

# MINUTES OF THE NOVEMBER 2009 IN-PERSON OF THE NATIONAL HYDROGEN AND FUEL CELLS CODES & STANDARDS COORDINATING COMMITTEE

**MEETING DATE: November 18, 2009**

**FACILITATOR: Chad Blake, NREL**

## 1 Roll Call - Chad Blake

- [Attendees](#) (26Kb PDF)

## 2 Review of Anti-Trust Guidelines - Sondra Ullman

[Antitrust Guidelines](#) (27Kb PDF)

## 3 Review of/Corrections to Draft Minutes of October 2009 Teleconference Meeting - Karen Hall

Approved as written

## 4 DOE/HQ Update – Antonio Ruiz

Antonio Ruiz participated in person to provide the latest information on the DOE funding for hydrogen and fuel cells. He noted that the DOE Program has been renamed and refocused to Fuel Cell Technologies.

- [Antonio's Presentation](#) (1,904Kb PDF)

### Q&A

The DOE Fuel Cell Technologies Program is working closely with the Vehicles Technologies Program and will be coordinating with the Smart Grid Program.

Status of Solicitations on Sensors (solicitation was pulled back after the budget was released). Not planning to go out with another solicitation.

## 5 NREL Codes and Standards Gap Analysis Overview - Chad Blake

- [Chad's Presentation](#) (646Kb PDF)

### Q&A

Gaps table – items 2 and 3 - Documents Impacted may require revision. For example, SAE J2601 is dispensing protocol. Mike Steele to provide input to Carl Rivkin offline.

In number 8, Robert Wichert calls attention to the existing ISO Standard on Hydrogen Stored in Metal Hydrides, which may be useful for this effort.

Listing of existing C&S might be useful to aid harmonization.

The GTR activity (#12) applies to road vehicles only right now. Is there a need for a GTR for fork lift trucks? It takes a very large industry push to create GTRs. There are very few GTRs.

There will be an effort to evaluate what documents may exist internationally to help fill some of the gaps.

Participants are encouraged to provide any feedback directly to Carl Rivkin or Chad Blake for consideration as the report continues development. The Report is expected to be published by the end of the 1st quarter of FY 2010.

## 6 Updates

### **California Hydrogen Standards - John Mough**

Met with CaFCP on the fuel quality testing apparatus.

### **Hydrogen Industry Panel on Codes (HIPOC) - Activities Karen Hall**

HIPOC worked with the Compressed Gas Association and the National Association of State Fire Marshals to agree to proposed code change language for the International Fire Code. These changes harmonize the separation distance requirements for bulk hydrogen storage throughout the US Model Codes, using the methodologies developed by Sandia National Laboratory and industry over the past several years. These coordinated code change proposals were recommended for approval by the International Fire Code Committee during the Public Hearings held in October 2009. December 9 next telecon.

### **NFPA Activities - Paul May**

Technical Committee for NFPA 2 will meet Week of April 19th.

### **ICC Activities - Darren Meyers**

None.

### **DOE/NREL Activities - Chad Blake**

Outreach activities and template and gap analysis all moving forward based on lessons learned.

### **DOE/Sandia Activities - Dan Dedrick**

Working with ISO/TC 197 WG 11 to harmonize safety distances. Long telecon last week to make progress on harmonizing approach. Next call in December.

Spontaneous ignition activities went well. Got good results and found charging ungrounded pieces of metal near grounded pieces of metal will ignite jets with repeatability.

Tunnels testing at SRI about to commence. Working to validate Bill Houf's model. Fork lift tanks materials testing is underway. Fatigue crack growth rates work with tank designs in service to support CSA effort in this area.

KD-10 doesn't consider ignition and assumes a defect. Sandia is looking at crack growth in materials and conservatism – how long does it take that crack to form and start growing. Need to generate data to better understand how and when KD-10 is conservative.

### **IEC/TC105 Activities - Kelvin Hecht**

- WG#1 (Terminology)
  - Draft Technical Specification was posted 11/06/09
  - To be published as soon as French version is available
- WG#2 (Fuel Cell Module)
  - USTAG submitted comments to CD for 2nd edition, 10/23/09
  - Major modifications – addition of shock & vibration tests
- WG#3 (Stationary Fuel Cells-Safety)
  - CD for 2nd edition submitted, 11/06/09
  - National Committee reviews until 2/12/10
  - WG will meet in March to review comments
- WG#4 (Stationary Fuel Cells- Performance)
  - Met in Vancouver – Trying to spawn a new performance standard for small residential fuel cells based on the JIS standard. Also interested in new safety standard for small stationary fuel cells.
- WG#5 (Stationary Fuel Cells- Installation)
  - USTAG submitted comments to CD for 2nd edition, 10/13/09
  - Major modifications – primarily editorial

- WG#7 (Portable)
  - Emissions to be included
- WG#8 (Micro Fuel Cells Safety)
  - Document just came out for vote to replace the published TS.
- WG#10 (Micro Fuel Cells – Interchangeability)
  - USTAG approved a 2nd co-convener
- WG#11 (Single Cell Test Methods)
  - Draft Technical Specification was approved
- USTAG responded to a survey conducted by TC105
  - US will support international standards for fork lifts
  - Scope for standard(s) not defined at this time

**ISO/TC197 Activities - Glenn Scheffler/J Thompson** ANSI-Accredited U.S. TAG for

ISO/TC 197, *Hydrogen technologies*

1. **Votes pending**

- Systematic review of **ISO 13984:1999**, *Liquid hydrogen – Land vehicle fuelling system interface*  
U.S. TAG vote due November 2; ballot terminates December 15
- Systematic review of **ISO 14687:1999**, *Hydrogen fuel – Product specification*  
U.S. TAG vote due November 2; ballot terminates December 15
- **ISO/CD 20100**, *Gaseous hydrogen – Fuelling stations*[**N433**]  
U.S. TAG vote due November 30; ballot terminates January 8, 2010  
CD 20100 on filling stations was released for comment on October 6. Unfortunately, the CD does not reflect final recommendations from TG1 and 2 with regard to setback distances and dispenser requirements.  
*Note: US members of TC197 should understand that significant changes to setback distances and dispenser requirements are envisioned based on TG1 and 2. General comments will be inserted into our US comments in these 2 areas. As such, members are encouraged to focus their review in other areas until the output of the TGs is available.*  
In addition to resolving the setback distances, TG1 will address H2 venting, definition of hazardous locations (zones) and improve definition of requirements for LH2.  
The scope is being modified to capture indoor (warehouse) fueling. A new TG will be formed to address the added protective measures for this situation.
- New work item proposal **N436**, *Gaseous hydrogen – Cylinders and tubes for stationary storage*  
U.S. TAG vote due November 30; ballot terminates January 11, 2010

2. **Votes recently passed**

- **N418**, New work item proposal for **ISO 14687-3**, *Hydrogen fuel – Product specification – Part 3: Proton exchange membrane (PEM) fuel cell applications for stationary appliances*  
U.S. TAG vote was due October 19

3. **Past meeting**

- **Plenary Meeting**  
Meeting dates: October 12-14  
October 12-13 – WG 12, *Hydrogen fuel – Product specification*  
October 14 – ISO/TC 197 plenary – 0900h – 1800h  
Location: Pacific Hall, COEX, Seoul, Korea  
Host: Republic of Korea (KATS)

### **Fuel Cell Forklift Issues - Aaron Harris**

USFCC Fuel Cell Task Force – open to participate in the calls. Discussing 3 issues: Tanks, system level requirements, refueling. Common use of SAE refueling receptacle.

### **NIST Activities - Juana Williams**

1. U.S. National Work Group (USNWG) for the Development of Commercial Hydrogen Measurement Standards

#### *Draft Code Status Update*

Input on the draft hydrogen device, fuel quality, and method of sale codes is in from the four U. S. regional weights and measures associations that met fall 2009. Three of four regional associations support moving the draft codes forward as voting items on national technical committee agendas.

The USNWG will address comments received from two regional associations during the upcoming December 15, 2009 and January 13, 2010 meetings. This is the final step to ready the codes for the January 24-27, 2010 National Conference on Weights and Measures (NCWM) Interim Meeting in Nashville, TN.

#### *Performance Test Data*

Hydrogen dispensing systems' performance test data collected up through January 2010 should be forwarded to the USNWG Device Standards Subcommittee Technical Advisors Diane Lee ([gloria.lee@nist.gov](mailto:gloria.lee@nist.gov)) and Juana Williams ([juana.williams@nist.gov](mailto:juana.williams@nist.gov)).

#### *Next Meeting(s)*

The next USNWG tele/web conference meetings will be held December 15, 2009 and January 13, 2010 (3:00 p.m. to 4:30 p.m. EST) to discuss performance data results, requirements for wholesale devices, and input received from the regional weights and measures association meetings. The USNWG will also work, where necessary, to make any final modifications to the hydrogen draft codes.

2. Development of International Standards

As the Secretariat for International Organization of Legal Metrology (OIML) Recommendation 81 (R 81) "Dynamic Measuring Devices and Systems for Cryogenic Liquids" (1998) the United States has begun work to draft the First Committee Draft (1CD) of this document. The 1CD for OIML R 81 will be formatted in a new template that includes requirements for electronic equipment to include:

- new ISO and IEC Standards as recommended in OIML D 11,
- new developments in hydrogen measurements,
- revised density equations, and
- other relevant standards such as OIML D 31 and national documents.

It is anticipated the 1CD for OIML R 81 will be ready for distribution early December 2009 for review and comment of U.S. and international stakeholders.

For more information on the work to develop commercial hydrogen measurement requirements visit the NIST Weights and Measures Division web site at: <http://ts.nist.gov/WeightsAndMeasures/Developing-Commercial-Hydrogen-Measurement-Standards.cfm>

### **CSA America Activities - Julie Cairns**

HGV 5 is now called HPIT 1 (Hydrogen Powered Industrial Trucks)

Fuelling will be covered by HPIT 2.

Developing generic method to validate dispenser fueling parameters.

### **SAE Activities - Mike Steele/G Scheffler**

J2601 approved. Going through affirmation ballot – Thanksgiving target – should be published before March 2010.

Interface WG had meetings on Fuel Quality – documents posted.

J2600 has a new sponsor – Bill Collins at FTC Fuel Cells.

Safety WG – US and Japan are starting to reach agreement on qualification on tanks. Previous testing is still valid.

Localized fire issues work was done by Powertech and a tentative agreement has been reached. An approach for localized fire testing for hydrogen storage systems is being drafted. J2579 will benefit.

J2919 is a new document that will address industrial trucks.

Next meeting March 9-11 2010.

### **ASTM D.03 Activities - Jackie Button**

Anthony Amato sent an update by e-mail, as he is attending the Advanced Energy 2009 Conference and is therefore unavailable for the meeting.

An ASME Section X (Fiber Reinforced Plastic Pressure Vessels) ballot closes tomorrow for a Proposed Addition to Scope of Section X to Include Class III Vessel for Filament Wound Vessels with Polar Boss Openings for up to 15000 psi and Adoption of New Mandatory Appendix 8 with Requirements for the Class III Vessel.

If the ballot was to close now, it would pass (19 Approvals, 1 Abstain and 1 Not Returned). If approved, the scope change and appendix will appear in the 2010 edition of Section X.

### **NHA Activities - Karen Hall**

The NHA held a Short Course on Codes & Standards to Aid Commercialization: Focus on Materials Handling Equipment using Fuel Cells and Related Hydrogen Infrastructure on Monday morning. We all learned something new, as the SDOs shared the very latest in their plans for addressing the unique requirements necessary to accommodate materials handling equipment and refuelling. The proceedings will be posted on the Hydrogen and Fuel Cell Safety Report on December 15th.

### **USFCC Activities - USFCC**

None.

## **7 Open Discussion & Other Issues**

Chad thanked the USFCC and NHA for organizing this In-Person meeting.

## **8 Next Call – December 4th**