



MICHAEL BRINKER, P.E., CFEI, CVFI

PROFESSIONAL BIOGRAPHICAL OUTLINE

BACKGROUND

Mr. Brinker is a mechanical engineer with fifteen years of domestic and international engineering experience. Mr. Brinker has investigated cases involving electrical and mechanical failures in residential and commercial appliances, industrial equipment, construction equipment, boilers, elevators, HVAC systems, and fire suppression systems. Mr. Brinker has worked in the fields of forensic failure analysis, power plant operations, pollution control systems, mining and mineral production, and chemical production facility design. He has fulfilled roles of increasing responsibility as a technical sales engineer, project manager, and senior mechanical engineer.

AREAS OF SPECIALTY

- Accident Reconstruction
- Building Energy Management Systems
- Commercial Equipment
- Consumer Appliances
- Control Systems
- Diesel Powered Equipment
- Energy and Power
- Fire Origin and Cause Investigations
- Fire Suppression Systems
- Heating, Ventilation, Air Conditioning
- Industrial Equipment
- Lightning Damage
- Mechanical System Analysis
- Piping and Plumbing Systems
- Vehicle Malfunctions
- Water and Wastewater Treatment

LICENSES & CERTIFICATIONS

- Registered Professional Engineer (P.E.), licensed in Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia.
- Certified Fire and Explosion Investigator (CFEI)
- Certified Vehicle Fire Investigator (CVFI)
- Bosch Crash Data Retrieval Technician

FORMAL EDUCATION

- Bachelor of Science in Mechanical Engineering Pennsylvania State University, University Park, PA, 2004

PROFESSIONAL EXPERIENCE

February 2018 – Present | ARCCA, Incorporated | Mechanical Engineer

- Conduct failure analysis of electrical and mechanical equipment utilized in various industrial, commercial, and residential applications.
- Utilize test assemblies to evaluate impacts to vehicles and personal protective equipment.
- Perform cost analysis and repair feasibility studies to return damaged equipment to pre-loss condition.
- Investigate the origin and cause of vehicle malfunctions and fires.
- Vehicle Crash Data Analysis.

2014 - 2018 | Envista Forensics | Senior Mechanical Forensic Engineer/Expert Alliance Project Manager

- Conducted failure analysis of electrical and mechanical equipment utilized in various industrial, commercial, and residential applications.
- Performed cost analysis and repair feasibility studies to return damaged equipment to pre-loss condition.
- Managed a multidiscipline team of consultants on diverse claim-related projects that require expert opinions.
- Performed catastrophe-duty work during Hurricanes Matthew (2016), Irma (2017), and Maria (2017)

2012 - 2014 | ThyssenKrupp Industrial Solutions USA Inc. | Mechanical Project Engineer - Fertilizer and Gas Technologies

- Interfaced with global design engineering teams to specify and procure industrial equipment packages for two multi-billion dollar fertilizer production facilities.
- Adapted foreign technical specifications to the U.S. market, and evaluated vendor equipment proposals.
- Collaborated with global teams to quickly resolve issues and maintain project schedule.

2010 - 2012 | Breen Energy Solutions | Field Project Manager – Flue Gas Treatment Solutions

- Designed, constructed, and commissioned sulfur trioxide abatement systems at coal-fired power plants.
- Trained and supervised field operations employees, focusing on safety and production goals.
- Prepared technical documentation and training manuals for abatement systems.
- Developed new products and processes to respond to changing customer demands and regulatory requirements.

2005 - 2010 | Lhoist North America | Senior Technical Sales Engineer – Flue Gas Treatment Applications

- Cultivated new clients for calcium-based reagents in emerging environmental markets.
- Demonstrated reagents products at bench-scale and full production levels.
- Provided technical expertise for existing customers required to meet more stringent regulatory standards.
- Collaborated with global business units on new product ideas and market applications

2004 - 2005 | Exelon Power: Cromby Generating Station | Plant Engineer

- Managed operational and capital projects for scrubber, waste water treatment, and fuel oil systems.
- Monitored environmental compliance data for water discharge and solid waste disposal.
- Addressed jobsite issues including safety, confined spaces, and lockout/tagout.

CONTINUING EDUCATION / ADDITIONAL TRAINING

- Certified Vehicle Fire Investigator Training held in Lexington, KY, September 2019 (Tested)
- Using NFPA 921 to Meet the Professional Qualifications for Fire Investigator in NFPA 1033 held in Nashville, TN, May 2018
- Bosch CDR Tool Technician Training held Online by Institute of Police Technology and Management, March 2018 (Tested)
- Oil & Gas Production and Processes Fundamentals held Online by PDH Center, March 2018 (Tested)

- Investigation of Gas and Electric Appliance Fires, held at Fire Findings Laboratories, Benton Harbor, MI, April 2016 (Tested)
- NFPA #20 Fire Pump Training held in Pittsburgh, PA, May 2015
- Water Supply: Water Treatment held Online by PDH Center, August 2013 (Tested)

PROFESSIONAL AFFILIATIONS:

- Member, National Fire Protection Association (NFPA)
- Member, National Association of Fire Investigators (NAFI)

PUBLICATIONS

Brinker, M.; "Combating Corrosion" CLM Magazine Fall, 2019.

Brinker, M.R.; "When Lightning Strikes How Electrical Devices Are Affected" CLM Magazine June 2018
 Gale, T.K; Cannon, J.W.; Nolan, P.S.; **Brinker, M.R.**, Brasseur, M; Laudet, A.; "Hydrated Lime for SO₃ Removal," Power Plant Air Pollutant Control "Mega" Symposium 2006, Baltimore, MD.

EXAMPLE CASE WORK

Industrial Equipment

- Power generation (coal, oil, natural gas, wind, solar) equipment issues
- Water and waste water treatment facility flooding
- Instrument and control system malfunctions
- Dust collector fires
- Pollution control equipment
- CNC machine crashes

Consumer Products

- Evaluation of safety interlocks
- Installation and operation deficiencies
- Long-term wear and tear and material degradation

Lightning and Power Surge

- Evaluate damages to electrical/electronic equipment
- Determine extent of damages and opine on cost to return equipment to pre-loss condition

Heavy Machinery

- Engine fires
- Hydraulic system damages and malfunctions

Elevators

- Hydraulic elevator failures
- Electrical damages to elevator controls
- Repair and replacement cost review



Fire Suppression Systems

- Investigate unintended sprinkler activations
- Wet and dry sprinkler system freezes

Residential and Commercial HVAC Systems

- Determine the cause of system leaks.
- Inspect variable frequency drive issues.

Automotive

- Determine cause of component failure
- Crash data, infotainment, error code retrieval and review