



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

**Wednesday, September 2, 2015
TIME: 3:00 – 4:30 pm (Eastern Daylight Time)**

Minutes

Attendees

**Bob Boyd
Carl Rivkin
Connor Dolan
Jay Keller
Jesse Schneider
John Grimes
Juana Williams
Karen Hall
Laura Hill
Manu Veerati**

**Marcia Poxson
Mike Steele
Nick Barilo
Robert Davidson
Sara Marxen
Sondra Ullman
Spencer Quong
Steven Yip
Susan Bershad
Will James**

**Williams Collins
Nha Nguyen
Norman Newhouse
Chris LaFleur
Eric Nelson
Kevin Schnepf
Jennifer Hamilton
Aaron Harris**

I. Welcome and Housekeeping Items

- Review FCHEA's anti-trust guidelines - Available on FCHEA's members only website
- Review the meeting agenda
- Approve the August draft meeting minutes

II. DOE/HQ Update

Will James

New capabilities at DOE coming on board, could be relevant to community

- Materials compatibility – new low temperature materials capability at Sandia coming on board.
- Through a laboratory call – launching new project on polymer materials compatibility – to be led by PNNL, SNL, and ORNL.
- New liquid hydrogen release capability at laboratory scale to feed into risk models and understand behavior of liquid hydrogen.

For those of you who are interested, the international hydrogen safety conference to be held in Japan the week of October 19 – 21.

III. C&S Events and Fuel Cell Safety Information

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

Kelvin Hecht

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

Karen Hall

October 8 and 9 will be NFPA 1 technical meeting. Will discuss NFPA 1 proposals at that meeting.

ICC Annual meeting is September 27 – October 5. PNNL (Nick Barilo) and H2USA (Jay Keller) will be hosting a booth on hydrogen safety. The Toyota Mirai will also be in there.

CSA US Committee Week (October 26 29 – Committee Week in Cleveland Ohio):
<http://www.csagroup.org/global/en/member-events/standards-committee-week>.

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 Hall (khall@fchea.org) or Connor Dolan (cdolan@fchea.org).

IV. Global Technical Regulations

Nha Nguyen

No new update – In process of discussing Phase 2. Hopefully will be able to make a decision at December meeting in Geneva.

Currently at NHTSA we are in the process of preparing the NPRM to adopt the Phase 1 of the GTR. Hopeful that the NPRM at the end of this year.

V. Codes and Standards Organization Updates

IEC TC 105

Kelvin Hecht

WG#3 (IEC 62282-3-100 – Stationary Fuel Cells – Safety)

- Will in conjunction with TC105 Plenary, to start on next edition. Agenda will include:
- US – Editorial & clarifications
- CSA FC1
- Bloom Energy
- Japan – New standard for small power systems (< 10 kW)
- Germany – Valves certified for tightness do not have to be considered as potential leak sites

WG#6 (IEC 62282-4-102 – Fuel Cells for Forklift Applications – Performance)

- Will meet in conjunction with Plenary

WG#8 (IEC 62282-6-100 – Micro Fuel Cells – Safety)

- Posted request for new convener.

WG#9 (IEC 62282-6-200 Ed.3 – Micro Fuel Cells – Performance)

- Approved. Will be published in September.

WG#11(IEC 62282-7-1 TS – Single Cell Test Methods for PEFC)

- CD posted for 2nd edition; comments by October 30.

ISO TC 197

Jill Thompson

Jay Keller – Reminder – there will be side meetings in conjunction with ICHS2015 in October. WG 24 is planning to have a risk assessment final report on October 26. The rest of the meetings from the 27 – 29 will focus on standardization planning for the IS (in Japan).

The ISO/TC 197 plenary meeting will be held in Torrance, CA on December 3-4. Many of the WGs will be meeting; there will be 4 parallel tracks at times. TC 197 leadership is aware of the problems of having so many meetings in parallel, and will be giving this issue serious thought for future meetings. The following WG will be meeting Monday, Tuesday, and Wednesday of this week (WG24, WG28, WG20, WG19, WG5, WG18, WG27, WG23, WG22, WG26, WG21, WG25, WG17).

WG 15 being scheduled in about a week or so.

The work product (19880-1 TR) for WG 24 is out for vote until September 30.

Jesse and team are gearing up to take that technical report and move to international standard as quickly as possible.

Karen Hall – Valve draft for CD out for review and comment, due by middle of September.

Jay Keller –Risk Assessment mentioned above focuses on upsets in the fueling and how that might affect the hydrogen storage system on board the vehicle. This is to differentiate from the Hazardous Risk Assessment and Quantitative Risk Assessment described in chapter for of the TR (19880-1). This latter focuses on protection of life and property due to a hazardous event occurring at the station. WG 24

NFPA 2

Martin Gresho / Susan Bershad

Susan Bershad – NFPA 2 2016 edition set to be published on September 11th. The PDF copy will come out and be available for purchase (posted on committee page to download for free). Will be available on our open access as well. When it happens, will be available within a day or so.

ICC

Bob Davidson

Nothing changed since last meeting. The work with energy storage systems and relationships to fuel cells is still a work in progress. By next week should have draft of where the work group is at ready to send out to committees for comment and participation. Working to ensure fuel cells are part of the energy storage system code.

CSA

Sara Marxen

CSA staff provided an update on their latest activities. The presentations is available at www.fchea.org/s/CSA-Group-Update-2015-09-02.pdf.

SAE

Mike Steele / Tim McGuire

Mike Steele - Meetings on the 15th and 16th. Agendas are published, nothing controversial at this time. If anyone has any questions or comments, can ask here.

Jesse Schneider – In conjunction with the Safety Group (Glenn Scheffler) meeting in Tokyo, Japan on the 22 of October at JARI headquarters to discuss alignment of materials compatibility of stainless steels between Germany, US, and Japan. This meeting is being

coordinated by SAE and JARI. For interest, please contact Glenn Scheffler or Jesse Schneider.

ASTM

Tommy Rockward

Karen Hall – Comprehensive report received on our last meeting minutes.

Jesse Schneider – August 31 meeting with ISO TC 197 and ASTM management with the intention of starting discussion on licensing agreements regarding sampling of hydrogen gas standardization. Progress is underway.

ASME

John Grimes

September 14 meeting – committee members update – Will provide update on October call.

VI. Discussion Topics

Facilitating Deployment

Carl Rivkin

Carl Rivkin - Able to participate in two outreach activities in the last few weeks, one organized by Jennifer at CAFCP in California, the other by Nick Barillo and MassH2 in Massachusetts. Both events went very well. Feedback / concern – primary audience was code officials. Both locations had questions on potential incidents at hydrogen fueling stations (what incidents have there been, history of station performance, magnitude of these incidents, etc.). Earlier today spoke about this and thinking of developing a presentation on this activity that specifically addresses the issue of stations and incidents. Would be particularly helpful for officials without a station currently in their jurisdiction.

Jennifer – Sounds great, hope can present at next permitting outreach. Had a conversation with fire marshal in Bay Area – broader concern on material compatibility. We talk briefly in the presentation, but would be helpful to be added in.

Carl Rivkin – In our discussion talked about combined presentation using resources of PNNL, NREL, and SNL – use incident information and the safety panel that PNNL manages and integrate NREL station information. SNL can characterize how big the incidents are and what they look like.

Nuvera – One thing important to note is that station developers in California have started to coalesce around fuel cell partnership working group (informal know, heading toward formal). Can help vet educational materials for outreach purposes.

H₂USA Activities

Karen Hall

Three of the four working groups met. Expect more to report next month.

Jay Keller – H2USA activity will be held at the ICC. Nick Barilo championed this activity. Will have some H2USA handouts.

H2USA has been working on an internal action plan document to put some structure around what H2USA will be doing in near-term. Working up to the next level.

H2FIRST

NREL/SNL

No report at this time.

Regulatory Matrix Review and Comment

Karen Hall

Latest version developed on August 31st, available online at www.fchea.org/s/FCHEA-Regulatory-Matrix-markup-31-August-2015.pdf. Comments can be submitted to Karen Hall at khall@fchea.org.

VII. Permitting and Installation of Hydrogen Fueling Stations

Ca Station Implementation

Jennifer Hamilton

Draft Program Opportunity Notice sent out by CEC. Workshop held on it. Opportunity to respond via the docket. Joe Gagliano is developing a response from both the autos and station operators.

One more station in Bay Area with approval to build. Good news.

Brings numbers to:

5 – full construction

13 – under construction

6 – approval to build

6 – open stations that are not retail

Ca DMS Fuel Quality / Metrology

Kevin Schnepf

DMS has scheduled for this month three different hydrogen stations for type evaluation. One is a new type-eval and two are permanence testing. With successful permanence testing will bring up to 5 type approved dispensers in the state.

Working with ARB to develop a testing plan and schedule to evaluate and validate the HyStEP device being built by Powertech and evaluated by DOE.

DMS will go through process of vetting it at a university station. DMS will put it in the field to evaluate fueling protocol per SAE J2601.

Jesse Schneider – Permanence refers to metrology?

Kevin – Yes. This is for acceptance tolerance, lower end of the range. Maintenance tolerance is after it has been in service.

Jesse – will results of accuracy be distributed?

Kevin – Quarterly report submitted to ARB, CEC, AQMD, and CAFCP. Help fund the first roll-out of standard with metrology testing. If approved, can send a copy.

The data is sanitized to protect station developer identity.

Jesse – Would be great to know where we are at.

Fueling Compliance

Sara Marxen / Jesse Schneider

Sara - HGV 4.3 – through comments from technical committee, have a meeting on Friday. Hopefully will wrap up and out for industry review. Coming along nicely.

Jesse – TR ISO 19880-1 annex B for fueling validation of J2601 is complete. The TR is being voted on results expected at the end of September (see above). Published and available in the public domain in October.

This will be used internationally for reference for fueling validation in the TR phase.

For the IS stage – Japan is going to submit a further recommendation for international validation of J2601 in the October meeting of working group 24.

Legal Metrology Standards Hydrogen Fuel Quality and Measurement

Juana Williams

No report at this time.

Jay Keller – Two new ISO work item proposals to be launched, one on fuel quality assurance on how the station can assure the vehicle owner and OEMs fuel quality being delivered is consistent with the current specifications.

The other proposal is to revisit those specifications. This may not yield the results people are hoping for – the specifications could get tighter.

Should expect harmonization between ISO and SAE as we move forward.

VIII. Open Discussion & Other Issues

Next meeting – Wednesday, October 7 at 3:00 PM Eastern.