Hydrogen Litigation Association ("HyLA") Inaugural Meetings April 18 & 19, 2024

(Space limited to the first 100 registrants)

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The newly formed Hydrogen Litigation Association ("HyLA") will hold its inaugural Conference on April 18 and 19, 2024 at American University Washington College of Law in Washington, D.C. HyLA was formed to serve as a resource for companies, attorneys and experts in hydrogen litigation, as hydrogen fuel systems and associated accidents become more and more prevalent. Click here to register. For updated information, see https://www.bowlesverna.com/product-liability-defense/hyla/

Given governmental mandates for cleaner energy and zero-carbon fuel objectives and the federal investment of $7B into hydrogen hubs in the U.S., the development and use of hydrogen technologies is increasing rapidly. Of course, as hydrogen energy technologies are expanding, the hydrogen industry is swiftly evolving to make hydrogen use safer and more efficient. Hydrogen offers significant advantages as a clean energy source but, like any other source of energy, it has unique hazards that must be managed.

Despite best efforts to ensure the safe use of hydrogen-based fuel systems, with their increased use, we expect to see a natural progression of increased incidents and resultant litigation regarding commercial issues, personal injuries and property damage. HyLA will be at the forefront of helping participants in the hydrogen industry learn from past litigation and mitigate future risks. HyLA's goal is to help businesses improve engineering, safety procedures and business plans to further the successful development and operation of hydrogen technologies worldwide, as well as help companies and their counsel address the array of issues that may arise in defending or prosecuting litigation involving complex hydrogen fuel and filling systems.

The inaugural HyLA conference will include a case study of one of the more significant recent hydrogen accidents. In 2018, a hydrogen forklift explosion occurred in Pineville, Louisiana. That

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incident spawned nearly five years of litigation, with three separate actions in Louisiana and New York, involving commercial claims and claims for personal injuries and property damages in excess of $80 million.

This first annual meeting will include experts and attorneys that worked on the Pineville litigation, who will share valuable lessons learned through the extensive investigation, testing, and analysis of the possible root causes of the accident. They will share the particular challenges of evaluating the root cause in a complex hydrogen system that included a sophisticated hydrogen fuel cell device, a high-pressure composite hydrogen cylinder and a sophisticated hydrogen fueling system, that in combination provided a wealth of data that was critical in assessing the root cause. Their experience will help companies, attorneys and experts focus on the critical issues in future hydrogen fire and explosion matters.

In addition to the case study, the topics to be covered at the conference include the evolution of hydrogen standards and codes, materials compatibility issues, Process Safety Management, a history of significant hydrogen accidents, the use of modeling to determine root cause of hydrogen incidents and the importance of assembling the right team of experts.

The current agenda is:

APRIL 18, 2024 - DAY ONE

- **8:00: to 9:00: Registration and Coffee service, sponsored by Bowles & Verna LP**

- **9:00 to 9:30: Introductory remarks.**
  Professor Katrina Groth and attorney Richard Ergo will provide an overview of the two days of meetings as well as the state of hydrogen applications and the future of hydrogen applications.

- **9:30 to 10:15: Richard Ergo: The May 2018 Pineville hydrogen forklift explosion.**
  Rich will go over the circumstances of the Pineville accident and the claims asserted against the hydrogen cylinder, on the one hand, and the claims against the hydrogen fuel cell, on the other hand. He will explain how the initial theories against both products, though logical, turned out to be simplistic and the steps the legal team took to dig deeper into the issues, which debunked the early theories.

- **10:15 to 10:30: Break, sponsored by tba**

- **10:30 to 11:15: Professor Katrina Groth: An expert's perspective on the lessons learned from the Pineville explosion investigation.**
  In this talk, Dr. Groth shares a reliability engineer's perspective on the lessons learned from Pineville, emphasizing how risk analysis, systems understanding, data analysis and collaboration among experts helped structure the investigation and uncover insights into

the most likely causes (and red herrings) of the Pineville incident. Dr. Groth will share lessons learned and insights that can help enhance hydrogen system safety and prevent future incidents.

- **11:15 to 12:00: Dr. Chris Scott: Polymer Materials in Hydrogen Fuel Systems**
  Dr. Scott outlines and describes the variety of polymer materials in the components involved in the Pineville forklift explosion. He will emphasize the importance of the material properties, manufacturing, design, analysis, and testing relative to investigation of the root cause of the incident.

- **12:00 to 1:30: Lunch sponsored by tba**

- **1:30 to 2:15: Dr. Jeff Pfaendtner: Hydrogen-Induced Failure of Metallic Materials and Components**
  Hydrogen-induced degradation and failure of materials, iron and steels in particular, have been documented and studied for at least 150 years. Dr. Pfaendtner will review some fundamental aspects of the scenarios under which hydrogen will interact with certain engineering materials to cause degradation or catastrophic failure. Brief reviews of several classic case studies will be presented, including the relatively recent discovery of brittle failure of high-strength steel anchor rods in the San Francisco-Oakland Bay Bridge. The discussion will include a review of the results of materials and component analyses conducted in the Pineville investigation, including a description of the hypothesized failure modes involving the release of hydrogen gas precipitating the subject explosion.

- **2:15 to 3:00: Attorney William Nagle: Strategies and Methodologies for Identifying and Retaining Expert Witnesses in Hydrogen Matters**
  Incidents involving hydrogen are inherently more complex than those involving other gases due to intricacies of hydrogen fuel systems, the small size of the hydrogen molecule and the wide flammability range of hydrogen. The root cause analysis for hydrogen incidents requires the retention of experts with varied backgrounds. In this talk, Bill shares an attorney's perspective on issues to consider when identifying and retaining legal expert witnesses and the lessons learned in the Pineville litigation from the impact of collaboration among experts that can improve root cause analysis and ultimately lead to the reduction of future incidents.

- **3:00 to 3:15: Break, sponsored by tba**

- **3:15 to 4:00: Attorney Cathy Huang: KA-BOOM! Now What?! Legal Responsibility for the Aftermath Amongst Component Part Suppliers and End Product Manufacturer**
  Legal responsibility amongst the component part suppliers and end product manufacturers for breach of contract/warranty and the cost of removal/recall of defective products hinge on the terms of the parties' contract, warranties, purchase

orders and confirmations. However, whose terms/conditions/warranties apply? Discussions regarding Economic Loss Doctrine and Battle of the Forms to fortify understanding to ensure that companies' own preferred commercial terms apply when entering into sales/purchase contracts to protect themselves in the event of accidents/ product issues.

- **4:00 to 4:45: Panel discussion to sum up the lessons learned from the Pineville incident.**

- **4:45 to 6:30: Cocktail and hors d'oeuvres reception sponsored by**

APRIL 19, 2024 - Day Two

- **8:00 to 9:00: Coffee service, sponsored by tba.**

- **9:00 to 9:45: Antonio Ruiz: Evolution and Gaps of Hydrogen Codes and Standards: A Domestic and Global Impact.**

- **An overview of the development of hydrogen safety, codes and standards and the remaining challenges for a wide market deployment of hydrogen technologies and infrastructure.**

- **9:45 to 10:30: Dave Moore. Process Safety Management for the Hydrogen Industry**
  Process Safety Management (PSM) is a proven approach to managing risks of facilities handling highly hazardous chemicals and is the global benchmark for managing catastrophic risks of chemical-related operations. Producers, suppliers, facility operators, users, and their contractors and employees of the hydrogen industry would all benefit from an enterprise approach to PSM voluntarily applied even if not required by regulation and in addition to industry codes and standards. Some operations may be subject to PSM regulations, which may vary depending on the country of operation and their regulatory frameworks. Others may operate in countries that do not have a PSM regulation. Process Safety Management represents a Gold Standard of care for safety management, and so is a de facto best practice

  This presentation will include:
  - The importance of global PSM application for the hydrogen industry;
  - Examples of successful application of PSM to the hydrogen industry;
  - Model process safety frameworks;
  - Expected value and improvement potential.

- **10:30 to 11:00: Break, sponsored by tba.**

- **11:00 to 11:30: Dave Moore Analysis of Recent Process Safety Incidents in the Hydrogen Industry**
  As the hydrogen industry builds out, it will need to maintain the highest safety standards to maintain public confidence and the acceptance of the industry. Recent incidents in the hydrogen industry will be reviewed for trends and issues to be addressed, including from hydrogen mobility applications such as 1. a fire at a bus terminal in Bakersfield, CA, during refueling, and 2. hydrogen tube trailer transportation accidents in Pennsylvania, California, and Ohio. Recent incidents involving hydrogen production facilities will be reviewed such as a fire at a hydrogen purification system. Other incidents will be overviewed, and lessons learned explained.
  - Sources of incident reports
  - Examples of incidents in the hydrogen industry
  - Analysis and recommendations

- **11:30 to 12:15: Alejandro Jimenez: Challenges in Predicting the Past: Robust Consequence Modeling through the use of a Risk & Reliability Mindset**
  During an incident investigation, consequence analysis computational modeling techniques such as gas dispersion, fire, and explosion modeling are useful in testing cause hypotheses or analyzing the impact of an incident. However, these techniques possess inherent uncertainties and must be applied appropriately. Real-world incidents are also more complex than tools developed for single event simulations generally used in a design and risk management context. Risk and Reliability tools are available to complement computational modeling analysis, improve understanding of the incident, and ultimately result in more robust conclusions about an incident's cause or impacts.

- **12:15 to 1:00: Tonya Newman - Litigation Risk Assessments – The Why And How**
  Tonya Newman, Chair of Neal, Gerber & Eisenberg's Litigation Practice Group, will lead a discussion regarding the nuts and bolts of conducting a litigation risk assessment. In any enterprise, taking the time to think through potential exposures and risks, and how to mitigate them before they become problems, is a valuable exercise. It is perhaps even more important in emerging and growing sectors like clean energy solutions. Critically examining policies, procedures and processes regarding product design, manufacturing, sourcing, quality control, sales, training and returns will help you to identify and address potential pain points before they result in costly litigation and, should you find yourself embroiled in litigation, will go a long way to positioning the company well to defend the case.

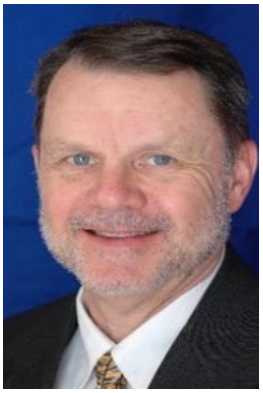
- **1:00: Reception sponsored by tba.**

Click here to register. For updated information, see https://www.bowlesverna.com/product-liability-defense/hyla/

Our Speakers:

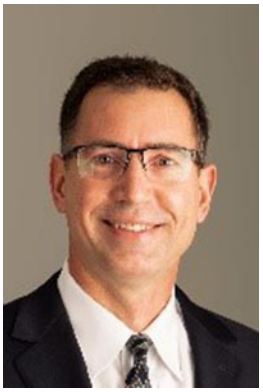
Katrina Groth, Ph.D.
Associate Professor and Director
of the Reliability Engineering, University of Maryland

Dr. Katrina Groth is an Associate Professor and Director of the Reliability Engineering program at the University of Maryland and consults with industry for hydrogen design, safety, and litigation matters. Dr. Groth specializes in reliability engineering and risk analysis of energy systems, including hydrogen fueling stations, hydrogen storage, hydrogen vehicles, oil and gas pipelines, and nuclear power plants. She has published over 125 archival papers (including "Hydrogen storage and delivery: Review of the state-of-the-art technologies and risk and reliability analysis" in the International Journal of Hydrogen Energy) and holds 2 patents. Groth invented the U.S. Department of Energy's Hydrogen Risk Assessment Models (HyRAM) software, which is now used by engineers worldwide to assess the safety, use, delivery, and storage infrastructure of hydrogen. Groth holds various leadership roles, including a subtask on "Hydrogen Systems Safety" within the International Energy Agency's Hydrogen Technology Collaboration Program (TCP) Task 43, "Safety and Regulatory Aspects of Emerging Large Scale Hydrogen Energy Applications," aimed at sharing information regarding hydrogen safety. Within IEA Task 43, Dr. Groth leads a group of scientists and engineers from over 20 organizations on three continents in sharing scientific information that addresses technical gaps in the safety, risk, and reliability analysis of hydrogen systems. (https://enme.umd.edu/clark/faculty/807/Katrina-Groth)



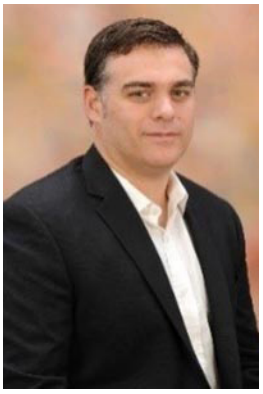
Chris Scott, Ph.D
President, Material Answers LLC
Weston, Massachusetts

Dr. Scott specializes in the structure, properties, and manufacturing of polymeric materials. He has over 33 years of industrial, academic, and consulting experience. Dr. Scott has conducted failure analysis investigations and developed product designs in a broad range of applications including composites, high pressure cylinders, rubbers, o-rings, and gaskets. He is the inventor on 11 U.S. patents, author of more than 30 articles in peer reviewed journals, author of 40 conference proceedings, and has presented more than 50 seminars to industry and government organizations. (https://www.linkedin.com/in/chris-scott-2b44296)



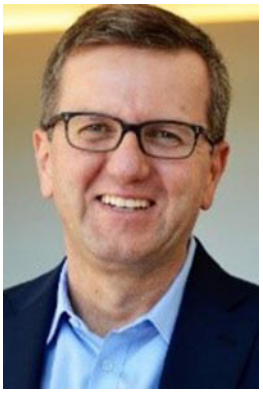
Jeffrey A. Pfaendtner,
KP Engineering
CFEI, PE, Ph.D. | Principal Engineer

Dr. Pfaendtner is a forensic materials engineer with over 25 years' experience analyzing failures of engineering materials and components, especially those involved in fuel gas incidents resulting in fire and explosion. Many times these incidents involve the degradation and failure of metals, plastics and other materials by an interaction involving mechanical stress and the chemical environment in which they operate. Dr. Pfaendtner is a licensed Professional Engineer, Certified Fire and Explosion Investigator and holds 24 U.S. and European patents. (https://www.kpforensicengineering.com/team-bios)



Alejandro Jimenez, P.E.
Senior Staff Cosultant ESi.

Alejandro Jimenez, P.E., is a Senior Staff Consultant and licensed professional engineer with Engineering Systems Inc. (ESi) in the fire and explosion practice. He has experience in the areas of process safety, hazardous materials, fire protection engineering, fire and explosion dynamics and modeling, reliability of safety systems, and fire & explosion hazard and risk management. Alejandro has experience in hydrogen safety in diverse applications including production, transportation, and use. He has performed fire and explosion consequence modeling and risk analysis of hydrogen releases. Currently in ESi, Alejandro investigates and provides risk management services related to fires and explosions across the United States and Internationally. (https://www.engsys.com/consultants/alejandro-jimenez)



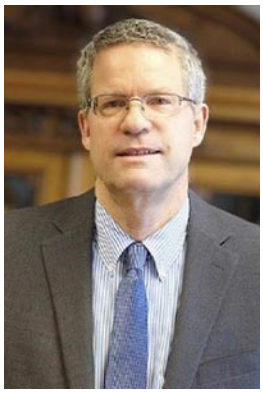
David A. Moore, PE, CSP
CEO AcuTech Group

David Moore is the founder, President and CEO of the AcuTech Group, a process risk management consulting firm founded in 1994 and based in Vienna, Virginia, with global operations. Mr. Moore has over forty years of specialized experience as a recognized expert on process safety management to corporations involved with hazardous chemicals in the energy, oil & gas, chemical, pipeline, pharmaceutical, biotech, and manufacturing industries. Mr. Moore has experience with hydrogen safety in a wide range of applications including in hydrogen production, transportation, manufacturing, and use as a fuel. He has been engaged in consequence modeling for H2 release, fire hazards analysis of a green hydrogen plants, siting studies for facilities handling vapor and liquid hydrogen, risk studies hydrogen fueling stations, safety analyses of electrolyzers, and critical infrastructure security design for a large-scale green hydrogen plant. (https://acutech-consulting.com/profile/leadership/david-moore/)

Antonio Ruiz
Technical Project Manager,
Center for Risk and Reliability, University of Maryland

Antonio Ruiz, Technical Project Manager in the Center for Risk and Reliability at the University of Maryland, has over 20 years of experience hydrogen safety, codes, and standards. Prior to joining UMD, he led standardization and industry collaboration programs at Nikola Motor Company to inform national policies and establish international partnerships to advance the global deployment of heavy-duty fuel cell electric trucks and hydrogen fueling infrastructure. Antonio also served as the U.S. Department of Energy as the Program Manager of the Hydrogen Safety Program. (https://syrra.umd.edu/members/antonio-ruiz/)

Richard Ergo



William Nagle

Cathleen Huang

Attorneys **Richard Ergo** (Ergo, Richard A. | Bowles & Verna LLP (bowlesverna.com), **William Nagle** (Nagle, William T. | Bowles & Verna LLP (bowlesverna.com) and **Cathleen Huang** (Huang, Cathleen S. | Bowles & Verna LLP (bowlesverna.com) of Bowles & Verna LLP serve as national products counsel for Worthington Cylinder Corporation and represented Worthington in the five years of Pineville litigation.

Tonya Newman

Attorney Tonya Newman (Tonya Newman - Neal, Gerber & Eisenberg Website (nge.com)) of Neal Gerber Eisenberg, national products liability counsel for a valve manufacturer ECI.

Updated information on HyLA and the April 2024 meetings can be found at https://www.bowlesverna.com/product-liability-defense/hyla/. Please contact Kathy Trujillo (ktrujillo@bowlesverna.com) for any questions.