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Engineering & Scientific Consulting

C. Michael Dickinson, P.E.

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Professional Profile

Mr. Dickinson provides scientific and investigative services in the areas of mechanical engineering and machine design, stress analysis, failure analysis, accident reconstruction, data analysis, and product and facility safety evaluations. He has provided scientific analysis and expert testimony on product-related and machinery-related cases involving: man-lifts, fork lifts, bucket trucks, automatic guided vehicles, go-karts, freight car brakes, elastomeric straps, saws, winches, textile machinery, inter-modal container and freight car loading, lawn mowers, hydraulic cylinders, conveyors, automatic doors, and consumer electronics. Mr. Dickinson has also performed investigations and provided testimony for reconstructions of accidents including: pedestrian falls and falling objects, workplace injuries, construction site and mining injuries, residential and industrial fires, and motor vehicle accidents.

Mr. Dickinson has specialized expertise in the following areas that may contribute to and/or cause traffic accidents: roadway conditions, line-of-sight and nighttime visibility, speed, stopping distance, the condition and function of vehicle components and systems, right of way violations and center-line crossing, vehicle handling, and accident avoidance.

Mr. Dickinson provides engineering consulting and safety engineering services to the utility industry, textile machinery manufacturers, textile producers, engineered materials manufacturers, tobacco processors, motor vehicle manufacturers, printing equipment manufacturers, and the railroad industry. Significant projects performed for commercial clients include: development of a non-destructive test method to identify the presence of through wall cracks in in-service composite booms in lineman's trucks; monitoring and analysis of process plant utilization of compressed air and steam, including use-optimization analyses and development of recommendations for equipment and procedural modifications to improve efficiency; reliability and risk analysis of freight car roller bearings, including development of a preventive maintenance program for the freight car fleet; safety evaluations for foreign-based equipment manufacturers of new machinery and machine components intended for the U.S. market; risk analysis and safety history evaluation for textile cards and crosslappers; safety evaluation of an entire non-woven textile production facility including analysis of both facility-related and machinery-related safety issues; design, development, and testing of a torsion bar rear suspension assembly for transit buses; theoretical study and experiments related to the mounting process for reusable cylinder surfaces (RCS sleeves) for the printing industry; design of a conditioning machine (drier) for cellulose acetate tow; design of equipment for the deployment and retrieval of monitoring equipment beneath hazardous material landfills; design of a precision laser cutting machine for RCS sleeves; concept evaluation and stress analysis of a coiler-recoiler for sheet metal processing; and occupational noise measurement and analysis in textile processing facilities.

Academic Credentials & Professional Honors

M.S., Mechanical Engineering, University of Washington, 1982

B.S., Physical Sciences, Stanford University, 1978

Tau Beta Pi

Licenses and Certifications

Licensed Professional Mechanical Engineer, North Carolina, #16761

Licensed Professional Mechanical Engineer, South Carolina, #14712

Licensed Professional Mechanical Engineer, Alabama, #28609

Certified XL Tribometrist

Prior Experience

Dickinson & Associates, Inc., President and Principal Engineer, 1989-2015

Failure Analysis Associates, Inc., Senior Engineer 1986-1989

SRI International, Research Engineer - Poulter Laboratory, 1982-1986

Lehigh Design, Inc., Consulting Engineer, 1980-1981

EDS Nuclear, Inc., Principal Engineer, 1980

Catalytic International, Inc., Mechanical Engineer 1979

Arco Solar, Inc., Associate Research Engineer, 1978-1979

Professional Affiliations

American Society of Mechanical Engineers — ASME

American Society of Safety Engineers — ASSE (Professional Member)

American Society for Testing and Materials — ASTM

National Society of Professional Engineers — NSPE

National Fire Protection Association — NFPA

Society of Automotive Engineers — SAE

Publications

Publications and Presentations

Dickinson CM, Brewer B. Non-Destructive Method of Detecting Cracks in Fiberglass-Reinforced Bucket Truck Booms, Presented at Materials Science & Technology Conference, Columbus, OH, October 2018.

Dickinson CM. Technology in Heavy Vehicle Accident Reconstruction. Presented at CLM Midwest Transportation Conference, Chicago, IL, June 2018.

Dickinson CM. The Case of the Wayward Arrowboard. Georgia Defense Lawyer, Volume XIII, Issue III, Winter 2017.

Dickinson CM. Accident Reconstruction: What We Do and How You Can Help. Invited speaker, Zurich Construction Seminar - Fleet Safety Management, Charlotte, NC, April 2005.

Dickinson CM. Comparison of EDSVS Simulations and Track Test Data. Presented at the NAFE Seminar, Charlotte, NC, January 1997.

Dickinson CM. Industrial Safety for Machinery Maintenance and Service Personnel. Instructor for the field service staff seminar, Schlumberger U.S.A., Inc., North Myrtle Beach, SC, June 1996.

Dickinson CM. Low Speed Collision - Accident Reconstruction. Invited speaker for law firm of Tim L. Harris & Associates, Inc., Annual Retreat, Hilton Head Island, SC, May 1996.

Dickinson CM. Traffic Accident Reconstruction. Instructor for the Continuing Education Seminar for the Investigative Engineers Association (IENGA), New Orleans, LA, April 1996.

Dickinson CM, Iwand H. Railroad Freight Car Roller Bearing Life Estimation Using Weibull Analysis. 1996 SAE Weibull User's Conference, Detroit, MI, March 1996.

Dickinson CM. Traffic Accident Reconstruction Techniques. Presentation to Charlotte Claims Association, April 1995.

Dickinson CM, Proffit EM. A Study of the Mounting of Nickel RCS Sleeves. Society for Experimental Mechanics, International Machinery Monitoring & Diagnostic Conference, March 1993.

Dickinson CM, et al. Safety Issues in Systems Designed to Recover Gasoline Vapor During Motor Vehicle Refueling. Submitted to US Environmental Protection Agency in response to proposed rulemaking dated August 9, 1987, FaAA-AZ-R-87-10-6, Failure Analysis Associates, Inc., February 1988.

Dickinson CM, Andeen GB. Torque Programming. Army Research Office Workshop, Kinematics, Dynamics, and Control of Mechanisms and Manipulators, June 1986.

Dickinson CM. Laboratory Experiments and Theoretical Analyses Investigating the Response of Unreinforced and Rock-Bolt-Reinforced Tunnels. Final Report of Research for Defense Nuclear Agency, Contract No. DNA 001-82-C-0025, Classification: Secret, SRI International, July 1985.

Dickinson CM, Lindberg HE. Scale Model Experiments Investigating the Response of Protective Structures to Nuclear Attack Loading. 25th Symposium on Rock Mechanics, 1984.

Dickinson CM, et al. Thermal Stresses and Fracture in Glass and Ceramics, Single and Multiple Cracks. Ceramics 1983, Seattle, WA, 1983.