

MINUTES OF THE FEBRUARY 2010 TELECONFERENCE OF THE NATIONAL HYDROGEN AND FUEL CELLS CODES & STANDARDS COORDINATING COMMITTEE

MEETING DATE: February 3, 2010

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 January 2010 Teleconference Meeting

Approved without change.

4. DOE/HQ Update – Antonio Ruiz

Antonio Ruiz provided an update on DOE Headquarters work and status. The 2011 Budget was released on Monday.

Program and Financing (in millions of dollars)

Identification code 89-0321-0-1-270

	<i>2009 actual</i>	<i>2010 est.</i>	<i>2011 est.</i>
<i>00.01 Hydrogen Technology</i>	<i>156</i>	<i>183</i>	<i>137</i>

Some program elements have been consolidated into "Market Transformation" including Codes and Standards at \$9M.

The Codes and Standards Program will be adjusted to support the new priorities including Fork lifts, Type I tank work, Portable Fuel Cell Systems.

There is no expectation of a new solicitation for sensors.

Fuel cell systems R&D	\$67M
Hydrogen Fuel R&D	\$40M
System Analysis	\$5M
Market Transformation	\$9M (entirely codes and Standards)
Manufacturing R&D	5M
Tech Validation	11M
NOT FUEL CELLS Vehicle Technologies	325M
Batteries, power electronics, electric motors Basic Science	38M

Fossil Energy Program and Financing (in millions of dollars)

Identification code 89-0213-0-1-271

	<i>2009 actual</i>	<i>2010 est.</i>	<i>2011 est.</i>
<i>00.08 Fuel cells</i>	56	54	50

Funding has been delayed by the recovery act funds.

Jillian McMichael will be supporting this area in the future.

5. California Hydrogen Standards - John Mough/Gary Castro

No update

6. Hydrogen Industry Panel on Codes (HIPOC) Activities - Bob Boyd / Glenn Scheffler

Bob Boyd provided an update on HIPOC. NFPA is working on liquid hydrogen setback distances. The Canadian Hydrogen Installation Code is going to be revised over the next year. It will be open for comment during the final quarter of 2010.

ICC has worked to harmonize with NFPA. A number of submittals to NFPA were rejected in December. Final comments are due Feb. 8, 2010. HIPOC and CGA have joined forces to work on the NFPA Codes. CSA put in a proposal to reference several CSA Standards, but the CSA Standards are not published as enforceable standards. Interim requirements are not enforceable. ANSI approval is usually needed. "Listed or Approved" was added instead.

HIPOC has been working for nearly a year on a proposal to the International Fire Code to reference NFPA 55. That proposal was submitted and approved.

7. NFPA Activities - Paul May/Marty Gresho

Marty Gresho provided an update. As discussed above, HIPOC has been working for nearly a year on a proposal to the International Fire Code to reference NFPA 55. The proposal was submitted and approved.

NFPA 2 is in the comment phase. Comments are due on March 5th. The ROC meeting will be held at NREL on April 19th through the 23rd. This will eventually be published as the 2011 Edition of NFPA 2.

NFPA 2 Task Groups met recently in Boston:

The Liquid Hydrogen Task Group met to clean up their section and submit changes to be considered during the comment phase. As well as to review NFPA 55 and 52 to look for gaps

The Separation Distances Task Force met to develop mitigation text using barrier walls to achieve reductions in separation distances. They are also exploring reduced flow orifices to achieve reductions in separation distances. Active system protection is also being investigated as a lower priority approach. Liquid hydrogen separation distances will wait for the next edition

The Explosion Protection Task Group met to investigate NFPA 2 Explosion Protection Chapter coverage that is unique to hydrogen.

NFPA 55 is already published as the 2010 Edition. Proposals are due in November 2010 for the next code cycle.

NFPA 52 will come out soon for comments to be due on May 23, 2011.

8. ICC Activities - Darren Meyers

No update

9. NREL Activities - Carl Rivkin

The NREL sensor test lab is initiating round robin testing. The fuel cell Codes and Standards Gap Analysis is in progress. The Vehicle Technologies Gap Analysis is also in progress.

ISO TC 197 WG#12 on Hydrogen Quality met last week. Some limits were reduced:

- CO was reduced to 100 ppb
- Sulphur was reduced to 1 ppb
- The particle size limit was deleted.
- The total particle limit was reduced to 1mg/kg
- A Non-Hydrogen, Non-Helium limit of 100 ppm was introduced.

Much work still needs to be done to validate the testing methods for the low levels of contaminants.

Some pre-qualification work has been suggested for commercial grades.

10. SNL Activities - Dan Dedrick

No update

11. LANL Activities - Cathy Gregoire-Padro

No update

12. ANL Activities - Walt Podolski

No update

13. PNNL Activities - Steve Weiner

Linda Fassbender provided an update on hydrogen incident reporting. Canada, Italy, France and other partners in IEA HIA Task 19 (Hydrogen Safety) have submitted incident/lessons learned information for the web site. A new "Lessons Learned" feature to focus on specific safety topics has been developed. First Responder training is posted on the web. A training course is scheduled for April 7, 2010 in Richland, WA at the HAMMER facility. A mobile deployment is planned for California in 2010. Santa Clara and Orange County are candidate sites.

14. IEC/TC105 Activities - Kelvin Hecht

Kelvin Hecht provided an update.

WG#3 (Stationary Fuel Cells-Safety)

The Committee Draft (CD) for a 2nd edition is posted on the TC105 website for National Committees comments until February 12, 2010.

The Working Group is expected to meet in Geneva in June to address the expected comments.

WG#4 (Stationary Fuel Cells- Performance)

Next meeting for the Small Stationary standard will be in Grenoble, France February 24-25, 2010.

WG#8 (Micro Fuel Cells – Safety)

The Final Draft International Standard (FDIS) was approved in January and will be published shortly as IEC 62282-6-100.

The Working Group will meet in Geneva in June to start work on the second edition.

WG#10 (Micro Fuel Cells – Fuel Cartridge Interchangeability)

A second convener has been added to this Working Group for the second edition.

1. T. Moriga (JP) will address fuel cartridges and the fuel cartridge interface with the fuel cell.
2. Ms. Hyejung Chu (KR) will address power and data interchangeability between the electronics and the fuel cell.

WG#11 (Single Cell Test Methods)

The Draft Technical Specification was approved and will be published as a Technical Specification by May 2010

15. ISO/TC197 Activities - Glenn Scheffler/Jill Thompson

Glenn Scheffler provided an update.

15.1. Ballots in progress

ISO/DIS 22734-2 Hydrogen generators using water electrolysis process – Part 2: Residential applications. U.S. TAG vote due February 12, 2010; ballot terminates April 5, 2010

Systematic review of ISO 13985:2006, Liquid hydrogen – Land vehicle fuel tanks. U.S. TAG vote due February 15, 2010; ballot terminates March 15, 2010

15.2 Ballots completed

New work item proposal to develop Gaseous hydrogen – Cylinders and tubes for stationary storage [N436] Proposal was approved and ISO/TC 197 formed a new working group (WG 15). U.S. TAG voted to “Disapprove” new work item proposal.

ISO/FDIS 16110-2, Hydrogen generators using fuel processing technologies – Part 2: Test methods for performance. U.S. TAG vote was split and the final decision was to “Approve” based on the majority opinion of participants

15.3 Upcoming meetings

Working Group 11, Gaseous hydrogen – Fuelling stations:

TG 1 teleconference: February 10, 2010.

TG 2 teleconference (tentative): February 12, 2010.

Working group meeting: February 24-25, 2010, Paris, France

ISO/TC 197 plenary

Tentative dates/location: May 16-21, 2010, Essen, Germany

16. Fuel Cell Forklift Issues - Aaron Harris

The Fork Lift Task Force will be meeting next Tuesday.

17. NIST Activities - Juana Williams

Juana Williams provided an update. The Committee on Specifications and Tolerances (S&T) for the National

Conference on Weights and Measures (NCWM) met January 24-27. The S&T Committee heard testimony, discussed, and then decided that the proposal for a new NIST Handbook 44 Hydrogen Gas Measuring Devices - Tentative Code should move forward as a voting item. The proposal will be voted on at the July 11-15, 2010, 95th Annual Meeting of the NCWM at the Crowne Plaza, St. Paul Hotel, St. Paul, Minnesota.

The Committee on Laws and Regulations (L&R) for the NCWM, heard testimony, discussed, and then decided to make the method of sale and fuel quality proposals two separate items. The method of sale requirements will be voted on at the July 2010 NCWM Annual Meeting to become a permanent part of NIST Handbook 130. The fuel quality proposal will appear in the L&R Committee's report as an Information Item because hydrogen fuel does not yet have a finalized ASTM or other national consensus standard. The L&R Committee will continue to consider recommendations from the USNWG on hydrogen's fuel quality and will carry over the proposal on its 2011 agenda.

The Central and North-eastern Weights and Measures Associations that meet this spring and the participants in the July 2010 National Conference on Weights and Measures will want to hear any further input, updates, etc. (written or in-person) on the draft hydrogen codes.

18. CSA America Activities - Julie Cairns

Julie Cairns provided an update. The station dispenser work continues. The forklift work is focused on the on-board components. There will be an announcement for participation and materials compatibility is working with ASME and a participation call will be put out shortly along with NHA. The fork lift group will be meeting at the next CSA meetings.

19. SAE Activities - Mike Steele/Glenn Scheffler

Mike Steele and Glenn Scheffler provided an update. SAE Fuel Cell Committee meetings are planned for March 9, 10 & 11. The Interface Working Group is working on the next version of J2600 as well as making the changes that are being considered by ISO TC 197.

The Safety Working Group is working on conformance to production. It is important to make sure that the variability is within limits to avoid safety problems in production.

Localized fire will be included in J2579.

20. ASTM D.03 Activities - Jackie Button

Jackie Button provided an update. The ASTM methods were discussed at the ISO TC 197 meeting last week. All documents have moved to ballot. The test methods are on schedule for publication by June. Round Robin validation testing will follow publication. It is required within five years. NIST is also working on calibration gases.

Work Item	Title	Constituents	Date expected to ballot
4548	Standard Test Method for Determination of Trace Contaminants in Hydrogen and Related Fuel Cell Feed Gases	CO ₂ , nitrogen, argon, oxygen, and water	Sub-committee ballot Closing February 18
5847	Standard Practice for Sampling of High Pressure Hydrogen and Related Fuel Cell Feed Gases	Gaseous sampling	Publish pending
6527	Standard Test Method for Ion Selective Electrode Based	Ammonia	Unknown

	Determination of Ammonia in Hydrogen and Other Fuel Cell Feed Gases		
6624	Standard Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Hydrogen and Other Fuel Cell Feed Gases	Formaldehyde	Unknown
9211	Standard Test Method Ion Chromatography Based Determination of Cations in Hydrogen and Other Fuel Cell Feed Gases	Formic Acid	Published official item: D7550-09
9688	Standard Test Method for Sampling of Particulate Matter in High Pressure Hydrogen used as a Gaseous Fuel with an In-Stream Filter	Particulate sampling	5-Mar Main committee
10196 (27163)	Standard Test Method for Determination of Ammonia and Trace Water in Hydrogen and Other Gaseous Fuels by Infrared Spectroscopy	Ammonia,CO ₂ , CO, formaldehyde, formic acid, and water	Sub-committee ballot Closing February 18
21162	Standard Test Method for the Characterization of Particles from Hydrogen Fuel Streams by Scanning Electron Microscope	Particulates	N/A
21597	Standard test method for microscopic measurement of particulates in hydrogen fuel	Particulates	5-Mar Main committee
21611	Standard test method for gravimetric measurement of particulates in hydrogen fuel	Particulates	5-Mar Main committee
22378	Determination of Total Hydrocarbons (C1 basis) in Hydrogen by Total Hydrocarbon Analyzer (THC)	Total hydrocarbons	Sub-committee ballot Closing February 22
23815	Determination of Total Halocarbons contained in Hydrogen and other gaseous fuels	Total halogenated compounds	5-Mar Main committee
24073	Standard Test Method for Determination of Trace Hydrogen Sulfide, Carbonyl Sulfide, Methyl Mercaptan, and Carbon Disulfide in	Total sulfur	Sub-committee ballot Closing February 22

	Hydrogen Fuel by Gas Chromatography and Sulfur Chemiluminescence Detection		
None	Standard Practice for the Determination of Carbon Monoxide, Formaldehyde, Ammonia and Other Trace Substances in Hydrogen Fuel Streams by Laser Based Spectrometric Methods	CO, formaldehyde, ammonia	N/A
None	Field Sampling Apparatus	All	N/A
None	Vehicle Fueling Interface Surface Particulate Matter	Particulates	N/A

21. NHA Activities - Karen Hall

The NHA meeting is on May 3 – 5. Opportunity for meeting space is available. If you want space, please contact Geoff Bromaghim. Do we want to have an in-person meeting at the NHA? See www.hydrogenconference.org for more information.

22. USFCC Activities - Tony Androsky

Tony Androsky provided an update. USFCC is working on an in-depth revision of their Codes & Standards Priority Matrix which will be circulated after member input is obtained.

23. Open Discussion & Other Issues - All

23.1 Units in Codes and Standards – Rody Stephenson

Tabled and to be moved up next time. NIST is using MPa and kg.

24. Next Call – March 3, 2010