

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

**Wednesday, July 10, 2019
TIME: 3:00 – 4:00 pm (Eastern Standard Time)**

Minutes

Attendees

**Christina Daniels
Connor Dolan
Ian MacIntire
Jennifer Hamilton
Juana Williams
Karen Quackenbush**

**Eric Prause
Greg Chirdon
Kevin Harris
Laura Hill
Morry Markowitz
Ray Rahaman**

**Sara Marxen
Shashi Kuppa
Stella Papasavva
John Eihusen**

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 meeting agenda was approved.
- The June meeting minutes were approved. Previous minutes are available online here - <http://www.hydrogenandfuelcellsafety.info/committee-resources>.

II. DOE/HQ Update

Laura Hill

Thank you to all reviewers at the DOE AMR. We are working through input provided now and appreciate your participation. We have had two FOAs close recently and are in the process of reviewing and making selections now. If you do not receive our newsletter, you can sign up for it on the Fuel Cell Technologies Office website online at <https://www.energy.gov/eere/fuelcells/subscribe-hydrogen-and-fuel-cells-news>.

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).

IV. Global Technical Regulations

Shashi Kuppa

Shashi Kuppa works within the rulemaking office of NHTSA and has been working on the GTR Working Group.

We are in the process of working through the Phase 1 GTR and are actively working through Phase 2.

We had a GTR WG meeting on March 5-7 and another one on June 18-20. Prior to that on June 3-6 we met in Torrance for an SAE meeting that was combined with some GTR activities.

The next meeting is in Stuttgart, Germany on November 5-7.

There has been quite a bit of progress, but there are some issues that we do not believe will be resolved by March 2020, so an extension will be requested for one year for Phase 2. Each country will need to approve this extension request.

We have developed a test procedure for the hydrogen containers. The previous test procedure had issues with reproducibility. The procedure in place is promising.

An issue was raised by industry at the recent meeting in California regarding ramp rate control failure. This requires further investigation and discussion.

V. Codes and Standards Organization Updates

International Electrotechnical Commission IEC TC 105

Kelvin Hecht

No update since last meeting.

International Standards Organization ISO/TC 197 **Karen Quackenbush/Jay Keller**

Karen – All documents moving to FDIS phase are moving along nicely. The editing committee is down to final touches prior to going out. ISO 19880-1 is the International Standard for Gaseous Hydrogen Fueling Station is through editing. Working to send to central Secretary as FDIS shortly. Others close include document on hoses and fuel quality.

If you would like to get involved, please contact Karen Quackenbush for more details at kquackenbush@fchea.org.

National Fire Protection Association NFPA 2

Carl Rivkin

Karen Quackenbush - NFPA 2 Edition 2020 was approved to be issued. The draft is available on the NFPA website.

NFPA 850 is out for ballot now. This deals with electrical building and life safety fire protection systems research and electrical generating plants.

International Codes Council ICC

Spencer Quong

Karen Quackenbush – The newest ICC codes have not been opened yet for next round of public comments. This group is primarily interested in the international fire and fuel gas codes.

CSA Group

Sara Marxen

- CSA Group hosted its annual general meeting in Ottawa, Canada the week of June 17th. Thank you to those who attended. The Hydrogen Transportation TC, and TSC meetings were held for HGV 4.3, HGV 4.9 and HGV 4.1.

- HGV 4.3 Fueling parameter evaluation standard passed the Technical Committee ballot in June and is expected to publish in the next few weeks. The next edition of HGV 4.3 will align with the upcoming publication of SAE J2601.
- HGV 4.1 Dispenser standard Industry Review closed. Comments are being dispositioned by the TSC currently.
- HGV 4.9 Station standard Industry Review closed. Comments are being dispositioned by the TSC currently.
- CHMC 2 Chemical compatibility (Non-Metals) passed the Technical Committee ballot and is being finalized for publishing.
- CSA Group's U.S. Committee Week is scheduled for October 27-30th in Cleveland, Ohio. A meeting schedule of the TSCs meeting will be available is being developed now and will be available soon.

Society of Automotive Engineers (SAE)

Mike Steele

Karen Quackenbush - J2719 Comment resolution is underway and harmonization with ISO is part of the goal.

John Eihusen – A lot of committee effort is getting ready to support informal working group for GTR 13. All of those presentations are downloadable / not under any kind of hold out since the contracting parties are governments (only ones that can vote during the meetings). Looking at repeatability during fire test, material evaluations, effects of moving from light duty vehicles to heavy duty vehicles, etc.

Compressed Gas Association (CGA)

Rob Early

Report provided at previous meeting.

American Society for Testing & Materials (ASTM)

Jennifer Hamilton

ASTM D7652 Standard Test Method for Determination of Trace Hydrogen Sulfide, Carbonyl Sulfide, Methyl Mercaptan, Carbon Disulfide and Total Sulfur in Hydrogen Fuel by Gas Chromatography and Sulfur Chemiluminescence Detection is going to ballot for withdrawal on the basis that only one lab uses this method and there is no technical contact to revise it, and not enough labs to do an ILS beyond a single point study. If a new technical lead steps up to take on the document then it can be revised. If it is withdrawn, it can still be used, but won't be supported by the D03.14 sub-committee. The committee will then need to revise ASTM D6228 Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection and ASTM D5504 Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence and cite them as 'modified' in SAE J2719.

Particulate samplings was discussed with NREL.

Two ILS that are happening / happened were for the Fourier Transform Infrared Spectroscopy (FTIR) and Cavity Ring Down Spectroscopy (CRDS). Those results will need a precision statement and be balloted. Hopefully will close soon.

It was proposed to have a proficiency test program for hydrogen as they do for other fuels. This ensures that labs are getting the same results with different testing to ensure confidence in testing. Otherwise, can highlight laboratory and address potential issues. Working with ASTM to determine how these tests work with other fuels. Have four labs for participation.

American Society of Mechanical Engineers (ASME)

John Bendo

Ray Rahaman – Ray recently took over the B3112 for ASME that Justin Wu was prior Secretary for. Will need to get in touch with John to determine where we currently are. We are expecting the hydrogen pipeline standard edition 2019 to be out by the end of the year.

John Eihusen – Starting to pick up questions on section 10 class 3 bottles which would be ground storage bottles for gaseous at 1000 bar. Need service life extension, PRDs, etc.

VI. Discussion Topics

Facilitating Deployment

Carl Rivkin

Jennifer Hamilton – In holding pattern due to recent events in California. The Office of Governor Go-Biz holds regular meetings for station status. There are stations that are ready to be opened.

With metering, the CA Division of Weights and Measures (DMS) has a proposed rulemaking to the CA Code of Regulations (CCR) Title 4, § 4002.9. Hydrogen Gas-Measuring Devices (3.39) to adopt the accuracy class 7.0 in the NIST handbook 44, as well as keep the accuracy classes 5.0 and 10.0, and drop the accuracy classes 2.0 and 3.0. This is due to not receiving any equipment that meets accuracy classes 2.0 and 3.0. CAFCP is working with some of its members to submit a comment to maintain the 2.0 and 3.0 accuracy classes and to sunset the 7.0 and 5.0.

Karen Quackenbush – A workshop was held in New Jersey in June on hydrogen safety, codes, and standards. This was well attended by New Jersey public officials and others.

Connor Dolan – A similar workshop was held in Baltimore, Maryland in the end of June.

Laura Hill – I attended the Maryland event hosted at the Maryland Energy Administration. It was well received.

Center for Hydrogen Safety

Nick Barillo

No update at this time.

Regulatory Matrix Review and Comment

Karen Quackenbush

The Committee reviewed the latest version of the Matrix (updated June 30, 2019).

<http://www.hydrogenandfuelcellsafety.info/s/FCHEA-Regulatory-Matrix-Markup-June-30-2019.pdf>

Please review this version of the Matrix and provide any updates to Karen Quackenbush at kquackenbush@fchea.org.

Permitting and Installation of Hydrogen Fueling Stations

California Station Implementation

Jennifer Hamilton

In holding pattern due to recent events in California. The Office of Governor Go-Biz holds regular meetings for station status. There are stations that are ready to be opened.

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

Christina Daniels – Rulemaking is still open for comments until July 16th at 5 PM. Discussed on the last call. The California Code of Regulations Title 4 Section 4002.9 on Hydrogen Gas Measuring Devices 3.9. This is available on our website.

Jennifer mentioned the proposed changes above on the accuracy classes for the gas measuring devices.

The sunset dates will be removed on the 5% at the end of this year. The 10% tolerance sunset date would not be removed (ended at the end of last year), but those already used could be grandfathered in.

A question was raised if California has issued new certificates for type approval. Christina responded they had not.

Legal Metrology Standards Hydrogen Fuel Quality and Measurement

Juana Williams/Ralph Richter

Juana Williams – A reminder that the National Conference on Weights and Measures is meeting next week. On the 15th, the item to make the hydrogen code permanent will be heard during the open hearing. On the 17th, it will be voted on by the members of the conference. Anyone planning on providing input, it would be the S&T Committee. Comments need to be submitted shortly.

VII. Open Discussion & Other Issues

No further updates at this time.

VIII. Next Meeting – Wednesday, August 7th at 3:00 PM