



Andrea Gaynor

CFEI

Fire and Explosion Investigator

OFFICE

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CONTACT

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Andrea is a Certified Fire and Explosion Investigator. She has over 10 years of experience with the Ontario Fire Marshal, prior to which she served as an officer with the Halton Regional Police Service for 22 years. To date Andrea has been involved in over 763 fire and explosive investigations. She has been qualified as an expert in fire and explosive investigations in Ontario Court and Superior Court of Justice for the Province of Ontario. Andrea is also an associate instructor for the Ontario Fire College and has taught the NFPA 1033 fire course to firefighters and police.

CERTIFICATIONS

- Certified Fire and Explosion Investigator (CFEI)

TECHNICAL AFFILIATIONS

- Member – Fire Service Women Ontario (FSWO) since 2012
- Member – Association of Arson Investigators (IAAI) since 2006
- Member – National Association of Fire investigators (NAFI) since 2012
- Member – Canadian Arson Investigators Association (CAFI) since 2012
- California Homicide Investigators Association (CHIA), 2010
- Harvard Associates in Police Science, Inc., 2009
- Colonel Henry F. Williams Homicide, 2003

EDUCATION

Bloor Collegiate Institute

Ontario Secondary School Diploma
Toronto, Ontario, Canada

PROFESSIONAL EXPERIENCE

Fire and Explosion Investigator

OCI Group (Formerly Origin and Cause Inc.)
Burlington, Ontario
May 2022 – Present

Fire Investigator

Office of the Fire Marshal
Ministry of Community Safety and Correctional Services
March 2012 – April 2022

- OFC – Associate Instructor – February 2013
- Certified NFPA 1033 – January 2014
- Coach Officer, A/Supervisor, OSM (Occupational Stress Management Team Member)

Police Officer

Halton Regional Police Service

January 1990 — March 2012

- Left at the Rank of Sergeant
 - Previously worked in the Uniform Branch, Criminal Investigation Branch, Frauds, Sexual Assaults & Child Abuse, Courts, and the Homicide Bureau (Detective)
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FURTHER TRAINING & EDUCATION

Coaching Police Professionals

Aylmer, Ontario

February 1–5, 2021

- 40 hours training, practical and written, with pre-course material, a presentation and a written examination

Indigenous Awareness Training

December 31, 2018 – January 5, 2019

- Online training to raise awareness and educate on indigenous culture

Compartment Fires

Office of the Fire Marshal and Emergency Management, Midhurst, Ontario

December 10–11, 2019

- FI Ross, QARM Derstroff and FFPE Bennett – delivered training on compartment fires, reviewing practical burns conducted in Oshawa replicating compartment fires.

Post Blast Investigative Techniques I (Course ID EXPL-CS-0013), ATF

Redstone Arsenal, Alabama

February 12–16, 2018

- A basic post blast course designed to teach a systematic method of investigating an explosion scene. The course provides instruction in explosives identification and applications, explosives effects, IED component recognition and evidence collection.

Fire Debris/Chemistry
CFS Fire Group
August 16, 2017

- CFS Fire Group hosted Jeanet Hendrikse from the Netherlands Forensic Institute, her areas of expertise are fire debris analysis and identification of unknowns. She is involved in the training of national fire investigators, works closely together with Page 3 the national Canine Team, and is very active in the forensic fire debris analysis community worldwide. In her previous job at the international Organization for the Prohibition of Chemical Weapons, she supported onsite inspections by preparing and maintaining the portable instrumentation.

Forensic Identification Conference, OPC
November 7–8, 2016

- Examination of Vehicle Fires – Tim Irish OFMEM
- The Traffic of Human Remains – Myriam Nafte – PHD McMaster University, Review of R. v. Pan Homicide Investigation Det. Courtice, Det Cooke York Regional Police, 43 Missing Mexican Students Where are They? Greg Olson Laurentian University, Past and Present DNA Jon Millman CFS, Fire Scene Dynamics – A Case Study Tim Irish OFMEM, Identification: Forensic pathology Perspective Dr McAuliffe Pathologist.

Death Investigators Course, OPC
September 26–30, 2016

- 5-day course at OPC. Manner of death and investigative techniques used in death investigations. Scene preservation, forensic pathology, dentistry, anthropology, psychology and behaviour analysis, crime scene reconstruction case reviews, case law, autopsy's, Coroner's role, evidence collection. Police and OFMEM in attendance.

Seminar (FESTI), CAFI
April 20, 2016

- Understanding Ventilation and Post-flashover Fire Dynamics – Canadian Association of Fire Investigators (CAFI) Spring Training Seminar Fire and Emergency Services Training Institute (FESTI) – A full day training seminar presented by Jeff MINTEN, BA, CFEI, Fire Investigations Supervisor with the Office of the Fire Marshal and Emergency Management. Topics included: common

mistakes, fire science (Thermometry, Fluid Dynamics, Fire Chemistry), flashover, factors affecting fire development, identifying the difference in fire development pre and post flashover, locating the fire triangle, hypothesizing the “when” in fire development, dead air space, flow paths, confined spaces, stairways, chase ways and chimneys.

IAAI (International Arson Investigators) Seminar
Sep 23–24, 2015

- 2-day course – topics covered – Cybercrime, Investigation techniques including CCTV video – case studies Boston Bombing, UK Large Loss.

OFMEM – Fire Investigator Spring Training, OFC
June 2–5, 2015

- 5-day training seminar covering topics including Ventilation controlled fires, CISM (Crisis Intervention Stress Management). Test burns in cells – to include ventilation-controlled fire, using cigarettes (Multiple cigarettes had to be used) vs. open flame application to combustibles.

2015 Forensic Investigative Services (FIS) Conference, Toronto Police Service
May 12–15, 2015

- 4 day training conference covering topics including:
- Use of Chemical and Biological Agents in Criminal Cases and Terrorism Incidents – A discussion of several criminal cases and terrorism incidents and how local and federal law enforcement responded; and the methods that were used to solve the cases and pursue the terrorist – Presented by Dr. David Hodge, U.S. Department of Homeland Security
- Serial Killer Case Study – A presentation of the Ottawa Police Service investigation of Serial Killer Camille Cleroux as assisted by Forensic Anthropologist Greg Olson – Excavation of Human Remains from Historical Graves, Victim recovery from an air crash during extreme winter conditions – Presented by Greg Olson, MSc; Office of the Fire Marshal and Emergency Management
- Current Challenges to Forensic Evidence – A panel discussion regarding the legal issues related to expert testimony. Including the implications of the Gouge inquiry as well as issues surrounding the tests to qualify an expert witness including a “cost – benefit” analysis – Presented by Justice David Rose – Crown Attorney Paul Tait and Defence Council Enzo Rondinelli

- Accelerant on Skin Post Fire – A presentation examining recent research conducted at the Ontario Police College utilizing various materials, gasoline and pig carcasses. Including the results of laboratory examinations
- Gasoline in Lung Tissue and Heart Blood – A presentation examining recent research conducted at the Ontario Police College where pig carcasses were exposed to gasoline and gasoline vapours prior to being ignited. The results obtained after necropsy were examined – Presented by Greg Olson, MSc; and Kevin Pahor, MSc; Office of the Fire Marshal and Emergency Management
- Advanced photography for FIO (Forensic Identification Officer) – Techniques and concepts including advanced metering, lighting difficult surfaces, using remote flash, using multiple “pops” and gelling the strobe for both practical and creative lighting – Presented by Jason DiMichele & Jennifer Ford Photo Imaging Technicians Toronto Police Service
- Processing Tips for Marihuana Grow Labs – Gathering evidence within the often dangerous and high humidity environment of an illegal Marihuana Grow Lab – Presented by Wade Knaap and Jessica Piekny
- Case Studies: Lac Megantic and L’Isle Verte – A presentation of the logistical issues and evidentiary barriers presented by large scale disasters – Presented by Sergeant Luc Gagnon Surete du Quebec.

Expert Forensic Evidence in Criminal Proceedings

January 16, 2015

- A joint program of the Centre for Forensic Science and Medicine at the Osgoode Professional Development Centre (in conjunction with York University) Topics including; New Developments in the Jurisprudence on Expert Testimony, New Developments in Forensic Pathology as a Prototype for Other Forensic Disciplines, distinguishing between Science and Pseudo Science, Issues in Obtaining an Expert’s Opinion, Ethics and Professional Responsibility Issues, Experts in the Media.

Keynote Speaker – James Lockyer, A Case Study – How Forensic Science Came to the Rescue (DNA).

Investigation of Gas and Electric Appliance Fires

5 Benton Harbour, Michigan

November 2–7, 2014

- Intensive 4-day, in-lab, hands-on program for fire investigators. Learn how appliances and electrical components work, fail and cause fires. Spent four days

with Fire Findings' experts on-site in their forensic laboratory. Examined actual appliances and appliance components that have failed, causing fires. Witnessed fire-causing demonstrations involving, Gas furnaces, gas water heaters, gas and electric clothes dryers, dishwashers, ranges and microwaves, refrigerators, toasters, space heaters and other small appliances. Taught by Jack Sanderson (Fire Investigator), James Finneran (appliance failures) and Nathan Dwyer (electrical expert).

Toronto Arson Task Force – John D. Dehaan Ph.D
Toronto Fire & EMS Training Centre
October 14–15, 2014

- Sources of Ignition, Low Voltage Devices, How the Human Body Reacts to Fire, case Studies involving the Wrongful Convictions, Serial Arsonists.

OFMEM – Fire Investigator Spring Training, OFC

- 5-day training seminar covering topics including Integrated Risk Module and Vulnerable Occupancies; Emotional Survival for Law Enforcement (Dr. Gilmartin); OFC transition to NFPA; Review of changes to NFPA 921; Fire Dynamics and Heat Release Rate Calculations – Four 12x12 burn cells were evaluated for fuel load and ventilation conditions. Calculations estimating required heat energy to cause flashover were conducted; and a hypothesis on fire development and spread were articulated. The four cells were then ignited, and conditions allowed to develop for 90 seconds past flashover (600°C) or 15 minutes. Each cell then evaluated and compared to hypotheses.

Office of the Fire Marshal and Emergency Management Training/ESA
Midhurst, Ontario
December 4, 2013

- Electrical safety procedures when dealing with locked out electrical panels and circuits, examples and video demonstrations shown, conducted by ESA.

OFMEM – Fire Investigator Fall Training, OFC
October 2013

- Office of the Fire Marshal Annual Fall Training – Ontario Fire College – Gravenhurst – 5-day OFMEM training covering the following topics: Operational updates and a

4 day Retrofit course as it applies in Fire Code and Building Code. (Taught by Jana Gillis).

OFMEM Fire Investigator Spring Training
Ontario Fire College, Gravenhurst, Ontario
June 2013

- 5-day OFM training covering the following topics – Understanding Crown expectations regarding expert evidence, key elements to become an expert witness. Issues related to working with Police Investigators on Serial Arson Investigations. Bureau of Alcohol Tobacco and Firearms Fire Investigations. ATF Page 6 Case reviews. Intensity vs Movement of a Fire, Fire Pattern Development, and timelines associated to full room involvement, and the impact of ventilation on fire pattern development, including demonstration burns, smouldering fires. Butane Extraction, and it's risks.

Recovery of Human Remains (Ident)
Ontario Police College, Aylmer, Ontario
June 2013

- 5 day course provided at the Ontario Police College, and other locations, by a number of Forensic Anthropologists, a Forensic Entomologist, with presentations and practical exercises on the following topics – Methods of locating and collection human remains, Trauma to Bone, Recovery of Human Remains in Fatal Fires, Ground Penetrating Radar, Recovering Surface Scatter Remains and shallow grave remains, and collecting entomological samples for determination of post mortem time period.

NFPA 921 – Fire and Explosion Investigator, CFEI
Mississauga, Ontario
September 2012

- Fire Investigator's Course hosted by the Fire and Emergency Services Training Institute (Pearson International Airport – FESTI) Attended week-long course teaching to the standard of NFPA 921 with an exam.

Advance Fire Cause Determination and Investigation Course
Ontario Fire College, Gravenhurst, Ontario

- A 5 module course covering topics dealing with Chemistry of Fire, Spontaneous Combustion, Building Construction, Interviewing and Statement Taking, Vehicle Fires, Comprehensive Fire Investigations, Environmental Impact, Explosion Investigation, Marijuana Grow and Meth Lab Fires, Origin and Cause, Criminal Code and Other Related Statutes, Roles and Responsibilities and the FPPA, Search Warrants, Motives, Fraud, NFPA 921, Incendiary Devices, High Temperature Accelerants as well as Related Case Studies. Taught by senior members of OFM who all Associate Instructors with the Ontario Fire College.
- Module #1: Advance Fire Cause and Determination – August 2012
- Module #2: Advance Fire Cause and Determination – September 2012
- Module # 3: Advance Fire Cause and Determination – October 2012
- Module # 4: Advance Fire Cause and Determination – November 2012

OFM Fire Investigator Spring Training
 Ontario Fire College, Gravenhurst, Ontario
 June 2012

- Five day OFM training covering the following topics: Lightning Strikes and new methods of obtaining data; smouldering ignition with practical demonstrations and field examinations; review of fire alarm systems and strategies for use as investigative tool; Case studies including Brampton house explosion, Timmins attempt murder, Langford homicide, Muskoka Heights Retirement home inquest update.

OFM Fire Investigator Fall Training
 Ontario Fire College, Gravenhurst, Ontario
 October 2012

- Four-day OFM training covering the following topics – Fire Code as it relates to venerable occupancies, Meaford – Reeds Restaurant Fire – Electrical Meter Fires/ Research – Body Recovery – Fire Chemistry

Fire and Explosion Investigator
 National Association of Fire Investigators
 October 2012

- Course completion certificate issued by the National Association of Fire

Investigators, as per the guidelines and standards laid out by NFPA 921

- Displayed the skills and knowledge necessary to perform as a fire and explosion Investigator in both the public and private sectors according to NFPA 921 Guidelines. (NFPA – National Fire Protection Association)

Fire Investigation Training Program

Office of the Fire Marshal

April 2012 – October 2012

- An understudy program where the new recruit is assigned a Training Officer who with the Trainee, will develop competence and proficiency through a “learn by doing” type of educational procedure covering all aspects of Fire Responsibilities and the FPPA, Search Warrants, Motives, Fraud, NFPA 921, Incendiary Devices, High Temperature Accelerants as well as Related Case Studies. Taught by members of the OFM – Associate Instructors

Ontario Fire Marshal Fire Investigator Post-Fire Investigative Response (HazMat) Course

Office of the Fire Marshal Headquarters, Toronto, Ontario

March 2012

- Course material dealt with assessing scene hazards and selection of appropriate personal protection equipment.

Fire Investigation Orientation

Office of the Fire Marshal, Midhurst, Ontario

March 2012

- Three-week orientation seminar dealing with the corporate structure of the OFM as well as corporate policies, and training of assigned equipment. Bill Hiscott, OFM

Psychology of a Fire Setter

Toronto Arson Task Force

November 2011

- One day conference in Toronto, Dr. Peter Collins of the Behavioural Science Unit, OPP lectured on the psyche of a “Fire Starter”, discussed reasons for this behaviour, interview questions to ask, and potential evidence to be aware of in

these circumstances. Fire Investigator Lonnie Schubert reviewed an actual case through a presentation with a case example.

The Evolution of Fire Scene Evidence, IAAI June 2010

- One day seminar in Hamilton hosted by the International Association of Arson Investigators. Case presentations on large scale fires, evidence to look for, how to process the scene using the Scientific Method and following guidelines as set out in the NFPA 921.

Fire Investigation, IAAI Waterloo June 2006

- 2 day course in Waterloo at the Fire training facility, for police fire investigators, insurance fire investigators, and fire prevention officers. The course was put on by the International Association of Arson Investigators (IAAI). Through presentations and practical scenarios – examined fire patterns, burns patterns made by a variety of accelerants. Practical burns conducted in mock living room and bedroom room settings. Written exam at completion.

OSM (Operational Stress Management Team) Member Courses

- Return to Work Seminar, OFM HQ Toronto – February 13, 2020
- Vicarious Trauma – November 27, 2019
- Review of the Tori Stafford Case by Elgin County Crown Attorney Kevin Gowdey, CFS
- ICIS – International Critical Incident Stress Conference – May 19-25, 2019 15th World Conference, Baltimore, MD
- Canadian Crisis Intervention Conference, Niagara Falls – April 2-3, 2019
- Advanced Group Crisis Intervention training
- Advanced Group Crisis Intervention Training, Niagara Falls – April 4-5, 2019
- R2MR (Road to Mental Readiness) Leadership Course, Midhurst – November 7, 2018
- Suicide Prevention and Recognition – October 22-23, 2018 Kincardine, Ontario.
- Operational Stress Injury

POLICE CORE COURSES

Forensic Interviewing, CPC

May 2003

- Canadian Police College – Ottawa, Ontario – This two week course curriculum included personality types, interviewing strategies, barriers of communications, active listening, cognitive interview, statement analysis, interrogation, Reid's Interview and Interrogation, practical exercises

Multi-Jurisdictional Case Management, OPC

May 2003

- Ontario Police College – one week – Working with other agencies – large scale cases, determining who will be the lead. Based on the Major Case Management Page 9 Model – Command Triangle consisting of the File Coordinator, Primary Investigator and Major Case Management. Search warrant coordination, media liaison, interviewing, data input, scene investigation, forensic identification, field investigation and canvassing. Joint management team, investigative consulting team and other topics.

Major Crime Investigative Techniques, CPC

August 2002

- Canadian Police College – Ottawa, Ontario, – This course examined the Major Case Management System used in Ontario, and in other parts on Canada, as used by the RCMP, Canvassing, RCMP Forensic Laboratories, Behavioural Sciences, Interviewing, Media, Victim Management, Crime Scene Management, Human Sources, and Undercover Investigations, and other topics.

Homicide Investigation Level 1, OPC

November 1999

- One-week course at the Ontario Police College. This course curriculum included – Forensic Interviewing, Statue and Case Law, types of evidence, Crime Scene Management, Resource Management, Centre of Forensic Sciences, Types of Resources Available, Note taking, Canvassing, Search and Seizure, Types of Scenes

Major Case Management, OPC
December 1998

- Vaughan Ontario – Two Week Course accredited with the Ontario Police College. This course examined the Campbell and Kauffman Reports, The Major Case Management System, Canvassing, Centre of Forensic Sciences, Behavioural Sciences, Interviewing, Media, Victim Management, Crime Scene Management, human Sources, and other topics.

General Investigative Techniques, OPC
December 1996

- Ontario Police College, Two Week course accredited with the Ontario Police College. Course curriculum included – handling of physical evidence, crime scene management, and informant development, operational planning, victim issues, death investigation, search and seizure, interviewing and interrogation as well as eyewitness testimony.

Fraud Investigation – Level 1, OPC
September 1995

- Ontario Police College, Three Week course accredited with the Ontario Police College. Course curriculum included – handling of physical evidence, crime scene management, and informant development, operational planning, writing warrants for banks and other financial institutions.

PRESENTATIONS

Ontario Fire College, NFPA 1033 Accredited Course: Instructor
September 30 – October 4, 2019 (with Instructors Ken Benoit and Clive Hubbard)

Camp Molly, Oakville (14-18 yr old Females) Live Burn Demos and Lectures – May 9-12, 2019 and September 23-26, 2021

Lambton Shores Fire Department, Forest Fire Department
July 14-15, 201

2 day training seminar including a live burn training exercise involving a 12' X 12' burn cell. 1 day in class training. Topics covered included Origin and Cause Determination, Ventilation controlled fires, when and why to contact the OFMEM, Fire Science.
Attended by 15 persons

CASUI (Canadian Association of Special Investigations Unit): Guest Lecturer
May 18, 2017

OPP and Northern College Fire Fighter Class, Forensic Identification Annual Training:
Guest Lecturer
March 1, 2017

Meaford Fire Service: Fire Scene Assessment, Meaford Station
March 10, 2016

Hamilton Arson Investigators: Fire Scene Assessment, Hamilton
October 14, 2015

Spring Training, Ventilation Controlled Fire: Peer Case Presenter OFC
June 2015

Ontario Fire College, NFPA 1033 Accredited Course: Instructor
May 25- 29, 2015 With Instructors: Supervisor Tebby and FI Pahor

Forest Fire Service, Note Taking: Guest Lecturer with FI Hubbard
March 16, 2015

Westervelt College, London, Police Foundations: Guest Lecturer
July 22, 2014

University of Windsor, Forensics 200 Students: Guest Lecturer
January 27, 2014

FSWO (Fire Service Woman Ontario): Conference Speaker
November 1-2, 2013 Ontario Fire College

Spring Training Case Presentation
June 4, 2013

Ontario Fire College: Associate Instructor
November 2012 – Present

POLICE & OFMEM AWARDS

OPP Commanders Letter for Excellence in Investigations (Serial Arson case) (June 2021)

Fire Marshal Citation: Mississauga Fire Explosion Investigation (December 2016)

Fire Marshal Citation: Coach Officer for Fire investigator Recruits (2014)

“Respect for Law Award” by the Optimist Club of Georgetown – (June 2011)

20 Year Police Fitness Award (March 2011)

20 Year Police Exemplary Service (Medal 2011)

COURT EXPERIENCE

R. vs. Dion – Lyndsay Court, Ontario Court of Justice, Judge and Jury, Justice Smith (Homicide) – August 13, 2021

R. vs. Steffin – Thunder Bay Court, Ontario Court of Justice, Preliminary Inquiry
Madame Justice McKinnon – October 2, 2020

R vs. Beal – Guelph Court, Ontario Court of Justice, Discovery Preliminary Hearing.
Crown Judith MacDonald – March 20, 2019

R vs. Coldin – Barrie Court, Ontario Court of Justice – Madame Justice Healey –
February 20, 2019

R vs. Gerberdt – Orangeville Court, Ontario Court of Justice, Justice Atwood – August
3-4, 2016

R. vs. Nootchtai – Sudbury Court– Ontario Court of Justice Preliminary Inquiry –
December 31, 2013