

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

**Wednesday, March 1, 2023  
TIME: 2:00 PM EDT**

**Minutes**

**Attendees**

**Bob Boyd  
Christina Daniels  
Connor Dolan  
Rob Early  
John Eihusen  
Mark Fasel  
Jennifer Gangi  
Tobias Hanson  
Laura Hill  
Shinichi Hirano**

**Owen Hopkins  
Jay Keller  
Chris LaFleur  
Ian MacIntire  
Sara Marxen  
Norm Newhouse  
Haboon Osmond  
Eric Prause  
Karen Quackenbush  
Jessica Robertson**

**Amy Ryan  
Matt Sigler  
Mike Steele  
Svetlana Ulemek  
Christine Watson  
Juana Williams  
Frank Wolak  
Yuk Wong**

**I. Welcome and Housekeeping Items**

- a. The NHFCSCC reviewed FCHEA's anti-trust guidelines, approved previous minutes, and approved the meeting agenda.

**II. DOE/HQ Update**

**Christine Watson**

- Phase I SBIR on Hydrogen Leak Quantification Technologies for Environmental Monitoring closed for applications
- HFTO's Annual Merit Review, June 5-8, hybrid meeting. Virtual registration is free. In-person reviewer registration is also free.
  - AMR registration: <https://www.annualmeritreview.energy.gov/registration.html>
  - 2022 AMR Proceedings: DOE Hydrogen Program: 2022 Annual Merit Review Proceedings : DOE Hydrogen Program (energy.gov)
- Mission Innovation Clean Hydrogen Mission Workshop on Hydrogen Detection Technology for Safety - March 17, 2023, 7:30pm – 2:40am US EST / 9:30am – 4:40pm JST
  - Tokyo, Japan – contact Christine Watson for in-person registration
  - Online registration:  
<https://gaiax.webex.com/weblink/register/r61594cc945a78a73d0fb5c50ef73cc1f>

**III. Codes & Standards Events and Fuel Cell Safety Information**

**Karen Quackenbush**

- Calendar of events: <https://www.hydrogenandfuelcellsafety.info/safety-report-calendar>

- Any committee members who have materials they would like hosted on the website can send them to Karen Quackenbush ([kquackenbush@fchea.org](mailto:kquackenbush@fchea.org)) or Haboon Osmond ([hosmond@fchea.org](mailto:hosmond@fchea.org)).

#### IV. Global Technical Regulations

Ian MacIntire

- GTR 13 Phrase 2 may be voted on by WP 29 at the June meeting.

#### V. Codes and Standards Organization Updates

##### Institute of Electrical and Electronics Engineers

Mark Siira

- Kickoff meeting of Subgroup #8 of the IEEE P1547 Working Group, which will be focused on power quality topics in the revision of IEEE Std 1547-2018 will be held on Monday, Jan 9 2023 at 11:00 AM - 12:00 PM (UTC-05:00) Eastern Time (US & Canada)
  - The meeting will include participant policies & procedures, refinement of the subgroup scope, a review of the power quality topics in the existing IEEE 1547, and a roundtable focused on participant feedback of what should be revised.
- Registration is now open for the IEEE P1547 Revision & P1547.10, April 4-6, 2023 WG meetings. This 1st Full WG meeting will be Hybrid with an in-person and remote option offer. The meeting will be held in Houston, TX, and will be hosted by Burns & McDonnell. The Host facility address is the following: 1700 West Loop South, Suite 1500, Houston TX 77027. The following link will take you directly to the registration site: <https://events.bizzabo.com/460121>

##### International Electrotechnical Commission IEC TC 105

Kelvin Hecht

- TC 105 submitted a letter to TC 197 expressing concern with its intention to establish a new subcommittee on “Hydrogen at Scale and Horizontal Energy System” to include combined heat and power, cooking and heating appliance.
  - TC105 is requesting coordination to avoid overlapping responsibilities
- TC 105 posted Committee Drafts for:
  - IEC 62282-3-200 3<sup>rd</sup> edition *Stationary Fuel Cell Power Systems – Performance*
  - IEC 62282-3-201 3<sup>rd</sup> edition *Stationary Fuel Cell Power Systems – Performance for Small Power Systems*
- TC 105 Plenary will meet in Paris, France, from November 16<sup>th</sup> to November 17<sup>th</sup>

##### International Standards Organization ISO/TC 197

Karen Quackenbush

- WG 24 and 5 will meet in Phoenix, Arizona, from March 7<sup>th</sup> to March 10<sup>th</sup>
- WG 27, 28, and 33 will meet on June 13<sup>th</sup> and 14<sup>th</sup> in Oslo, Norway
- TC 197 and SC 1 Plenary will meet in Vienna, Austria, from November 13<sup>th</sup> to November 17<sup>th</sup>

##### National Fire Protection Association NFPA 2

Chris LaFleur

- The 2023 edition of NFPA 2 is available. It is open for public input until January 4, 2024.

##### International Codes Council (ICC)

Matt Sigler/Mark Fasel

- ICC has recently received approval to start its Hydrogen Fuel Gas WG, which will work on updating codes for the 2027 edition of its international codes.

- ICC has multiple hydrogen codes (e.g., the fire, building, fuel gas, mechanical, and international residential codes). The task of the WG is to review those code requirements.
- If any committee members are interested in participating in the WG, please contact Mark Fasel ([mfasel@iccsafe.org](mailto:mfasel@iccsafe.org))
- The WG will meet twice monthly. The goal is to have any proposed revisions to the 2027 edition of the code completed and approved by the code action committee by November 2023.

**Society of Automotive Engineers (SAE)**

**Mike Steele**

<i>Task Force</i>	<i>Document</i>	<i>*</i>	<i>Title</i>	<i>Date</i>	<i>Status</i>
<b>Interface</b>	J2600_201510	S	Compressed Hydrogen Surface Vehicle Fueling Connection Devices	21-Oct-15	Being revised in conjunction with ISO 17268
<b>Interface</b>	J2601_202005	S	Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles	29-May-20	Being revised
<b>Interface</b>	J2601/2_201409	TIR	Fueling Protocol for Gaseous Hydrogen Powered Heavy Duty Vehicles	24-Sep-14	Discussing Stabilization of content
<b>Interface</b>	J2601/4	TIR	Ambient Temperature Refueling	21-Nov-16	Being developed. Anticipate voting on draft 1Q23.
<b>Interface</b>	J2601/5	TIR	MC Formula High Flow General (MCF-HF-G) <i>(title may change)</i>	1-Jul-22	Draft posted
<b>Safety</b>	J1766_201401	RP	Recommended Practice for Electric, Fuel Cell and Hybrid Electric Vehicle Crash Integrity Testing	10-Jan-14	Revised - Action required. Awaiting GTR 13 Phase 2
<b>Safety</b>	J2990/1_201606	RP	Gaseous Hydrogen and Fuel Cell Vehicle First and Second Responder Recommended Practice	3-Jun-16	WIP - draft posted
<b>Fuel Economy</b>	J3202	RP	Recommended Practice for Measuring and Simulating Fuel Consumption and Range of Heavy Duty Fuel Cell Hybrid Road Vehicles Fueled by Compressed Gaseous Hydrogen	25-Apr-19	Being developed. No draft posted
<b>Fuel Economy</b>	J2572_201410	RP	Recommended Practice for Measuring Fuel Consumption and Range of Fuel Cell and Hybrid Fuel Cell Vehicles Fuelled by Compressed Gaseous Hydrogen	16-Oct-14	Needs affirmation ballot of existing content

Active Projects		
TSC	Designation/Title	Status
HGV 5	HGV 5.2, Compact hydrogen fueling systems	This project is to develop a NEW standard for Compact Hydrogen Fueling Systems (HGV 5.2). Working with the TC and TSC Chairs to disposition. Meeting will be planned with TSC to discuss.
HGV 5	HGV 5.1, Residential hydrogen fuelling appliances	This project is to develop a NEW standard for Residential fueling appliances. Project was kicked off in October. Content development continues.
HGV 2	HGV 2, Compressed hydrogen gas vehicle fuel containers	This project is a revision of an existing standard. The draft will go to ballot in March.
HGV 4.1	HGV 4.5, Priority and sequencing equipment for hydrogen vehicle fueling	This project is to develop a standard to REINSTATE an updated edition of a Priority and Sequencing standard. The document has been sent out for public review with a closing date of March 27. The TSC plans to meet in late March to discuss the comments received. <a href="https://publicreview.csa.ca/Home/Details/4855">https://publicreview.csa.ca/Home/Details/4855</a>
HGV 4.3	HGV 4.3, Test methods for hydrogen fueling parameter evaluation	This project is a revision of an existing standard. A Task Force was put together to develop text to transition from a testing standard to a standard that can be used for certification. The TSC will proceed with this project and discuss lower boundary prior to publication.
B22734	Hydrogen generators using water electrolysis	The first edition has been published.
B107	Enclosed Hydrogen Equipment	Work has begun on a new standard that will address safety requirements related to hydrogen equipment use inside an enclosure. Contact Mark Duda ( <a href="mailto:mark.duda@csagroup.org">mark.duda@csagroup.org</a> ) with questions or for additional information.
SPE-701	SPE-701 – Hydrogen fuel storage containers for aviation applications	The project is to develop a new document for requirements and recommendations for the material, design, manufacture, marking, and testing of serially produced, refillable hydrogen fuel storage containers intended only for the storage of compressed hydrogen gas or liquid hydrogen fuel for aviation applications. Contact Mark Duda ( <a href="mailto:mark.duda@csagroup.org">mark.duda@csagroup.org</a> ) with questions or for additional information.

*Updates from last month's report are highlighted.*

Status of current and future publications:

Standard	Current edition	Status
CGA G-5, <i>Hydrogen</i>	8 <sup>th</sup> (2017)	The ANS committee has resolved all propose changes, and the update is moving through the ANSI review process. For updates on the work item progress see <a href="https://portal.cganet.com/WorkItem/Details.aspx?id=22-019">https://portal.cganet.com/WorkItem/Details.aspx?id=22-019</a>
CGA G-5.3, <i>Commodity specification for hydrogen</i>	7 <sup>th</sup> (2017)	Deadline to submit proposed changes for next edition is 5/1/2023. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-013">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-013</a>
CGA G-5.4, <i>Standard for hydrogen piping systems at user locations</i>	6 <sup>th</sup> (2019)	Deadline to submit proposed changes for next edition is 12/22/2024. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-54">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-54</a>
CGA G-5.5, <i>Hydrogen vent systems</i>	3 <sup>rd</sup> (2014)	The 5 <sup>th</sup> edition has been published and can be found at <a href="https://portal.cganet.com/Publication/Details.aspx?id=G-5.5">https://portal.cganet.com/Publication/Details.aspx?id=G-5.5</a> Deadline to submit proposed changes for next edition is 03/04/2026. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=26-3">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=26-3</a> Heat radiation testing at Chart Industries in New Prague, MN date is ongoing. The goal is for the task force to review test results as soon as they are completed.
CGA G-5.6, <i>Hydrogen pipeline systems</i>	1 <sup>st</sup> (2005 – reaffirmed 2013)	Deadline to submit proposed changes for next edition is 8/1/2023. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=19-018">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=19-018</a>
CGA H-3, <i>Standard for cryogenic hydrogen storage</i>	3 <sup>rd</sup> (2019)	The ANS committee has resolved all the proposed changes, including a request to add flow arrows to the flow diagrams. The publication is now moving through the ANSI review process. For updates use the following link: <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-036">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-036</a>

<b>Standard</b>	<b>Current edition</b>	<b>Status</b>
CGA H-4, <i>Terminology associated with hydrogen fuel technologies</i>	3 <sup>rd</sup> (2020)	Deadline to submit proposed changes for next edition is 12/1/2024. However, all the content has been added to the updated version of CGA G-5. Once CGA G-5 has been issued, CGA H-4 will be retired. For updates use the following link: <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-59">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-59</a>
ANSI/CGA H-5, <i>Standard for bulk hydrogen supply systems</i>	3 <sup>rd</sup> (2020)	The deadline to submit proposed changes for the next edition is 2/26/2024. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-010">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-010</a>
CGA H-10, <i>Combustion safety for steam reformer operation</i>	2 <sup>nd</sup> (2018)	Deadline to submit proposed changes for next edition is 12/1/2023. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-038">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-038</a>
CGA H-11, <i>Safe start-up and shutdown practices for steam reformers</i>	2 <sup>nd</sup> (2020)	Deadline to submit proposed changes for next edition is 8/11/2025. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-30">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-30</a>
CGA H-12, <i>Mechanical integrity of syngas outlet systems</i>	1 <sup>st</sup> (2016)	Deadline to submit proposed changes for next edition is 3/1/2023. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=21-016">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=21-016</a>
CGA H-13, <i>Hydrogen pressure swing adsorber (PSA) mechanical integrity requirements</i>	1 <sup>st</sup> (2017)	Deadline to submit proposed changes for next edition is 11/12/2022. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-027">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-027</a>
CGA H-14, <i>HYCO plant gas leak detection and response practices</i>	1 <sup>st</sup> (2018)	Deadline to submit proposed changes for next edition is 12/8/2023. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-045">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-045</a>
CGA H-15, <i>Safe catalyst handling in HYCO plants</i>	1 <sup>st</sup> (2020)	Deadline to submit proposed changes for next edition is 9/1/2025. <a href="https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-59">https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-59</a>
CGA H-17, <i>Small scale hydrogen production and delivery</i>	New publication not released yet	Task force has created the first draft that is out for proposed changes; the deadline to submit proposed changes is 12/15/2022. <a href="https://portal.cganet.com/WorkItem/Details.aspx?id=18-093">https://portal.cganet.com/WorkItem/Details.aspx?id=18-093</a>
CGA P-28, <i>OSHA process safety management and EPA risk management</i>	5 <sup>th</sup> (2022)	Deadline to submit proposed changes for next edition is 08/01/2027

<b>Standard</b>	<b>Current edition</b>	<b>Status</b>
<i>plan guidance document for bulk liquid hydrogen supply systems</i>		<a href="https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=25-49">https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=25-49</a>
CGA PS-31, <i>Position statement on cleanliness for proton exchange membranes hydrogen piping / components</i>	1 <sup>st</sup> (2007 – reaffirmed 2019)	Deadline to submit proposed changes for next edition is 6/12/2025. <a href="https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=25-16">https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=25-16</a>
CGA PS-33, <i>Position statement on the use of LPG or propane tanks as compressed hydrogen storage buffers</i>	1 <sup>st</sup> (2008 – reaffirmed 2020)	Deadline to submit proposed changes for next edition is 12/10/2026. <a href="https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=25-41">https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=25-41</a>
CGA PS-46, <i>Position statement on roofs over hydrogen storage systems</i>	1 <sup>st</sup> (2017)	Deadline to submit proposed changes for next edition is 3/6/2023. <a href="https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=23-012">https://portal.cganet.com/Publication/Workspac e/Outline.aspx?work_id=23-012</a>
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 <sup>st</sup> (2016)	Deadline to submit proposed changes for next edition was 2/12/2021. Standard has been on hold until NFPA 2:2023 has been issued. Now that NFPA 2:2023 has been issued, work will restart on updates to PS-48 to point to NFPA 2 for hydrogen. The ad hoc committee will meet to resolve the changes and move the updated version along for publication. For updates see the link below: <a href="https://portal.cganet.com/WorkItem/Details.aspx?id=21-062">https://portal.cganet.com/WorkItem/Details.aspx?id=21-062</a>
PS-69, <i>Liquid Hydrogen Supply Systems Separation Distances</i>	1 <sup>st</sup> (2022)	CGA has developed a position statement pointing users to the new liquid hydrogen system distances in NFPA 2:2023. The position statement covers the process of requesting a variance to use the numbers from the NFPA 2 section of the NFPA web site. PS-69 is free for downloading at <a href="https://www.cganet.com/wp-content/uploads/PS-69_1.pdf">https://www.cganet.com/wp-content/uploads/PS-69_1.pdf</a>
CGA work item 21-127, <i>Transfer and unloading of hydrogen at near-consumer use points</i>	New publication not released yet	Develop a new standard to update traditional hydrogen delivery practices for industrial users to improve practices for retail applications.
CGA work item 21-128, <i>Noise from hydrogen</i>	New publication not released yet	Develop a new standard to reduce the noise from hydrogen system operations, including venting, particularly at retail applications where

Standard	Current edition	Status
<i>venting and hydrogen systems operations</i>		hydrogen system noise is greater than ambient noise. The task force held a meeting November 1 and is working on developing content for the publication.
CGA work item 22-107, <i>Hydrogen system best practices</i>	New publication not released yet	Develop a new standard to capture recommended best practices for handling hydrogen, filling containers, starting up systems, maintaining hydrogen systems, and similar topics to ensure safe practices for those new to the hydrogen space and to share best practices with those already experienced with hydrogen. Planned date for the first draft is March 2023. The task force has met several times to collect and organize best practices from members. Two more web conferences are scheduled before a face-to-face meeting March 14-16 at CGA headquarters.
CGA work item 22-116, <i>Hydrogen separation distances</i>	New publication not released yet	CGA is developing a globally harmonized standard on the methodology for developing separation distances between hydrogen systems and exposures. The standard will provide details on mitigation techniques for reducing required distances, particularly in near-consumer locations (such as vehicular fueling) where room is limited. The goal is to have the standard released in 2023.

### Upcoming events:

CGA is working on a hydrogen seminar in November 2023 with support from CGA members and partners. More details and a call for papers will be out soon.

CGA has established a new hydrogen membership category for those interested in hydrogen activities and not the whole range of industrial gases. The new membership category has a lower fee structure. More details can be found at <https://www.cganet.com/cga-announces-formation-of-hydrogen-membership/>. Those who are interested are encouraged to review the material at the CGA web site and/or contact Rob Early at [rearly@cganet.com](mailto:rearly@cganet.com).

CGA has launched <https://www.safehydrogenproject.org/> to grow awareness and access to standards and safety information. More details can be found at <https://www.cganet.com/compressed-gas-association-announces-landmark-hydrogen-initiative/>



Standards	Status
D7606 Sampling of High Pressure Hydrogen	Work group needs to be started. Discuss heavy duty sampling and harmonization with ISO 19880-9.
D7634 Visualizing Particulate Sizes	Interlaboratory study in progress. If anyone knows of any labs performing this testing, let Christina Daniels ( <a href="mailto:christina.daniels@cdfa.ca.gov">christina.daniels@cdfa.ca.gov</a> ) know.
D7651 Gravimetric Measurement of Particulate Concentration	Interlaboratory study required. Looking for a technical expert to lead this effort.
D7653 Gaseous Contaminants in Hydrogen Fuel by FTIR	Interlaboratory study results need to be balloted.
D7675 Total Hydrocarbons in Hydrogen by FID-THC	Interlaboratory study in progress. If anyone knows of any labs performing this testing, let Christina Daniels ( <a href="mailto:christina.daniels@cdfa.ca.gov">christina.daniels@cdfa.ca.gov</a> ) know.
D7676 Screening Method for Organic Halides in Gaseous Fuels	Standard open for review.
D7892 Total Organic Halides, Total Non-Methane Hydrocarbons, and Formaldehyde by GC-MS	Interlaboratory study in progress. If anyone knows of any labs performing this testing, let Christina Daniels ( <a href="mailto:christina.daniels@cdfa.ca.gov">christina.daniels@cdfa.ca.gov</a> ) know.
D7941/D7941M Hydrogen Purity Analysis Using CRDS	Published 02/14/2023

ASTM is in the process of creating a work item for a new Standard Specification for Aviation Hydrogen Fuels.

1. Scope

1.1 This standard covers the use of purchasing agencies in preparing specifications for acquisition of hydrogen fuel intended for aviation uses.

1.2 This specification defines the minimum property requirements for aviation hydrogen for use as a fuel cell or turbine fuel.

1.3 This specification can be used as a standard in describing the quality of aviation hydrogen fuel from production to the aircraft.

1.4 This specification does not include all fuels satisfactory for fuels cells and turbine engines used in aviation. Certain equipment or conditions of use may permit a wider, or require a narrower, range of characteristics than is shown by this specification.

1.5 Aviation hydrogen fuels defined under this specification may be used in applications other than fuels cells or turbine engines that are specifically designed and certified for this fuel.

ASTM is in the process of balloting a Standard Specification for Natural Gas, Hydrogen Blends for Use as a Motor Vehicle Fuel.

1. Scope

1.1 This specification defines the minimum fuel quality requirements for gaseous fuels consisting primarily of methane blended with volume fraction of up to 10 % hydrogen when used as an internal combustion engine fuel.

1.2 This specification defines the criteria for blending hydrogen with natural gas, biogas or renewable natural gas (RNG) and then compressed into compressed natural gas (CNG) for use as a fuel for internal combustion engines in motor vehicles.

1.3 The total volume fraction of hydrogen within the fuel shall consist of hydrogen contained in the natural gas, biogas or renewable gas and any additional hydrogen blended into the fuel mixture.

1.4 This specification covers the needs of internal combustion engines designed for use in motor vehicles.

1.5 This specification applies to the fuel as delivered into the on-board fuel tanks of a motor vehicle as a compressed gas.

1.6 This specification is not a natural gas pipeline standard; those requirements are determined by national and regional tariffs.

ASTM D03 committee will be hosting a Workshop on Natural Gas Blended with Hydrogen: Analytic Challenges and Standardization on December 6, 2023 at Sheraton New Orleans Hotel, New Orleans, LA. Abstract Deadline: **April 30, 2023**

Topics for this workshop include:

1. Discussion on existing sampling and analysis of natural gas
2. Identify precision and bias needs and modifications of scopes for current standards
3. Impact of percent levels of hydrogen in natural gas on existing sampling and analysis standards
4. Identify gaps in sampling and analytic methods for natural gas with percent concentrations of hydrogen
5. Identify major concerns and standardization needs
6. Educate stakeholders such as the natural gas industry on the existence and utility of ASTM standards

#### **American Society of Mechanical Engineers (ASME)**

**Ray Rahaman**

- No updates.

## **VI. Discussion Topics**

#### **Center for Hydrogen Safety**

**Jennifer Hamilton**

- The CHS Europe conference will be held in Rotterdam, Netherlands, May 9-11, 2023. CHS is taking abstracts for presentation until March 15<sup>th</sup>. See <https://www.aiche.org/chs/conferences/european-hydrogen-safety-conference/2023%20for%20more%20information%20and%20links%20for%20submitting%20an%20abstract>.

#### **Regulatory Matrix Review and Comment**

**Karen Quackenbush**

- This Matrix is updated quarterly and keeps FCHEA members up-to-date in the development of codes, standards, and regulations.
- As of December 31, 2022: <https://static1.squarespace.com/static/5668416ddc5cb4375e2a9ef8/t/63b7029b035a2d2b4a51609b/1672938139529/FCHEA+Regulatory+Matrix+Markup+December+31+2022.pdf>
- Please direct any updates, questions, or comments to Karen Quackenbush via email at [kquackenbush@fchea.org](mailto:kquackenbush@fchea.org) or Haboon Osmond at [hosmond@fchea.org](mailto:hosmond@fchea.org).

## **Permitting and Installation of Hydrogen Fueling Stations**

**California Station Implementation****Jennifer Hamilton**

- No updates.

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

- At the last meeting, I discussed our new weights and measures device. It will use the communication protocol performing a gravimetric measurement. Our old device was non-communication and had three (3) options for measuring (gravimetric, PVT, or mass flow).
- Our new particulate sampling apparatus have arrived and we will begin testing with them this month.
- Our rulemaking on Hydrogen Gas-Measuring Devices from last August is still on hold as we are currently looking to perform a survey of the marketplace.

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

- No updates.

**VII. Open Discussion & Other Issues**

- a. None.

**VIII. Next Meeting - Wednesday, April 5<sup>th</sup> at 2:00 PM US Eastern Time**