

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

**Wednesday, October 3, 2018
TIME: 3:00 – 4:00 pm (Eastern Standard Time)**

Minutes

Attendees

**Adam Maslowski
Carl Rivkin
Christina Daniels
Connor Dolan
Jay Keller
John Eihusen**

**Karen Quackenbush
Kevin Harris
Laura Hill
Mike Steele
Norm Newhouse
Sara Marxen**

**Bill Collins
Stella Papasavva
Eric Nelson
Yuk Wong
Owen Hopkins**

I. Welcome and Housekeeping Items

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

II. DOE/HQ Update

Laura Hill

Laura Hill – Happy new fiscal year! We started the new fiscal year with a budget already, the first time in a decade. Fuel Cell Technologies Office received \$120 M, up from \$115 M in the last Fiscal Year.

III. C&S Events and Fuel Cell Safety Information

<http://www.hydrogenandfuelcellsafety.info/events/>

Karen Quackenbush

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).

Hydrogen Energy Ministerial in Japan will be held the week of October 22nd. Sunita Satyapal and others will be in attendance.

ISO TC 197 WG 24 (fueling stations) cancelled its upcoming meeting due to not receiving any comments – a very good sign.

Minor correction – CSA Committee week starts on Monday, October 15.

ISO/TC 158/JWG 7 (21087 - Hydrogen fuel analytical methods) – Meeting October 8, 2018 in France.

ISO/TC 197/WG 27 (14687 - Hydrogen Fuel Quality – Meeting October 9-10, 2018 in France.

Upcoming ASTM D03 Committee Meetings

Tuesday December 11th 2018 - Wednesday December 12th 2018 in Atlanta, GA.

Tuesday June 25th 2019 - Wednesday June 26th 2019 in Denver, CO.

Tuesday December 10th 2019 - Wednesday December 11th 2019 in New Orleans, LA.

IV. Global Technical Regulations

Nha Nguyen

There is an upcoming meeting for the GTR later this month in Brussels on October 16 - 18.

Will look for a larger update on the GTR on our next call.

V. Codes and Standards Organization Updates

IEC TC 105

Kelvin Hecht

- IEC 62282-3-100 Ed.2
Stationary fuel cell power systems - Safety
 - FDIS approved
 - To be published
 - CSA FC1 will initiate next edition
- IEC 62282-6-400
Micro fuel cell power systems – Power & Data Interchangeability
 - CDV approved
 - US voted negative
 - “requirements” may – should be a Technical Report
 - “may” changed to “shall” of “must”
- IEC 62282-8-101
Energy storage systems using fuel cell modules in reverse mode – Test procedures for solid oxide single cells
 - CDV approved
 - US abstained – no active US participation
- IEC TS 62282-9-101
Evaluation methodology for the environmental performance of fuel cell power systems based on life-cycle thinking – Streamlined life-cycle considered environment performance characterization of stationary fuel cell power systems for *residential* applications
 - CD posted for comments until 12/21/2018
 - Two environmental aspects considered
 - Greenhouse gas emission
 - Utilization of mineral resources
 - No active US participation
- IEC TS 62282-9-102
Fuel cell technologies - Part 9-102: Evaluation methodology for the environmental performance of fuel cell power systems based on life cycle thinking - Product category rules

for environmental product declarations of stationary fuel cell power systems and alternative systems for *residential* applications

- CD posted for comments until 12/21/2018
- Product Category Rule for ISO 14024
- No active US participation

ISO/TC 197

Karen Quackenbush/ Glenn Scheffler/Jay Keller

Compressors WG is meeting in December.

WG 24 general requirements is moving right along. No comments were received on the latest draft and are preparing a draft international standard quite soon.

The chair for TC 197 has initiated strategic planning meetings on the Wednesday after the WG and before the plenary, and is planning that again for this upcoming plenary. Still early in the planning stages. There are many organizations planning on working together.

NFPA 2

Carl Rivkin

Development of the next edition of NFPA 2 will likely be published in April 2019 with a 2020 edition name. The full Committee met in August. Received a number of public comments and completed the review. Will see a number of new positive developments.

Safety separation distances for bulk storage systems – the material introduced in the first part of the revision process to reduce distances has progressed forward. Will have a very positive development by reducing bulk gaseous distances by half without compromising safety. Good change in the code to help hydrogen fueling station development.

Along that same line was material that addresses bulk liquid distances that allow additional flexibility in citing these systems by introducing “active safety measure” by developing tools for these systems. Will also help with infrastructure deployment.

Standard permitting discussed extensively on how to address that. The Committee passed a modification to add a new text that will place in the annex section on hydrogen fueling stations pointers to two websites that will contain information on standard permitting information on hydrogen fueling stations, including the Committee website and h2tools.org. These documents will consist of a compliance checklist for hydrogen fueling stations that will match what the Committee and Task Group was the greatest need on gaseous and liquid hydrogen. These checklists will be published early next year on those websites and will help with permitting. We had a lot of input from code officials, particularly from people in the Northeast, and getting these tools out there with direct links in the code will be beneficial.

Jay Keller – Will have a notion of a holistic station design without compromising risk to move forward and mitigate risk. I am particularly encouraged to hear that the NFPA 2 Committee is adopting and resonating with these thoughts. I did not hear if QRA was part of that discussion and think it needs to be an integral part of that discussion.

Carl Rivkin – We are taking this in a two-step approach, looking at these stations as part of the context of overall risk and the role that these safety measures take in reducing those risks. Safety distances are just one option. We added an item in the code on liquid hydrogen that says we can reduce safety distances if we use active safety measures.

ICC

Spencer Quong

ICC will be holding its Annual Conference, Public Comment Hearings and Expo meeting October 21st - 29th, so we should have a more detailed report on the next call.

CSA

Sara Marxen

- **CSA HGV 4.3** (hydrogen fueling parameters) is an active project to develop the next edition. Industry review has closed for the draft document, and the TSC will meet to discuss comments.
- **CHMC 2** (chemical compatibility for non-metals) is an active project to develop the first edition. The Technical Subcommittee plans to send the draft standard for Industry/Public Review in early October, with the goal of publishing in late 2018/early 2019.
- **HGV 4.1** (stations) is a new project to develop the next edition. The TSC will be meeting in person in San Antonio on October 17.
- **HGV 4.9** (dispensers) is a new project to develop the next edition. The TSC will be meeting in person in San Antonio on October 18.
- **CSA FC 6** is the International adoption of IEC 62282-2-100 IEC, fuel cell module standard, and is expected to be at ballot in October.
- **CSA Group U.S. Committee Week** is planned for San Antonio, Texas, with the Hydrogen Transportation Technical Committee meeting on the afternoon of October 16, and HGV 4.9 (stations) TSC and HGV 4.1 (dispensers) TSC meeting as noted above.
- **ISO TC 197 Plenary (and WG Meetings)** will be co-hosted by CSA and SCC in Vancouver – December 3 - 7, 2018.
 - Working Group -24 (Stations) – December 3 - 4
 - Working Group -21 (Compressors) – December 3
 - Working Group -23 (Fittings) – December 4

SAE

Mike Steele

Working with SAE staff to accommodate the meetings next year and will have those dates soon.

CGA

Rob Early

John Eihusen @ Hexagon – Should pay attention to the UN subcommittee on the transport to dangerous goods is starting its paper submission process the first week in November. CGA is part of it. There are some issue on the transport of hydrogen that might be of relevance. If we want to make changes at the UN level, that would be needed to go there.

Karen – FCHEA has its Portable Power Working Group working on some activities at that level. Will touch base on this with you after this call.

ASTM

Jennifer Hamilton

Christina Daniels – Our ILS cylinders went out and the labs are analyzing them. Hope that both of the ILSs will be able to present some preliminary data at our meeting in December.

ASME

John Bendo

John Eihusen – Among other issues with ASME, section 10 on high pressure storage is meeting on the third week of October on Monday to meet on code cases, will discuss qualification and use of cylinders at the 1000 bar class.

VI. Discussion Topics

Facilitating Deployment

Carl Rivkin

DOE worked with the Park Service to install a hydrogen station in Washington, D.C. DOE is continuing discussion and outreach with the Park Service to potentially identify other national park locations to host hydrogen infrastructure and/or fuel cell vehicles, likely to be in California.

H₂USA Activities

Karen Quackenbush

Nothing to report at this time.

H2@Scale

No report at this time.

Regulatory Matrix Review and Comment

Karen Quackenbush

Latest version of the Matrix is here (updated September 30) - <http://www.hydrogenandfuelcellsafety.info/s/FCHEA-Regulatory-Matrix-markup-Sept-30-2018.pdf>

Please review this version of the Matrix and provide any updates to Karen Quackenbush.

Permitting and Installation of Hydrogen Fueling Stations

CA Station Implementation

Jennifer Hamilton

Christina Daniels - There have not been any recent station openings, but there are a number that are on the verge of opening. They are waiting on the manufacturers testing as the final phase.

CA DMS Fuel Quality / Metrology

Kevin Schnepf

No report at this time.

Legal Metrology Standards Hydrogen Fuel Quality and Measurement

Juana Williams/Ralph Richter

Since the NHFCCSCC last met on September 5th the CA Division of Measurement Standards and NIST OWM have had the opportunity to collaborate on several further modifications to the proposal for upgrading NIST Handbook 44 Section 3.39 Hydrogen Gas-Measuring Devices to permanent status. Those changes are being distributed to the remaining three regional weights and measures associations who are meeting in October

2018. NIST OWM will reach out to OIML on repeatability test procedures and requirements since the proposal still reflects OIML R 139 “Compressed gaseous fuel measuring systems for vehicles” language that is not in harmony with the handbook and may affect testing at the minimum measured quantity delivery.

VII. Open Discussion & Other Issues

National Hydrogen and Fuel Cell Day will take place on October 8, 2018. This is our fourth annual National Day. For more information, contact Connor Dolan.

VIII. Next Meeting – Wednesday, November 7, 2018 at 3:00 PM Eastern