

**U.S. National Work Group
for the
Development of Commercial Hydrogen Measurement Standards
February 24, 2009
Joint Device Standards Subcommittee and Fuel Specifications Subcommittee
Teleconference/Webconference Meeting**

AGENDA

Time: Tuesday, February 24, 2009/1:00 p.m. - 4:00 p.m. EST-USA & Canada (GMT -05:00)

Call-In Number: 916-233-4200

Call-In Code: 910213#

Web Conference: <http://www.unlimitedconferencing.com/>

Participant's Pin: 910213

This meeting is sponsored by the U.S. Department of Energy and U.S. Department of Commerce's National Institute of Standards and Technology.

This meeting is hosted by CSA America, Inc.

Purpose: The U.S. National Work Group (USNWG) is meeting to continue its work to promote the establishment of a comprehensive set of (1) design, accuracy, installation, use, and method of sale requirements, (2) test procedures, and (3) quality standards for equipment used in hydrogen measurements for vehicle and other refueling applications.

ATTACHMENTS:

Appendix A Summary of the January 2009 USNWG Meeting

Appendix B USNWG Guidelines

Appendix C Draft 3.4 of NIST Handbook 44 Gas Measuring Devices Code

Appendix D Draft 2.3 of NIST Handbook 130 Uniform Laws and Regulations, Engine Fuel Quality

AGENDA TOPICS

1:00 P.M. (EST)

(1) Welcome Current/New Members and Roll Call

New members of the USNWG and visitors will be welcomed, the meeting is called to order, time for a roll call, and the meeting's purpose reviewed. The collaborative work by the meeting's sponsors will be recognized. New participants will be invited to provide their name, affiliation, and state their specific area of interest in the work to develop hydrogen measurement standards.

(2) Administrative Business

The USNWG will discuss and decide on procedures for managing and documenting its technical work. The following items will be addressed:

(a) Results of the Ballot on the Summary of the December 2008 USNWG Meeting

The December 2008 meeting summary was first distributed by email on January 30, 2009 just prior to the USNWG teleconference meeting. During the January 2009 meeting the USNWG agreed the Technical Advisor should redistribute the summary and ballot everyone by email for their approval. The USNWG was asked to review and return their vote on the summary by February 23, 2009. The Technical Advisor will report on the ballot results.

(b) Approve the Summary of the January 2009 USNWG Meeting (See Appendix A)

A draft summary of the January 30, 2009 USNWG teleconference/webconference meeting was emailed on February 17th to the group for its review. The USNWG will vote on approval of the summary.

(c) USNWG Guidelines (See Appendix B)

During the January 2009 meeting, the Technical Advisor reported that the vote was sparse but unanimously in favor of the guidelines. The USNWG requested that Technical Advisor notify the group of the voting results by email within a week and post the guidelines on the USNWG web site at <http://www.nist.owm.gov>.

The Technical Advisor inadvertently missed questions regarding whether or not a USNWG member could simultaneously represent multiple types of stakeholders and if there would be any action as a result of a members repeated nonparticipation in meetings/projects.

A USNWG member could fall into multiple categories depending on the type of transaction (e.g., a member might distribute or sell hydrogen as fuel supplier and buy hydrogen as a consumer from another supplier. This entity might also sell hydrogen through a dispenser and operate in a jurisdiction where they are permitted to service dispensers (on their site or units operating at stations owned by other businesses). In this case, this entity has many functions, but would be allowed only a single vote in the USNWG even though they are a supplier, consumer, and service agency. The USNWG will make every effort to maintain a balanced representation from all groups who are stakeholders in the hydrogen infrastructure. Thus the Technical Advisor recommends adding footnote 1 to the Membership section to read:

¹To the extent possible membership shall be drawn from these groups and other interested parties. Individuals may represent more than one category (except during the voting process).

In order to ensure adequate representation from all sectors it may be necessary for the USNWG to rethink the way it conducts business to retain its members. The USNWG will need to periodically assess trends in the hydrogen economy. Consequently, the following text will be added to the Membership section as footnote 2 to read:

²After an extended period of nonparticipation (i.e., three consecutive meetings the Chair may contact a member to assess whether or not it is appropriate to change that member's status from participant to observer.

(d) Vice Chair Vacancies

The USNWG Guidelines recognize the Vice Chair's position. However these positions are currently vacant. The Guidelines state "the term for the Vice Chair shall be two years. A Vice Chair may be reappointed with the approval of a majority of the USNWG membership. In the case of a vacancy the membership shall act to appoint a new Vice Chair within 30 days of the vacancy. The USNWG should act to ensure both seats are not simultaneously vacant."

There may be instances where the Vice Chair must assume the Chair's responsibilities. The USNWG should consider filling the Vice Chair vacancies on both the DSS and FSS Subcommittees.

(3) Development of Device Standards and Test Procedures for Commercial Hydrogen Measurement

The USNWG agreed to begin its February 2009 discussions on carryover items. The USNWG will review Draft 3.4 of the NIST Handbook 44 Hydrogen Gas Measuring Devices Code, which is the result of work by the USNWG at its January 2009 meeting.

(a) Test Procedures

Diane Lee (NIST WMD) will provide the USNWG with an update on the work that she and John Wright (NIST PMD) are conducting to assess of the uncertainties associated with each test method. NIST Handbook 44 Appendix A Fundamental Considerations Section 3.2. Tolerances for Standards specifies use of standards with an accuracy one-third that of the equipment under test (0.5 %). The determination of acceptable test methods is essential to the ability to verify commercial hydrogen measurements.

(b) Test Data

This is an opportunity to discuss existing and any new test data that demonstrates the performance of equipment in achieving the proposed 1.5 % Acceptance Tolerance (for type evaluation and new equipment) and 2 % Maintenance Tolerance (for equipment in actual use).

(c) Draft Code

Paragraphs (i) through (iv) represents areas in the draft code which require further consideration by the USNWG to either modify requirements for clarity and/or consistency or to include requirements to adequately address commercial applications. The USNWG should review the suggested language or consider strategies to meet its goals for fully developing the code language.

(i) Marking Information

During the development of the Draft NIST Handbook 44 Hydrogen Gas Measuring Devices Code a requirement specifying the proper location of marking information required in paragraphs S.5. Markings (a) through (j) may have been inadvertently omitted. Similar retail applications in NIST Handbook 44 3.30 Liquid Measuring Devices and 3.37 Mass Flow Meters Codes include a requirement that specifies the location of marking information.

The Liquid Measuring Devices Code specifies:

S.4.4.2. Location of Marking Information; Retail Motor-Fuel Dispensers. – *The marking information required 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, 2003]

(Added 2002) (Amended 2004)

The Mass Flow Meters Code specifies:

S.5.1. Location of Marking Information; Retail Motor-Fuel Dispensers. – *The marking information required in 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, 2003]

(Added 2006)

These design requirements are intended to ensure that required marking information is placed in an easily accessible location. During the January 30, 2009 meeting, the USNWG was asked to consider whether or not a similar requirement should be included in the Hydrogen Gas Measuring Devices Code.

(ii) Minimum Measured Quantity (MMQ) Requirements

The USNWG agreed that Marc Buttler (Micro Motion, Inc.) and Juana Williams (NIST WMD) would rework the language in paragraph S.8 Minimum Measured Quantity and examine related paragraphs in the draft code to eliminate any conflicts between requirements. The USNWG agreed the two should explore a formula that establishes the value of the MMQ based on the relationship of the equipment's maximum flow rate to a factor. The USNWG recommended that the formula should be one that could be applied to all applications. The USNWG will ask for a report on the rework of paragraph S.8. and related paragraphs.

(iii) Wholesale/Bulk Delivery Requirements

At its December 2008 meeting, the USNWG discussed the importance that no aspect of the weights and measures component in the hydrogen infrastructure is overlooked so as not to hinder the U.S. transition to a hydrogen economy. At this time, the primary focus of the USNWG is the retail dispenser; however, all methodologies for commercial sales will need to be adequately addressed. These applications include pipeline metering and vehicle tank deliveries, considered wholesale applications, which must be addressed so that appropriate provisions are in place. Official must have the tools should the unit of measurement be questioned, or a dispute arise over measurement accuracy because of improper connections to receiving vessels or other practices that result in a potential for product loss during a transaction. The USNWG should consider a strategy to ensure requirements for wholesale equipment are eventually addressed and recognized by stakeholders.

(iv) Use of the Terms "Retail Device" and "Retail Dispenser"

The USNWG has modified several paragraphs to recognize that hydrogen may be delivered as a source of energy into other than motorized vehicles. The USNWG should review paragraphs in the Draft NIST Handbook 44 Hydrogen Gas Measuring Devices Code to ensure that the terms are appropriate and do not conflict throughout the code or with similar applications in corresponding codes.

(4) Opportunity for Reports on Related Activities for Hydrogen Devices and Fuel Quality

(a) Update on Work at the California Department of Food and Agriculture Division of Measurement Standards

(b) Update on Work at Other Agencies/Organizations

(c) Update on 2010 Goals for the Development of U.S. Weights and Measures Requirements for Commercial Hydrogen Measuring Devices

The USNWG identified fall 2009 as the target date for submitting a final draft of the device and fuel quality code that is ready for national adoption. This means that the work needs to escalate to have the code ready by mid August 2009 so that it can be distributed to all four fall 2009 meetings of the regional weights and measures association and technical sector for measuring devices which are the start of the weights and measures standards development process for 2010. The table below is a list of the meeting times and web site/contact information for the regional and national weights and measures meetings/committees that could play a role in the development of commercial hydrogen measurement standards. Agendas are published for the device and laws and regulations/fuel quality committees just prior to the meetings. Attendance to meetings requires membership (registration/membership fees range from \$50-250).

The USNWG may wish to consider a strategy and timetable for completing any projects that are necessary for fast tracking the approval (adoption by July 2010) of the proposed hydrogen codes.

<p>Central Weights and Measures Association http://www.ncwm.net/central</p>	<p>Northeastern Weights and Measures Association http://www.newma.us</p>
<p><i>Annual Meeting</i> May 3-6, 2009 St Louis, Missouri – Millennium Hotel St. Louis Contact: Steve Gill (steve.gill@mda.mo.gov)</p>	<p><i>Annual Meeting</i> May 11-14, 2009 Portland, Maine – Wyndham Portland Airport Hotel Contact: James Cassidy (jcassidy@cambridgema.gov)</p>

<p>Interim Meeting September 13-16, 2009 Rock Island, Illinois – Holiday Inn Contact: Jonelle Brent (jonelle.brent@illinois.gov)</p>	<p>Interim Meeting October 14-15, 2009 TBD Contact: James Cassidy (jcassidy@cambridgema.gov)</p>
<p>Western Weights and Measures Association http://www.westernwma.org</p> <p>Annual Meeting September 20-24, 2009 Las Cruces, New Mexico – Hotel Encanto de Las Cruces Contact: Joe Gomez (jgomez@nmda.nmsu.edu)</p>	<p>National Type Evaluation Technical Committee (NTETC) Measuring Sector http://www.ncwm.net</p> <p>Meeting October 4-7, 2009 Clearwater Beach, Florida – Hilton Clearwater Beach Contact: NCWM HQ (info@ncwm.net)</p>
<p>Southern Weights and Measures Association http://www.ncwm.net/southern</p> <p>Annual Meeting October 4-7, 2009 Clearwater Beach, Florida – Hilton Clearwater Bch. Contact: Steve Hadder (hadders@doacs.state.fl.us/standards)</p>	<p>National Conference on Weights and Measures, Inc. (NCWM)</p> <p>2010 Interim Meeting: January 24-27, 2010 Hilton Nashville Downtown - Nashville, TN Contact: NCWM HQ (info@ncwm.net)</p> <p>2010 Annual Meeting: July 11-15, 2010 The Crown Plaza, St. Paul Riverfront - St. Paul, MN Contact: NCWM HQ (info@ncwm.net)</p>

(5) Next Steps/Tasks

The USNWG will discuss ideas for how the work should progress to fully develop hydrogen measurement standards and test procedures. Project work and target dates will also be identified.

(6) Next Meeting(s)

(a) Upcoming April and August 2009 Meeting Status

The USNWG Subcommittees identified the dates listed in the table below for upcoming USNWG in-person meetings. It is anticipated that there may be a need to dedicate an entire meeting to one specific device or fuel quality related project that is identified by the USNWG. Future meeting locations will be based on logistics and technical tasks that the USNWG must accomplish. The USNWG will make every effort to post meeting information and to avoid scheduling conflicts with upcoming events and meetings in the weights and measures and hydrogen communities. Jackie Birdsall confirmed that the California Fuel Cell Partnership, West Sacramento, CA will host the April 28-30, 2009 meeting. The USNWG will be asked for updates on the sites of (1) NIST-Gaithersburg, MD, (2) Palm Springs, CA, (3) Grand Forks, North Dakota, and (4) Santa Monica, CA that were tentatively selected for the August 2009 meeting.

Schedule for the USNWG 2009 Meetings	
Date(s)	Location
April 28-30, 2009 /Day1&2 8:30 a.m. – 5:00 p.m. EDT DSS Meeting; Day 3 8:30 a.m. – 12 noon EDT FSS Meeting	In-Person Meeting California Fuel Cell Partnership, West Sacramento,

	CA
August 18-20, 2009 /Day1&2 8:30 a.m. – 5:00 p.m. EDT DSS Meeting; Day 3 8:30 a.m. – 12 noon EDT FSS Meeting	In-Person Meeting TBD

4:00 P.M. (EST) Meeting Adjourns