

MINUTES OF THE APRIL 2008 TELECONFERENCE OF THE NATIONAL HYDROGEN AND FUEL CELLS CODES & STANDARDS COORDINATING COMMITTEE

MEETING DATE: April 9, 2008

MEETING TIME: 1:00 – 2:30 PM (MST)

FACILITATOR: Sondra Ullman, Plug Power

1.0 MEETING PARTICIPANTS

Russ began the meeting by welcoming everyone and conducting the roll call. The Coordinating Committee is a collaborative activity of DOE, the National Hydrogen Association (NHA), the US Fuel Cell Council (USFCC) and NREL.

[Teleconference meeting participants](#) (92Kb PDF)

Russ announced that Ian Sutherland of General Motors would be joining the Committee. Ian is a member of the DOE Hydrogen Safety Panel and the GM FreedomCar Codes & Standards Tech Team. Unfortunately, he was on business travel during March's meeting.

2.0 REVIEW OF USFCC ANTITRUST GUIDELINES

USFCC members were asked by Sondra Ullman to be mindful of the anti-trust guidelines, which can be found on the USFCC members' website, as well as an attachment to the minutes of past meetings.

[Antitrust Guidelines](#) (27Kb PDF)

3.0 REVIEW OF/CORRECTIONS TO DRAFT MINUTES FROM PRIOR TELECONFERENCE MEETINGS

The draft Minutes of the March 5th teleconference meeting were approved without additions or corrections. They will become "final" and submitted for posting on the [NHA Hydrogen and Fuel Cell Safety](#) website.

4.0 OPPORTUNITY FOR DOE/HQ REPRESENTATIVE TO PROVIDE LATEST INFORMATION ON WHAT'S GOING ON AT DOE

Antonio Ruiz reported that nothing much had changed at DOE/HQ since the last time he reported.

With respect to the proposed budget of \$12.5 million for the Safety, Codes and Standards Subprogram for FY09, Antonio doesn't expect the Congress to act on it in a timely manner, since this is an election year. He expects that initially, the DOE programs will be funded by continuing resolutions. DOE is preparing for alternative scenarios.

As he mentioned in his last report, for FY09, the Subprogram is being moved into the Vehicle Technologies Program., as well as the Technology Validation and Hydrogen Applications Subprograms.

The DOE Hydrogen Program in general and the Safety and Codes and Standards Subprogram in particular are looking for opportunities for collaboration with other entities in the US and other countries with respect to codes and standards. Efforts are in progress to work collaboratively with Japan. Antonio will travel to Japan at the end of the month – the trip to address better collaboration with respect to codes and standards, regulations and safety R&D.

In addition, the Subprogram will be meeting with NASA representatives to discuss NASA's experience with liquid hydrogen handling technology.

5.0 REPORT ON CALIFORNIA HYDROGEN FUELS PROJECT'S EFFORTS TO DEVELOP A CALIFORNIA-SPECIFIC HYDROGEN FUEL QUALITY STANDARD

John Mough (California Department of Food and Agriculture/Division of Measurement Standards (DMS)) reported on the status of development of the California hydrogen fuel quality regulation for public fueling stations.

The last 15-day comments period for the draft regulation ended and the final version was completed by making minor corrections to the last draft. The regulation has been submitted to the Secretary of State for signature and is expected to be published within the next two months.

The regulation will be posted on the following website: <http://www.cdfa.ca.gov/dms/hydrogenfuel/HydrogenFuelRegulations.pdf>

6.0 REPORT ON THE CALIFORNIA FUELS PROJECT'S EFFORTS TO DEVELOP A CALIFORNIA-SPECIFIC HYDROGEN FUEL DISPENSER STANDARD

John Mough briefly reported on this activity in Norm Ingram's and Gary Castro's unavailability. Norm is working with Juana Williams of NIST on dispenser issues.

DMS plans to conduct a field survey to determine what specifications can be met and measured in the field. Gary was at a meeting working on the issue. Norman and Julie Cairns are also working collaboratively.

Hopefully, an update will be provided for the May teleconference meeting of the Coordinating Committee.

7.0 REPORT ON THE DOE/NREL/NASFM/CAFPI "HFS AND TELECOMMUNICATIONS" WORKSHOP

Jim Ohi and Russ Hewett reported on the Hydrogen Fueling Station and Hydrogen-Fuel-Cells-for-Telecommunications Permitting Workshop conducted collaboratively by DOE, NREL, the National Association of State Fire Marshals (NASFM) and the California Fire Prevention Institute (CaFPI). The workshop was conducted on March 12 – 13 in conjunction with CaFPI's 2008 Annual Workshop held in Buelton, CA.

This workshop was the first of several planned regional workshops to address the critical issue of facilitating the timely and cost-efficient permitting of hydrogen fueling stations (HFS) – to facilitate the introduction of hydrogen-powered vehicles in the US as they are introduced by the automotive industry. However, one of the applications of hydrogen being introduced into the marketplace currently is hydrogen-powered fuel cells for providing backup power for telecommunications. Consequently, the workshop also addressed facilitating the permitting process for telecommunication applications.

The objective of the workshops is to obtain the input of key state and local fire and building code officials having roles in the permitting process regarding how the permitting process for HFS and for telecommunications applications should work and be made more timely and cost-effective for both code officials, HFS project developers and telecommunication project developers. In addition, the objective is to give the participants the opportunity to articulate their recommendations regarding: (i) changes to existing codes and standards to facilitate permitting; and (ii) new safety requirements.

The workshop participants were approximately 40 invited fire marshals, fire safety officials and building code officials from the Southern California area. They are recognized as being "leaders" by their peers. (There was the attempt to have the workshop be "half-and-half" in terms of the mix of fire safety and building code officials). In addition, there were several representatives from the telecommunications, automotive and fuel cell industries (e.g., Sprint, Plug Power, General Motors, ReliOn, Black&Veatch, etc.).

The agenda for the workshop, as well as reports on how the workshop was conducted and the results, are documented in the attached Trip Report by Russ Hewett:

- [Russ Hewett's report](#) (154Kb PDF)

The "showcase" feature of the workshop was organizing the participants into breakout groups and giving each the task of reviewing two "case studies" of HFS and telecommunications projects that have been permitted or are likely to be proposed in the near term. Each case study included layouts of a HFS or a telecommunications project that incorporated a specific hydrogen delivery and storage option. Each breakout group attempted to reach consensus on how existing codes can be applied to permit each such project. A summary of the results from the work of the breakout groups is provided in the Trip Report.

Jim thanked Shell Hydrogen, Plug Power and others for providing the detailed site plans used in the breakout group sessions.

There was very good interaction between the permitting officials and the industry representatives. NREL and DOE will be working to maintain the momentum in getting input and feedback from permitting officials regarding what is needed to facilitate the permitting of HFS and telecommunications projects.

When the Proceedings from the workshop are generated, they will be posted on the NHA website.

This workshop was the first of several regional workshops. The others will be conducted in regions in which HFS and/or telecommunication projects are being planned and where industry sees the need.

8.0 REPORT ON THE DOE/NREL "HYDROGEN FUELING STATION CODES AND STANDARDS" WEBSITE AND THE "HYDROGEN FUELING STATION PERMITTING PROCESS" MODULE IN THE WEBSITE

Jim Ohi and Russ Hewett reported on the newly-developed DOE/NREL "*Hydrogen Fueling Station Permitting Codes and Standards*" website designed primarily for permitting officials and project developers. The address is: http://www.hydrogen.energy.gov/fueling_stations

The website was created in response to feedback from the first *HFS Permitting Workshop* that DOE and NREL held in Sacramento, CA in February 2006.

The website is intended to provide a unique resource for building code, fire marshals, fire safety and other local/state officials involved in the permitting of: (i) hydrogen dispensing equipment in existing vehicular fueling stations that dispense gasoline and diesel fuel; and (ii) new retail multi-fuel fueling stations with hydrogen to be one of the fuels dispensed. The website, when fully developed, will be a "one stop" repository /data base relating to hydrogen fueling stations and other applications, and include case studies, technical information regarding hydrogen systems appropriate for permitting officials, database of applicable codes and standards citations, etc.

The website also includes the *Hydrogen Fueling Station Permitting Process Module* which is a tool for taking permitting officials step-by-step through all the issues involved in the complete permitting of a fueling station.

A unique feature that will be incorporated into the *Module* is, when the permitting official looks at the specific safety requirements for specific HFS systems and items of equipment, in addition to the references being given (e.g., ICC IFC requirements for underground storage liquid hydrogen storage tanks, etc.), the website will include the actual text of the requirements as given in the documents.

NREL has established a license agreement with ICC giving NREL and DOE permission to use direct citations from the applicable documents. NREL is in the process of establishing a similar agreement with NFPA. NREL will seek to establish similar license agreements with other CDOs and SDOs that are involved in generating hydrogen-related safety requirements (e.g., ASME, CGA, etc.).

NREL has initiated an activity to develop a "*Hydrogen Fuel-Cells-for-Backup-Power for Telecommunications Projects Permitting Process*" website similar to the website for HFS permitting. Current plans call for it to be available by the end of June.

9.0 DOE/NREL/NASFM/NHA/USFCC "HFS AND FUEL-CELLS- FOR-BACKUP-POWER

FOR TELECOMMUNICATIONS PERMITTING” WORKSHOP PLANNED FOR NY CITY/NEW YORK STATE/NEW JERSEY OFFICIALS IN MAY

Jim Ohi reported on the planning for the next regional permitting workshop – the “*HFS and Fuel-Cells-for-Backup-Power for Telecommunications Permitting*” Workshop to be conducted on May 15 – 16 in Teaneck, NJ. The target audiences for the workshop are fire safety, fire marshals and permitting officials in New York City, New York State and New Jersey.

The agenda for this workshop will be similar to the one conducted in March in Buelton, CA (see Section 7.0 above), but will be “beefed up” by providing more information on the hydrogen and fuel cell technologies, as recommended by the participants in the Buelton workshop. Also, the workshop will address safety issues relating to refueling/re-supplying hydrogen fuel to telecommunication project sites. In addition, USFCC and NHA will be co-sponsoring the workshop with DOE and NREL.

NREL established a steering committee consisting of hydrogen and fuel cell industry personnel to help plan the workshop. Initial planning for the new workshop was begun at the Buelton workshop. Planning was continued on March 31 in Sacramento at the NHA 2008 Annual Hydrogen Conference.

Plans call for conducting two additional regional workshops after the one in New Jersey:

- Workshop in northern California
- Workshop in the Detroit area or the Southeast (probably in Florida).

The specific sites will be determined using industry input regarding regions that need to be covered.

10.0 REPORT ON HYDROGEN INDUSTRY PANEL ON CODES (HIPOC) ACTIVITIES

Since neither Tom Joseph (chairman of HIPOC) nor Darren Meyers (ICC facilitator) was available to participate in the meeting, there was no report on HIPOC activities.

11.0 REPORT ON NFPA ACTIVITIES

Paul May, the new NFPA staff liaison for NFPA 52, 55 and 853, gave a brief status report on upcoming meetings relating to generating the next editions of NFPA 52 and 55:

- NFPA 52: the next meeting of the technical committee will be held May 6-7 in Las Vegas to address reports on comments
- NFPA 55: the next meeting of the technical committee will be held April 16-17 in San Antonio to address reports on comments

The next meeting of the full technical committee for NFPA 2 (Hydrogen Technologies Code) will be June 26-27 at NREL in Golden, CO.

Hank Seiff asked whether or not the meeting of the NFPA 52 technical committee would address the work on hydrogen blends. It was not clear, as the meeting would address public comments.

12.0 MICHIGAN’S STATE-WIDE PROCESS FOR PERMITTING HYDROGEN-FUEL PROJECTS

Subbing for Andrea Zajak, Marcia Jo Poxson (State of Michigan, Senior Environmental Engineer) gave a status report on Michigan’s plan for implementing state-wide rules for the permitting of projects involving use of hydrogen as a fuel. This includes both hydrogen fueling station and telecommunications projects involving use of hydrogen.

The package of rules was filed with the state legislature for approval on February 27, 2008 by the Michigan

Department of Environmental Quality. The rules are expected to be approved on or about April 24th and will become effective in early May.

- [Michigan Rules document](#) (342Kb PDF)

13.0 EPORT ON IEC/TC105 ACTIVITIES AND DOCUMENTS IN THE "COMMENTS" STAGE

- [Kelvin Hecht's report on IEC/TC105 activities](#) (107Kb PDF)

The report also includes March statistics on usage of the Hydrogen and Fuel Cells Codes and Standards Matrix and Database website. The address for the website is: www.fuelcellstandards.com.

14. REPORT ON ISO/TC197 ACTIVITIES AND DOCUMENTS IN THE "COMMENTS" STAGE

- [Debbie Angerman's report on ISO/TC197 activities](#) (110Kb PDF)

Debbie highlighted the meeting of Working Group10 that will be held April 15-16 at the U.S. Fuel Cell Council offices in Washington DC. It will address comments from the vote of ISO/DIS 16111 -*Transportable gas storage devices—Hydrogen absorbed in reversible metal hydride*. Ned Stetson (DOE/HQ) is convener.

15.0 OPPORTUNITY FOR CDOs AND SDOs TO REPORT ON THEIR ACTIVITIES

15.1 ISO/TC 197 WG12 (Hydrogen Fuel – Product Specification)

Jim Ohi reported on WG12 activities. The WG met on April 1st for a meeting that focused on the testing, data requirements and modeling needed to move *ISO/TS 14687-2:2008 (Hydrogen fuel – Product specification –Part 2: Proton exchange membrane (PEM) fuel cell applications for road vehicles)* from a technical specification to a draft international standard. In order to do so, the following list of "action items" was identified:

1. Completion of the critical testing
2. Completing development and validation of analytical methods
3. Development of test methods to allow standardized testing by any commercial laboratory

There was good participation in the meeting – with representatives from industry, the national laboratories, universities, the European Union, Japan and Korea. At the meeting, the participants passed a resolution stating that they would be willing to go to the committee draft stage in the development of the international standard when the above-mentioned critical issues have been addressed.

A Data Reporting Format has been developed for taking test measurements. This will provide for reporting testing results in a common format, regardless of where the testing was done. WG12 plans to make the Data Reporting Format available to IEC/TC105 WG11 (*Fuel cell technologies: Single Cell Test Methods for Polymer Electrolyte Fuel Cell*)

15.2 National Institute of Standards and Technology (NIST) Report

- [Juana Williams' report on NIST activities](#) (77Kb PDF)

15.3 Report on NHA 2008 Annual Hydrogen Conference and Expo

Karen Hall reported on NHA's *2008 Annual Hydrogen Conference and Expo*. The NHA is pleased with the results of the 2008 Annual Conference, held March 30 – April 3 in Sacramento, CA. There were over 1000 participants, representing 30 countries, plus an additional 200 visitors for Public Day.

In addition to the technical sessions on safety, codes and standards, there was: (i) a panel discussion that described the amazing progress made in the development of hydrogen vehicle standards; and (ii) a workshop by CGA. Also, there was a meeting to continue the planning for the workshop to be held in the NY City area in May (see Section 9.0 above). NHA was thrilled to have a Plug Power fuel cell powering the conference registration desk. In fact, there were an unprecedented number of live demonstrations in the exhibition hall, owing to a lot of good communication between industry and permitting officials. There were 90+ exhibitors and 20 hydrogen vehicles for test drives provided by 10 manufacturers: General Motors, Honda, Daimler, Nissan, Volkswagen, Toyota, BMW, Ford, Hyundai and AC Transit.

The 2009 annual conference will be held March 30 – April 3 in Columbia, SC.

15.4 SAE Activities

Mike Steele reported that the SAE Safety Working Group will have its next series of meetings during the period May 19 – 22.

SAE J2719 (Information Report on the Development of a Hydrogen Quality Guideline for Fuel Cell Vehicles), which was successfully balloted, is undergoing editing by SAE staff and will be published in a couple of weeks.

15.5 Underwriters Laboratories

While UL did not give a report, Russ Hewett asked about the status of the draft standard *UL 2266 (Standard for Fuel Cell Power Systems for Use with Telecommunications Equipment and Facilities)*.

Harry Jones, subbing for Laurie Florence, was not aware of the status of the document and referred Russ to Laurie.

16.0 NEXT MEETING

The next meeting will be a teleconference meeting as follows:

- DATE: May 14th (Second Wednesday)
- TIME: 3:00 – 4:30 pm EST

Many Coordinating Committee participants will be attending the May meeting of the technical committee for NFPA 52. Consequently, it was agreed to have the meeting on the second Wednesday, rather than the first.