

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

**Wednesday, May 6, 2020  
TIME: 2:00 – 3:00 pm (Eastern Standard Time)**

**Minutes**

**Attendees**

**Chris LaFleur  
Connor Dolan  
Eric Prause  
Ian MacIntire  
Jay Keller  
Jennifer Gangi  
Jennifer Hamilton  
Juana Williams**

**Karen Quackenbush  
Kelvin Hecht  
Kevin Harris  
Laura Hill  
Mark Duda  
Mark Richards  
Mike Steele  
Morry Markowitz**

**Norman Newhouse  
Owen Hopkins  
Quailan Homann  
Ray Rahaman  
Sara Marxen  
Sejal Patel  
Stella Papasavva  
Tommy Rockward**

**I. Welcome and Housekeeping Items**

The Committee reviewed FCHEA's anti-trust guidelines and agenda. The Committee approved the previous meeting minutes for April 2020.

**II. DOE/HQ Update**

**Laura Hill**

The 2020 AMR has been cancelled; however the slide presentations will be shared online, likely in early June.

**III. Codes & Standards 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](mailto:khall@fchea.org)) or Connor Dolan ([cdolan@fchea.org](mailto:cdolan@fchea.org)).

**IV. FuelCellStandards.com**

**Kelvin Hecht / Karen Quackenbush**

<http://fuelcellstandards.com/>

Many new standards from China and Taiwan have been added recently.

**V. Global Technical Regulations**

**Ian MacIntire**

There is a GTR co-sponsor meeting last week held for planning purposes. The next in person meeting will be in the Fall around September or October. That is still to be determined. There will be another co-sponsors meeting in July. There may be some issues discussed there as some contracting parties have things to discuss.

Different task forces continue to hold web-based meetings and are doing drafting. There are some issues that continue to be unresolved as we are unable to meet in person.

Jay Keller – Task Force 4 meeting last week had some positive developments. There are good conversations that are outside of the scope of the Task Force. Leadership determined that those topics would be more appropriate in another activity so TF4 has been instructed by the GTR leadership to focus on the issued as specified in the Scope.. Task Force 4 has been chartered to rework the fire testing in Phase 1 with the aim to develop a test method where there would be consistency between tests at the same lab and between different labs.

## **VI. Codes and Standards Organization Updates**

### **International Electrotechnical Commission IEC TC 105**

**Kelvin Hecht**

TC 105 has approved a new group working on drones. The official title will be fuel cell power systems for unmanned aircraft systems. It will be a performance test methods standard. Project leader is from China and six nations have agreed to join the activity, including China, Japan, Spain, UK, France, and the United States. The US has two new experts to work on drones including representatives from Plug Power and Infinity Fuel Cell.

The plenary from this year has been changed and will be held in Paris from November 15 – 20. This meeting will be accessible online.

### **International Standards Organization ISO/TC 197**

**Karen Quackenbush/Jay Keller**

Jay Keller – Lot of progress on many working groups that have gone to publication. 19880-1 refueling standard is published. Fuel quality has been published, as well as others.

We are starting up two New Work Item Proposals (NWIP). WG 29 will revisit the TR (ISO 15916) on Basic considerations for the safety of hydrogen systems. The purpose of this group is to review the materials compatibility table in Annex C (C.1). There is potential to look at the rest of the document and will be considered only if the issue identified presents a safety risk.. This would not be a comprehensive review. A call for experts is out. If you are interested in participating, please contact Jay Keller.

Karen Quackenbush – Technical specification for safety of pressure swing absorption systems is out for review. This effort was led by China who were interested in having an international document on this. If you are interested in discussing this TS, please contact Karen Quackenbush.

There are a number of other documents out for systematic review as well.

### **National Fire Protection Association NFPA 2**

**Chris LaFleur**

Were going to hold a pre-first draft meeting, but that has now been modified. Task forces are continuing to meet. A series of two-hour meetings are being held over the course of a couple of weeks to review the work of the task groups. Public input can be submitted by June 30. We have not heard that there are any shifting deadlines.

### **International Codes Council (ICC)**

**Spencer Quong**

Tabled until next meeting.

## CSA Group

Sara Marxen/Brent Hartman

- **CSA Group 2020 U.S. Committee Week**
  - Originally planned for October 26-29 in Phoenix has been cancelled this year due to Covid-19. Alternate meetings will be scheduled by CSA Project Managers however they may not be during this same week. Each Committee will be asked for feedback on meeting times.
  
- **Active Projects**
  - HGV 2 *Containers*. Content development is completed. Expect draft document for Industry/Public review later this week.
  - HPRD 1 *Thermally activated pressure relief devices*. Content development is completed. Expect draft document for Industry/Public review later this week.
  - Projects to develop new editions of CSA HGV 4.4 *Breakaway devices*, HGV 4.6 *Manual Valves* & HGV 4.7 *Automatic Valves* have been halted in favor of adoption of ISO 19880-3 with North American Deviations.
  - HGV 4.10 *Fittings* – Draft document is out for industry / public review. Industry Review closes 5/20/2020. Access by clicking here:  
<https://publicreview.csa.ca/Home/Details/3823>
  - FC 1 *Stationary fuel cell power systems* – Content development for the adoption of IEC 62282-3-100 continues. As the administrator of both the US TAG and SCC MC to IEC TC 105 (fuel cells), CSA continues to host a binational meetings via teleconference, as needed, to discuss open IEC TC 105 action items. Anyone interested in participating, please contact [mark.duda@csagroup.org](mailto:mark.duda@csagroup.org).
  - **CSA Group** has initiated work on a special publication for CNG and Hydrogen Vehicle System Leak Inspection to address requirements and procedures for commissioning and in-service inspections. Anyone interested in participating, please contact [mark.duda@csagroup.org](mailto:mark.duda@csagroup.org).
  
- **Projects Launching Soon**
  - HGV 4.3 *Fueling parameter evaluation* – Project Planning / Discussion meetings have taken place with TSC, CSA and CARB for next edition.
  - HGV 5.1 *Hydrogen Refueling Appliances*
  - HGV 4.2 *Hoses for compressed hydrogen fuel stations*
  - HGV 3.1 *Fuel system components for compressed hydrogen gas powered vehicles*
  
- **Recently Published**
  - HGV 4.1 – *Hydrogen dispensing systems* published in March 2020.
  - HGV 4.9 – *Hydrogen fueling stations* published in March 2020.
  - SPE 2.1.3 *Best practices for defueling, decommissioning, and disposal of compressed hydrogen gas vehicle fuel containers* published in February 2020.
  - CHMC 2 *Chemical compatibility (Non-Metals)* published in August 2019.
  - HGV 4.3 *Fueling parameter evaluation* published in July 2019. Work on the next edition of HGV 4.3 will be to align with definitions in SAE J2601.

Society of Automotive Engineers (SAE)

Mike Steele

Meetings are scheduled for week of June 22. Will be online. Safety Work Group has a schedule out to have several days of meetings for most of the day. Interface Task Force and Standards Committee itself have modified meeting protocols to hold meetings by topic for a couple of hours at a time. Times will also be scheduled around an international attendance. Meetings may stretch out to three days.

This will expand out to the October SAE meetings. Supposed to be week of October 5<sup>th</sup> in Troy, Michigan. Unlikely to happen in person and likely to replicate the June meeting protocols.

Sponsor of J2601-4 has requested a ballot be initiated for the document in advance of the June meeting.

**Compressed Gas Association (CGA)**

**Rob Early**

Jennifer Hamilton – H5 document is currently with CGA standards council, likely to be completed in May and will go back out for comment.

**American Society for Testing & Materials (ASTM)**

**Jennifer Hamilton**

In person meeting planned for the end of June will be online.

D03.14 Committee had planned for a workshop on June 29<sup>th</sup> which will be held virtually. A half day workshop on hydrogen sampling. Four or five labs will be presenting. Will also like to have a panel presentation from developers as well.

**American Society of Mechanical Engineers (ASME)**

**Ray Rahaman**

No current updates. B3112 meeting was cancelled due to COVID-19. We possibly may not be hosting any in person meeting through the end of the year. Our fall meeting may move to be a teleconference. We are waiting to see how things progress through the rest of the year.

**VII. Discussion Topics**

**Facilitating Deployment**

**All**

No updates at this time.

**Center for Hydrogen Safety**

**Nick Barilo**

Jay Keller – CHS is planning a large meeting in October 20 and 21 in Frankfurt, Germany.

HYSAFE is also developing a research priorities workshop which will be held immediately after the CHS meeting on October 22 and 23. That meeting will be held in Denmark hosted by DTU. This meeting is by invitation and we will be contacting Nick and others to ensure appropriate participation from CHS. We are attempting to rebrand from previous years with more focus on industry. This will still be a pre-normative research activity.

**Regulatory Matrix Review and Comment**

**Karen Quackenbush**

The Committee reviewed the March 31, 2020 edition of the Regulatory Matrix. Please direct any updates, questions, or comments to Karen Quackenbush by email at [kquackenbush@fchea.org](mailto:kquackenbush@fchea.org).

## **Permitting and Installation of Hydrogen Fueling Stations**

### **California Station Implementation**

**Jennifer Hamilton**

There are efforts taking place to get the Riverside station back into operation.

The California Energy Commission Grant Funding Opportunity deadline is this month on the 22<sup>nd</sup>.

The CEC has a position open for someone to run their fuels position.

CEC has some workshops coming up that we will include in the minutes!

### **California Div. of Measurement Standards/Fuel Quality / Metrology   Christina Daniels**

Jennifer Hamilton - Christina will be giving a talk on the ASTM workshop in June on CA's efforts.

### **Legal Metrology Standards Hydrogen Fuel Quality and Measurement**

**Juana Williams/Ralph Richter**

Juana Williams – No updates at this time.

## **VIII.       Open Discussion & Other Issues**

Kelvin Hecht – Just became aware of a video on YouTube of German fuel cell submarines. I am happy to share a link for those who are interested.

**IX. Next Meeting** – June 3, 2020 at 2:00 PM US Eastern.