

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

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

Minutes

Attendees

**Andrea Lubawy
Antonio Ruiz
Connor Dolan
Cristina Daniels
Eric Prause
Ian MacIntire
Jennifer Gangi
Sara Marxen
Norman Newhouse**

**Juana Williams
Karen Quackenbush
Kelvin Hecht
Laura Hill
Mark Richards
Mike Steele
Morry Markowitz
Rob Early
Chris LaFleur**

**Nick Barillo
Owen Hopkins
Quailan Homann
Ray Rahaman
Jennifer Hamilton
Kevin Schnepf**

I. Welcome and Housekeeping Items

- 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. Approved
- The Committee approved the meeting minutes for August 2020. Approved

II. DOE/HQ Update

Laura Hill

No FY 2021 budget as of yet.

Both the Lab call and CRADA call mentioned on the last meeting have closed. We have not announced selections yet.

DOE headquarters is still in phase II of reopening with very limited access to the building.

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

Ian MacIntire

Task Forces are doing what they can remotely. Had a drafting Task Force meeting today and much of what was discussed was how we need a full informal working group meeting. Planning for a potential full IWG some time in the coming months.

V. Codes and Standards Organization Updates

International Electrotechnical Commission IEC TC 105

Kelvin Hecht

The US National Committee is planning on hosting the IEC general meeting in 2022 in San Francisco, CA. In the past TC 105 has been the host when the US IEC is the host for the general meeting. It has been ten years, the last one was in Seattle.

Generally, the national committee asks for sponsors to help defray costs. I am limited in my exposure to the industry being retired to determine where sponsorship funding may come from.

The US and Canada were originally looking to host the IEC TC 105 meeting this year and ran into similar issues.

CSA will coordinate with Kelvin on this.

Karen Quackenbush – current review opportunity for IEC 62282 Part 1 and Part 2 documents available.

International Standards Organization ISO/TC 197

Karen Quackenbush/Jay Keller

The ballot for refueling station fittings, ISO 19880-6, closed. It was a Committee Draft and ultimately the document passed the ballot, however there were 40+ pages of comments. They are considering going to a second Committee Draft as some of the comments were on the scope of the piece. Some of the countries that voted to disapprove were companies very integral to these technologies but were not participating in the Working Group activities.

We anticipate that this will move to CD 2 even though the document could technically progress onto a Draft International Standard.

Jay Keller – US TAG approved the heavy-duty NWIP that has been discussed for some time. We are excited that this is moving on.

National Fire Protection Association NFPA 2

Chris LaFleur

Got the PIs for the NFPA 2 staff liaison. There were 200+ comments received during the public input period. We are working to go through the comments and organize for the first draft meeting. The first meeting is scheduled to take 8 days, each with five or six hours. The goal is to take much less time. The meetings will start on October 19th and run Monday through Thursday that week and the following week. The time will be five or six hours that East and West coast overlap (8 AM PST to 2 PM PST // 11 AM EST to 5 PM EST).

This will be a Teams meeting and most of the comments will be assigned to currently active task groups who will make draft motions in preparation for the meeting which will be presented to the Committee for discussion and vote. Having those draft motions made will speed up the process. The task groups will also prepare potential rejection text to have available in case the motions are rejected.

International Codes Council (ICC)

Spencer Quong

Nothing to report at this time.

CSA Group

Sara Marxen/Brent Hartman

• Active Projects

- **CSA HGV 4.4 TSC Breakaway Devices and Valves** – continues to work on an adoption of ISO 19880-3 (*Valves Standard*) with North American Deviations. Draft document is out for industry/public review. Public Review closes. Access by clicking here: <https://publicreview.csa.ca/Home/Details/3894>. Next meeting of the TSC is scheduled for September 15.
- **HGV 4.10 TSC Fittings** – Public Review period closed late June. All comments have been dispositioned by the TSC. Document is currently at Technical Committee Ballot.
- **HGV 2 Containers** – Draft document is out for industry / public review. Public Review closed late July. Next meeting of the TSC is scheduled for September 10 to continue to review comments.
- **HPRD 1 Thermally activated pressure relief devices** – Content development is completed. Expect draft document for Industry/Public Review posted soon.
- **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. Next meeting of the TSC is scheduled for September 8, 2020.
- **HGV 4.2 Hoses for compressed hydrogen fueling dispensing** – A project kickoff meeting was held in late July. Next meeting of the TSC is scheduled for September 9, 2020.
- **FC 1 Stationary fuel cell power systems** – is currently out for public review. Review closes 9/22, and can be accessed by clicking the link: <https://publicreview.csa.ca/Home/Details/3911>. 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 5.X** – *Hydrogen Refueling Appliances*
- **HGV 3.1** – *Fuel system components for compressed hydrogen gas powered vehicles*

Society of Automotive Engineers (SAE)

Mike Steele

Task Force	Document	Title	Date	Status
Interface	J2600_201510	Compressed Hydrogen Surface Vehicle Fueling Connection Devices	21-Oct-15	Revised - Action required
Interface	TIR J2601/4	Ambient Temperature Refueling		Being developed

Interface	TIR J3219	Hydrogen Fuel Quality Screening Test of Chemicals for Fuel Cell Vehicle		Being developed
Interface	J2601/2_201409	Fueling Protocol for Gaseous Hydrogen Powered Heavy Duty Vehicles	24-Sep-14	Issued - Action Required
Interface	J2601/3_201306	Fueling Protocol for Gaseous Hydrogen Powered Industrial Trucks	12-Jun-13	Issued - Action Required

Fuel Economy	TIR J3202			Being developed
Fuel Economy	J2572_201410	Recommended Practice for Measuring Fuel Consumption and Range of Fuel Cell and Hybrid Fuel Cell Vehicles Fuelled by Compressed Gaseous Hydrogen	16-Oct-14	Revised - Action required

Safety	J1766_201401	Recommended Practice for Electric, Fuel Cell and Hybrid Electric Vehicle Crash Integrity Testing	10-Jan-14	Revised - Action required
Safety	J2578_201408	Recommended Practice for General Fuel Cell Vehicle Safety	26-Aug-14	Revised - Action required

Compressed Gas Association (CGA)

Rob Early

Status of current and future publications:

Standard	Current edition	Status
CGA G-5, <i>Hydrogen</i>	8 th (2017)	Deadline to submit proposed changes for next edition is 7/7/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-019
CGA G-5.3, <i>Commodity specification for hydrogen</i>	7 th (2017)	Deadline to submit proposed changes for next edition is 6/4/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-013
CGA G-5.4, <i>Standard for hydrogen piping systems at user locations</i>	6 th (2019)	Deadline to submit proposed changes for next edition is 12/22/2024. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-54
CGA G-5.5, <i>Hydrogen vent systems</i>	3 rd (2014)	Next step for 4 th edition is review by CGA Standards Council. Heat radiation testing will take place late October at Chart Industries in New Prague, MN.

Standard	Current edition	Status
CGA G-5.6, <i>Hydrogen pipeline systems</i>	1 st (2005 – reaffirmed 2013)	Deadline to submit proposed changes for next edition is 8/1/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=19-018
CGA H-1, <i>Service conditions for portable, reversible metal hydride systems</i>	2 nd (2011)	Deadline to submit proposed changes for next edition is 2/3/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-033
CGA H-2, <i>Guideline for classification and labeling of hydrogen storage systems with hydrogen absorbed in reversible metal hydrides</i>	2 nd (2018)	Deadline to submit proposed changes for next edition is 6/4/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-012
CGA H-3, <i>Standard for cryogenic hydrogen storage</i>	3 rd (2019)	Deadline to submit proposed changes for next edition is 12/1/2023. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-036
CGA H-4, <i>Terminology associated with hydrogen fuel technologies</i>	3 rd (2020)	Deadline to submit proposed changes for next edition is 12/1/2024. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-59
ANSI/CGA H-5, <i>Standard for bulk hydrogen supply systems</i>	2 nd (2014)	The 3 rd edition has been approved by CGA Standards Council. The next step is circulation for public comments because this is an ANSI standard. The deadline for public comments was August 11, 2020.
CGA H-10, <i>Combustion safety for steam reformer operation</i>	2 nd (2018)	Deadline to submit proposed changes for next edition is 12/1/2023. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-038
CGA H-11, <i>Safe start-up and shutdown practices for steam reformers</i>	2 nd (2020)	Deadline to submit proposed changes for next edition is 8/11/2025. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-30
CGA H-12, <i>Mechanical integrity of syngas outlet systems</i>	1 st (2016)	Deadline to submit proposed changes for next edition is 3/1/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=21-016
CGA H-13, <i>Hydrogen pressure swing adsorber (PSA) mechanical integrity requirements</i>	1 st (2017)	Deadline to submit proposed changes for next edition is 8/1/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-027

Standard	Current edition	Status
CGA H-14, <i>HYCO plant gas leak detection and response practices</i>	1 st (2018)	Deadline to submit proposed changes for next edition is 12/8/2023. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-045
CGA H-15, <i>Safe catalyst handling in HYCO plants</i>	1 st (2020)	Deadline to submit proposed changes for next edition is 9/1/2025. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-59
CGA H-XXX (TBD), <i>Small scale hydrogen production and delivery</i>	New publication not released yet	Task force is creating first draft that will then go to the CGA membership for review.
CGA P-28, <i>OSHA process safety management and EPA risk management plan guidance document for bulk liquid hydrogen supply systems</i>	4 th (2014)	The draft of the 5 th edition is in staff review before going to Standards Council for final review.
CGA PS-31, <i>Position statement on cleanliness for proton exchange membranes hydrogen piping / components</i>	1 st (2007 – reaffirmed 2019)	Deadline to submit proposed changes for next edition is 6/12/2025. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-16
CGA PS-33, <i>Position statement on the use of LPG or propane tanks as compressed hydrogen storage buffers</i>	1 st (2008 – reaffirmed 2020)	Deadline to submit proposed changes for next edition is 12/10/2026. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-41
CGA PS-46, <i>Position statement on roofs over hydrogen storage systems</i>	1 st (2017)	Deadline to submit proposed changes for next edition is 3/6/2023. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-012
CGA P-48, <i>Position statement on clarification of existing hydrogen setback distances and development of new hydrogen setback distances in NFPA 55</i>	1 st (2016)	Deadline to submit proposed changes for next edition is 2/12/2021. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=21-062

D7652 has a new technical contact, but it has actually been withdrawn due to being unable to complete an interlaboratory study. The document will now come back to ballot with a new work item number.

American Society of Mechanical Engineers (ASME)

Ray Rahaman

B31.12 hydrogen pipelines and piping committee - Upcoming meeting on September 17th from 1:00 to 5:00 PM Eastern. Will discuss revitalization of the group. Have elected a new chair. Currently seeking a new vice chair from the participants.

VI. Discussion Topics

Facilitating Deployment

All

Jay Keller – Should you have any codes and standards gaps or other issues that should be raised, please share with us at FCHEA.

DOE has a Request for Information out now also seeking input on R&D priorities, as well as what is needed as far as safety, codes, and standards.

Center for Hydrogen Safety

Nick Barilo

Upcoming conference in Europe – the timing should allow participation for folks on the United States East Coast. There are presentation spots still available should you be interested.

Regulatory Matrix Review and Comment

Karen Quackenbush

The June 30, 2020 matrix is available (included in meeting notice).

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

The CAFCP held a recent stations update at the end of August.

There are some new stations that should be opening soon once hystep testing is completed.

We are still waiting for the latest GFO awards for new hydrogen stations to be announced.

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

Continue to support fuel quality testing. Just tested last week a new particulate sampling apparatus that we plan to purchase and use at the end of this year. We received a few comments from the manufacturer of the device and are seeing about making a few changes.

Testing of stations metering is continuing.

Kevin Schnepf – continued samplings and testing to confirm fuel quality is ongoing. There may be some additional type approvals in the near-future. We are working with the station operators to conduct ongoing annual maintenance testing.

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

Juana Williams/Ralph Richter

No report at this time.

FYI - European hydrogen vehicle metrology project just launched -

<https://metrology.news/metrology-for-hydrogen-vehicles-project-launched/>

VII. Open Discussion & Other Issues

VIII. Next Meeting – Wednesday, October 14th at 2:00 PM US Eastern