

99th Annual Meeting of the National Conference on Weights and Measures

July 13 – 17, 2014
Detroit, Michigan

Addendum Sheets to the Interim Report of the Specifications and Tolerances Committee

300 INTRODUCTION

The Specifications and Tolerances Committee (hereinafter referred to as “Committee”) submits its Interim Report to the National Conference on Weights and Measures. The Report consists of the Interim Report offered in Publication 16, “NCWM Committee Reports,” and this Addendum.

Presented below is a list of voting and information items. Voting items are indicated by the suffix **V** or, if the voting item is part of the Consent calendar, by the suffix **VC**. If the item is an Information item, it is indicated by the suffix **I**; if the item is Withdrawn, it is indicated by the suffix **W**. Items marked with a **D** after the key numbers are Developing items. The developing designation indicates an item has merit; however, the item is returned to the submitter for further development before any action at the national level. The Committee’s Final Report is proposed to be grouped in the following order:

Consent Calendar Items		
Reference Key	Title of Item	S&T Page No.
300	INTRODUCTION	3
310	HANDBOOK 44 - GENERAL CODE	3
	310-2 VC G-S.5.6. Recorded Representations	3
320	SCALES	4
	320-2 VC UR.2.4. Foundations, Supports, and Clearance	4
321	BELT-CONVEYOR SCALE SYSTEMS	4
	321-1 VC UR.1.2. Conveyor Installation	4
330	LIQUID MEASURING DEVICES	4
	330-1 VC S.1.6.7. and S.1.6.8. Recorded Representations and UR.3.3. Computing Device	4
	330-3 VC N.4.2.4. Wholesale Devices	5
	330-5A VC UR.3.3. Computing Device.	6
	330-5B VC UR.3.3. Computing Device.	6
332	LPG AND ANHYDROUS AMMONIA LIQUID-MEASURING DEVICES	7
	332-2 VC S.1.5.3. Recorded Representations, Point-of-Sale Systems	7

Voting Items

Separate vote (V) of the NCWM is being requested on the following items:

Reference Key	Title of Item	S&T Page No.
337	MASS FLOW METERS	8
337-2	V Appendix D – Definitions: Diesel Liter Equivalent (DLE) and Diesel Gallon Equivalents (DGE) for Compressed Natural Gas and Liquefied Natural Gas; Definition of Gasoline Gallon Equivalent and Gasoline Liter Equivalent for Compressed Natural Gas; S.1.2. Compressed Natural Gas and Liquefied Natural Gas Dispensers; S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel; S.1.3.1.2. Liquefied Natural Gas Used as an Engine Fuel; and UR.3.8. Return of Product to Storage, Retail Compressed Natural Gas and Liquefied Natural Gas	8

Withdrawn Items

The following items were withdrawn (W) and require no formal action of the NCWM:

Reference Key	Title of Item	S&T Page No.
320	SCALES	4
320-1	W S.2.1.6. Combined Zero-Tare (“0/T”) Key	4
330	LIQUID MEASURING DEVICES	4
330-2	W S.1.6.7. Recorded Representations	4
330-6	W UR.4. Maintenance Requirements	6
331	VEHICLE-TANK METERS	6
331-2	W UR.3. Maintenance Requirements	7
336	WATER METERS	8
336-1	W UR.3. Installation Requirements.....	8
337	MASS FLOW METERS	8
337-1	W Appendix D – Definitions: Diesel Liter Equivalent (DLE) and Diesel Gallon Equivalents (DGE); Natural Gas	8
337-4	W S.1.2. Compressed Natural Gas Dispensers, S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel, S.5.2. Marking of Gasoline Volume Equivalent Conversion Factor; Natural Gas 10	

Information and Developing Items

The following items are informational (I) or under development (D) and require no formal action of the NCWM:

Reference Key	Title of Item	S&T Page No.
310	HANDBOOK 44 - GENERAL CODE	3
310-1	D G-S.1. Identification. – (Software)	3
320	SCALES	4
320-3	I Part 2.20. Weigh-In-Motion Vehicle Scales for Law Enforcement – Work Group	4
330	LIQUID MEASURING DEVICES	4
330-4	D N.4.2.5. Initial Verification	5
330-7	D Part 3.30. Price Posting and Computing Capability and Requirements for a Retail Motor-Fuel Dispenser (RMFD)	6
331	VEHICLE-TANK METERS	6
331-1	D N.4.6. Initial Verification and UR.1.5. Initial Verification Proving Reports.....	6

332	LPG AND ANHYDROUS AMMONIA LIQUID-MEASURING DEVICES	7
332-1	D S.1.4.3. Provisions for Power Loss, S.1.5.1.1. Unit Price., S.1.5.1.2. Product Identity., S.1.6. For Retail Motor Vehicle Fuel Devices Only., S.1.7. For Wholesale Devices Only. , UR.2.7. Unit Price and Product Identity., and UR.2..8 Computing Device.	7
337	MASS FLOW METERS	8
337-6	D Mass Flow Meters Code, S.3.6. Automatic Density Compensation.....	10
354	TAXIMETERS	10
354-1	D USNWG on Taximeters – Taximeter Code Revisions and Global Positioning System-Based Systems for Time and Distance Measurement.....	10
358	MULTIPLE DIMENSION MEASURING DEVICES	11
358-1	D Measurement of Bulk Material in Open-Top Truck and Trailer Units.....	11
360	OTHER ITEMS	11
360-1	D International Organization of Legal Metrology (OIML) Report	11
360-2	D Appendix D – Definitions: Remote Configuration Capability	11
360-3	D Electric Vehicle Fueling and Submetering	11

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

310 HANDBOOK 44 - GENERAL CODE

310-1 D G-S.1. Identification. – (Software)

The Committee heard comments from Steve Langford (Cardinal Scale) speaking on behalf of the Scale Manufacturers Association, indicating that the SMA supports this item. Juana Williams, NIST OWM, suggested that a joint meeting of all Sectors might assist in developing a proposal that meets the needs of multiple segments of the community. The Committee reiterates its intent to withdraw this item at the 2015 Interim Meeting if progress has not been made.

310-2 VC G-S.5.6. Recorded Representations

The Committee heard a suggestion that this might be better suited as a User Requirement. The Committee heard additional comments indicating that, while the creation of a user proposal may have merit the proposed changes should not be delayed. Should there be a strong desire within the community to develop a proposal for a supplemental user requirement; the Committee would be amenable to considering such a proposal in the future.

320 SCALES

320-1 W S.2.1.6. Combined Zero-Tare (“0/T”) Key

No change.

320-2 VC UR.2.4. Foundations, Supports, and Clearance

The Committee heard a presentation from Dr. Rauchschwalbe (Schenck Process, Inc.) on the MultiRail in-motion railroad weighing system. There were numerous comments heard in support of the proposal. No comments were heard in opposition. Consequently, the Committee agreed this item remain Voting.

320-3 I Part 2.20. Weigh-In-Motion Vehicle Scales for Law Enforcement – Work Group

The Committee heard an update on the progress of the FHWA’s Work Group from the NIST Technical Advisor. Mr. Steve Langford (Cardinal Scale) speaking as a member of the Project Oversight Committee, commented in support of the proposal and noted that an updated draft of the WIM code will be submitted to the fall regional associations for consideration.

The Committee plans to include a copy of the most recent draft code in their final report. Copies are also available from the WIM WG Committee Chair Mr. Darrell Flocken (NCWM).

321 BELT-CONVEYOR SCALE SYSTEMS

321-1 VC UR.1.2. Conveyor Installation

The Committee heard comments in support of the proposal. Hearing no comments in opposition, the Committee agreed this item remain Voting.

330 LIQUID MEASURING DEVICES

330-1 VC S.1.6.7. and S.1.6.8. Recorded Representations and UR.3.3. Computing Device

The Committee heard comments in support of the proposal. Hearing no comments in opposition, the Committee agreed this item remain Voting.

330-2 W S.1.6.7. Recorded Representations

No change.

330-3 VC N.4.2.4. Wholesale Devices

The Committee considered the comments from Dmitri Karimov, Liquid Controls who noted that the term “slightly above” is somewhat subjective; however, the Committee feels that the proposed language is adequate. The Committee heard no opposition to the proposal.

330-4 D N.4.2.5. Initial Verification

The Committee heard an update from Julie Quinn (MN), the submitter of this item. Ms. Quinn reported that a group of interested parties has been collaborating on this issue. During the NCWM meeting this group met and developed suggested language to address the concerns outlined in this item. Ms. Quinn asked that the Committee include the suggested language in this item for further review and comments by the regional associations and others in the fall. The following language, along with a change to the title of the item, was suggested:

N.4.2.5. Determination of Error on Whole Sale Devices with Multiple Flow Rates and Calibration Factors-Initial Verification

~~On whole sale devices which are configured with multiple flow rates where each flow rate has its own calibration factor, and which are programmed to deliver a set quantity at a slow flow rate on start up and/or shut down, the effect of start up and shut down rates on the accuracy—the typical delivery shall be considered if the typical delivery is greater or less than the test measure used at the time of evaluation. The weights and measures jurisdiction shall determine the size of the typical delivery based upon available evidence.~~ **A wholesale liquid measuring device shall be tested at all flow rates and with all products for which a calibration factor has been electronically programmed prior to placing it into commercial service for the first time or after being repaired or replaced.**

A wholesale liquid measuring device not equipped with means to electronically program its flow rates and calibration factors shall be tested at a low and high flow rate with all products delivered prior to placing it into commercial service for the first time or after being repaired or replaced.

Example: A meter is electronically programmed to deliver regular and premium gasoline at a startup/shutdown flow rate of 150 gpm, a normal operating flow rate of 650 gpm, and a fall-back rate of 450 gpm. The meter is to be tested with regular gasoline at 150 gpm, 450 gpm and 650 gpm; and with premium gasoline at 150 gpm, 450 gpm and 650 gpm.

The official with statutory authority has the discretion to determine the flow rates and products at which a meter will be tested on subsequent verifications.

UR.2.5.1. Initial Verification Proving Reports

Initial verification proving reports for wholesale liquid measuring devices equipped with means to electronically program flow rates shall be attached to and sent with placed-in-service reports when the regulatory agency with statutory authority requires placed-in-service reports.

330-5A VC UR.3.3. Computing Device.

The Committee heard comments in support of this item. Hearing no comments in opposition, the Committee agreed this item remain Voting.

330-5B VC UR.3.3. Computing Device.

The Committee heard comments in support of this item. Hearing no comments in opposition, the Committee agreed this item remain Voting.

330-6 W UR.4. Maintenance Requirements

No change.

330-7 D Part 3.30. Price Posting and Computing Capability and Requirements for a Retail Motor-Fuel Dispenser (RMFD)

The Committee heard comments from Fran Elson-Houston (Ohio) Chair of the RMFD Price Posting and Computing Capability Task Group. Ms. Elson-Houston reported that Mr. Dick Suiter (Richard Suiter Consulting) will be providing training to the State of Ohio on this topic and that he would be willing to provide similar training regional association meetings. The Committee heard no additional comments on this item. The Committee agreed that the work of the Task Group is completed and plans to remove this item from its agenda following this Annual Meeting.

331 VEHICLE-TANK METERS

331-1 D N.4.6. Initial Verification and UR.1.5. Initial Verification Proving Reports

The Committee heard an update from Julie Quinn (MN), the submitter of this item. Ms. Quinn reported that a group of interested parties has been collaborating on this issue. During the NCWM meeting this group met and developed suggested language to address the concerns outlined in this item. Ms. Quinn asked that the Committee include the suggested language in this item for further review and comments by the Regional Associations and others in the fall. The following language, along with a change to the title of the item was suggested:

N.4.6. Determination of Error on Vehicle Tank Meters with Multiple Flow Rates and Calibration Factors-Initial Verification

~~On vehicle tank meters which are configured with multiple flow rates where each flow rate has its own calibration factor, and which are programmed to deliver a set quantity at a slow flow rate on start up and/or shut down, the effect of start up and shut down rates on the accuracy of the typical delivery shall be considered if the typical delivery is greater or less than the test measure used at the time of evaluation. The weights and measures jurisdiction shall determine the size of the typical delivery based upon available evidence.~~ **A vehicle tank meter shall be tested at all flow rates and with all products for which a calibration factor has been electronically**

programmed prior to placing it into commercial service for the first time or after being repaired or replaced.

A vehicle tank meter not equipped with means to electronically program its flow rates and calibration factors shall be tested at a low and high flow rate with all products delivered prior to placing it into commercial service for the first time or after being repaired or replaced.

Example: A vehicle tank meter is electronically programmed to deliver regular and premium gasoline at a startup/shutdown flow rate of 20 gpm, a normal operating flow rate of 100 gpm, and an intermediate rate of 65 gpm. The meter is to be tested with regular gasoline at 20 gpm, 65 gpm and 100 gpm; and with premium gasoline at 20 gpm, 65 gpm and 100 gpm.

The official with statutory authority has the discretion to determine the flow rates and products at which a vehicle tank meter will be tested on subsequent verifications.

UR.1.5. Initial Verification Proving Reports

Initial verification proving reports for vehicle tank meters equipped with means to electronically program flow rates shall be attached to and sent with placed-in-service reports when the regulatory agency with statutory authority requires placed-in-service reports.

331-2 W UR.3. Maintenance Requirements

No change.

332 LPG AND ANHYDROUS AMMONIA LIQUID-MEASURING DEVICES

332-1 D S.1.4.3. Provisions for Power Loss, S.1.5.1.1. Unit Price., S.1.5.1.2. Product Identity., S.1.6. For Retail Motor Vehicle Fuel Devices Only., S.1.7. For Wholesale Devices Only. , UR.2.7. Unit Price and Product Identity., and UR.2..8 Computing Device.

The Committee heard numerous comments, indicating that additional work is needed on this item. The Committee agreed to recommend this item remain a “Developing” Item.

332-2 VC S.1.5.3. Recorded Representations, Point-of-Sale Systems

The committee heard comments suggesting that the last paragraph in the proposed language be deleted to correspond to changes proposed in Item 310-2, 330-1, and 330-5B. Based on this suggestion the Committee modified the proposal, eliminating the last sentence so that the proposed paragraph now reads as follows:

S.1.5.3. Recorded Representations, Point-of-Sale Systems. – Except for fleet sales and other price contract sales, a printed receipt providing the following information shall be available through a built-in or separate recording element for all transactions conducted with point-of-sale systems or devices activated by debit cards, credit cards, and/or cash:

- (a) the total volume of the delivery;**
- (b) the unit price;**
- (c) the total computed price; and**
- (d) the product identity by name, symbol, abbreviation, or code number.**

336 WATER METERS

336-1 W UR.3. Installation Requirements

No change.

337 MASS FLOW METERS

337-1 W Appendix D – Definitions: Diesel Liter Equivalent (DLE) and Diesel Gallon Equivalents (DGE); Natural Gas

No change.

337-2 V Appendix D – Definitions: Diesel Liter Equivalent (DLE) and Diesel Gallon Equivalents (DGE) for Compressed Natural Gas and Liquefied Natural Gas; Definition of Gasoline Gallon Equivalent and Gasoline Liter Equivalent for Compressed Natural Gas; S.1.2. Compressed Natural Gas and Liquefied Natural Gas Dispensers; S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel; S.1.3.1.2. Liquefied Natural Gas Used as an Engine Fuel; and UR.3.8. Return of Product to Storage, Retail Compressed Natural Gas and Liquefied Natural Gas

Numerous comments were heard in both opposition and support of the proposal as follows:

Support:

- Numerous letters of support by U.S. Senators, Governors, wide bipartisan support.
- Allows consumers who may be familiar with volumetric units to make value comparisons.
- Allows for cost comparison between multiple fuel types.
- Proposal is supported by those who build and supply the equipment, vehicle manufacturers, producers and distributors of natural gas.

- If action isn't taken, the decision will be taken out of the Weights and Measures jurisdictions hands at the state and local levels.
- GGE has been in use and accepted for many years.
- If the primary method of sale is mass, it dictates price, sale, and advertising be in mass. Mass units are not consumer friendly. Consumers don't understand price per kilogram or pound for fuel sales.
- Industry stated that equivalent units are what consumers want.
- At least one company reported that all of their business is built around the DGE and they would need to retrofit their dispensers if required to measure in mass.
- Natural gas retail dispensers measure in mass and are inspected and tested using mass units.

Opposition:

- Use of the word approximate.
- This is a marketing rather than technical issue.
- Will there be potential for proliferation of other equivalent units for other alternative fuels?
- There are questions concerning the validity of the conversion values and whether adequate research had been done to develop the values.
- Including more than one equivalent value could lead to consumer confusion.
- Not aligned with how natural gas is being sold in the rest of the world.
- A jurisdiction stated that consumers hadn't been asked how they want it sold.
- Is there a need for ongoing value comparisons if a vehicle is dedicated to natural gas fuel?
- Measurement science needs to be based on traceable standards. Equivalent units are not traceable.
- Consumers may need to make comparisons with multiple different fuel types such as diesel, biodiesel, gasoline, fuel ethanol, electric, hydrogen, LNG, and others. What is the most appropriate means to provide sufficient information to customers attempting to make value comparisons?
- Equivalent units would be better provided as supplemental information rather than the basis for commercial transactions.

Other technical points that were raised include the following:

- NTEP certificates have already been issued for five LNG dispensers that measure and indicate in mass units only. How will the proposed changes affect this equipment?

The Committee identified the method of sale by mass versus equivalent volumetric units as the most significant concern based on comments heard on this proposal. In addition to support for this proposal, there were also concerns regarding the use of the word "approximately" for labeling purposes; "multiple equivalent units" labeled on the same dispenser; "tax issues;" and other less commonly expressed issues. It was decided to eliminate the labeling altogether and not delay the effective date, thereby, addressing all three concerns. The Committee received an alternative proposal from NIST that would require dispensers to measure, indicate, and calculate the total selling price based on mass units (pounds or kilograms), but permit the posting of supplemental information regarding approximate equivalents to other fuels for use by consumers when making value comparisons or for use by tax agencies.

Because many of these issues are dependent upon defining the proper method of sale, the Committee met jointly with the L&R Committee to discuss the comments received on the S&T and L&R proposals on the issues relating to natural gas.

337-3 Appendix D – Definitions: Diesel Liter Equivalent (DLE) and Diesel Gallon Equivalents (DGE) for Liquefied Natural Gas

No change.

337-4 W S.1.2. Compressed Natural Gas Dispensers, S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel, S.5.2. Marking of Gasoline Volume Equivalent Conversion Factor; Natural Gas

No change.

337-5 S.1.2. Compressed Natural Gas Dispensers, S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel, S.5.2. Marking of Gasoline Volume Equivalent Conversion Factor

No change.

337-6 D Mass Flow Meters Code, S.3.6. Automatic Density Compensation

The Committee heard numerous comments suggesting the proposal remain in a Developing status. Consequently the Committee agreed to recommend this item remain Developing.

354 TAXIMETERS

354-1 D USNWG on Taximeters – Taximeter Code Revisions and Global Positioning System-Based Systems for Time and Distance Measurement

The Committee heard the following update by NIST on the progress of the Work Group:

The latest meetings of the USNWG on Taximeters, occurring in 2014 were held on March 4 and May 20. These meetings focused on the development of proposed changes to the NIST Handbook 44 Taximeters Code, which include:

- Changes to requirements regarding recording elements and passenger receipts;
- Amendments to requirement pertaining to the Code application;
- Specification requirements to passenger dedicated displays;
- Changes to the requirement regarding the basis of fare calculation; and
- Requirements to set parameters for the use of multiple rates in the calculation of fares.

The next meeting is scheduled for Thursday, August 7, 2014 when the USNWG will continue the development of proposed changes to HB44. The USNWG has developed a number of proposals that will be submitted for consideration by the S&T Committees of the Regional Weights and Measures Associations this fall. Subsequent meetings of the USNWG are planned every other month using web-conferencing to accommodate the many members who are unable to travel.

358 MULTIPLE DIMENSION MEASURING DEVICES

358-1 D Measurement of Bulk Material in Open-Top Truck and Trailer Units

The NIST Technical Advisor reported he had contacted LoadScan, Ltd and was provided the following update:

“LoadScan, Ltd in New Zealand is aware that the NCWM Annual Meeting is coming up. Unfortunately the reality is we have not had the resources to be able to pursue our case this year and will not be making any submissions at the moment. We plan to engage the services of local experts within the USA to pursue this matter for us over the next year. We are also completing further background work with Weights & Measures authorities in New Zealand and Australia which we hope will support our drive for approval in the USA. At this stage we request only to retain our ‘developing item’ status.”

360 OTHER ITEMS

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

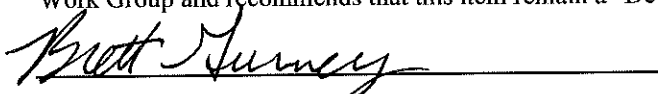
No change.

360-2 D Appendix D – Definitions: Remote Configuration Capability

The Committee heard several comments suggesting the proposal remain a “Developing” item. Consequently the Committee agreed to recommend this item remain a “Developing” item.

360-3 D Electric Vehicle Fueling and Submetering

The Committee heard a short presentation from Mrs. Tina Butcher (NIST), Chairman of the USNWG. Mrs. Butcher reported on the progress of the WG and noted that the WG plans to submit a proposal for regional consideration in the fall with a request that it be designated as a “Voting” item at that time. Mr. Ted Bohn, Argonne National Laboratory reported on the progress of the EVSE subcommittee and displayed a sample of a prototype test unit. The Committee heard comments in support of the item. The Committee looks forward to seeing the proposal from the Work Group and recommends that this item remain a “Developing” item until such time that the draft is submitted.



Mr. Brett Gurney, Utah | Committee Chair
Mr. Mahesh Albuquerque, Colorado | Member
Ms. Jane Zulkiewicz, Town of Barnstable, MA | Member
Dr. Matthew Curran, Florida | Member
Mr. Ivan Hankins, Iowa | Member
Mr. Luciano Burtini, Measurement Canada | Canadian Technical Advisor
Ms. Tina Butcher, NIST, OWM | NIST Technical Advisor
Mr. Rick Harshman, NIST, OWM | NIST Technical Advisor

Specifications and Tolerances Committee