



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

**Wednesday, August 5, 2015
TIME: 3:00 – 4:30 pm (Eastern Daylight Time)**

Minutes

Attendees

**Alice Muna
Bob Boyd
Connor Dolan
Jackie Birdsall
Jay Keller
Julie Weis**

**Karen Hall
Kevin Schnepf
Livio Gambone
Nick Barilo
Norman Newhouse
Robert Davidson**

**Sara Marxen
Sondra Ullman
Steven Yip
Will James
William Collins**

I. Welcome and Housekeeping Items

- Review FCHEA's anti-trust guidelines - Available on FCHEA's members only website
- Review the meeting agenda
- Approve the July draft meeting minutes

II. DOE/HQ Update

Will James

Thanks Laura for calling into last month's meeting.

Appreciate everyone who was a reviewer at the AMR. It is valuable to the community and DOE. Always looking for new reviewers, if interested contact Will.

The reviewer comments are received and DOE is generating the yearly Annual Merit Review report. Will likely be published slightly after the fiscal year budget this year. Also generating yearly progress report, normally published just before the Fuel Cell Seminar.

III. C&S Events and Fuel Cell Safety Information

http://www.fuelcellstandards.com/calendar_new.html

Kelvin Hecht

<http://www.hydrogenandfuelcellsafety.info/meetings.asp>

Karen Hall

October 12-16	TC197 WG#24 – ISO 19880-1 Gaseous Hydrogen Fueling Stations Japan
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Now meeting the week of October 26th.

Also a WG 15 meeting of ground storage of hydrogen the last week of September

ICC annual meeting starting September 22 – 26.

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

IV. Global Technical Regulations

Nha Nguyen

No update at this time.

V. Codes and Standards Organization Updates

IEC TC 105

Kelvin Hecht

Is there any information published on the upcoming plenary meeting?

There is something on the IEC 105 website.

ISO TC 197

Jill Thompson

A number of WG meetings and plenary sessions are announced.

Just seeing the request to provide comment and review the WG 24 document (Fueling Station).

Jay Keller – Recognize Jesse Schneider, Guy Dang-nhu and Nick Hart for their outstanding efforts. They hit the send button on July 30th as promised.. Hopeful going through TR before IS will expedite the process to IS.

Jay Keller – Thank Jackie Birdsall for all her work and support in organization the plenary coming up on November 30th.

NFPA 2

Martin Gresho / Susan Bershad

Karen Hall - NFPA 2 – Not much to report. Waiting on specific dates for the first round meeting. Already looking through what has to be done in the next round.

ICC

Bob Davidson

This is the cycle for the International fire Code. Other items relating to hydrogen are all scoped to the other fire code committee.

One item going in is clean up of ventilation requirements. Conflict between fuel gas code and mechanical code. Going in to address with one comprehensive fix within the committee. Will point to NFPA 2 for the hydrogen use.

Another WG out of Fire Action Committee on energy storage systems. When they look at ESA and their work with DOE, fuel cell energy storage systems get picked up in that broader category. Last call with that group was yesterday. Discussed fuel cell systems. Correlating that activity with that of NFPA 2.

Jay Keller – attended the CHBC meeting this past week which focused on hydrogen energy storage. The draft white paper was distributed internally for comment. When available for

general distribution Jay will make sure this community stays informed. May be a little early for the RCS activities discussed.

Bill Collins – A little confused. Is this an electrolyzer / fuel cell set-up? Yes and no. Would that fall under NFPA 853? That is included. Also includes references to the I-code.

Bob Boyd –NFPA 2 should be available the 28th of August.

PNNL (Nick Barilo) is working with the CaFCP to develop an outreach event at the ICC Annual Meeting at the end of September. H2USA will be participating as well. Outreach / education session will be held on Tuesday the 29th, exhibits will be open to the public on 27th and 28th.

CSA

Sara Marxen

Provided presentation – www.fchea.org/s/CSA-Group-Update-2015-08-05.pdf.

SAE

Mike Steele / Tim McGuire

Bill Collins - J2600 is going through 14 day affirmation ballot to correct some typos. Other than that should be published in one week.

ASTM

Tommy Rockward

(Written update provided following the meeting on 8/6)

My apologies for missing the call, it overlapped with LANL's Fuel Cell Short Course. Below is a thorough update of ASTM activities.

The D03.14. Gaseous Fuels: Hydrogen and Fuel Cells recently held their semi-annual meeting June 23 and 24th in Fort Lauderdale, FL. Below are highlights that capture on-going efforts within ASTM.

A Hydrogen Fuel Quality Workshop was discussed and Dan Bartel, Raul Dominquez, and Tommy Rockward agreed to establish the agenda and identify speakers. They are also responsible for determining the Workshop venue either being Austin, TX or Bellevue, WA. Addressed 'Comments/Negatives' made during the balloting process. There are currently two Work Items that received Negatives.

a. Test Method For Determination of Total Organic Halides, Total Non-Methane Hydrocarbons and Formaldehyde in Hydrogen Fuel by Gas Chromatography (GC) and Mass Spectrometry (MS)

Technical Contact: Hsu, J P

JP provide an acceptable explanation to Raul's question and agreed to Roy's editorial changes

b. WK48876 NEW STANDARD 02 Test Method For Standard Test Method for the Determination of Hydrogen Weight Dispensed from Hydrogen Fueling Station

Technical Contact: Hsu, J P

JP addressed all of the negatives; the standard will be reviewed and re-balloted

c. WK37092 REVISION of D7675 Test Method form Test Method for the Determination of Total Hydrocarbons in Hydrogen by FID Based Total Hydrocarbon (THC) Analyzer

Technical Contact: Frisch, Richard F

Richard agreed to revise the wording in the test method to clarify that the total hydrocarbon is measured on a C1 basis (methane) before re-balloting (7/24 sub-ballot and 10/24 main ballot)

In addition to resolving 'Comments/Negatives', volunteers for the standards requiring review were identified (**Volunteer**). Here we list the current standards under review and volunteer:

D7550-2009 Test Method For Determination of Ammonium, Alkali and Alkaline Earth Metals in Hydrogen and Other Cell Feed Gases by Ion Chromatography

Raul Dominquez

D7634-2010 Test Method for Visualizing Particulate Sizes and Morphology of Particles Contained in Hydrogen Fuel by Microscopy

JP Hsu

D7649-2010 Test Method for Determination of Trace Carbon Dioxide, Argon, Nitrogen, Oxygen and Water in Hydrogen Fuel by Jet Pulse Injection and Gas Chromatography/Mass Spectrometer Analysis

JP Hsu

D7651-2010 Test Method for Gravimetric Measurement of Particulate Concentration of Hydrogen Fuel

JP Hsu

D7653-2010 Test Method for Determination of Trace Gaseous Contaminants in Hydrogen Fuel by Fourier Transform Infrared (FTIR) Spectroscopy

Barbara Marshik-Geurts

D7606-2011 Practice for Sampling of High Pressure Hydrogen and Related Fuel Cell Feed Gases

Julie Lee

D7652-2011 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

JP Hsu

D7675-2011 Test Method for the Determination of Total Hydrocarbons in Hydrogen by FID Based Total Hydrocarbon (THC) Analyzer

JP Hsu

At this meeting, we also hosted several presentations and ILS requests. There was a presentation made by Jessie Schneider (BMW-USA) and Martine Carre (Air Liquide). They presented on ISO activities and requested harmonizing the analytical methods for gaseous fuel quality. We have set-up a conference call on August 31st.

Also, Julie Lee, from UC-Irvine, presented on H2 cartridge study: NH₃ and Formaldehyde. She successfully measured low levels of NH₃ and Formaldehyde and indicated that the detection limit can be lowered with inert-tubing. And finally, Florian Adler discussed Cavity Ring-Down Spectroscopy and the need for test sites. He extended his request to the international presenters (ISO members) for additional labs to participate in their Inter-Laboratory Study (ILS).

ASME

John Grimes

Bill Collins - Piping code meeting next month in Chicago. Next edition of B31.12 (31.3 and 31.1 are also meeting). Also working on the non-metallics code book.

VI. Discussion Topics

Facilitating Deployment

Carl Rivkin

ICC meeting activities are coming up as discussed by Nick Barilo.

CaFCP meetings are going on this week – stakeholders / owners / AHJs.

H₂USA Activities

Karen Hall

Market Support WG meeting on July 15th. Presentation Task Force / Rapid Response Task Force \ and Fact Sheet Task Force developed.

Locations Roadmap WG met on July 13th. Developing both a regional and national FCEV deployment plan.

Investment and Finance WG met on July 16. Continuing to pursue investor outreach program and financial analysis tools.

Hydrogen Fueling Station WG met on July 14. Working on maintenance document and cost and utilization modeling.

H2FIRST

NREL/SNL

Will James – H2FIRST has been quite other than the hystep subgroup – prepping arrival to NREL, will go through testing for ~6-8 weeks. At that point, device should be ready to ship to California.

Regulatory Matrix Review and Comment

Karen Hall

The latest version of the Regulatory Affairs Matrix is available online at <http://www.fchea.org/s/FCHEA-Regulatory-Matrix-May-22-2015.pdf>. Comments can be submitted to Karen Hall at khall@fchea.org.

VII. Permitting and Installation of Hydrogen Fueling Stations

Ca Station Implementation

Jennifer Hamilton

Jennifer Hamilton / Carl Rivin are participating in a key activity today. Will report back on the next meeting.

Bob Boyd - In last seven days, at least three stations have concluded the permitting process and have authorization to construct. Exciting time.

(Written report provided on 8/6 following the meeting)

Carl, Susan Bershada, Spencer and I presented to AHJ's at a permitting workshop at Cerritos College on Aug 5.

It was another successful event, with many AHJs who currently have projects in their jurisdictions. I presented on basics of hydrogen, vehicles, and stations along with California status and background (ZEV Reg, AB 8 funding, etc.) Carl covered C&S in the IFC/CFC for stations, and touched on NFPA 2 while Susan presented on NFPA 2 highlighting some changes from the 2011-2016 versions, and specifically talked about the performance based chapter (5). Spencer talked about repair garages, the CFC (2013 and 2017) and what Toyota is doing at their dealerships. Carl also talked about the good work happening at the labs to help feed into future code cycles, improve station up time, etc.

We are sharing some insights from that meeting with the Station Operator's group today.

Additionally, I did a Train the Trainer on the National Hydrogen and Fuel Cells First Responder program on the 4th.

Ca DMS Fuel Quality / Metrology

Kevin Schnepf

Contacted by a station developer for an initial verification at a dispenser. Dispensers in LA are type approved by DMS. DMS is the only group that can perform this activity. LA County weights and measured observed the testing. LA County gave official seal of type listing.

Two additional hydrogen dispenser types going through type evaluation. If successful, will have four dispenser design types to be deployed in California.

Fuel Quality – many interested stakeholders contacting us regarding concern / desire to have greater frequency of fuel quality testing oversight. Sensitivity of these vehicles to impurity is much higher than gas vehicles. Normal enforcement testing does random testing and complaint testing. Do not normally do routine monitoring. A nightmare of concern is to have multiple stations with impurity issues.

Karen Hall – ISO TC 197 does have many of these conversations. Not an easy nut to crack. Two ISO TC 197 NWIP's have been drafted to address fuel purity and fuel quality assurance issues.

Bob Boyd – Would like to see DMS have a bunch of cars and be able to drive cars out to get a full fill at a station, drive the car to a test facility, defuel the car and see what is in the tank. That would be a long-term plan of sampling the stations without others knowing and getting the fuel. That would be model as a consumer.

Kevin Schnepf – In traditional fuel vehicles, that is something that we do. We have ability to test currently, but needs an operator for an override. Have to coordinate with the stations.

Jackie Birdsall – Thank you for the work. When you said stations are required to have fuel quality tested at the start and again every 6 months. Is DMS doing that or through a third operator?

Kevin Schnepf - It is strictly through the operator. We do random testing and complaint testing. If a station has a complaint and fails, the station is taken offline. We have done sampling / testing – more for R&D and training purposes. Prior to sale, we do not do that. It is outside of our regulatory oversight capabilities.

HGV 4.3

Jesse Schneider

Spencer Quong – Text is all done. Committee is finalizing edits / comments. Should go out for full ballot soon. Will have series of tests to determine if station meets J2601.

Legal Metrology Standards Hydrogen Fuel Quality and Measurement

Juana Williams

No update at this time.

VIII. Open Discussion & Other Issues

Next meeting – Wednesday, September 2 at 3:00 PM Eastern.