



Fuel Cell &
Hydrogen Energy
Association

**National Hydrogen and Fuel Cell
Codes and Standards Coordinating Committee
(NHFCCSCC)**

**Wednesday, February 3, 2016
TIME: 3:00 – 4:30 pm (Eastern Standard Time)**

Agenda

Attendees

Bill Collins
Bob Boyd
Bob Davidson
Brent Hartman
Chris LaFleur
Eric Nelson
Ernst Baumgartner
Jackie Birdsall

Jay Keller
Juana Williams
Karen Quackenbush
Kelvin Hecht
Kelvin Hecht
Laura Hill
Leah Fisher
Marcia Poxson

Nha Nguyen
Nick Barilo
Norm Newhouse
Sandra Curtin (FCHEA
note taker)
Sara Marxen
Steven Yip
Susan Bershad

I. Welcome and Housekeeping Items

- Review FCHEA's anti-trust guidelines - Available on FCHEA's members only website and a copy can be provided to you on request.
- Reviewed and approved the meeting agenda.
- Approved the December draft meeting minutes.

II. DOE/HQ Update

Will James

The final appropriated funds for the FCTO for FY 2016 are \$100 million. The president's budget request for FCTO for FY 2017 is \$105 million. This mainly keeps us stable from a codes and standards perspective.

Washington, DC Auto Show (January): Secretary Moniz visited the Auto Show on Industry/Government Day. He mentioned fuel cells in his in speech and stopped by to see the Clarity FCEV.

III. C&S Events and Fuel Cell Safety Information

http://www.fuelcellstandards.com/calendar_new.html

Kelvin Hecht

Meetings include:

- February 1-4: Flow batteries (Tokyo)
- March 8-9: SAE Meeting (California)
- April 21-22 International Conf. on Safety of High Pressure Storage
- June 6-8 Annual Merit Review
- June 13-16 - NFPA Annual Conf. & Expo

- June 14-15 – IEC/TC 105 WG 3: Stationary FC Power Systems -Safety (Washington, DC)
- June 21-22 - SAE Quarterly Meeting

Not yet on the calendar:

- ISO TC 197 working groups 24, 27, 28, and ISO TC 158 will meet April 17-22 in California
- June working groups 24, 27, and 28 will meet in Munich
- Working groups 24, 27 and 28 will meet in Fukuoka in February

<http://www.hydrogenandfuelcellsafety.info/meetings.asp>

Karen Quackenbush

The Hydrogen & Safety website has been revised and the calendar is available.

Request: technical resource updates for the Hydrogen and Fuel Cell Safety website. Any committee members who have materials they would like hosted on the website can send them to Karen Quackenbush (khall@fchea.org) or Connor Dolan (cdolan@fchea.org).

Also, please Karen or Connor know of any meetings coming up to add to the calendar.

IV. Global Technical Regulations

Nha Nguyen

FCEVs:

Phase 1: Still in the process of adopting Phase I of the TTR. Conducting a series of tests to validate test procedures, looking at ways to clarify test procedures. Activities are ongoing, to be completed in the next month or so. Will have a final report that can be used as part of the NPR for adopting the TTR. Not sure when it will be published, possibly at the end of this year.

Phase 2: In December, there will be a small meeting with the US, Germany, and Japan, along with two other contracting parties, the EU and Korea, who both would like to co-sponsor Phase 2 activity. At the GSP meeting in December, it was reported that Hyundai is in the process of being a Phase 2 co-sponsor. Germany may not want to be co-sponsor since the EU would be co-sponsoring. Will report back to the GRSP in May. Once approved, it will proceed for final approval. Don't expect any problems (it's just a formality) then the Terms of reference can be drafted by co-sponsors. Kick-off meeting Fall of 2016. Technical items under consideration: Material compatibility, stress rupture (independent of type of fiber), identification of performance-based test for any type of fiber, harmonization of crash test, high voltage.

Jackie/Toyota: Powertech is testing next month. When will the report be available?

Answer: It will be publicly available on the website, possibly sometime this summer.

V. Codes and Standards Organization Updates

IEC TC 105

Kelvin Hecht

At the last meeting, Kelvin announced a potential New Work Item from the French delegation, who wants to start a new standard for fuel cell power plants inside a vehicle – specifically, a “range extender” for electric postal truck (charges batteries for EV). This is controversial - ISO TC 22 believes any time a fuel cell is put on wheels it belongs in their territory. Recently, French IEC TC 105 group polled a request for a new standard. They are having private discussions w/ French ISO group. Hopefully there will be some compromise moving forward.

NFPA 2

Martin Gresho / Susan Bershad

Unable to unmute

ICC

Bob Davidson

A collection of 11 proposals have been submitted to the ICC code process, two will broaden the linkage to NFPA 2 in Chapters 53 & 58. In addition, in the motor fueling chapter, Chapter 23, they will clarify where classified wiring is required, in most cases it will not be required; adding a section referring to NFPA 2 to tighten linkage; deleting defueling language to instead point to NFPA 2 while leaving language to clarify that fuel line piping in vehicles is not covered by purging. Additionally, eliminating language for the listing of hydrogen detectors since there are none meeting the standard. Language is proposed for the use of room/booth/spaces for servicing of FC vehicles similar to what existing MV dealerships do for paint spray activities, i.e., put in room, booth, or defined spraying area instead of upgrading the entire service bay area. An extensive rewrite of exhaust requirements fire code, mechanical code, fuel gas code, and residential code has been submitted. Refers to NFPA 2 for ventilation where required. Language is proposed for FC from the ICC Fire Code Action Committee to capture them as a power system for the IFC with a coordinating proposal by Bob Davidson for the residential code. Will be published in March, has copies of everything submitted, can share with everybody.

CSA

Sara Marxen

Two documents are being finalized for publication:

- 4.3 Temperature compensation standard - Met last Friday. Looking at the HySTEP technical report on the 19th. In a position to send off to a Technical Committee ballot.
- 4.9 Dispenser - Meeting again on Friday to resolve action items, then will go to a ballot.

Both will be published around May.

SAE

Mike Steele / Tim McGuire

Meetings coming up on March 8 & 9.

Most of the work being done in Interface Work Group. J2601 and divisions going on there.

Hydrogen quality draft coming out with lots of discussion about that.

First responder group SAE J2990-1 proceeding along well.

ASTM

Tommy Rockward

Tommy sent the following brief update shortly after the meeting:
PNNL scientists have shown interest in the Inter laboratory studies, they are currently reviewing the test methods to confirm which test methods they are capable of performing.

ASME

John Grimes

Not online

VI. Discussion Topics

Facilitating Deployment

Carl Rivkin

Not online

H₂USA Activities

Karen Quackenbush

Fueling Station Working Group –

- Updates with H2FIRST, particularly HySTEP.
- Going through stations in California and validating dispensers to meet the SAE 2601 protocol.
- Best practices for maintenance.
- H2FIRST is exploring a new project to work on demonstration of a tube trailer concept to facilitate use of smaller compressors, which could be economically beneficial to station developers.

Joint regulations, codes and standards (RCS) task force –

- Identifying and helping to resolve issues from state and regional agencies regarding restrictions for FCEVs (tunnels, bridges, underground parking, etc.).

Also a request was raised within the RCS task force regarding NFPA 2 & NFPA 30A, looking for anyone with expertise in hydrogen and conventional fuel dispensing.

Jay:

H2USA has developed a flyer intended to be left behind with stakeholders, which was developed in time for the DC Auto Show.

The RCS Joint Task Force is developing a basis document that people can draw upon to develop more focused documents for specific audiences. This document helps to provide guidance so that everyone sends same message. They are also engaged in an effort to dispel bad press about FCEVs. Both are works in progress.

H2FIRST

NREL/SNL

Described above

Regulatory Matrix Review and Comment

Karen Quackenbush

A new version came out in early December. Let Karen know if anything on the matrix is missing or outdated, or where it is regarding to priority-level of the activity. Everything is open to discussion. Most changes last quarter were in CSA, SAE, ISO activities that moved forward.

<http://www.fchea.org/s/FCHEA-Regulatory-Matrix-clean-copy-31-December-2015.pdf>

Comments can be submitted to Karen Quackenbush at khall@fchea.org.

VII. Permitting and Installation of Hydrogen Fueling Stations

Ca Station Implementation

Jennifer Hamilton

No update at this time.

Ca DMS Fuel Quality / Metrology

Kevin Schnepf

No update at this time.

Fueling Compliance

Sara Marxen / Jesse Schneider

Sara walked through CSA activities and provided the following report:



CSA Group Update
2016-02-03.pdf

Legal Metrology Standards Hydrogen Fuel Quality and Measurement

Juana Williams

Commercial Device Code

The National Conference on Weights and Measures (NCWM) Interim Meeting held January 10-13, 2016 in San Diego, CA resulted in the assignment of voting status to two proposals to modify NIST Handbook 44 Section 3.39 Hydrogen Gas-Measuring Devices-Tentative Code. The NCWM Specifications and Tolerances (S&T) Committee is in the process of reviewing the final proposed language for: (1) S&T Item 339-1 a proposal to align all measuring devices' codes to recognize that required information on sealable metrological parameters may also be made available in an electronic format on Category 3 devices, and (2) S&T Item 339-2 a proposal to temporarily widen the accuracy tolerances for hydrogen gas deliveries.

A poll will be distributed to the U.S. National Work Group on the Development of Commercial Hydrogen Measurement Standards (USNWG) requesting their availability on several tentative meeting dates in late March to early April 2016 to discuss the proposals moving forward for a July 2016 NCWM vote. The final language that will be considered for a vote of the July 2016 NCWM should be available for distribution to the USNWG by late February 2016. The California Food and Agriculture Division of Measurement Standards (DMS) plans to assist the USNWG in any discussion about the dispenser test data DMS provided to the NCWM in support of expanding those tolerances.

Test Standard Projects

Listed below are links to access four technical publications developed by the NIST Sensor Science Division's Fluid Metrology Group on the development, performance, and operation of its prototype hydrogen dispenser field test standard and Transient Flow Facility (TFF).

Click on the first or last link in each box. That link will take you to the NIST Manuscript Publication web page that includes further links to access electronic versions of these documents through either the assigned Digital Object Identifier (DOI) or a version in PDF format

[Hydrogen Field Test Standard: Laboratory and Field Performance](#)

Published: 11/10/2015

Authors: Jodie G Pope, John D Wright

Abstract: The National Institute of Standards and Technology (NIST) developed a prototype field test standard (FTS) that incorporates three test methods that could be used by state weights and measures inspectors to periodically test retail hydrogen dispensers ...

http://www.nist.gov/manuscript-publication-search.cfm?pub_id=919031

[Hydrogen Field Test Standard Design, Operating Instructions, & Specifications](#)

Series: Technical Note (NIST TN)

Report Number: 1888

Published: 9/10/2015

Author: Jodie G Pope

Abstract: The National Institute of Standards and Technology (NIST) developed a prototype field test standard (FTS) that incorporates three test methods that could be used by state weights and measures inspectors to periodically test retail hydrogen gas di ...

http://www.nist.gov/manuscript-publication-search.cfm?pub_id=919032

[Hydrogen Field Test Standard: Laboratory Performance](#)

Published: 4/14/2014

Authors: Jodie G Pope, John D Wright

Abstract: NIST developed a prototype field test standard (FTS) that incorporates three test methods that could be used by state weights and measures inspectors to periodically test retail hydrogen dispensers, much as gasoline dispensers are tested today. The ...

http://www.nist.gov/manuscript-publication-search.cfm?pub_id=917813

[Performance of Coriolis Meters in Transient Gas Flows](#)

Published: 3/17/2014

Authors: Jodie G Pope, John D Wright

Abstract: NIST evaluated the instantaneous and totalized flow measured by two commercial coriolis meters under transient flow, pressure, and temperature conditions using a Transient Flow Facility (TFF) developed for this purpose. During a simulated cascade fi ...

http://www.nist.gov/manuscript-publication-search.cfm?pub_id=914068

VIII. Open Discussion & Other Issues

Nick Barilo noted the Certification guide draft version presented by webinar in December is now available. Expecting comments back at the end of the month. Download URL

https://h2tools.org/sites/default/files/Hydrogen_Equipment_Certification_Guide_20151210.zip

Please get comments back by the end of February.

Next meeting to be held on Wednesday, March 2, 2016 at 3:00 PM Eastern.

Meeting adjourned.