S.1.1.1. Digital Indicating Elements. and UR.2.10. Primary Indicating Elements Provided by the User.

Purpose:

Harmonize with OIML R-76 by providing a minimum height of customer indications, regardless of the size of the indicating screen.

**BCS – BELT-CONVEYOR SCALE**

BCS-1 V S.1.3. Value of the Scale Division., S.1.9. Zero-Ready Indicator., S.4.Accuracy Class., S.45. Marking Requirements., N.1. General., N.2. Conditions of Test., T.1. Tolerance Values., T.2. Tolerance Values. and UR.3. Maintenance Requirements – Scale and Conveyor Maintenance.

Purpose:

(1) Clarify the application of tolerances when comparing multiple test runs during material tests on a dynamic weighing system; and

(2) Introduce different accuracy classes for devices covered by this code.

**AWS – AUTOMATIC WEIGHING SYSTEMS**

AWS-3 V S.3.2. Load Cell Verification Interval Value.

Purpose:

Correct inconsistency between device codes dealing with compliance of the vmin to “d” relationship formula when a complete scale undergoes NTEP temperature testing.

**LMD – LIQUID MEASURING DEVICES**

LMD-3 V A.1. General., S.2.5. Zero-Set-Back Interlock, for Retail Motor-Fuel Devices., S.4. Marking Requirements., S.5. Zero-Set-Back Interlock, for Retail Motor-Fuel Devices., UR.2.4. Diversion of Liquid Flow. and UR.2.5. Product Storage Identification.

Purpose:

To adequately address requirements for retail liquid measuring devices that measure DEF and other products.

LMD-5 V UR.3.4. Printed Ticket

Purpose:

Allow adequate time for users to upgrade existing equipment to meet requirements that will become effective in 2019.

**LPG – LPG AND ANHYDROUS AMMONIA LIQUID-MEASURING DEVICES**

LPG-2 V S.2.5. Zero-Set-Back Interlock, Stationary and Vehicle Mounted Meters, Electronic

Purpose:

To align the LPG Code with the VTM Code for electronic registers/indicators used in stationary and mobile applications.

**MFM – MASS FLOW METERS**

MFM-2 V S.1.3.3. Maximum Value of Quantity-Value divisions.

Purpose:

Delete the reference to “gasoline liter equivalent (GLE)” since that term that was removed from all Mass Flow Meters Code requirements in 2016 and clarify and limit the maximum value of the quantity division for indicated and recorded deliveries in the diesel gallon equivalent (DGE) to an increment of 0.001.

MFM-4 V S.5.1. Location of Marking Information; Retail Motor-Fuel Dispensers.

Purpose:

Extend the provision allowing the use of a key or tool for accessing internal required markings for liquid retail motor-fuel dispensers to include retail motor-fuel dispensers delivering compressed gases.

**HGM – HYDROGEN GAS-MEASURING DEVICES**

HGM-6 V Tentative Code Status and Preamble., A.2.(c) Exceptions., N.2 Test Medium., N.3. Test Drafts., N.4.1. Master Meter (Transfer) Standard Test., N.4.2. Gravimetric Tests., N.4.3 PVT Pressure Volume Temperature Test., N.6.1.1. Repeatability Tests., T.3. Repeatability., T.6. Tolerance –Minimum Measured Quantity (MMQ). and Appendix D. Definitions where applicable.

Purpose:

Remove the tentative status and include amendments to support current dispenser and test equipment capabilities.

**EVF – ELECTRIC VEHICLE FUELING SYSTEMS**

EVF-4 V Appendix D – Definitions: power factor (PF).

Purpose:

Simplify the definition for “Power Factor” in NIST Handbook 44 Section 3.40. Electric Vehicle Fueling Systems – Tentative Code and align this definition with one in a separate proposal under the Laws and Regulations Committee to adopt a “Method of Sale” requirement for electric watt hour meters.

**TXI – TAXIMETERS**

TXI-1 V N.1.3.2. Taximeters Using Other Measurement Data Sources.

Purpose:

Permit the field examination of taximeters on other than public roads.

**GMA – GRAIN MOISTURE METERS 5.56 (A)**

GMA-2 V Table S.2.5. Categories of Devices and Methods of Sealing.

Purpose:

Require future NTEP certified grain moisture meters to utilize Category 3 sealing methods.

B3: BCS-1 V S.5. Provision for Sealing.

***VOTING ITEMS THAT DID NOT PASS IN THE S&T COMMITTEE AND RETURNED TO COMMITTEE***

**VTM – VEHICLE TANK METERS (Did not pass, returned to committee)**

VTM-1 V S.3.1.1. Means for Clearing the Discharge Hose and UR.2.6. Clearing the Discharge Hose.

Purpose:

Provide specifications and user requirements for manifold flush systems. Recognize that there is a balance between a mechanism that provides an important safety benefit but also, if used incorrectly, facilitates fraud. Ensure that VTM owners understand their responsibilities when installing such a system and ensure uniformity in enforcement throughout the country.

**OTH- OTHER ITEMS (Did not pass, returned to committee)**

OTH-5 V Appendix D – Definitions: Batch (Batching)

Purpose:

To clarify when batching is a metrologically significant event.

**DEVELOPING, ASSIGNED or INFORMATIONAL**

**GEN – GENERAL CODE**

GEN-1 I G-A.1. Commercial and Law-Enforcement Equipment. and G-S.2. Facilitation of Fraud.

Purpose:

To prevent access and tampering by unauthorized persons to any area of the device where electronic financial transactions occur, credit card information is obtained, and or personal information is stored or transmitted.

**SCL – SCALES**

SCL-2 I S.1.8.5. Recorded Representations, Point of Sale Systems

Purpose:

Provide consumers the same opportunity, to be able to easily verify whether or not tare is taken on items weighed at a checkout stand using a POS system, as is currently afforded them when witnessing items being weighed and priced in their presence using other scales in the store.

SCL-3 A Sections Throughout the Code to Include Provisions for Commercial Weigh-in-Motion Vehicle Scale Systems

Purpose:

Recognize commercial Weigh-in-Motion vehicle scale systems.

**ABW – AUTOMATIC BULK WEIGHING SYSTEMS**

ABW-3 D A. Application, S Specifications, N. Notes, UR. User Requirements and Appendix D – Definitions: automatic bulk weighing system.

Purpose:

Modernize the ABWS Code to more fully reflect the types of systems in use and technology available while still maintaining the safeguards of the current code and amend the ABWS definition by removing requirements that are included in specifications and providing guidance as to what amount of automation is required for an Automatic Bulk Weighing System.

**WIM – WEIGH-IN-MOTION SYSTEMS USED FOR VEHICLE ENFORCEMENT SCREENING TENTATIVE CODE**

WIM-1 D Title of Tentative Code, S.1.7.1. Values to be Recorded., S.4.1. Designation of Accuracy., N.1. Test Procedures, T.2. Tolerance Values for Accuracy Class A Classes., UR.1.1. General, Table 1. Typical Class or Type of Device for Weighing Applications.

Purpose:

Provide for certification of non-legal for trade weigh-in-motion scales for vehicles.

**(NEW) BLOCK 1 ITEMS (B1) A TERMINOLOGY FOR TESTING STANDARDS (VERIFICATION STANDARDS, FIELD STANDARDS, TRANSFER STANDARDS, FIELD REFERENCE STANDARDS, ETC.,) TOLERANCES ON TESTS WHEN TRANSFER STANDARDS ARE USED, MINIMUM QUANTITY FOR FIELD REFERENCE STANDARD METER TESTS**

GEN-3 A G-T.5. Tolerances on Tests When Transfer Standards are Used., Appendix D – Definitions: standards, field., transfer standard. and standard, transfer.

Purpose:

(a) Add a definition for field standard that identifies the critical characteristics for field standards to comply with the Fundamental Considerations of Handbook 44 (specifically, a standard that has long-term stability and meets the one-third requirement for accuracy and uncertainty over the range of environmental and operational variables in which commercial measuring devices are used); and

(b) To add a generalized definition for transfer standards in Handbook 44 to clearly include the transfer standards already referenced in various codes; and

(c) To specify that when a transfer standard is used, the basic tolerances specified in Handbook 44 be increased the amount of the estimated uncertainty associated with the transfer standard.

**BLOCK 1 ITEMS (B1) A TERMINOLOGY FOR TESTING STANDARDS (original items and title for block one items that were included on the 2019 NCWM S&T Interim Meeting agenda.)**

Purpose:

To remove the current limited definition and use of the term “Transfer Standard” and eliminate terms “Testing Standards”, “Verification (Testing) Standards”, and instead use the term Field Standard, consistent with its reference in Handbook 44, Appendix A, Fundamental Considerations and its use in several sections of Handbook 44. To correct the broad use of the term Transfer Standard and instead replace its use with the term Field Standard. To update all use of the term “standard” to use the term “Field Standard”. To remove the current limited definition of Transfer Standard and instead use the term Field Standard.

B1: SCL-4 A N.2. Verification (Testing) Standards

B1: ABW-1 A N.2. Verification (Testing) Standards

B1: AWS-1 A N.1.3. Verification (Testing) Standards, N.3.1. Official Tests, UR.4. Testing Standards

B1: CLM-1 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards

B1: CDL-1 A N.3.2. Transfer Standard Test, T.3. On Tests Using Transfer Standards

B1: HGM-1 A N.4.1. Master Meter (Transfer) Standard Test, T.4. Tolerance Application on Test Using

Transfer Standard Test Method

B1: GMM-1 A 5.56(a): N.1.1. Air Oven Reference Method Transfer Standards, N.1.3. Meter to Like-Type

Meter Method Transfer Standards and 5.56(b): N.1.1. Transfer Standards, T. Tolerances

**BLOCK 2 ITEMS (B2) A DEFINE “FIELD REFERENCE STANDARD”**

Purpose:

Add definition field reference standard meter to HB 44.

B2: CLM-2 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards

B2: CDL-2 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards

B2: HGM-2 A N.4.1. Master Meter (Transfer) Standard Test and T.4. Tolerance Application on Test Using

Transfer Standard Test Method

B2: OTH-3 A Appendix D – Definitions: field reference standard meter and transfer standard

LPG-3 A N.3. Test Drafts.

MFM-5 A N.3. Test Drafts.

**SCL – SCALES**

SCL-7 I T.N.3.6. Coupled-In-Motion Railroad Weighing Systems., T.N.4.6. Time Dependence (Creep) for Load Cells during Type Evaluation., UR.5. Coupled-in-Motion Railroad Weighing Systems. and Appendix D – Definitions: point-based railroad weighing systems.

Purpose:

Replace the 2018 Block 2 Items: SCL-1 and SCL-2 with new proposals to:

a) Increase the tolerance for dynamic weighments of unit trains,

b) Provide an exception from “creep” tolerances for point-based in-motion railroad weighing systems,

c) Require the user of coupled-in-motion railroad weighing systems to provide a static scale in close proximity for testing purposes, and

d) Add a definition for Point-Based Railroad Weighing Systems to support those proposals.

**EVF – ELECTRIC VEHICLE FUELING SYSTEMS**

EVF-3 D S.3.5. Temperature Range for System Components. and S.5.2. EVSE Identification and Marking Requirements.

Purpose:

Ensure there are no inconsistencies in the tentative code between the temperature range requirement of – 40 °C to + 85 °C (− 40 °F to 185 °F) specified for the EVSE’s operation and the requirement in paragraph S.5.2. EVSE Identification and Marking Requirements that specifies an EVSE must be marked with its temperature limits when they are narrower than and within – 20 °C to + 50 °C (− 4 °F to 122 °F).

**GMA – GRAIN MOISTURE METERES**

GMA-3 D Table T.2.1. Acceptance and Maintenance Tolerances Air Oven Method for All Grains and Oil Seeds.

Purpose:

Reduce the tolerances for the air oven reference method.

**OTH – OTHER ITEMS**

OTH-4 D Electric Watthour Meters Code under Development

Purpose:

1) Make the weights and measures community aware of work being done within the U.S. National Work Group on Electric Vehicle Fueling and Submetering to develop proposed requirements for electric watthour meters used in submeter applications in residences and businesses;

2) Encourage participation in this work by interested regulatory officials, manufacturers, and users of electric submeters.

3) Allow an opportunity for the USNWG to provide regular updates to the S&T Committee and the weights and measures community on the progress of this work;

4) Allow the USWNG to vet specific proposals as input is needed.

**WITHDRAWN**

**LMD – LIQUID MEASURING DEVICES**

LMD-4 W Airport Refueling Systems – Agreement of Indications and Reset to Zero

Purpose:

Address self-service airport fueling dispensing systems equipped with a primary analog indicator and a separate card activated console with a printer that are used to fuel multiple tanks on aircrafts.

**MDM – MULTIPLE DIMENSION MEASURING DEVICES**

MDM-2 W S.1.7. Minimum Measurement

Purpose:

Accept mobile tape based MDMD devices from the 12D minimum measurement.

**SCL - SCALES**

SCL-6 W UR.3.11. Class II Scales

Purpose:

To clarify that the value of “e” must be used as the basis for commercial transactions when using a Class II scale in which “d” and “e” are different values.

**TNS – TRANSPORTATION NETWORK SYSTEMS**

TNS-1 W A.4. Type Evaluation.

Purpose:

Facilitate the evaluation of devices/systems submitted to NTEP for type and to exclude those devices/systems not complying with all requirements contained in that code from the NTEP evaluation process.