

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

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

**Minutes**

**Attendees**

**Amy Ryan  
Antonio Ruiz  
Christina Daniels  
Connor Dolan  
Eric Nelson  
Jay Keller  
Jennifer Gangi  
Spencer Quong**

**Karen Quackenbush  
Kelvin Hecht  
Laura Hill  
Mark Duda  
Mark Richards  
Mike Steele  
Norman Newhouse  
Quailan Homann  
Yuk Wong**

**Rob Early  
Sara Marxen  
Sejal Patel  
Ian MacIntire  
Tommy Rockwood  
Morry Markowitz  
Stella Papasavva**

**I. Welcome and Housekeeping Items**

The Committee reviewed FCHEA's anti-trust guidelines. Available on FCHEA's members only website and a copy can be provided to you on request.

The Committee reviewed the meeting agenda.

The Committee approved the previous meeting minutes.

**II. DOE/HQ Update**

**Laura Hill**

The IPHE student infographic challenge – <https://www.iphe.net/challenge>. If anyone knows students who may be interested, please pass this along to them.

DOE is still in telework mode. We will be shifting to phase 1 in the near future. Most of us do not anticipate returning to work in person for quite some time.

The Vehicle Technologies Office Annual Merit Review is ongoing this week.

The HFCTO AMR slides will be available online soon.

**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)).

The Committee reviewed the calendar of activities.

#### **IV. FuelCellStandards.com**

**Kelvin Hecht / Karen Quackenbush**

<http://fuelcellstandards.com/>

No specific reports or updates at this time.

#### **V. Global Technical Regulations**

**Ian MacIntire**

We are continuing to work on what we can without meeting in person. This would have been the week of the 9<sup>th</sup> working group meeting in Brussels. Some of the Task Forces, such as the Drafting TF, are continuing work remotely. We had a meeting on May 21<sup>st</sup> to discuss some technical issues with regard to implementing the technical changes in the regulation. We worked out some issues and have some items to further discuss. Individual work is continuing in the meantime and further meetings are scheduled this month such as the fire test at the end of June. Another drafting task force meeting will be held at the end of this month on the 30<sup>th</sup>.

No significant decisions will be made outside of the full working group and the ability to get feedback from all participants.

There is a discussion to try to hold a full IWG meeting remotely, but it is not clear if it will be possible.

Antonio Ruiz – How is the schedule of the GTR being impacted due to the limited meeting availability?

Ian MacIntire – Will check on that and get back to you. It appears that there may be some shifting back, but we do not have the full details at this time.

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

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

**Kelvin Hecht**

There is a new member of the US TAG, Brian Ehrhart from Sandia National Labs, who will represent US interests for a new international activity on rail applications that will be chaired by China.

Karen Quackenbush – I have submitted the revised part 1 and two part 2s for micro fuel cell power systems and they are trying to figure out what to do with them as the published document is being revised and broken into multiple parts.

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

**Karen Quackenbush/Jay Keller**

Jay Keller – Activities are removing slower than expected, but still 19880-1 was published. Several other documents have been published including -4 on fuel quality. Specifications for fuel quality is moving through the system.

Karen Quackenbush – The -5 document for hoses has been published. An immediate technical amendment was proposed to address comments that were supposed to be included that we are waiting to have resolved. The -6 document on fittings is now on CD stage and we are resolving final editorial questions than it will come out as a CD ballot.

There are a number of new work item proposals that are in the works including repurposing hydrogen tanks for stationary applications. This has been worked on for quite some time and the effort is now being restarted.

There is a NWIP in the works for rapid flow large applications (including heavy-duty on and off-road) led by Nikola.

There is a NWIP to revisit the materials section within the general properties TR that has been published for quite some time due to contemporary work in the materials science arena. This document is no longer precisely accurate. The call for experts just closed and effort will be launching in the very near future. Please contact Jay Keller to participate.

Karen Quackenbush – There is also a NWIP for fuel system components for onboard the vehicle. There is an arrangement in place with ISO TC 22 SC 41 that allows TC 197 to lead this effort specifically for hydrogen fuel system components.

ISO TC 22 SC 41 has a number of documents out there that should also be reviewed.

Kelvin Hecht – It seems that CSA has a similar activity.

Spencer Quong – The CSA document will be a seed document for this new work item proposal.

There is some concern that may be addressed that this could conflict with scope of the GTR so we should make sure that this document is carefully aligned with other efforts used for the vehicles.

Sara Marxen – The HGV 3.1 does not yet include the vehicle hoses, those are reference in HGV 2. Even though we have those seed documents, we need to be cautious that the vehicles hoses comes out of 4.2 and into 3.1.

Karen Quackenbush – The ISO 19880-5 document on the station hoses document does not include the vehicle hoses.

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

**Chris LaFleur**

We finished our round of task group report outs and gave feedback to task group leaders. They are going to finalize their work to go into the public input due at the end of this month. We are pressing forward.

It is unsure if the first draft meeting this fall will be in person or remote.

Public comments are due by June 30.

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

**Spencer Quong**

The I code process has started. The fire code group is meeting to go over their topics.

## **CSA Group**

**Sara Marxen / Brent Hartman**

- **Reminder** – *CSA Group 2020 U.S. Committee Week planned for October 26-29 in Phoenix has been cancelled.*

- **Active Projects**

- CSA HGV 4.4 TSC continues to work on an adoption of ISO 19880-3 (*Valves Standard*) with North American Deviations.
- HGV 4.10 *Fittings* – Draft document is out for industry / public review. Public Review closes 6/20/2020. Access by clicking here: <https://publicreview.csa.ca/Home/Details/3823>
- HGV 2 *Containers*. Draft document is out for industry / public review. Public Review closes 7/29/2020. Access by clicking here: <https://publicreview.csa.ca/Home/Details/3861>
- HPRD 1 *Thermally activated pressure relief devices*. Content development is completed. Expect draft document for Industry/Public review soon.
- 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).
- HGV 4.3 *Fueling parameter evaluation* – TSC continues to meet to discuss inclusion of Protocol Factory Acceptance and Periodic Maintenance Testing in the next edition.

- **Projects Launching Soon**

- HGV 5.X – *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.

**Society of Automotive Engineers (SAE)**

**Mike Steele**

The J2601 2020 edition is published and available! A lot of credit goes to Steve Mathison.

Some telecons will be held at the end of this month through the interface group. The safety working group has cancelled their upcoming meetings and is focusing on fire activities for the GTR.

**Compressed Gas Association (CGA)**

**Rob Early**

H5 standard for bulk storage systems has gone past council for CGA approval. Because it is an ANSI publication there will be one more round of public comments.

We are still looking to do our hydrogen vent stack testing to reduce heat radiation levels.

We plan to do this in Minneapolis and hope to complete soon due to weather constraints.

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

**Jennifer Hamilton**

Christina Daniels – We have a workshop scheduled on June 29<sup>th</sup>. This will be on hydrogen quality and sampling analysis. There will be a \$50 fee for non-ASTM members.

[https://www.astm.org/SYMPOSIA/filtrexx40.cgi?-P+MAINCOMM+D03+-P+EVENT\\_ID+3861+-P+MEETING\\_ID+140930+sympotherinfo.frm](https://www.astm.org/SYMPOSIA/filtrexx40.cgi?-P+MAINCOMM+D03+-P+EVENT_ID+3861+-P+MEETING_ID+140930+sympotherinfo.frm)

The full working group meeting on gaseous fuels will be held virtually on July 1<sup>st</sup> and 2<sup>nd</sup>.

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

**Ray Rahaman**

No update at this time.

**VII. Discussion Topics**

**Facilitating Deployment**

**All**

No updates at this time.

**Center for Hydrogen Safety**

**Nick Barilo**

No updates at this time.

**Regulatory Matrix Review and Comment**

**Karen Quackenbush**

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**

Christina Daniels – HyStep has started testing again so we should start to have more stations opening again soon.

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

We continue to support and testing (fuel quality and other testing) during COVID-19.

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

**Juana Williams/Ralph Richter**

No update at this time.

**VIII. Open Discussion & Other Issues**

Karen Quackenbush requested an update on the regulatory pathway for addressing fuel cell vehicles that are running on the road that have been in an incident where a vehicle needs to be moved to a facility to evaluate whether a repair is needed. It is not clear where to begin the process of evaluating this from a regulatory standpoint, if this would be DOT PHMSA.

It seems that this would be PHMSA. It is not clear if that would be considered hazardous transport or not, but it may be worth asking for clarification.

Norman Newhouse – If you leave the tank on the vehicle, there should not be a problem. IF you remove the tank before you move it, then there could be jurisdiction with PHMSA.

Antonio Ruiz – We need to be clear that we are discussing a vehicle versus a tank and this should be treated no different than gasoline cars.

**IX. Next Meeting** – Wednesday, July 1, 2020 at 2:00 PM US Eastern.