

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

**Wednesday, April 8, 2020
TIME: 2:00 – 3:00 pm (Eastern Standard Time)**

Minutes

Attendees

**Bill Chernicoff
Bob Boyd
Bob Davidson
Christina Daniels
Connor Dolan
Eric Prause
Ian MacIntire
Jay Keller
Jennifer Gangi**

**John Eihusen
Karen Quackenbush
Kelvin Hecht
Kevin Harris
Laura Hill
Mark Richards
Mike Steele
Morry Markowitz
Nick Barilo**

**Norman Newhouse
Owen Hopkins
Quailan Homann
Ray Rahaman
Rob Early
Sara Marxen
Spencer Quong**

I. Welcome and Housekeeping Items

- The Committee reviewed FCHEA's anti-trust guidelines. They are available on FCHEA's members only website and a copy can be provided to you on request.
- The Committee reviewed and approved the Agenda
- The Committee reviewed and approved the Minutes from the March 11, 2020 meeting.

II. DOE/HQ Update

Laura Hill

The Department of Energy Annual FCTO Merit Review meeting has been cancelled this year. If you are already registered you should have received a notice on how to be refunded for your registration costs. For those serving as reviewers, you should also have been notified that your services will not be needed this year. Once we have more information, we will share it with you, as well as posting on the AMR website.

The DOE FCTO FOA is still open. More information is available on the DOE EERE Exchange website.

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

We will ensure that when meetings that are cancelled or postponed are listed, as well as notify when meetings will be held via telecon / webinar. It is anticipated that many of these meetings will be held virtually for some time. This will be particularly tricky for international

meetings due to the vast differences in time zones. However attention will be given to try to spread the pain.

IV. FuelCellStandards.com

Kelvin Hecht / Karen Quackenbush

<http://fuelcellstandards.com/>

Continuing to update this webpage to keep things up to date. Many updates are continuing, particularly with China.

In March, FCHEA published a press release highlighting the website to raise awareness.

<http://www.fchea.org/s/Fuel-Cell-Standards-Launched.pdf>

V. Global Technical Regulations

Ian MacIntire

Had a meeting yesterday with the GTR 13 Phase 2 Task Force 0 – drafting task force identified at our December meeting in Stuttgart. We got all the contracting parties on a call for an hour and discussed the work plan for task force 0. We had previously listed out all of the items that would need drafting and divided the tasks up among members, primarily from industry. We gathered the contracting parties to gain approval of the drafting team, as well as determine if any would sign up for a drafting task. Now individual members can move forward with their drafting with the goal to later merge the sections into a single redline version of GTR 13.

VI. Codes and Standards Organization Updates

International Electrotechnical Commission IEC TC 105

Kelvin Hecht

No new information since our last meeting.

International Standards Organization ISO/TC 197

Karen Quackenbush/Jay Keller

Yesterday we received an announcement that what used to be WG 15 on stationary storage containers came out with a New Work Item Proposal from the US, proposing co-convenors from the US and Japan. FCHEA will be notifying our members with a poll to determine a potential position. We are looking for industry to weigh in on if they support this effort. John Eihusen, the proposed US convenor, Nobuhiro Yoshikawa from Japan will work collaboratively with John to form the leadership team, noted this effort is stationary for harmonization of requirements. We are seeking any experts who can communicate the needs for stationary storage and defining what ground storage needs to do.

The 19880-1 document that used to be WG 24 on gaseous hydrogen fueling stations general requirements has been published.

Another New Work Item Proposal will be coming out on heavy-duty fueling. More discussion on this is available from FCHEA's November 2019 Hydrogen and Fuel Cell Safety Report publication.

Jay Keller will also be leading a technical report revision for ISO TR 15916: *Basic considerations for the safety of hydrogen systems*, providing a compendium of useful information on table 1 on appendix c on materials compatibility.

National Fire Protection Association NFPA 2

Chris LaFleur

Karen Quackenbush – the NFPA 2 technical committee was planning its pre-first draft meeting later this month in New Mexico. This meeting was cancelled, and a report will be developed for task forces to review.

If you have identified any issues that should be worked on, you can submit proposals on your own or contact Karen to help develop code change language that can be submitted. Code change proposals are due by June 30th.

International Codes Council (ICC)

Spencer Quong

Bob Davidson – With meeting cancellations the Fire Code Action Committee will not meet this month and cancelled a meeting in June. A video conference call was held to get the process going and assign working group chairs. There are two work groups of interest. One is working on hydrogen mobile fueling (in sync with NFPA 2). A separate work group from energy storage systems on electric vehicles to modify the code to clarify where different vehicles belong, this will address a variety of vehicles including hydrogen, battery, and conventional fuels. They will be working to divide and fine tune efforts to identify where regulations for certain types of vehicles belong.

If anyone is interested in participating in these groups, please contact Beth Tubbs at ICC.

CSA Group

Sara Marxen/Brent Hartman

• Active Projects

- HGV 2 *Containers*. Content development continues.
- HPRD 1 *Thermally activated pressure relief devices*. Content development continues.
- HGV 4.4 *Breakaway valves* – Draft document is out for industry / public review. Industry Review closes 4/24/2020. Access by clicking here: <https://publicreview.csa.ca/Home/Details/3801>
- HGV 4.6 *Manual valves* – Content development continues, however TSC is being asked for guidance on development path.
- HGV 4.7 *Automatic valves* – Content development continues, however TSC is being asked for guidance on development path.
- HGV 4.10 *Fittings* – Content development continues.
- 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.

• 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*
- Call for participation for CNG and Hydrogen Vehicle System Leak Inspection - CSA will develop a “special publication” to address requirements and procedures for commissioning and in-service inspections. Anyone interested in participating, please contact mark.duda@csagroup.org.

- **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.

Bob Boyd - We would like to get HGV 4.1 and HGV 4.9 referenced in NFPA 2 this code cycle. HGV 4.1 is already referenced in the annex of NFPA 2 and we would like it to be a mandatory requirement.

Bob Davidson – We tend to be behind the code cycle with ICC and NFPA. Does it make sense to at least temporarily put them in the i-codes?

Bob Boyd – Not opposed to it. Would like to not have conflicting codes.

Karen Quackenbush – Just saw an announcement for a call for participation on CNG and hydrogen systems inspections, a special publication for commissioning and inspections. I am not sure who to recommend on this, but this is a bit of a different animal. How can folks interested get involved?

Sara Marxen – Steve Ellis from Honda identified interest.

John Eihusen – I think every tank manufacturer has inspectors. The process of inspections will need to be worked out.

Society of Automotive Engineers (SAE)

Mike Steele

The J2719 hydrogen quality document has been published.

Will likely hold a virtual meeting the week of June 22. Glenn has organized the safety group agenda already. We are working with SAE staff to ensure we have the IT capacity needed.

Compressed Gas Association (CGA)

Rob Early

We are still planning on doing our vent stack fire radiation testing to determine the real radiation levels are and potentially reduce setback distances.

Karen Quackenbush – Is CGA looking at NFPA 2, NFPA 55, or the i-codes? We would like to potentially coordinate our efforts between FCHEA and CGA if possible.

Rob Early – Yes, we would be happy to coordinate after the first set of comments come out.

American Society for Testing & Materials (ASTM)

Jennifer Hamilton

No updates at this time.

American Society of Mechanical Engineers (ASME)

Ray Rahaman

We are still in the process of looking for a new chair of the committee. Our first meeting was supposed to be held this week. We are working to reschedule for a teleconference.

VII. Discussion Topics

Facilitating Deployment

All

Center for Hydrogen Safety

Nick Barilo

Making major updates to national first responder training resources, should be available in early May. Also updating our online training. Producing videos for first responders as part of this effort, which will be presented as training courses.

Those courses also address findings and recommendations from the National Transportation Safety Board to update first responder training materials.

One of the videos has extensive discussion by Air Products of the Diamond Bar incident.

There was an incident yesterday in North Carolina with OneH2. The Center for Hydrogen Safety is working with its members to gain further information and understanding of the situation.

Regulatory Matrix Review and Comment

Karen Quackenbush

March 31, 2020 version is now out.

<http://www.fchea.org/s/FCHEA-Regulatory-Matrix-markup-Mar-31-2020-rev2.pdf>

Please direct any updates, questions, or comments to Karen Quackenbush by email at kquackenbush@fchea.org.

Permitting and Installation of Hydrogen Fueling Stations

California Station Implementation

Jennifer Hamilton

Christina Daniels – in the cities where people can still work the stations are remaining operational. The Bay Area stations that were in development are currently paused due to the stay at home order. Hydrogen stations in the state that were already open continue to be.

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

We are still open and operating as our division is designated as essential. ARB has deemed all overnight travel as non-essential, but there are no stations ready for HyStep testing ready today. Outside of San Francisco, there are no stations that are ready for HyStep testing and travel is restricted in that location.

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

Juana Williams/Ralph Richter

No update at this time.

VIII. Open Discussion & Other Issues

IX. Next Meeting – Wednesday, May 6 at 2:00 PM US Eastern.