

IAN C. MACLEOD, BBA, CPM (Risk Mgmt)

AUTOMOBILE & HEAVY VEHICLE COLLISION RECONSTRUCTION HUMAN FACTORS IN DRIVER STRATEGY AND TACTICS (COMMERCIAL & PRIVATE PASSENGER MOTOR VEHICLES)

ACCREDITED

Accredited Accident Reconstructionist by the Accreditation Commission for Traffic Accident Reconstruction (ACTAR), accreditation number 629, granted September 18, 1994. ACTAR is a voluntary accreditation process that requires application to the ACTAR Governing Board of Directors, indicating education and experience, and successful completion of a one-day theory and practical examination on accident reconstruction. This accreditation has since been re-newed multiple times as a result of completing the required 80 hours of Continuing Education Units every five years following the granting of the original accreditation. Most recent re-accreditation has been attained and extends to January 10, 2019.

LICENSED

Licensed as a Class One & Three Driver Instructor by the Province of Alberta since 1986. Renewed Nov 2016, valid 'til Nov 2018.

SENSING DIAGNOSTIC MODULE DOWNLOADS & INTERPRETATION

Successfully completed technician and analyst courses to operate the download interface and interpret the data from Sensing Diagnostic Modules in vehicles equipped with air bags and that are supported by the CDR tool. The continued presence required at distant locales for minor updates to this capability has not been deemed worthwhile.

EXPERIENCED

**See 'Evidence' section
below**

EVIDENCE

- November, 1991 - Evidence given in Court of Queen's Bench regarding skid testing performed in a tractor semi-trailer unit loaded to a GVW of 83,000 pounds on a gravel road. This skid testing was conducted for a case involving a collision between a tractor-trailer unit and an automobile at a controlled intersection. I attended every day of this two week trial.
- November 23, 1994 - an intersection collision involving two vehicles, as an expert in traffic accident reconstruction. (CRT of QB) This case progressed to civil court and has since settled.
- October 25, 1994 - a tractor trailer unit passing and colliding with slower moving vehicles in a snow storm on a divided highway, as an expert in professional driver strategy and tactics, (CRT QB)
- a tractor trailer unit in collision with a left turning automobile, as an expert in professional driver strategy and tactics, (CRT QB) St. Albert, Alberta
- June 16, 1995 - a nighttime accident with a vehicle colliding with the rear of a stationary tractor trailer unit, as an expert in professional driver strategy and tactics,(CRT QB)
- February 5, 1996 - Evidence given in Criminal Division of the Provincial Court of Alberta in the Crown v. Beasley, concerning a motorcycle/pedestrian v. automobile collision. Visibility of motorcycle was main issue.
- March 10, 1997 - Evidence given in Small Claims Court in Grande Prairie, Alberta, in matter concerning a vehicle that was involved in running a stop sign and subsequently involved in a collision.
- March 19, May 5, 1997 - Evidence given in the Criminal Division of the Provincial Court of Alberta in the Crown v. Brochu, a MVA in which one of the drivers was charged with leaving a yield sign when unsafe.
- November 14, 1997 - Evidence given in Criminal Division of the Provincial Court of Alberta in the Crown v. Beasley.
- Evidence given in Court of Queen's Bench, Calgary, The Honourable Justice Peter Clark presiding, in Elliot v. Hill Bros. 1998 ca.ab.qb. Qualified as an expert in accident reconstruction and truck driver training. Copy of Reasons for Judgment available on request. Evidence given on tractor trailer driver strategy and tactics.

- Evidence given in Court of Queen's Bench, Edmonton, as an expert in tractor semi-trailer driver strategy & tactics – December 7, 1998.
- **March 21, 2000 - Qualified as an expert in the use & effectiveness of seatbelts in motor vehicle collisions**, gave opinion evidence on commercial transportation industry safety standards generally and as they relate to the use of seat belts for commercial vehicle operators and gave opinion evidence as to the retrofitting of commercial vehicles to bring them up to industry safety standards, and qualified to give evidence on accident reconstruction, in a case involving an early model step van that was being operated by an employee while it was not equipped with any type of occupant restraint., **Heller v. Martens**, Court of Queen's Bench, Lethbridge, Alberta.
- Qualified to offer opinion evidence in **Reaves v. Michelin North America, trial held in the Giles County Federal Circuit Court, Pulaski, Tennessee**. I was asked to form an opinion on whether a properly licensed tractor semi-trailer operator ought to have been able to maintain or regain control of his unit as it experienced a rapid air loss from the left front steering tire. I was also prepared to comment on the forces acting on the unit at various stages of the rapid air loss event, including the drag of the tire and the effect that it would be expected to produce at the steering wheel of the unit. My evidence went on the record (in the event of an appeal), although the jury had been excused pursuant to a request by the plaintiff's counsel for a voir dire.
- September 12, 2000 - Qualified as an expert in accident reconstruction and in the area of tractor semi-trailer operator strategy and tactics by Justice P. Rowbotham in Court of Queen's Bench at Calgary, in a case involving a tractor semi-trailer operator who was charged in connection with a collision.
- November 20, 2000 - Qualified as an expert in accident reconstruction and in the area of tractor semi-trailer operator strategy and tactics by Justice Robert Fraser in Court of Queen's Bench at Calgary, in a case involving a tractor semi-trailer operator who was being sued for negligence arising from an incident allegedly causing the death of a motorcyclist. This matter has tried, an award was given to the plaintiff with no contributory negligence, and the Court of Appeal has upheld that decision.
- January 22, 2001 - Qualified in Court of Queen's Bench, Edmonton, as an expert in the area of tractor semi-trailer operator strategy and tactics in a case involving an operator who had stopped his unit and allegedly failed to take steps to make it visible to approaching motorists.

- August 29th , 2001 - Qualified in Provincial Court of Alberta at Medicine Hat by Justice Phillip Wambolt, as an expert in the area of accident reconstruction and tractor semi-trailer driver training in a matter concerning Douglas Pollard, his tractor semi-trailer and a Canadian Pacific Railway locomotive and train at a 'level' crossing in the Hamlet of Walsh, Alberta.
- May of 2002 - Qualified in Criminal Division of the Provincial Court of Alberta at Calgary by the Honourable Judge Hamilton, as an expert in the area of commercial vehicle operating standards. This case involved a dump truck exiting an alley in urban Calgary and running over a five year old on a bicycle. The Judge accepted my opinion that the driver of the truck had not departed from the standard of care expected and he was acquitted.
- Gave evidence in a case between Her Majesty the Queen and Serge R. J. Major. Judge Wilkins accepted my evidence over that of the prosecution's expert in making his decision that the defendant was not driving carelessly and had been victimized by an intervening hazard that justifiably diverted his attention away from the stalled vehicle.
- November 3, 2005 - Gave evidence in a case between Her Majesty the Queen and Shawn Leroy Smith, in the Supreme Court of British Columbia at Kamloops, who was charged with two counts of dangerous driving causing death. I attended at the eight days of trial in Kamloops. Mr. Justice McKinnon presided.
- Provided expert witness consulting service in a case involving a three vehicle in-line collision on Highway 43 near Debolt, Alberta. This case involved a "B" train loaded with powdered cement that was rear ended by a tri-axle tractor semi-trailer loaded with groceries, which two stationary vehicle were then rear ended by a passenger motor coach. I attended at Court of Queen's Bench in Edmonton for each day of the 17 day trial, giving evidence for the last two days of that trial.
- Judge Nielsen's decision was handed down recently and is available on the internet. He wrote that none of the collision reconstruction evidence explained how the collision happened to his satisfaction. He did accept my evidence regarding the standard expected of commercial tractor semi-trailer operators.
- Provided expert witness consulting service in a case involving a head on collision between a City Wide flatbed tow truck and a Pontiac sedan carrying seven young people, six of whom were killed as a result of the collision. Madame Justice S. L. Martin accepted me as an expert in "Commercial Driver Strategy and Tactics and Collision Reconstruction" and accepted my

evidence on the standard of care and its breach. That decision is also available on the internet. (Action No. 0301 10461)

- Provided expert witness consulting service in a case involving a charge of dangerous driving causing injury. My client's client was operating a fully loaded tractor semi-trailer, and was undertaking a passing maneuver when a vehicle turned left in front of him. He was acquitted, as the judge ruled that the Crown had not met the first test as to what a reasonable man would have done under the circumstances. My evidence went to the second test for the Crown and thus was not required in order for her to acquit. September 23 – 24, 2010.
- Appeared in Red Deer Provincial Court (June 25, 2016) to provide opinion evidence on the standard of care that commercial vehicle operators in Alberta ought to be held to. No decision in the matter has been reached as of this writing.
- Appeared in Court of Queen's Bench at St. Paul, Alberta, in the matter of R. v. Oickle. I was qualified by Mr. Justice Craig Jones to give opinion evidence in the areas of collision reconstruction, standard of care of commercial vehicle operators, and human factors as they are expected to affect commercial vehicle operators' behaviour. Mr. Justice Jones has reserved until January 20th, 2017.

EDUCATION

Attended three day training course in Richmond, BC, on the upgraded version of PC Crash collision simulation software 10.2 – Sept 14 – 16, 2016.

Michigan Human Factors in Engineering Short Course (July 25 – 30, 2016). The 57th annual presentation of the leading thought on human factors in engineering, concentrating on how humans interact with technology, on location of the North Shore Campus of the University of Michigan, Ann Arbor, Michigan.

Attended ARC – CSI conference in Las Vegas, 2016, May 23 – 26.

Attended PC Crash update course (by McInnis Engineering Associates Ltd) in Vancouver for PC Crash 8.3 – 2010.

Completed Certificate of Professional Management from University of Calgary. 2010 –Risk Management Courses, Occupational Health & Safety Courses and Managing Performance through Training and Development course.

Attended one –day Crash Data Retrieval Technician’s Course in Las Vegas, NV, Dec1, 2008.

Attended four day seminar on Crash Data Retrieval in Edmonton, Sept 23-26, 2008

Attended PC Crash Advanced course (by McInnis Engineering Associates Ltd) in Las Vegas Nevada – 2008.

Attended and successfully passed Risk Assessment and Risk Control Courses in the Certified Risk Management program of the Continuing Education Program of the University of Calgary. Sept 2006 to April 2007 – 3.0 hrs / week.

Attended the ARC / CSI Crash Conference in Las Vegas Nevada, June 6-10, 2005. The first day was another update course on the Crash Data Retrieval System.

Attended PC Crash Advanced course in Las Vegas Nevada – 2005.

Attended the World Congress of the Society of Automotive Engineers in Detroit, March 8 to 11, 2004. Took Commercial Vehicle Brake Systems course.

Attended and successfully completed the Crash Data Retrieval System Operator course for the second time, November, 2003. I also attended the first course on this system in Santa Barbara, CA, June 30th, 2000. The three year interval saw many new developments in this system.

Attended and completed successfully a course on motor vehicle /pedestrian (and bicycle) crashes in August of 2002, in Edmonton, AB. This course was sponsored by CATAIR and instructed by personnel from IPTM of Jacksonville, Florida.

Attended World Reconstruction Exposition, September 24 – 29, 2000, in College Station, Texas. This 4.5 day conference included the presentation of technical papers on collision reconstruction and two days of crash testing, including the testing of drag factors for semi-trailers sliding on their sides, motorcycles colliding with stationary automobiles, and angled offset car-to-car collisions. Testing was conducted concurrently, so not all tests could be observed personally.

Attended Commercial Vehicle Rollover Workshop, Society of Automotive Engineers TopTec course on heavy vehicle rollovers, and Heavy Duty Rollover Demonstration, July 11-14, 2000, Vancouver, British Columbia. This included a demonstration of two loaded tractor semi-trailer units being remotely steered into a tight radius turn, causing them to roll over.

Attended course offered by the Continuing Education Department of the Society of Automotive Engineers entitled "Photogrammetry in Accident Reconstruction", taught by Dr. Harry Townes, in Troy, Michigan, May 21-22, 2000.

Re-certified by The Accreditation Commission for Traffic Accident Reconstruction after completing the required 80 hours of continuing education credits in the accident reconstruction discipline – 1999.

Attended Lawyers & Judges Publishing Company seminar on accident reconstruction topics, featuring the top authors in the field, in Tucson, Arizona, November 1998.

High Speed - Low Speed Seminar conducted by McInnis Engineering Associates in Vancouver, British Columbia, August 18 to August 22, 1997. Both high speed and low speed crash tests were conducted and then methods for reconstructing those types of impacts were validated.

Biomechanics of Injury from Traffic Collisions, sponsored by National Institute of Forensic Studies, in Orange, California, May 6-8, 1996. Course included seat belt forensics and injuries caused by motor vehicle collisions.

Nighttime/daytime Visibility Course, advanced course, sponsored by Institute of Vehicular Safety, 5880 Cleveland Avenue, Columbus Ohio in Columbus, Ohio, April 14-18, 1996. This course was a follow-up of the course outlined below. It was much more detailed and was delivered to a small group of participants (12). It consisted of 44 hours of instruction and fieldwork. Fieldwork included testing of conspicuity of reflective tape for tractor semi-trailers, testing for pedestrian conspicuity based on different types of clothing, and iso-candela mapping of headlamps. Course work explored the concepts discussed at the first course in Edmonton, but in greater detail.

Concepts in Nighttime Visibility, sponsored by CATAIR and instructed by Bernard Abrams of the Institute for Vehicular Safety, in Edmonton, Alberta, August 22 through 24, 1995. This course included 24 hours of instruction and field work over a three day period. Mapping of the illumination patterns of automobile headlamps and street lamps was performed, as was testing the visibility of pedestrians at various distances and orientations from car headlamps. This course exposed the participants to how the eye functions, especially as compared to a camera. The perception response time issue was addressed in detail, especially when affected by poor visibility. The concept of discernibility was discussed in terms of the assured clear distance for motorists. Methodology for performing low visibility and nighttime visibility reconstructions was outlined and practical exercises carried out.

Completed the Labatt's Challenge Evasive driving Course in Toronto in August 1994. This course consisted my performance of skid pad maneuvers and collision avoidance techniques, along with a classroom presentation of the vehicle dynamics related to the practical exercises.

Granted Accreditation # 629 from the Accreditation Committee for Traffic Accident Reconstructionists, September 1994 in Collegeville, Texas.

Commercial Vehicle Accident Investigation and Reconstruction, sponsored by CATAIR and instructed by Texas A & M University, Regina, Saskatchewan, August 16 through 20, 1993.

Traffic Institute, Northwestern University, Evanston, Illinois, March 1 through April 30, 1992. Certificates were granted in Accident Investigation I & II, Traffic Accident Reconstruction I & II, and Vehicle Dynamics. Specific training included vehicle damage analysis, vehicle behavior in accidents, identifying and interpreting road marks, lamp filament analysis, conservation of momentum and energy, occupant kinetics, pedestrian accidents, motorcycle accidents, and heavy truck accidents.

Bachelor of Business Administration, St. Francis Xavier University, Antigonish, Nova Scotia - Degree granted in 1979.

EXPERIENCE

Ian MacLeod Accident Reconstruction

1992 - Present

Ian MacLeod Accident Reconstruction, established in May 1992, specializes in motor vehicle accident reconstruction. Work has been performed on over 600 cases, including low speed impacts, motorcycle incidents, large truck and automobile collisions and rollovers. Braking efficiency analyses for tractor semi-trailer combination vehicles have been performed.

President, Truck Tech Corporation

1990 to Present

Truck Tech Corporation, incorporated in February of 1990, provided a **truck driver leasing service** to the transportation industry. Work involved recruiting, hiring and training commercial vehicle operators. Truck Tech now serves as a parent corporation for Ian MacLeod Accident Reconstruction.

Over 15,000 hours of tractor semi-trailer (Class One) driver training performed from 1986 to present.

Completed driver lease assignment for a Calgary company whose long haul driver fell ill. Eight round trips from Calgary to Richmond, BC. I have since provided vacation relief for that company for another 12500 kms.

Ian MacLeod Collision Reconstruction

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**Instructor, Manager (1986 - 1992) and Consultant, CCA 1992 to date
Truck Driver Training Ltd.**

Presently licensed as an instructor by the Province of Alberta to train tractor semi-trailer and tandem axle air brake equipped vehicle operators. and to instruct air brake 'Q' endorsement courses, Longer Combination Vehicle "V" endorsement courses, and Profession Driver Improvement 'U' endorsement courses. Over 150 seminars involving over 2000 students have been delivered. Also licensed to operate motorcycles.

Air brake mechanics course completed at SAIT, 30 hours, 1987.

Air Brake instructor's course completed at Southern Alberta Institute of Technology (SAIT) – 1988.

Attended the World Congress of the Society of Automotive Engineers in Detroit, March 8 to 11, 2004. Took Commercial Vehicle Brake Systems course.

Evaluations of prospective employees for transport firms have been conducted, in addition to Gov't of Alberta sanctioned road tests for applicants desiring a 'V' endorsement (for turn pike double 53 foot trailer combinations & triple 28 foot trailer combinations). No longer licensed to conduct LCV courses due to inactivity.

Instructor for Vehicle Dynamics and Tire Seminar, conducted in association with the Nevada Automotive Test Center, Scientific Accident Reconstruction Inc., and Michelin North America, Sept 9 - 12, 1997. Instructed attorneys and police personnel in driving tractor-trailer units so they could get them up to fifty miles per hour and experience a rapid air loss (blowout) from one of the front tires. Course conducted at the Nevada Automotive Test Center about 100 kms from Reno, Nevada.

Instructor for Vehicle Dynamics and Tire Seminar conducted in association with the Nevada Automotive Test Center, Scientific Accident Reconstruction Inc., and Michelin North America, Sept 14-17, 1997. Same as above.

Worked in association with KPMG, a consulting firm with offices worldwide, on an assignment from Mobil Oil Canada to audit their driver training outsourcing and make recommendations for changes if necessary. This project consisted of attending driver-training courses put on for Mobil employees to see if they were being delivered correctly and also to examine the vehicle specifications for various tasks to see that the vehicle matched the job requirements and complied with safety concerns. The routes and entrances to various worksites were examined for safety concerns. Sept '97 - Feb '98.

Instructor for Vehicle Dynamics and Tire Seminar put on by Michelin North America, Sept 29 – Oct 3, 1998. Prepared and delivered a 45 minute technical presentation on how a non-synchronized transmission functions and how to drive a tractor semi-trailer equipped with such a transmission. Instructed attorneys and police training personnel and other US government transportation department personnel (NHTSA) in driving tractor trailer units and cars (and a Blazer SUV with a rear tire rapid air loss) so they could get them up to fifty miles per hour and experience a rapid air loss (blowout) situations from a front tire in the case of the tractor semi-trailer and a rear tire in the case of the Blazer SUV. Course conducted at the Nevada Automotive Test Center, about 100 kms from Reno, Nevada.

Instructor for Vehicle Dynamics and Tire Seminar put on by Michelin North America, Oct 4 – Oct 7, 1998. Same as above.

Participated as an expert witness in a mock trial exercise at Court of Queen's bench in front of Madame Justice E. A. Hughes. (23rd Intensive Advocacy Workshop 2005 – University of Calgary Faculty of Law and the Legal Education Society of Alberta. June 18, 2005).

Keynote speaker at the Ryder Truck Rental Annual Safety meetings held in Calgary and Edmonton, Oct 2003. Topic included collision reconstruction of heavy truck incidents.

Keynote speaker at the Ryder Truck Rental Annual Safety meeting in Calgary. Topic included traffic signing and systems and how drivers need to interact with those systems – Nov 2005.

Management Consultant – Presently providing management services to Drs. Ashenhurst & Hill, dealing with all issues pertaining to the business operations of their specialist ophthalmology clinic in Calgary. Acting executive director of the Eye Physicians & Surgeons Association of Alberta.

A complete list of current litigation matters in which I am retained as a testifying or consulting expert can be made available upon request.

Attended at the Las Vegas Speedway 'Exotics Racing', completing 5 laps of a 1.2 mile track in an Audi R-8 (525 HP), April 30, 2016, and returned 3 weeks later to complete 9 laps of the same track in the same car. Fast lap on first occasion, 58 seconds, on second occasion 56 seconds, top speed 118 mi/hr.

Most recent judgement was orally delivered on January 20th, 2017, by Mr. Justice Craig Jones in the matter of R. v. Billy Joe Oickle. Mr. Oickle was attempting to reverse his tractor semi-trailer off of a highway. An oncoming 77 year old driver failed to apprehend the situation, and was fatally injured. The case involved a

detailed analysis of commercial vehicle operator standards and behaviour, human factors associated with nighttime visibility, as well as a re-enactment involving an exemplar tractor-semi-trailer, partial and brief total shut down of the highway by highway maintenance crews adhering to protocols, and the production of a video that was displayed at court.

The case applied the concepts of SAGAT (Situation Awareness Global Assessment Technique) as presented at the UMTRI Human Factors course in Ann Arbor, Michigan that I attended.

Recent upgrade to latest version of PC Crash (11.0), as well as latest version of Photomodeler – photogrammetry software.

Ian C. MacLeod, ACTAR # 629

Current to September 5, 2017.

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