

August 2005 Minutes of the National Hydrogen and Fuel Cells Codes & Standards Coordinating Committee

Russell Hewett, NREL

MINUTES OF THE TELECONFERENCE MEETING OF THE NATIONAL HYDROGEN AND FUEL CELLS CODES AND STANDARDS COORDINATING COMMITTEE (HC&SCC)

(17 Aug 05)

MEETING DATE: August 3, 2005

TIME: 1:00 - 2:30 PM (MST)

1.0 PARTICIPANTS

The list of participants in the teleconference meeting is provided in [Attachment A, below](#).

2.0 REVIEW OF ANTI-TRUST POLICY

USFCC Codes and Standards Working Group meetings begin with the reminder to review and follow the anti-trust guidelines at the following web sites:

http://www.usfcc.com/members/ANTITRUST_GUIDELINES_REV.pdf

and

http://www.usfcc.com/members/Memo_on_Antitrust_Guidelines.pdf

3.0 CORRECTIONS TO MINUTES OF MARCH/APRIL MEETING

Spence Grieco (CSA-America) stated that there were some miss-statements in the Minutes and that he would get in touch with Russ Hewett regarding corrections. Andre Tchouvelev pointed out some proposed corrections to two of the presentations and handouts:

- Presentation by Bob Mauro regarding ISO/TC 197 activities
- Template generated by Jim Ohi depicting the lead organizations with respect to international standards and global technical regulations development.

Russ Hewett will prepare and disseminate Corrected Minutes.

4.0 OPPORTUNITY FOR DOE/HQ SUBPROGRAM MANAGER TO REPORT ON WHAT'S GOING ON AT DOE/HQ

Pat Davis (DOE/HQ Technology Development Manager for Safety, Codes and Standards) reported first on the highlights in the recently released report by the National Research Council regarding their review of the Freedom Car/Fuel Cell Partnership Program. There was little in the report, specifically about codes and standards but it did make comments regarding safety.

One major recommendation was that DOE and DOT establish a cross-cutting Safety Team. In addition, it stated that Congressionally-directed projects (i.e., earmarks) are having a negative impact on the programs.

The Council made the following safety recommendations:

1. NHTSA should establish an R&D program focusing on hydrogen releases
2. DOT, USCAR and NHTSA should create and maintain a database of hydrogen papers
3. The Hydrogen Program Roadmap should be updated.

Pat reported that DOE is responding to the recommendations.

Pat then gave a synopsis of the hydrogen and fuel cell-related portions of the Energy Policy Act of 2005 (signed by President Bush on August 8th). Most of the provisions relating to hydrogen and fuel cells are articulated in TITLE VIII (HYDROGEN) and TITLE IX (RESEARCH AND DEVELOPMENT), but there are other provisions throughout the Act.

[Synopsis of the Act that Pat quoted from during the meeting \(132Kb PDF\)](#)

The complete Act contains 1724 pages and can be located at the following website:

http://www.house.gov/rules/hr6_textconfrept.pdf

5.0 NEW WORK ITEM PROPOSAL FOR ISO/TC197 SUBMITTED BY JAPAN: HYDROGEN DETECTORS

Japan has submitted a New Work Item Proposal to ISO/TC 197 entitled Hydrogen Detectors (ISO/TC 197 N310).

While the proposal was discussed in detail at the combined July 2005 National Coordinating Committee/US TAG Team meeting in Troy, MI, it was discussed further in the August teleconference meeting. The objective was to provide additional input to the members of the US TAG for ISO/TC197 for use in determining whether to vote for or against the proposal.

There are two existing relevant standards:

- UL 2075 (Standard for Gas and Vapor Detectors and Sensors)
- IEC 61779 (Electrical Apparatus for the Detection and Measurement of Flammable Gases)

For example, while IEC 61779 is an IEC, rather than ISO standard, the proposal did not make the case that the proposed work could not be done by modifying IEC 61779 and/or UL 2075.

Jon Miller (Detector Electronics Corporation and convener of IEC TC31 MT60079-29 (Electrical Apparatus for the Detection and Measurement of Flammable Gases)) was invited to participate in the meeting to address the relevance of IEC 61779 to the proposal.

Jon stated that the IEC has been addressing sensors for flammable gases for years, including hydrogen. The IEC 61779 series of standards is currently being revised for technical reasons, not necessarily because of hydrogen. He stated that standards exist and are available for fuel cell vehicles - standards that focus on detection but not necessarily on locations for detectors.

In his opinion, the current standards might be too stringent for fuel cell vehicles. There should be a more detailed study of what is necessary for protecting FC vehicles. The issue is what is the purpose of sensors for FC vehicles - is it to address both performance and location? Gas sensors available on the market today are evaluated both for performance and with respect to location. When detecting hydrogen, there is the potential for gas to be in an explosive mixture and an explosion triggered by the detecting device.

While the Japanese proposal was submitted to ISO, the question was asked if there were a Japanese representative on IEC TC 31 MT60079-29? It was determined that there is no such representation.

The issue was raised regarding if it were possible for the Japanese proposal to be referred to IEC TC 31 MT60079-29, since it covers detection devices and also since its documents are in the revision process. However, the proposal is out for an ISO vote - for or against.

6.0 DE-BRIEFING: COMBINED NATIONAL COORDINATING COMMITTEE/US TAG TEAM MEETING AND ADDITIONAL DISCUSSION REGARDING "COORDINATION"

The Minutes of the July 18-19 In-Person combined National Coordinating Committee/US TAG Team meeting documented the highlights. The objective of this part of the agenda was to provide an opportunity for any of the participants at the combined meeting to give feedback regarding the usefulness of the meeting and/or how future ones should be conducted. There was no additional discussion.

The issue of "*Coordination*" was discussed in detail at the combined meeting and the discussion documented in the Minutes.

The objective of this part of the agenda was to provide the opportunity for persons who did not participate in the July meeting to give their perspectives regarding: (1) what is codes & standards coordination; and (2) the usefulness of coordination meetings - especially National Coordinating Committee/US TAG Team coordination meetings.

The discussion centered around using coordination meetings to:

- Get input from experts relating to technical issues associated with codes and standards development
- Facilitate Federal agency involvement (one of the problems, as pointed out in the discussions) with respect to the US TAG Teams doing their work is lack of systematic participant of the cognizant Federal agencies)

One specific concern raised was how to get systematic NHTSA involvement. While it was recognized that NHTSA's responsibilities include much more than hydrogen-related safety issues, the recommended solution was to target specific individuals in NHTSA to be available to address specific issues at the beginning of meetings.

With respect to US participation in Global Technical Regulations efforts, Martin Koubek (NHTSA) is no longer the US representative. The new representative is Mr. Ezana Wondimeh (head of NHTSA's International Division).

The discussion were concluded with Jim Ohi's stating that he and Russ Hewett will take the action item to formulate a plan for working on National Coordinating Committee and US TAG Team coordination of their efforts. The plan will be presented at the September teleconference meeting.

7.0 NFPA PROPOSAL TO CONSOLIDATE THE HYDROGEN-RELATED SAFETY REQUIREMENTS INTO A SINGLE DOCUMENT

The NFPA Standards Council had received a proposal to consolidate all of the hydrogen safety requirements in its various codes and standards documents into a single document. The objectives in doing this would be to:

- Increase ease of use

- Facilitate harmonization of the safety requirements .

In addition, since the requirements in codes and standards documents are subject to revision and since new requirements will undoubtedly arise, consolidation would facilitate the process for making changes to existing requirements and formulating new ones as the hydrogen and fuel cell technologies evolve and as operating experience is gained. The proposal is for consolidating hydrogen safety requirements in NFPA 52, NFPA 55, NFPA 853, NFPA 30A, and NFPA 70 into a single document that would be entitled NFPA 2 (Hydrogen Technology).

Carl Rivkin reported on the results of the Council's acting on the proposal at its meeting on July 25th. The Council approved the recommendation and proposed creation of a Hydrogen Technology Correlating Committee to implement it.

[The NFPA Announcement regarding the decision to consolidate](#) (65Kb PDF)

In addition to the proposed consolidation activity, Carl reported that the Standards Council has completed work on NFPA 52 (Vehicular Fuel Systems 2005 Edition). The requirement for odorants for hydrogen systems was deleted. The document should be available for purchase in four-to-six weeks.

8.0 SCHEDULE OF UPCOMING EVENTS

Kelvin Hecht gave a report covering: (1) codes and standards meetings held in July; (2) codes and standards meeting scheduled for August; and (3) standards open for public comments.

[Kelvin Hecht's report](#) (104Kb PDF)

9.0 CODES AND STANDARDS DOCUMENTS OPEN FOR "COMMENTS"

Kelvin Hecht's report on documents open for comments is available in Section 8.0 above.

10.0 REPORTS FROM CDOS AND SDOS

10.1 Society of Automotive Engineering (SAE)

Ron Sims provided a report on SAE standards activities as of August 2005 as follows:

1. J2617 - Performance Testing of Fuel Cell Stacks. The WG has begun the necessary rework of the document in order to address the four "disapprove" votes tendered during the recent ballot.
2. J2572 - Hydrogen FCV Fuel Economy Measurement. The document has been submitted to SAE staff for balloting later this month.
3. J2719- SAE Technical Information Report: Hydrogen Compositional Guideline. The Guideline was brought to the SAE FCSC Meeting on July 21st, but in the absence of a qualifying quorum of voting members at the meeting, J2719 has to be submitted for 14-day electronic ballot. At present, part way through the ballot, 26 votes have been submitted, i.e. 25 approve, and 1 waive, with a closing

date of August 8th. Hence, there is every expectation that J2719 will be submitted shortly for publication by SAE.

4. J2600 - Vehicle Refueling Coupling Device (published 2003). This document is presently being updated and harmonized by the Interface WG to ISO 17268. The WG is presently reviewing coupling designs appropriate for 700 bar refueling.

5. J2601 - Refueling Interface Communication Protocol. The Interface WG continued its drafting of this document during its last meeting on July 19th.

10.2 CSA-America

Jennifer Henderson reported on CSA-America activities.

Hydrogen Gas Vehicle standards development work is starting again with the following meetings:

1. RD-1/HPRD-1 (Pressure Relief Devices)
- Teleconference meeting scheduled for August 10, 2:30-4:30 p.m. EDST

2. NGV4/HGV4 (Dispensing Systems)
- Teleconference meeting scheduled for August 16, 2:30-4:30 p.m. EDST

3. NGV 3.1 (Components)
- Teleconference scheduled for August 23 to discuss hydrogen components, 1:00-3:00 pm EDST.
4. NGV2/HGV2 (Cylinders)
- Teleconference meeting scheduled for August 30, 2:30-4:30 p.m. EDST

HCNG standards development will be moving forward, starting with the nozzle.

CSA-America and SAE's Fuel Cell Committee have agreed to an informal cooperative agreement in which they will work collaboratively on the development of fuel cell-related, onboard-vehicle standards.

[Copy of the agreement](#) (78Kb PDF)

10.3 NFPA

In Section 7.0 above, Carl Rivkin reported on: (1) the proposal for NFPA to consolidate its hydrogen-related safety requirements into a single document; and (2) the status of NFPA 52.

Ken Krastins (Plug Power) reported on the revision cycle for NFPA 70 (National Electric Code). The National Electrical Code (NEC) is revised under a three-year code cycle. The deadline for proposed changes to the 2008 Edition are required to be submitted to NFPA by 5:00 PM EST on Friday, November 4, 2005. Any proposals submitted after this deadline will be returned without further action. Manufacturers and non-manufacturers are encouraged to submit proposed changes to Article 692 or any other part of the NEC affecting fuel cell installations, where the need for a revision to the Code is felt to exist. Proposals may be

submitted directly to the NFPA or sent to Kenneth Krastins, the principle US Fuel Cell Council Representative on NEC Code-Making Panel (CMP) 13, for inclusion in an overall set of proposals to be submitted on behalf of the fuel cell industry. Kenneth is also available for advice and further information on proposals.

Any proposed changes being submitted to Kenneth Krastins, instead of directly to the NFPA, should be sent no later than a week in advance of the NFPA deadline, and, preferably, sooner.

And finally, the NFPA Hydrogen Coordinating group is scheduled to have a teleconference meeting on August 23th. For additional information, contact Carl Rivkin.

11.0 NEXT COORDINATING COMMITTEE MEETING

The next meeting of the Coordinating Committee is scheduled to be a teleconference meeting as follows:

- DATE: September 7th (First Wednesday)
- TIME: 3:00 - 4:30 pm EDT

It was recognized that some members may be participating in the First International Conference on Hydrogen Safety that will be held in Pisa, Italy during the period September 8 - 10, 2005.

For the past several months, we have been using the USFCC "standard" teleconference phone number for the meetings. However, the number is being changed. The new Call-In number will be provided when the announcement regarding the September meeting is disseminated.

Respectfully submitted,

Russ Hewett

ATTACHMENT A

TELECONFERENCE MEETING PARTICIPANTS

NAME	ORGANIZATION	PRESENT At Meeting? (Yes/No)
Adam Gromis	California Fuel Cell Partnership	Y
Algis Vasys	Vista Consulting Group	N
Andrei Tchouvelev	A. V. Tchouvelev & Associates, Inc.	Y
Antonio Ruiz	USDOE/Hydrogen, Fuel Cell and Infrastructure Technologies Program	Y
Bill Chericoff	USDOT/Research and Innovative Technologies Administration(RITA)/Washington	Y
Bill Collins	UTC Fuel Cells	N
Bob Mauro	Consultant to NREL	Y
Brad Smith	Shell Hydrogen	N

Brian Walsh	US Fuel Cell Council	N
Bruce Kinzey	Pacific Northwest Laboratory	N
Carl Rivkin	National Fire Protection Association (NFPA)	Y
Cathy Gregoire-Padro	Los Alamos National Laboratory (LANL)	N
Christina Zhang-Tillman	California Fuel Cell Partnership	Y
Christopher Moen	Sandia National Laboratories/Livermore	N
Dan Casey	Chevron	N
Darren Meyers	International Code Council (ICC)	Y
Debbie Angerman	Compressed Gas Association (CGA)	N
Doug Horne	DBHORNE Technology Management	N
Gary Howard	Stuart Energy Systems	N
George Earle	Plug Power	N
George Kervitsky	SENTECH	N
George Thomas	Consultant to Sandia National Laboratories	N
Gerry Myers	SPRINT	N
Greg Milewski	Shell Oil Products	N
Hank Seiff	Clean Vehicle Education Foundation	Y
Harry Jones	Underwriter Laboratories	Y
Holly Thomas	National Renewable Energy Laboratory (NREL)	Y
Jeff Grant	Ballard Generation Systems	Y
Jennifer Henderson	CSA America	Y
Jesse Schneider	DaimlerChrysler	Y
Jim McGetrick	BP	N
John Koehr	American Society of Mechanical Engineers (ASME)	N
Juana Williams	NIST	N

Karen Hall	National Hydrogen Association (NHA)	Y
Julie Willets	SPRINT	N
Keith Hardy	Argonne National Laboratory	N
Kelvin Hecht	ANSI, IEC and Consultant to NREL	Y
Ken Krastins	Plug Power	Y
Larry Johnson	SPRINT	N
Laurie Florence	Underwriters Laboratories	Y
Mark Richards	Gas Technology Institute	N
Michael Steele	General Motors Advanced Technology Vehicles	Y
Patrick Serfass	National Hydrogen Association (NHA)	Y
Pat Davis	USDOE/Hydrogen, Fuel Cell and Infrastructure Technologies Program	Y
Prentiss Searles	American Petroleum Institute (API)	Y
Robert Wichert	US Fuel Cell Council (USFCC)	Y
Roger Smith	Compressed Gas Association (CGA)	Attending CGA Meeting
Ron Sims	Society of Automobile Engineers (SAE) and Consultant to NREL	Y
Sondra Ullman	Plug Power	N
Spencer Grieco	CSA America	Y
Steve Turner	C&S Consultant	N
Susan Townsend	General Electric Global Research Center	N
Ted Williams	American Gas Association (AGA)	N
Terry Conrad	Concurrent Technologies Corp.	Attending IEEE P1547.2 WG Meeting
Tom Joseph	Air Products and Chemicals	N
Tony Androsky	US Fuel Cell Council (USFCC)	N
Jim Ohi	National Renewable Energy Laboratory (NREL)	Y
Russ Hewett	National Renewable Energy Laboratory (NREL)	Y

OTHER PARTICIPANTS:

(1) Jon Miller (Detector Technologies and Convener of IEC TC31 MT60079-29)