

John A. Eihusen, PE

Education

Dec 1998, University of Nebraska, Lincoln Nebraska, MSME

May 1981, University of Nebraska, Lincoln Nebraska, BSME

Professional Experience

1994 - Present

Principal Engineer – Hexagon Composites/General Dynamics/Lincoln Composites

Research and Development engineer supporting analysis, materials and process development across the Hexagon product line.

Technical Lead for the Hexagon Global Hydrogen Team providing leadership in product development and overall global market approach in the hydrogen fuel market

Senior Designer/Analyst for advanced composite structures for automotive and commercial applications.

Supervising engineer for very high performance pressure vessels in safety critical applications.

Program lead as a Tier 1 supplier to produce a gaseous fuel storage container, completing all requirements of the APQP (Advanced Product Quality Planning) process for a major automotive OEM (Original Equipment Manufacturer).

Responsible individual compiling detailed homologation reports for national and international regulatory compliance. Represents company on national policy issues for pressure vessel and relief valve technology.

Lead system designer for vehicle fuel systems with expertise in the thermodynamic response of complex gaseous control systems.

Wide project experience from customer conflict resolution to vendor quality control.

1991 – 1994

Research and Development Engineer – Coleman Powermate

Research and Development Engineer in support of generator and pressure washer product lines.

Supervised research and development of advanced electrical generators.

Developed new analytical design methods for validation of product performance. Performed extensive laboratory testing of prototype products.

1990 - 1991

Senior Design Engineer – Baldwin Filters

Responsible for product design and support for filters in both air and liquid automotive applications.

Developed new product specifications for new applications and development of test schedules for verification of performance.

Support of design to unit cost and manufacturing implementation of new products.

Provided service and technical support in response to customer issues.

1988 - 1990

Program Manager – Addax, Inc

Responsible for all program phases of funded research and product design efforts.

Programs included development of rocket motor cases, drive shafts, pressure vessels, and various advanced composite structural components for both the commercial and government markets.

1983 - 1988

Design Engineer – Brunswick Defense

Responsible for product design and stress analysis of advanced composite structures, including pressure vessels for aerospace and defense applications, tactical and ballistic rocket motor cases, finite element and closed form solutions for anisotropic and isotropic materials.

Served as principal design engineer for valves, plumbing, and electrical components on a 480 gallon fuel tank for the F-18 fighter aircraft.

Program experience included defining customer requirements and giving formal written and large group oral presentations.

1981 - 1983

Design Engineer – Phillips Petroleum Co.

Responsible for the design of all types of heat and fluid transfer equipment, using classical and computer analysis to predict performance.

Performed stress analysis for the design and repair of fired and unfired steel pressure vessels to ASME code.

Developed specifications and standards for high temperature and corrosive services.

Performed cost estimates for large chemical projects and was the as design coordinator for a two-million dollar capital project.

Patents

Patent 5,180,490 : Lubricant Filter Assembly with Internal Bypass Lock-out

Patent 5,205,427 : Modular Fuel Tank System

Patent 5,529,460 : Pressure Washer with Flow Control Switch

Patent 5,848,604 : Thermally Responsive Pressure Relief System

Patent 6,986,490 : Method and apparatus for mounting a fluid containment cylinder

Patent 8,820,069 : Shape memory alloy trigger for pressure relief valve

Patent 9,618,160 : Pressure Vessel Longitudinal vents

Patent 10,481,133 : Inline cycle fuse

Publications

Application of Plastic-Lined Composite Pressure Vessels For Hydrogen Storage, John A. Eihusen, General Dynamics, 15th World Hydrogen Energy Conference, June 2004, Yokohama, Japan

New Developments in Gaseous Fuel Storage for Heavy-Duty Vehicles by William E. Dick and John A. Eihusen, General Dynamics, Lincoln Operations, World NGV2002, Oct 2002, Washington, D.C. USA

Development and Certification of a CNG Fuel Tank for a Non-Step Bus, Tiller, Newhouse, Eihusen, Lincoln Composites, NGV2000 A-O15

Development of a CNG Fuel System for the ENVIRO 2000 TAXI, Tiller, Newhouse, Eihusen, Lincoln Composites, SAMPE Automotive, Sept 1999 Detroit, Michigan

Characterization of the Transverse Thermal Conductivity of Intraply Hybrid Composites Laminates, Eihusen and Peters, SAMPE Tech Conf, Oct 1999, 31T-07

Evolution of CNG Bus Fuel Systems, Tiller and Eihusen, Lincoln Composites, NGV'98 May 1998 Cologne Germany

Development of Compressed Natural Gas Storage Systems for Transit Bus Applications, Tiller and Eihusen, Lincoln Composites, APTA May 1997, Miami, Florida

**Professional
Activities**

Registered Professional Engineer, State of Nebraska, E-6202

Compressed Gas Association

Cylinder Specification Committee, (Voting)

Cylinder Valve Committee, (Contributing)

Hydrogen Technology Committee, (Contributing)

Natural Gas Technology Committee, (Contributing)

CSA America; (Voting)

NGV – 2; Fuel Containers for Compressed Natural Gas Vehicles

NGV – 3; Onboard Vehicle Components for Natural Gas Vehicles

NGV – 6.1; Vehicle Fuel Systems for Natural Gas

PRD/HPRD – 1; Pressure Relief Devices for Natural Gas

HPIT – 1; Compressed hydrogen powered industrial truck on-board fuel storage and handling components

HGV – 4.1; Dispensing Systems for Hydrogen Gas Vehicles

HGV – 4.3; Temperature Compensation Devices & Priority and Sequencing Equipment for Natural Gas Vehicles

HGV – 4.8; Compressors for Hydrogen Gas Vehicles Fueling Stations

CHMC – 2; Material Compatibility for Compressed Hydrogen Applications

SPE 2.1; Best practices for defueling, decommissioning, and disposal of compressed natural gas vehicle fuel containers and liquefied natural gas vehicle fuel tanks

Hydrogen Transportation Technical Committee

Natural Gas Transportation Technical Committee

Common Issues Technical Advisory Group - Alternative Energy

NFPA 52 Task Force for Marine Vessels and Facilities

CSA B339 Cylinders, spheres, and tubes for the transportation of dangerous goods

CSA B340 Selection and use of cylinders, spheres, tubes, and other containers for the transportation of dangerous goods

International Organization for Standardization (ISO), Technical Committees

TC22 Road Vehicles

Subcommittee SC 41 Specific Aspects for Gaseous Fuels

TC58 Gas Cylinders:

AHG 01, Service life testing of composite cylinders and tubes

Subcommittee SC 2 Cylinder Fittings (Voting)

WG 4, Valve stem and cylinder neck threads

Subcommittee SC 3 Cylinder Design

WG 17, Compressed natural gas cylinders for road vehicles

WG 24, Factors of safety for composite cylinders

WG 27, Composite cylinders

WG 32, Refillable composite reinforced tubes of water capacity between 150 liters and 3000 liters, design, construction, and testing

WG 35, Permanently mounted composite tube

Subcommittee SC 4 Operational requirements for gas cylinders, (Voting)

WG 8, Gas cylinder bundles

WG 10, Inspection and testing of composite cylinders

WG 15, MAE examination for composite cylinders

WG 18, Acoustic emission for composite cylinders

TC197 Hydrogen Technologies

ASME BPVC Sec X Committee, (Contributing)

NBIC Repairs and Alterations, SG FPR (Member)

Awards

CSA America Divisional Medal award for leadership and commitment to the development of standards for hydrogen components, resulting in one of the first hydrogen component standards for pressure relief devices; a primary safety component for compressed hydrogen vehicle fueling systems that have unique fire safety and durability requirements

CSA America Corporate Award of Merit providing outstanding expertise to the PRD/ HRPD1, NGV/HGV2, NGV/HGV 3.1 Technical Committees. Lincoln's Composites representatives have been extremely active and diligent members of the TCs, compiling and examining the texts of draft standards, and providing data to validate propose testing methods