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

Wednesday, July 1, 2020
TIME: 2:00 – 3:00 pm (Eastern Standard Time)

Minutes

Attendees

Connor Dolan	**Karen Quackenbush**	**Owen Hopkins**
Kelvin Hecht	**Christine Watson**	**Sejal Patel**
Rob Early	**Quailan Homann**	**Juana Williams**
Spencer Quong	**Eric Prause**	**Jennifer Gangi**
Nick Barilo	**Eric Nelson**	**Sara Marxen**
Jay Keller	**Greg Chirdon**	**Rob Early**
Laura Hill	**Ian MacIntire**	**Chris LaFleur**
Morry Markowitz	**Mark Richards**	

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 minutes.

II. DOE/HQ Update — Laura Hill

The Office is now the Hydrogen and Fuel Cell Technologies Office. Please update your references and names accordingly.

The DOE AMR slides are now available online here - https://www.hydrogen.energy.gov/annual_review20_proceedings.html.

Recent Funding Announcements – A lab call went out last week. Today a Request for Proposals on H2@Scale was released.

https://www.energy.gov/eere/articles/doe-announces-request-proposals-h2scale

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).

Jay Keller – Have an online conference / webinar (Research Priorities Workshop RPW2020) to add on for October.

The Center for Hydrogen Safety US and European conferences held in October the week before the RPW2020) will be online virtually over three days. Please send us links / information as available.

IV. Global Technical Regulations — Ian MacIntire

There was a GTR Co-sponsors meeting (webex) on June 4th. Some significant issues were discussed including:

- Heavy vehicle sled test
- TPRD venting direction for hydrogen containers
- Receptacle design for fueling
- Burst pressure requirement for carbon fiber containers
- Materials compatibility requirements for GTR-13

No decisions were made on any of these items. Was an opportunity to state positions and discuss these topics.

The leader of task force 3 which is revising all test procedures and requirements of the GTR will be holding a webex meeting in July to resolve some small outstanding items that are under that scope. There are some more significant issues as well.

Jay Keller - For the fire test, went into with two defined methodologies, one of which had some concerns raised on a recent meeting. We are working to combine these two methods together and Glenn Scheffler is taking the lead on that. Language should be available soon.

We are working to ensure that the fire test can be enforced as an FMVSS test. The motivation is from NHTSA.

V. Codes and Standards Organization Updates

International Electrotechnical Commission IEC TC 105 — Kelvin Hecht

<u>IEC 62282-7-2</u>

- *Test methods – Single cell and stack performance tests for solid oxide fuel cells*
  - Approved to proceed to FDIS as an update of the 2014 edition

<u>IEC 62282-6-100</u>

- *Micro fuel cell power systems - Safety*
  - Announced ready to proceed with next edition as a General Requirements document with specific documents for various fuels
    - IEC 62282-6-101 General Requirements
    - IEC 62282-6-106 Indirect Class 8 (corrosive) compounds
    - IEC 62282-6-107 Indirect water-reactive (Division 4.3) compounds

<u>IEC 62282-3-201</u>

- *Stationary fuel cell power systems – Performance test methods for small fuel cell power systems*
  - Posted a CD a 2nd edition for Amendment 1 to include a new test suggested by WG#14 (Life Cycle Assessment)
  -

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

ISO 19880-1 was published in March. The other activities are now moving forward much faster. Compressors has new experts coming on board.

The -5 on hoses and hose assemblies was supposed to have a short amendment based on the plenary discussion in November. That has not happened yet. The WG is working on a full revision.

We expect a package of changes so far and markup to go live in July for circulation and suggestion for further modification.

The fittings document (based on CSA seed document) has moved on the CD stage and is being circulated for vote.

Stationary tanks and repurposing them for regulation environment is an activity that has been going on for some time. We are restarting that activity with a brand new NWIP and leadership. That is making its way through the ISO process.

There is another project on electrolyzers that is making its way through the process with no negative comments so far.

The last one is the high flow rate NWIP. We have had some strategic conversations with leadership and several stakeholders. We believe we will be moving that NWIP forward.

National Fire Protection Association NFPA 2 Chris LaFleur

Yesterday was the deadline for submission of NFPA 2 and NFPA 55 public inputs.

Monday morning there were over 212 public inputs submitted. Possible that the number could have doubled by the end.

The Committee will parse through all of the PIs submitted and set dates for the first draft meeting.

The first draft meeting will be virtual as a series of multi-hour meetings.

If people submitted PIs or material that is extracted for NFPA 55 or other sections, those PIs would also be shown to the Committee that "owns" those areas. This would either extract, exchange, or diverge the source material.

Anyone anywhere can participate in the task group. Please let me know if you are interested in participation.

International Codes Council (ICC) Spencer Quong

The fire code action committee which deals with detailed discussions of proposals is continuing to meet in preparation for the ICC / IFC and other submissions.

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. Next meeting of the TSC is scheduled for July 7, 2020. Expect draft document for Industry/Public Review posted by end of July.
- HGV 4.10 TSC *Fittings* – Public review closed late June. Next meeting of the TSC is scheduled for July 9, 2020.
- 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 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 July 15, 2020.
- HGV 4.2, *Hoses for compressed hydrogen fueling dispensing* – A project kickoff meeting is scheduled for July 21, 2020.
- 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. Next meeting is scheduled for July 20, 2020 and will discuss a new action item for IEC 62282-4-600 - *Fuel cell power systems for propulsion other than road vehicles and auxiliary power units (APU) - Fuel cell and battery hybrid power pack systems performance test methods for excavators*.

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**

SAE had meetings on June 22 and 23rd. the Monday call was mostly J2600 and 2219 issues – proposal to come up with screening process for use in dispensers. Second day was J2601-4 which just completed voting process and received many comments. Bi-weekly meetings will be starting next week to go through those comments. We are scheduled to have our next meetings the week of October which will likely be held by phone.

Compressed Gas Association (CGA) **Rob Early**

Standard	Current edition	Status
CGA G-5, *Hydrogen*	8th (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, *Commodity specification for hydrogen*	7th (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, *Standard for hydrogen piping systems at user locations*	6th (2019)	Deadline to submit proposed changes for next edition is 12/22/2024. No link for proposed changes in place yet.
CGA G-5.5, *Hydrogen vent systems*	3rd (2014)	Next step for 4th edition is review by CGA Standards Council. Heat radiation testing will take place late October at Chart Industries in New Prague, MN.
CGA H-1, *Service conditions for portable, reversible metal hydride systems*	2nd (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, *Guideline for classification and labeling of hydrogen storage systems with hydrogen absorbed in reversible metal hydrides*	2nd (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, *Standard for cryogenic hydrogen storage*	3rd (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, *Terminology associated with hydrogen fuel technologies*	3rd (2020)	Deadline to submit proposed changes for next edition is 12/1/2024. No link for proposed changes in place yet.
ANSI/CGA H-5, *Standard for bulk hydrogen supply systems*	2nd (2014)	The 3rd edition has been approved by CGA Standards Council. The next step is circulation for public comments because this is an ANSI standard. CGA will provide the details for public review once ANSI starts the process.
CGA P-28, *OSHA process safety management and EPA risk management plan guidance document for bulk liquid hydrogen supply systems*	4th (2014)	Next step for 5th edition is review by CGA Standards Council.
CGA H-XXX (TBD), *Small scale hydrogen production and delivery*	New publication not released yet	Task force is creating first draft that will then go to the CGA membership for review.

Have all of these documents been determined they will be updated? Yes, they will be updated if there are any proposed changes either external or internal.

When an ANSI publication goes out for update, it goes out to the public as well. This one had a balanced committee on public and CGA members.

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

No updates at this time.

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

No updates at this time.

VI. Discussion Topics

Facilitating Deployment **All**

No updates at this time.

Center for Hydrogen Safety **Nick Barilo**

Some updates to the training material available online. There are four new video courses with questions. There is updated online awareness training and train the trainers training.

We also addressed issues from the NWSB report on Diamond Bar in these materials

Online First Responder Awareness Training - https://www.aiche.org/academy/courses/ela253/introduction-hydrogen-safety-first-responders

First Responder Micro Learning Plan – https://www.aiche.org/academy/courses/elp001/chs-first-responders-micro-training-learning-plan

First Responder Training Template (for Trainers) - https://h2tools.org/sites/default/files/2020-06/HFC_ER_Training_June_2020.pptx

There is a new working group focused on introducing hydrogen into natural gas pipelines that we will be taking up later this year.

Regulatory Matrix Review and Comment **Karen Quackenbush**

A new edition of FCHEA's Regulatory Affairs Matrix was published June 30, 2020. This edition depicts progress of codes, standards, and regulations in development to support deployment of fuel cells and hydrogen energy technologies.

(Connor, please include link to the June 30 edition here.)

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**

No updates at this time.

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

No updates at this time.

Legal Metrology Standards Hydrogen Fuel Quality and Measurement **Juana Williams/Ralph Richter**

No updates at this time.

VII. Open Discussion & Other Issues

No updates at this time.

VIII. Next Meeting – Wednesday, August 5 at 2:00 PM US Eastern