

**ADAM K. ALEKSANDER, Ph.D., P.E., C.S.P.****Education**

- 1995 Ph.D., **Texas A & M University**, College Station, TX  
Industrial Engineering, Major: Human Factors Engineering, Safety Engineering
- 1980 Master of Engineering, **University of Colorado**, Boulder, CO.  
Major: Mechanical Engineering Design and Economic Evaluation
- 1972 Bachelor of Science, Mechanical Engineering, **California State University, San Jose**, CA.  
Major: Machine Design, (Society of Automotive Engineers Achievement Award )
- 1995 Industrial Fire Fighting Certificate, Brayton Field Training Center, **Texas A&M University**
- 1985 Business Law Course, Boise State University, Boise, ID
- 1964 Loyola High School, Montreal, P.Q., Canada

**Experience**

Diversified Engineering background with specific experience in Manufacturing, Cost Analysis, Consulting Engineering, Engineering Sales, Project Management, Product Development, Research, Lecturing, and Technical / Litigation Forensic Engineering Investigations of accidents and equipment failures.

**Precision Energy Services Inc., Hayden ID,** November 2006 to present  
Vice President Engineering & Research  
Bio-Mass Boiler STG and Material Handling Systems and Investigations

**Aleksander & Associates, P. A.** Boise, ID March 1987 to present  
President, Principal Consulting Engineer  
Technical Studies and Forensic Investigations

**Texas A&M University**, College Station, TX January to May 1995  
Lecturer, Department of Industrial Engineering Faculty  
System Safety Engineering

**Conveyor Engineering Inc.** Boise, ID July 1980 to March 1987  
Manager of Business Development, Project Engineer, Project Manager  
Engineered Heavy Material Handling Systems for the Mining and Forest Industries  
Engineering Investigator, Investigations of Accidents and Failures

**AMF - Head Division**, Boulder, CO November 1972 to June 1980  
Senior Manufacturing Engineer, Ski and Tennis Products

**Container Corporation of America, Inc.** Santa Clara, CA September 1971 to October 1972  
Jr. Engineer, Maintenance Engineering Group, Recycled Paper Kraft Board Plant

**Professional Affiliations**

Affiliate Associate Professor, Department of Mechanical Engineering, University of Idaho  
Licensed Professional Engineer, 1984, State of Idaho ME #4925,  
Licensed Professional Engineer, 1999, State of Utah, #381067  
Licensed Professional Engineer, 2012, State of Vermont #018.0081655  
Certified Safety Professional, 1994, CSP #12285, Board of Certified Safety Professionals  
American Society of Mechanical Engineers, Member since 1982  
Human Factors and Ergonomics Society, Member since 1991  
Institute of Industrial Engineers, Member since 1995  
Society of Automotive Engineers, Member since 2003  
National Society of Professional Engineers, Member since 1984  
American Academy of Forensic Sciences, Fellow; Secretary, Program Chair, Engineering Sciences Section  
Chairman 2000, Awards Chair 2004, Secretary, Member, AAFS Good Forensic Practices Committee 1999-2002



AAFS Engineering Sciences Section Andrew Payne Special Achievement Award 2004  
AAFS Engineering Sciences Section Founder's Award 2010  
American Society of Safety Engineers, Professional Member, since 1996  
National Academy of Forensic Engineers, Senior Member, since 1996  
ASTM Subcommittee Member, E-30 Forensic Sciences, 1997-2005, E30.05 Subcommittee Chairman 2005-2008  
ASTM Main Committee E-58 Forensic Engineering, Chairman, and Charter Founding Member 2008-2010  
ASTM Main Committee E-58 Forensic Engineering, Executive Committee 2011  
National Ski Patrol, Senior Alpine Patroller, OEC Instructor, OET Instructor, 2006-present.

### **Publications and Presentations**

**"Estimating of Manufacturing Joint Costs"**, Technical Paper MM80-912 Society of Manufacturing Engineers, 1980, reprinted in "Manufacturing Cost Estimating", P.F.Ostwald, SME ISBN 0872630536  
**"Explosion of a Hydro-Pneumatic Storage Tank"**, presented at American Academy of Forensic Sciences, February 1990  
**"Collapse of a Conveyor Structure, and a Conveyor Nip Point Fatality"** paper presented at American Academy of Forensic Sciences, February 1991  
**"Human Factors and Forensic Engineering"** paper presented at American Academy of Forensic Sciences, February 1994  
**"Visual Correctness via a PC; A Model for Visual Courtroom Presentations"** paper presented at American Academy of Forensic Sciences, February 1995  
**"Glare Mitigation in Night Driving Using Partially-Tinted Lenses"**, 1995 Dissertation, Texas A&M University Paper Presented at Vision in Vehicles VII Conference, Marseilles, France, September 1997  
**"PRT, Perception Reaction Time, Fact or Fiction"**, paper presented at AAFS, February 1997  
**Invited Speaker at Iowa State University/Stark rpx seminar on "Perception, Reaction and Conspicuity in Driving"**, Iowa City IA, November 1997, published 2003.  
**Invited Speaker at Idaho Trial Lawyers Association seminar on "Technology and Persuasion"**, Moscow ID, Nov. 1997  
**"New Perspectives in Forensic Engineering; Convergence of Design, Ergonomics, and Safety Engineering"** paper presented at American Academy of Forensic Sciences, February 1998  
**"A Human Factors Approach to Risk Management"** Invited speaker, Risk Insurance Mgmt Society, Sun Valley Id, Aug. 1999  
**"Homicide by Water Injection"**, paper presented at American Academy of Forensic Sciences, February 1999  
**"Skin Penetration by Water Jet"** presented at International Academy of Forensic Sciences, Aug. 1999, AAFS Feb 2000.  
**"Applied Industrial Ergonomics"** Two day seminar presented for University of Idaho, Mar. '00, in Boise ID.  
**"Forensic Engineering and Ethics, Us vs. Them"** Invited speaker Idaho Society of Prof. Engineers meeting Apr. 2000  
**"Ergonomics Issues in Workers Comp"** Invited speaker, Penland/Lorimer seminar, June '00, Boise ID.  
**"Designing Safe Products for Consumers and Industry"** Two day seminar presented for Univ. of Idaho, June 2000.  
**"Geothermal Plants and Forced Outage Analysis Methodologies"** Geothermal Resources Council Annual Meeting, San Francisco CA September 2000  
**"Forensic Engineering Issues in Glare Environments"** NAFE Seminar, San Diego CA Jan. 2005, published in NAFE Journal 2007  
**"Go Cart Fatality"** paper presented at American Academy of Forensic Sciences, New Orleans, February 2005  
**"Forensic Engineering Analysis of TASER Product Liability Issues"** NAFE Seminar, Chicago IL Jul 2005  
**"Third World Chlorine System Safety Issues"** Chlorine Institute Seminar, Tampa FL, Jan. 2006  
**"Forensic Engineering Analysis of TASER Issues and Safety Warnings"** American Academy of Forensic Sciences, Seattle, February 2006  
**"Defective Jack Causes Fatal Collapse of Overpass Falsework"** American Academy of Forensic Sciences, Seattle, February 2006  
**"Human Factors: Industrial Incidents"**, in Wiley Encyclopedia of Forensic Science, Jamieson, A., Moenssens, A., (eds). John Wiley & Sons Ltd., Chichester, UK, pp1483-1495, 2009  
**"Global thinking and methodologies in evidence-based forensic engineering science"** in Forensic Science Current Issues, Future Directions, Ubelaker D. H. ed, Liptai L., Aleksander A. K., et al, 2013 Wiley & Sons Ltd  
**"Unusual Failure Modes of Large Diesel Generators, Bangladesh"** American Academy of Forensic Sciences, Washington DC, February 2013.  
**"A Near Electrocution by Irrigation Pipe Case, Solved by Photo Inspection"** American Academy of Forensic Sciences, Washington D.C., February 2013.



### **Forensic Engineering Technical Investigations 1972-2013**

- **Investigations** of engineering systems and components, to determine proximate cause of failure, and contributing factors, equipment failures, manufacturing anomalies, accidents, event reconstruction, technical interpretation of documents, drawings, and testimony, documentation, photography, and exhibit preparation.
- **Services** include photogrammetry, microscopy, x-ray, and laboratory disassembly and testing, engineering tests, experimental design and statistical analysis. Tests provided include headlamp and tail lamp filament analysis, metallurgical fracture analysis, PMI x-ray fluorescence, photo and video documentation and analysis.

#### **Product Liability** (design, manufacturing and marketing defects, involving damage, injury or fatality)

Go cart nip point fatality, washing machine amputation, amputations in punch presses, hydro-pneumatic tank explosion, agricultural truck amputation, airport conveyors, biscuit cutter, amusement rides, water-jet fatality, slips & trips, lead rope snap, exercise machine failures and injuries, document burn injuries, folding chair collapse, concrete anchor system, nail gun injury, roof collapse panel hangers, prosthesis bolt failure, steam iron electrocution, pool light burn, design of warnings and instructions, ATV rollover, automotive failures and crash related phenomena, measurement of ECDs (TASER®), , TASER® Time stamp anomaly, Potato Sorting System Nip.

#### **Equipment Failures** (proximal cause of failure with contributing factors)

Farm equipment, Failed engines, Mining conveyors, Power plant systems, Belt conveyors, Potato processing system, Sewer line, Tire shredder processing analysis, Failed brake die, Failed conveyor bearing, RV axle repair failure, Trailer suspension system failure, Trailer separation, Dump truck telescoping cylinder failure, Brake system, Headlight filament analysis, Service station gasoline tank leak, Bicycle tube failures, Tub Grinder track defect, Hay press system dual amputation, Hay press system hydraulic system, Steam Turbine Generator building fire C&O, Heat Exchanger System failure, Potato Piler Hydraulics, Tub Grinder Fire, Three Wartsila 18V46 Diesel Generators, 20 inch primary steam line fracture.

#### **Construction, OSHA, and Safety Engineering.**(regulatory and safety issues)

Falling loads, construction crushing accident, tank cleanout confined space injury, ladder falls, construction claims, compactor fatality, roof collapse fatality, forklift fatality, Lock Out Tag Out Failure, falling object, 13.8KV Arc Flash, 19.9KV Arc Flash Irrigation Pipe, Premises Trip, Ladder/Scaffold misuse.

**Human Factors, Visibility, Ergonomics, and General Research Issues** (product usability, warnings, perception), highway visibility, night visibility, bicycle accidents, Plant OSHA Safety Analysis, Human Factors and Safety Analysis of Peroxide Facility, Five part plant wide Ergonomics Program, Skier tree hit fatality, ECD Warnings development (TASER®) , Dual fatality auto pedestrian crash (criminal) Truck Backing Fatality.

#### **Sports Related Experience**

Experienced cyclist, skier, kayaker and sailor. Senior Alpine Patroller, Member National Ski Patrol, Bogus Basin Alpine Patroller of the Year, 2007 & 2010, Current CPR card, Outdoor Emergency Care Instructor, Outdoor Emergency Transportation Instructor, Secretary and Board of Directors Bogus Basin Ski Patrol, volunteer Special Olympics Winter Games, Bogus Basin ID Feb 2009, Ski Patrol-Athlete Care Feb 2010 Winter Olympic Games Vancouver Canada, Medical Services,.

#### **Confidential Projects for Clients**

Significant projects have been undertaken for confidential clients, working with their attorneys on sensitive research issues. 1995-2007

### **AAPA Industrial Investigation/Design/ Forensic Projects 1971-2012**

2013	Testimony, favorable decision in \$5M arbitration hearing re failed steam turbine generator, fire investigation, WA.
2012	Root Cause Analysis of fractured 20 in dia main steam pipe, forced outage, 500MW plant, Philippines.
2011	Root Cause Analysis of three failed Wartsila 18V46 diesel generators, \$18M loss, Bangladesh
2011	Post-fire structural steel assesment to determine fire related effects, restore crane operability, WA.
2011	Steam boiler pipe inspection by x-ray fluorescence to comply with materials requirement, Oregon
2011	Inspection and verification of compliance with ARRA Section 1603 for \$100M Biomass projects.
2010	Investigation and emergency remediation plan of failing coal silos, Risk Management Plan, Philippines.
2010	Investigation of turbine generator fire and \$5 M loss, Project planning for \$20M Biomass conversion.
2009	Investigation of 13.8KV arc flash injury incident at utility, investigation of conveyor belt failure, Philippines.
2007/9	Chlorine gas dispensing system for utility plant seawater cooling system, design, furnish, install, and train.
2007	Support in litigation issues at power plant construction sites, demolition of thermal stack at U of Idaho.



2006/7	Chlorine system ton container on-site storage system, secure modular transportation system proposal.
2005	Conveyor material failure, Scale and Feeder calibration, Chlorine Transportation Risk Assessment, Quezon, PI
2005	Refinery Delayed Coker Unit Safety Analysis, Mineapolis WI
2005	Taser ECD Related Research and Design of Warnings and Instructions
2005	Power Plant ASTM coal sampling Design & Furnish, and data systems, Quezon, PI
2004	Power Plant Chlorination system analysis HAZOP and PSM RPM Program, Quezon, PI
2003	Completion of hazardous gas monitoring and site safety systems at shaft well development project. SS, UT
2002	Research and design coordination of proposed geothermal plant Vapor Recovery Unit systems. Puna Hawaii
2002	Continued methane safety responsibility at Cogeneration well development project. Sunnyside, UT
2001	Planning and execution of penetrating a sealed 1000ft vertical methane filled mineshaft, with instrumentation, video and data acquisition, sample recovery and site safety coordination. Site project coordination with client attorney, city, state and federal regulatory agencies. Sunnyside, UT
2000	Investigations of geothermal plant anomalies and recuperator performance studies, NV, and sorbent limestone production studies for CFB plants, UT. Performance evaluation of geothermal plant VRU system. Investigation of ESP precipitator performance issues at RB waste wood plant., CA
1999-01	Investigation of water utilization at power plant in Utah, modeling, well issues, study of proposed opening of a sealed mineshaft.
1996-98	Cogeneration power plant, research issues related to EPA, DOJ actions, and analysis of plant performance problems related to sorbent quality and material handling, \$1.5+ M project award for Pilot Plant and related plant modification projects. Coal barn storage analysis, CA.
1984-1988	Developed computational program for crushing plant gradation analysis used in multiple litigation actions.
1986	Developed conceptual and proposal documents, administered design and furnish contracts for \$1 M Pegasus and Rochester gold ore heap leach crushing and conveyor projects near Lovelock, NV. Developed application software for CEMA belt conveyor calculations (still in use 2006).
1985-86	Project Manager, Dillingham-Cerrillos Dam Project, Puerto Rico, managed engineering design and furnishing of \$3.5 M dollars of material handling equipment, structural steel, conveyors, foundations and primary crusher concrete structure, MCC's, control panels, programmable control system, including 14,000 hours of engineering design effort.
1985	Project Engineer, site installation of vortex shedding modifications to a 200 ft. bent structure at the Caballo mine, Gillette, WY.
1984-85	Project Engineer, Chino Mines Conveyor System Study to resolve dynamic loading problems.
1984	Project Engineer, Conceptual Design, Proposal, and Award of \$9 M wood chip conveyor system at Longview Fibre Co. LV, WA.
1980	Capital Cost study and technical evaluation of proposed reaction injection ski molding (RIM) system and equipment selection for new products.
1979-80	Responsible for the redesign of all ski tooling to critical molding parameters developed through quality control data.
1972-80	On the hill ski, boot, and binding technical tester, AMF-Head Manufacturing and R&D Engineering.
1977-78	Designed an automated production system for polyurethane ski foam cores, with individual air actuated mold assemblies in a recirculating curing oven.
1977	Redesign of plant water cooling and heating systems.
1975-77	Complete redesign of forty hydraulic press cavities used to manufacture fiber reinforced plastic (FRP) skis. Development of measurement methods and statistical process controls which substantially changed traditional molding operations concepts. Commendation letter. Design of ski production machines and fixtures.
1971	Paper Mill expansion CCA-Santa Clara, CA Jr engineer, supervised mill pump piping and kraft board sheeter equipment installations.

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