

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

**Wednesday, March 11, 2020  
TIME: 2:30 – 3:30 pm (Eastern Standard Time)**

**Minutes**

**Attendees**

**Connor Dolan  
Christina Daniels  
Eric Nelson  
Eric Prause  
Ian MacIntire  
Jennifer Gangi**

**Juana Williams  
Karen Quackenbush  
Kelvin Hecht  
Laura Hill  
Mark Duda  
Mark Richards**

**Mike Steele  
Morry Markowitz  
Nick Barilo  
Norman Newhouse  
Owen Hopkins  
Quailan Homann**

**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 agenda.
- The Committee approved the previous meeting minutes.

**II. DOE/HQ Update**

**Laura Hill**

The FOA is out. Concept papers were due on February 25 and the full deadline is April 20<sup>th</sup>. No new applications can be submitted that did not submit concept papers. We are currently in the review process now.

DOE Annual Merit Review – A number of events are being canceled in the past few weeks. DOE is continuing to monitor the situation and there are no changes to the status of the AMR at this time. Should you have any questions, there is a contact page available online.

If anyone has questions for the DOE program, please contact Laura Hill directly at [Laura.Hill@EE.Doe.Gov](mailto:Laura.Hill@EE.Doe.Gov).

**III. Codes & Standards Events and Fuel Cell Safety Information**

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

**Karen Quackenbush**

DOE Tech Team Meeting has been cancelled will be one day only meeting on the 25<sup>th</sup>.

ISO Working Group 21 – 28<sup>th</sup> and 29<sup>th</sup> April at FCHEA is being monitored. Travel restrictions may require postponing, canceling, or making it a web-based meeting. Stay tuned.

**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/>

#### V. Global Technical Regulations

Ian MacIntire

GTR 13 meeting in Tokyo was supposed to be last meeting but was cancelled.

There have been some emails going back on some of the task forces such as those creating a red line draft for the GTR 13 edits from Phase 2. Have not heard much following the cancellation of the meeting.

Next meeting is scheduled for Brussels on June 2<sup>nd</sup> through June 5<sup>th</sup>.

#### VI. Codes and Standards Organization Updates

##### International Electrotechnical Commission IEC TC 105

Kelvin Hecht

- Experts sought for new activities
  - Accelerated stress testing for SOFC and PEM
    - NWIP proposed by Italy
  - Railway Applications
    - Ad hoc committee proposed by China
      - United Technologies
      - DOE
  - Notebook Applications
    - Expand scope proposed by Korea
- Recent TAG Actions
  - Supported new drone activity
    - IEC 62282-4-600
    - Identified new experts
    - Coordinate with FAA
  - Comments on Forklift – Safety update
    - IEC 62282-4-101
    - Harmonization with UL 2267

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

Karen Quackenbush/Jay Keller

Karen Quackenbush – Last meeting discussed a number of WG planning meetings. Many of those are now being cancelled.

WG 19 – Dispensers was supposed to be held in May 14 and 15 was cancelled.

WG 27 and 28 on fuel quality are polling members to determine travel restrictions or concerns to cancel or hold web-based meeting.

WG 21 meeting last week in April in DC and will be making a similar decision.

We are currently waiting for a number of documents to come out as CD. Fueling stations general requirements is waiting for publication after unanimous vote.

Many things are being slowed down currently.

The 17268 document was also passed by vote and will be published.

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

**Chris LaFleur**

Chris LaFleur is currently out of the office. An alternate contact will be provided.

The NFPA 2 pre-first draft meeting will be held April 21<sup>st</sup> through 22<sup>nd</sup> in Albuquerque, New Mexico.

Bob Davidson – Do we need to start tracking hydrogen and electric vertical take off vehicles and other aviation applications? There is an NFPA document that explores helicopters and other methods of flight that will address alternative fuels. The document is NFPA 418. We need to consider if there is inclusion of necessary activities with NFPA 2 and provide guidance for other standards. Brian O'Connor is the staff member liaison on this topic and can be reached for more information.

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

**Spencer Quong**

Bob Davidson – Besides looking at the codes again, example the repair garages for hydrogen fuel cell vehicles ventilation requirements and performance options. Based on modeling done we do not need additional ventilation. In addition, we will be pursuing requirements for mobile fueling through a dual-track of NFPA 2 and the International Fire Code (IFC). The starting point will be the IFC.

The ICC will also be developing a work group dealing with vehicles and alternative fuels in general and how they deal with the fire code. This will determine what code is needed for different fuels.

## **CSA Group**

**Sara Marxen/Brent Hartman**

### **• Active Projects**

- HGV 4.9 *Hydrogen fueling stations*. All TC comments have been dispositioned. Expect to publish March 2020.
- HGV 4.1 *Hydrogen dispensing systems*. All TC comments have been dispositioned. Expect to publish March 2020.
- HGV 2 *Containers*. Content development continues.
- HPRD 1 *Thermally activated pressure relief devices*. Content development continues.
- HGV 4.4 *Breakaway valves* – Content development continues.
- HGV 4.6 *Manual valves* – See HGV 4.4.
- HGV 4.7 *Automatic valves* – See HGV 4.4.

- HGV 4.10 *Fittings* – Content development continues. Next meeting is March 24.
  - FC 1 *Stationary fuel cell power systems* – Content development for the adoption of IEC 62282-3-100 continues. Next meeting is March 5.
  - 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).
- **Projects Launching Soon**
    - HGV 4.3 *Fueling parameter evaluation* – Project Planning / Discussion meeting scheduled for March 10.
    - 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**
    - 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**

Mike Steele – Meetings are in June. The SAE Interface Task Force meetings will be moved to June 22<sup>nd</sup> and 23<sup>rd</sup>. The Safety Working Group meetings will be Monday through Thursday. These meetings will be held at the Honda facility in Torrance, California.

#### **Compressed Gas Association (CGA)**

**Rob Early**

Tabled to next month.

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

**Jennifer Hamilton**

Christina Daniels - On June 29<sup>th</sup> will host workshop in Washington, D.C. on hydrogen gas testing. Will have an agenda to share soon.

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

**Ray Rahaman**

ASME B31.12 committee chair has passed and the committee is now in process of looking for a new chair.

An errata was issued which can be found on the ASME committee errata page for a section that was omitted at print (editor/ printer error). A hard copy of this errata will be included with the standard upon purchase as well.

## **VII. Discussion Topics**

### **Facilitating Deployment**

**All**

No update at this time.

**Center for Hydrogen Safety**

**Nick Barilo**

We are in the final stages of producing and making publicly available five first responder training videos developed with the California Fuel Cell Partnership. We hope to have this available for viewing and taking a class through the AiChE academy. Hope to have those available at the end of May and will be updating the current academy training by the beginning of May. All of the training will be available for free with an account.

A hydrogen conference will be held in conjunction with the Solar Power International in Anaheim, California in September.

**Regulatory Matrix Review and Comment**

**Karen Quackenbush**

<http://www.fchea.org/s/FCHEA-Regulatory-Matrix-markup-Dec-31-2019.pdf>

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 – two stations hoping to have HyStep testing in March. Hope to have them online in the next month. Another station has testing in mid-April.

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

Christina Daniels – Testing is ongoing and no failures or issues.

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

**Juana Williams/Ralph Richter**

No report at this time.

**VIII.        Open Discussion & Other Issues**

**IX. Next Meeting – Wednesday, April 8<sup>th</sup> at 2:00 PM US Eastern.**