OFFICE
110 - 5920 No. 2 Road
Richmond, BC V7C 4R9

PHONE
(604) 270-2722

FAX
604-278-3538

EMAIL
elvis@RJWaldronCo.com

WEB
http://www.rjwaldronco.com

Elvis Cepuš, MSc, PhD, CFEI, PEng - Profile

SENIOR ENGINEER, DIRECTOR OF LABORATORY SERVICES

(SEE LAST PAGE FOR SERVICES)

Extensive experience investigating and identifying the root cause of failures in materials, components, machines, and processes. Majority of matters conducted are aviation specific, with significant practice time devoted to industrial equipment, machinery, bicycle accident investigations, and other material failures due to corrosion, fatigue, overload or design and application considerations. The balance of investigations are categorised as general failure analysis. Please contact me for further details. Prior to joining RJ Waldron conducted hundreds of general failure analysis investigations. Provide defence and plaintiff litigation support in product liability cases of a technical nature. Undergraduate and Graduate degrees in Mechanical Engineering, Graduate Degree in Metals and Materials Engineering (Metallurgy) and Composite Materials. Strong background in design, fracture mechanics, fatigue analysis, and computer simulation/modelling.

Adjunct Professor duties at The University of British Columbia are evolving and ongoing. Primary responsibilities are composite materials characterisation research, running the ballistic testing laboratory, and designing research programs for industry clients. Supplementary generation of content for teaching fracture and failure analysis.

Education

Doctor of Philosophy, Metals and Materials Engineering, University of British Columbia, 2003.

Master of Science in Mechanical Engineering, University of Manitoba, 1995.

Bachelor of Science in Mechanical Engineering, University of Manitoba, 1992.

Billing Rate

$310 / hour

Experience

ADJUNCT PROFESSOR AT THE UNIVERSITY OF BRITISH COLUMBIA, JULY 2013 TO PRESENT

Operate and direct research at the Composites Research Network at UBC within the ballistics laboratory. Guest Lecturer on modules regarding failure analysis, fracture mechanics, and fatigue.

SENIOR ENGINEER & INVESTIGATOR - RJ WALDRON & COMPANY, JULY 2012 TO PRESENT

Failure analyst specialising in aviation accident investigations with a large amount of general forensic engineering and failure analysis conducted for the insurance industry. Laboratory skills and equipment used include; scanning electron microscopy (SEM) with energy dispersive spectroscopy (EDS), Fourier Transform Infrared Spectroscopy (FTIR), Metallography, stereo microscopy, and coordinate measuring machine.

SENIOR ENGINEER - MEA FORENSIC ENGINEERS & SCIENTISTS, AUGUST 2005 TO JULY 2012

Failure analyst for product litigation and property. Responsible for determining root and contributing causes of failure in aviation, consumer products, industrial equipment, buildings, motor vehicles and transport. Engineering work includes evidence and site examination, metallurgical

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analysis, materials characterization and identification, fractography, friction and wear, dynamics, stress analysis, sequence of events, codes and standards compliance. Skills include SEM operation and analysis, routinely stage experiments to evaluate hypotheses for failed components, machines and processes, FTIR material analysis, and FEA modelling using Solidworks. Advanced expertise in the ballistic behaviour and failure of composite materials.

RESEARCH ASSOCIATE/ASSISTANT TO NSERC COORDINATOR, MARCH 2004 TO 2005 (SPLIT DUTIES)

POST-DOCTORAL FELLOW/ASSISTANT TO NSERC COORDINATOR, JANUARY 2003 TO MARCH 2003 DEPARTMENT OF METALS AND MATERIALS ENGINEERING, UNIVERSITY OF BRITISH COLUMBIA

Primary investigator/experimentalist in the ballistic response of textile materials for use in armour applications. Responsible for the acquisition of ~$500k of research equipment and tools including a composites manufacturing autoclave, laser scanning CMM, and a suite of machines including a DSC, DMA and TMA. Analysis of NSERC award data for The Office of the Vice President: Research.

CONTRACT RESEARCHER - DEPARTMENT OF METALS AND MATERIALS ENGINEERING, UNIVERSITY OF BRITISH COLUMBIA, SEPTEMBER 1997 TO AUGUST 2005

K2 – Developed 1st published instrumented inline skate testing apparatus.

Pacific Safety Products – Comprehensive study of ceramic manufacturing variables on the ballistic and quasi-static performance of ceramic armour.

InTec – Quantified the impact performance of potential panels for airline cargo containers.

DESIGN ENGINEER - KANLIFT DESIGN INC., VANCOUVER, BC, OCTOBER 1994 TO DECEMBER 2002

Performed mechanical design, as well as structural and fatigue analysis of specialty cranes for military and civilian applications. Included nuclear and conventional missile handling devices, container cranes, and hydro-electric maintenance hoists. Designed lifting and hoisting mechanisms including; motors, couplings, gear boxes, brakes, and shafts for capacities ranging from 1 tonne to 600 tonne. Oversaw manufacturing. Developed all maintenance, operation and pre/post-shipping manuals. Conducted training seminars and failure investigations.

PROCESS OPTIMISATION ENGINEER - TEMRO CANADA - A BUDD COMPANY, WINNIPEG, MB, RESEARCH CONTRACT 1992

Optimised the copper annealing process in a heater core manufacturing facility.

ENGINEERING ASSISTANT - BOEING CANADA, WINNIPEG DIVISION, WINNIPEG, MB, STUDENT WORK TERMS SUMMERS OF 1989 & 1990

Assisted an Engineer with FEA modelling of composite 777 components on the Winnipeg Design-to-Build Team. Assisted a Manufacturing Engineer in solving issues surrounding composite manufacturing.

Professional Associations

Society for the Advancement of Material and Process Engineering (SAMPE), since 2000.

National Association of Fire Investigators (NAFI), since 2012

Company Membership with American Society for Metals (ASM) International, since August 2005.

Association of Professional Engineers and Geoscientists of British Columbia (APEGBC), License No. 32605, 2008.

International Society of Air Safety Investigators (ISASI), since 2010

Canadian Society of Air Safety Investigators (CSASI), since 2010

Helicopter Association of Canada (HAC), since 2012

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Awards

2001 SAMPE Student Symposium, awarded 1st place in PhD Category. Selected as the North American student representative for SAMPE Europe/JEC in Paris, France, 2002.

Outstanding Paper: 2nd place, 33rd SAMPE Technical Conference, 2001.

John Sylvan Nadeau Prize, awarded by the UBC Department of Metals and Materials Engineering to students of high academic achievement and extra-curricular involvement, 2001.

1999 & 2000 SAMPE Student Symposium, awarded 2nd place in PhD Category both years.

Publications

PEER-REVIEWED JOURNALS

A. Shahkarami, E. Cepuš, R. Vaziri, and A. Poursartip , Material Responses to Ballistic Impact, in Lightweight Ballistic Composites: Military and Law-Enforcement Applications, Editor: A. Bhatnagar, Woodhead Publishing Limited, pp. 72-100, 2006. (book chapter)

WR Novotny, E Cepuš, A Shahkarami, R Vaziri* and A Poursartip (2006). Numerical Investigation of the Ballistic Efficiency of Multi-Ply Fabric Armours During the Early Stages of Impact. International Journal of Impact Engineering.

C Wonderly, J Grenestedt, G Fernlund, E Cepuš (2005). Comparison of mechanical properties of glass fiber/vinyl ester and carbon fiber/vinyl ester composites. Composites B, 36(5), pp. 417-426.

D Starratt, T Sanders, E Cepuš, A Poursartip, R Vaziri (2000). An efficient method for continuous measurement of projectile motion in ballistic impact experiments. International Journal of Impact Engineering, 24(2) pp. 155-170.

PEER-REVIEWED CONFERENCE PROCEEDINGS

W. Novotny, E. Cepuš, A. Shahkarami, R. Vaziri, A. Poursartip (2005). Numerical modelling of the early impact behaviour of multi-ply fabric armours. WIT Transaction on Engineering Science, Vol. 49, Impact Loading of Lightweight Structures, pp 403-420.

D Grande, W Avery, E Cepuš, A Poursartip. Instrumental impact testing of inline skates. SAMPE 33rd ISTC, 2001.

E Cepuš, T Sanders, M Deutekom, R Vaziri, A Poursartip, R Delagrave and M Szymczak. Impact response of GFRP plates as measured by different experimental techniques. In: 18th International Symposium on Ballistics, San Antonio, Texas, 1999.

E Cepuš, A Shahkarami, R Vaziri, A Poursartip. Effect of boundary conditions on the ballistic response of textile structures. In: 12th International Conference on Composite Materials (ICCM-12), Paris, France, 1999.

E Cepuš, CD Liu, MN Bassim. The effect of microstructure on the mechanical properties and adiabatic shear band formation in a medium carbon steel. Euro DYMAT, Oxford, England, 1994.

ABSTRACTS

M Bailey, E Cepuš. Failure Analysis of PVC Pipe Joint Separations. Materials Science & Technology 2006.

OTHER PUBLICATIONS

Cepuš E, Electron Microscopy: What is it, What can it do, and Why is it Useful in Claims Investigations, Adjusters' Quarterly, Summer 2006.

Cepuš E (2003). An Experimental investigation of the early dynamic impact behaviour of textile armour systems: Decoupling material from system response. University of British Columbia, Vancouver, BC.

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Cepuš E (1995). Evolution of adiabatic shear bands in high strength steels at high shear-strain rates. University of Manitoba, Winnipeg, Manitoba.

Training and Courses Taken

October 2012 - Certified Fire and Explosion Investigator course. Markham, ON. Certification provided through the National Association of Fire Investigators. NAFI Number: 18101-9870.

September 2012 - Static and Fatigue Design of Welded Structures: A Practical Approach. Professional Engineers and Geoscientists of BC (APEGBC). Vancouver, BC. Taught by Prof. Glinka.

October 2011 – Helicopter Accident Investigation. Southern California Safety Institute (SCSI), San Pedro, CA.

September 2011 - Fracture Mechanics Based Fatigue Analysis. Professional Engineers and Geoscientists of BC (APEGBC). Vancouver, BC. Taught by Prof. Glinka.

November 2010 – Gas Turbine Accident Investigation. Southern California Safety Institute (SCSI), San Pedro, CA.

December 2006 – COSMOS Works Professional Training Course. COSMOS The Analysis Division of SolidWorks, Santa Monica, CA.

June 2006 – Scanning Electron Microscopy and X-Ray Microanalysis. Lehigh Microscopy School, Lehigh University, Bethlehem, PA.

Summer 1997 – L.S. Dyna user course.

Investigations (>1000 As of 2020)

Numerous turbine and piston engine, landing gear, hydraulic, fuel, and lubrication systems failure analyses have been conducted but not included for the sake of brevity. Conducted, supervised, or reviewed hot section metallurgical analysis on a variety of turbine engines (PT-6A, T, A-67A, 114A, T-3B, A-42) (250-C18, C20, C30, C47) (Turbomeca Artouste, Astazou IIIB, Arriel series) (Lycoming T5317A, T5313B) to assess potential damage due to thermal exceedance. Chip analysis on a wide variety of turbine and piston engines. Please contact me for more details and a full database search if desired.

CANADIAN INVESTIGATIONS – REPRESENTATIVE EXAMPLES PROVIDED BELOW - INCOMPLETE LIST

AVIATION = (SELECT INVESTIGATION CITED BELOW)

Hayes Helilogging – Sikorsky S-61 gearbox failure
Standard Aero – Compressor turbine blade failure
Sikorsky – Slew ring investigation
Expedition Helicopters – Loss of control
C&K-ITT – Boeing Vertol BV-107 Jack nut screw failure
Tasman Helicopters – Compressor turbine blade failure
Tundra Helicopters – Compressor turbine blade failure
Cadorath Aerospace – Bell 206 pylon spindle failure
Artisan Aviation – Teledyne Continental TSIO550C engine failure
Seair – de Havilland Beaver loss of control
Engineered Controls – Balloon fire at regulator
C-GXPT – Teledyne Continental GTSIO520 engine failure
Aerojet Turbine – Compressor turbine blade failure
Labrador Air Safari – Pratt & Whitney R-985 engine failure during take-off
Transwest Helicopters – Cotter pin failure

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Garlick Helicopters – Bell AH-1G tail rotor drive quill failure
Advantage Helicopters – Bell 204B tail rotor drive quill failure
C-GCZA – de Havilland Beaver float failure
DuBarry – Cirrus SR22 parachute non-deployment
Atleo Air - Cessna 185F float plane accident
Cirrus SR-20 - Continental IO-360-ES cylinder failure
C-GUZZ - Piper Malibu control cable fraying/binding, loss of control, crash
de Havilland Otter - Wing strut lug stress corrosion cracking analysis/solution
C-GTQH - Eurocopter AS350 BA Fuel Control Unit
GE CT58 Turboshaft Blade Over-temperature Analysis
Viking Air Twin Otter Wing Strut Lug AN12-42A Bolt Pitting Analysis
de Havilland Beaver DHC-2 Mark 1 - float strut bolt pitting analysis
Aviation specific passenger restraint analysis
Cessna 206 Continental IO-520-F crank shaft failure
S-61 Tail Landing Gear Strut material analysis
GE CT-58 Fuel Spray deflector firewall analysis
Conair Firecat Single Engine Rudder Assist cylinder cracking analysis
Kamov helicopter compressor turbine failure investigation
Turbine engine fuel pump nitrided and chromed spline failure analysis
Convair CV580 Allison 501-D13D forward turbine bearing failure analysis
Bell 407 equipped Rolls Royce 250-C47B Number 2 bearing failure analysis
S76 float failure
Learjet 45 Nose Gear Collapse failure/stress analysis
Teledyne-Continental crank shaft failure
AS350D fuel control unit failure
Beech 65-A90 fuel pump drive failure
Piper Malibu PA46-310P control cable failure
Bell 214B Helicopter fuel control failure
Rolls Royce M250-C47B #2 bearing failure
de Havilland Beaver DHC-2 Mark 1 birdcage tubing failure
Cessna T206H engine fire & V-band clamp analysis
Grumman/deHavilland - Turbo Firecat single-engine rudder assist actuator cylinder
Cessna 340A engine failure
Aero Sport Power IO-360-B1B engine analysis
Bell 212 PT6T-3B Engine Reduction Gearbox chip analysis
PT6A-114A engine analysis
Forward Technologies Delrin carburetor float analysis
PT6B-3B engine failure analysis
AS350B2 tail rotor pedal failure
Grumman Mallard G73 P&W R1340 - Right Engine Fire
Hughes 369D RR 250-C20B engine failure
Bell 412 main drive shaft failure analysis
Vans RV-7A O-360-A2A engine analysis
DR 990 materials analysis - duct retainer
AS 350 materials analysis - firewall
Beaver RX 550 Ultra light incident

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Air Canada aircraft passenger mobility assistance hoist
Norjet Cessna 500 Citation I accident investigation
GE Turbine CFM56-3C1 engine analysis
Cessna T182T Skylane IO-540-AK1A engine analysis
Lycoming T53-17A - Power Turbine blade failure
Heli-Lynx Airbus AS350 FX2 torque gear failure
Bell Helicopter 206 L3 RR 250-C30 engine analysis
Cessna 208B PT6A-114A compressor turbine analysis
Rockwell Commander 700 fuel starvation analysis

COMPOSITE MATERIALS

Lee – Composite ladder failure
Falconer - Composite snowboard binding failure
Erie Shores Wind – Glass fibre wind turbine blade failure
Vale – Carbon fibre bicycle fork failure at defect
Gebbie – Carbon fibre bicycle fork failure at adhesive joint

POLYMERIC PIPE FAILURE ANALYSIS

Wide range of polymer piping failure analyses including but not limited to CPVC, PVC, PE, PP and PB plastic pipe, joint, and coupling failures caused by assembly errors, materials incompatibility, polymer blend defects, manufacturing defects, design and implementation defect, use and/or abuse.

BICYCLE & MOTORCYCLE RELATED

Johnson – Bicycle loss of control
Bekken – Mountain bike saddle rail puncture of seat
Irish – Bicycle loss of control downhill, brake and accident analysis
Marosszeky – Amputation of finger by exercise bicycle chain
Vale – Carbon fibre bicycle fork failure at defect
Queyranne – Bicycle loss of control
Vanden Boomen – Bicycle fender mounting failure
Parys – Mountain bicycle fork fatigue failure
Pedersen – Mountain bicycle fork detachment failure
Gebbie v Specialized/Time – Carbon fibre bicycle fork bond failure
Racine v Porco et al (motorcycle) - loss of control with alleged suspension issue
Folding bicycle stability analysis
Frame fatigue & fracture failure analysis
Harley-Davidson Softail® rear wheel separation (ongoing)
Harley-Davidson Road King rear wheel lock-up (ongoing)

GENERAL MECHANICAL FAILURES OF MACHINE COMPONENTS

Crane collapses/failures, Disk brakes, drum brakes, air brakes, brake pedal linkage, hydraulic system failures involving pumps, hoses, fittings, and valves, automobile suspension components, drive shafts, trailer hitches, custom bumpers, and assorted bearings

HOT WATER TANK AND BOILER FAILURES

Residential, commercial, electric, gas, directly and indirectly fired tank systems have been investigated. Failure causes included corrosion, water quality, manufacturing defects, and maintenance deficiencies

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HVAC SYSTEMS AND COMBUSTION PROCESS ISSUES

Geothermal system failures, heat exchangers, pre-coolers, heat pumps, air-handler failures, gas fireplace and other combustion system issues, fires arising from system malfunctions

PRODUCT LIABILITY, FIRE INVESTIGATIONS, CORROSION, OIL TANK FAILURES, PLUMBING & CONSTRUCTION DEFECTS, PROCESS FAILURES

Most fire investigations are cause-focused after the origin appliance or item is identified and delivered to my laboratory. Scene examinations are accepted on a case-by-case basis. Extensive experience investigating aviation related fires (electrical, fuel, lubrication, and hydraulic) to determine if pre- or post-accident. Numerous examinations involving rechargeable batteries, small and large appliances, barbecues/grills, fireplaces, chimneys, and automobile fires. Numerous types of corrosion failure analyses, including stress corrosion cracking, environmentally assisted corrosion, and erosion-corrosion.

FIREARM FAILURE ANALYSES

Failed firing mechanisms, barrels, breaches, or air canister connections resulting in personal injury,

Full list of all investigations performed is prohibitively long. Use contact info to request more details

CONSTRUCTION RELATED DEFECTS, FAILURES, AND INVESTIGATIONS

Stairway, railing and guard issues. Commercial and residential automated garage doors. Escalators and elevators, including entrapment issues. Glazing issues including shattering, degradation, abuse, and misuse. Faulty construction practices. Fastener failures involving nails, screws, bolted joint, and adhesives.

US INVESTIGATIONS - REPRESENTATIVE EXAMPLES PROVIDED BELOW - INCOMPLETE LIST

AVIATION

Jaspers v Bonde – P-51 Mustang replica (Thunder Mustang) crash

Forward Technologies - Delrin float fluid infiltration

Aviation lavatory system patent infringement defence

COMPOSITE MATERIALS

Taitingfong – Composite automotive trunk lid analysis

Brown – Carbon composite bicycle fork failure

Arcoplast – Composite wall panel joint cracking

BICYCLE RELATED

Blakeslee v Phat Cycles – Coaster brake failure on beach cruiser bicycle

Brown – Carbon composite bicycle fork failure

Giessler - Mountain bike front QR skewer fault & wheel ejection. Worked for plaintiff, instrumental in achieving settlement and North American wide recall of 1,000,000 affected bicycles

Trial/Arbitration Experience (As of January 2021)

January 16, 2020. Defense. Vancouver Registry Action No. S156920. East Ocean Seafood Restaurant (1991) Ltd. v. Bonanza Building Maintenance Inc.

November 8, 2017. Defense. Vancouver Registry Action No. S144383, Summary Trial. Cannon v. Al Perrett Enterprises Inc. dba Kamloops Harley-Davidson.

July 20, 2017. Defense. BC Supreme Court. Vancouver Registry Action No. S118123. Edwards and Pinel v. Parkinson's and Kenorah. Qualified as Mechanical and Materials engineer with experience in HVAC systems and interest in forensic engineering. Retained by Christopher Rhone of Branch MacMaster.

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March 16, 2016. Plaintiff. BC Supreme Court Civil. Vancouver Registry No. 138030. Alison Taylor and Richard Hajdu v. John William dba Blackjack Sweeps & Services et al. Qualified as Mechanical Engineer, a Materials Engineer with a speciality in Forensic Engineering, as well as a Fire and Explosion Investigator. Investigated damage to a chimney and its relationship to cleaning activity performed shortly before a fire which damaged the home. Retained by Franco Cabanos of Whitelaw-Twining.

March 11, 2015. Plaintiff. BC Supreme Court Civil. File # 113538. Fedun, Linda v Loiacono, Rosa. Qualified as Mechanical Engineer and Materials Engineer with a speciality in Forensic Engineering. Investigated failure of a railing with respect to building code requirements. Retained by Marlisa Martin of Lambert and Williams.

April 30, 2013. Defense. File # 2013 BCSC 742, BC Supreme Court. Racine v. Porco. Failure Analysis of a Motorcycle Rear Shock Assembly. Retained by Kate Saunders of Branch MacMaster.

April 15-19, 2013. Plaintiff. Arbitration. Montreal, QC. Kluane Helicopters Inc v Turbomeca Inc. Qualified as Mechanical Engineer, Materials Engineer and Failure Analyst. Investigated the root cause of separation of the anticipator lever from the fuel control unit. Retained by Brian Poston of Mackenzie-Fujisawa.

March 9-20, 2013. Defense & Plaintiff. BC Supreme Court. File # 2014 BCSC 674. Advantage Helicopters Inc, Rilpa Enterprises Inc. v Heliponents Inc.. Qualified as Mechanical Engineer, Materials Engineer and Failure Analyst. Investigated the root cause of failure in an oil starved Bell Helicopter 204B tail rotor quill. Retained by Brian Poston of Mackenzie-Fujisawa.

October 2, 2012. Plaintiff. Superior Court of the State of California, for the County of San Diego, North County Division. Shelley Brown v American Bicycle Group,LLC et al.. Analysis of design contribution to the presence of delamination defects in a carbon fibre bicycle fork.

August 18, 2010. Defense & Plaintiff. File # 2011 BCSC 224, BC Supreme Court. Kobelt v Pacific Rim. Qualified as Mechanical Engineer and Metals & Materials Engineer. Analysis into causation of leaking and failing brakes on an oil rig draw-works. Retained by Paul Rosenberg of Rosenberg & Rosenberg.

Deposition Experience (As of August 2017) (50%P 50%D)

July 25, 2017. Defense. Williamsburg National Insurance Company v Rocket Engineering Corporation. Retained by Will Skinner of Skinner Law Group. Incident involving a Piper Malibu Mirage PA-46-350P. Currently ongoing.

June 4, 2014. Plaintiff. District Court of Travis county, Texas, 419th Judicial district. Giessler et al v Trek Bicycle Corporation et al. Retained by Richard Mithoff of Mithoff Law. Analysis of mountain bicycle wheel separation due to a quick release skewer malfunction.

June 11, 2012. Defense. Superior Court of the State of Washington. Becker & Crews v Avco Corporation et al. Retained by Douglas Weigell of Floyd, Pflueger & Ringer. Analysis of design and manufacturing issues with a Delrin aviation carburetor float. Currently ongoing.

June 7, 2012. Plaintiff. Superior Court of the State of California, for the County of San Diego, North County Division. Shelley Brown v American Bicycle Group,LLC et al.. Analysis of design contribution to the presence of delamination defects in a carbon fibre bicycle fork.

Select Reasons for Judgement (As of March 2015)

March 6, 2018. Defense. File # 2018 BCSC 337, BC Supreme Court. Roy Garnet Cannon v. Al Perrett Enterprises Inc. d.b.a. Kamloops Harley-Davidson. Motorcycle loss of control leading to accident. Cross-examination of Dr. Cepuš was extensive. He was not shaken on his opinions critical of (Plaintiff's expert). He was unshaken in his view that there was no objective or scientific way to differentiate between pre-crash and post-crash damage… Dr. Cepuš steadfastly maintained

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that he could not see how (Plaintiff's expert) could possibly identify pre-existing damage to the rear fork arm, the rear fork drop out and the adjuster nut, ultimately leading to the accident. Dr. Cepuš' opinions… were well founded, explained thoroughly and not undermined in cross-examination. Dr. Cepuš' criticism of this is convincing. He explains, in detail, why it is impossible to isolate this damage from pre-existing damage. His conclusion… is well grounded in his analysis and accords with common sense.

April 17, 2014. Plaintiff. File # 2014 BCSC 674, BC Supreme Court. Advantage Helicopters Inc. v. Heliponents, Inc.. Loss of tail rotor drive in a Bell 204B helicopter. *[para 141] The evidence set out in Dr. Cepuš' report is detailed, thorough, and compelling. In particular there is thorough documentation of the significant observations made during the destructive testing and microscopic examination… [para 187] On critical points, however, in my view, Dr. Cepuš conducted a more specific and scientific investigation. [para 227] Dr. Cepuš, in my view, adequately explains the evidence of damage… [para 236] In my view, Dr. Cepuš' explanation of the difference is plausible.*

April 30, 2013. Defense. File # 2013 BCSC 742, BC Supreme Court. Racine v. Porco. Failure Analysis of a Motorcycle Rear Shock Assembly. Retained by Kate Saunders of Branch MacMaster LLP. *[para 78] By contrast, Dr. Cepus's report satisfies me that his opinion evidence is impartial, unbiased, logical, well-reasoned, cogent and founded in common sense. His instructions were open and neutral, and the assumptions upon which he proceeded were accurate and pre-supposed no disputed facts.*

February 23, 2011. Plaintiff. BC Supreme Court. Kobelt Manufacturing Co. Ltd. v. Pacific Rim Engineered Products (1987) Ltd., 2011 BCSC 22. Industrial hydraulic brake failure, qualified as Metals and Mechanical Engineer. *[para 44] I found Dr. Cepus, the only expert witness to testify, to be a frank and helpful witness. He was prepared to acknowledge the possible limits of his opinion when he was cross-examined…*

Lectures and Presentations

January 28, 2016 – Presenter. Beyond Failure: Forensic Case Studies for Insurance Professionals - Continuing Education Course. The Insurance Council of BC. Vancouver, BC.

December 11, 2015 – Presenter. Forensic Engineering Case Studies for Insurance Adjusters - Continuing Education Credit Course as per Insurance Council of BC requirements. Wawanesa Insurance Offices. Vancouver, BC.

March 20, 2015 – Presenter. Fatigue Analysis of a Teledyne-Continental IO-360ES cylinder. Western Aircraft Maintenance Engineers of Alberta Symposium. Calgary, Alberta.

March 19, 2015 – Presenter. Forensic Engineering Case Studies for Insurance Adjusters - Continuing Education Credit Course as per Insurance Council of BC requirements. Canstar Restoration Facilities. Coquitlam, BC.

March 17, 2015 – Presenter & Demonstrator. Forensic Engineering Case Studies for Insurance Adjusters - Continuing Education Credit Course as per Insurance Council of BC requirements. RJ Waldron Facilities. Richmond, BC.

January 23, 2015 – Presenter. Fatigue Analysis of a Teledyne-Continental IO-360ES cylinder. Alexander Holburn/Patterson MacDougall Aviation Law Conference. Toronto, Ontario.

November 18, 2014 - Presenter. Forensic Engineering Case Studies for Insurance Adjusters. Lake Okanagan Insurance Society. Kelowna, BC.

October 23, 2014 - Presenter. Effective Use of Expert Evidence in Products Liability Litigation. For the Canadian Bar Association BC. Vancouver, BC.

September 11, 2014 – Presenter. Bell 204B Accident Investigation - Complete Case History from Accident to Trial. ASM BC Chapter. Richmond, BC.

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March 24, 2013 - Presenter. Forensic Engineering for Insurance Adjusters. ClaimsPro Downtown Office.

February 13, 2014 – Presenter. Case Study of a Bell 204B Component Failure. Pacific Aircraft Maintenance Engineers Association (PAMEA) Symposium.

January 11, 2011 – Presenter. Water & Fire Investigations, Product Litigation and Construction Defects. Insurance Institute of British Columbia (IIBC).

November 8, 2007 – Presenter/Organizer. Use of Fourier Transform Infrared (ftir) Spectroscopy in Forensic Engineering as it applies to insurance claims investigations. Insurance Institute of British Columbia (IIBC).

1994 – 2002 – Presenter/Organizer. Operation and maintenance instructional seminars for custom built cranes for the US Navy Crane Center.

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IN-HOUSE LABORATORY CAPABILITIES

By offering a wide range of technical services at our facility, examination costs and evidence shipping/handling are reduced, and remain local. The vast majority of typical examination operations are conducted in-house, annual out-sourcing is minimal. When additional lab capabilities are required, I maintain an adjunct working relationship at The University of British Columbia.

HEAVY EVIDENCE HANDLING

Forklifts and gantry for heavy evidence movement and storage

Climate controlled storage

SPECIMEN PREPARATION

Buehler Abrasimet 250 High-Speed Liquid Cooled Abrasive Metallurgical cut-off saw

Buehler Isomet low-speed diamond saw

Full metallurgical specimen preparation wet-laboratory

OPTICAL MICROSCOPY

DSLR Cameras, light tables, and booths

Zeiss Discovery V12 Stereo microscope w/ digital camera, image analysis, multiple lenses and lighting configurations

Keyance VHX-5000 digital microscope w/ digital camera, image analysis, multiple lenses and lighting configurations

Zeiss Axiovert 200 MAT Metallurgical Microscope w/ digital camera, image analysis, multiple lenses and lighting configurations

ELECTRON MICROSCOPY

Low and/or variable pressure electron microscope (SEM) images from either:

Zeiss LEO 1455 w/ SE, VPSE, Centaurus Robinson & 4QBSE detectors topographical & compositional imaging

Cambridge 360 SE & 4QBSE topographical & compositional imaging

ANALYTICAL MATERIALS ANALYSIS

Agilent Cary 630 FTIR ZnSe

ThermoScientific UltraDry 2237E-1UPS-SN 129eV EDS detector w/ Pathfinder Analytical software

PulseTor MaximSilicon Drift Hitachi S-510 SD3-10 w/ Quartz analytical software

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