



DENNIS J. SCARDINO, P.E., CFI, CFEI, CFII, CVFI
SENIOR MANAGING CONSULTANT

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Mr. Scardino is a Professional Engineer (P.E.) in Mechanical Engineering, with 40 years of fire/explosion analysis experience. He is an IAAI CFI and is also a CFEI, CFII, and CVFI through NAFI. He has qualified as an expert in forensic failure analysis and fire origin and cause in State and Federal Courts throughout the Southeast United States. He has been conducting failure and fire/explosion origin/cause evaluations since 1981. During his employment, he has assisted/serviced insurance companies, adjusting firms, law firms, private and public companies and agencies, and private individuals. He has provided professional assistance to defense, as well as plaintiff parties in civil litigation.

In addition, Mr. Scardino has extensive experience with the determination of the origin and cause of fires and/or explosions within residential, commercial, industrial, automotive, heavy equipment, and vessel risks.

Areas of Specialization

- Fires and Explosions
- Industrial Accident Analysis and Reconstruction
- Automatic Fire Sprinkler Systems, Security Systems
- Engineered Fire Suppression/Extinguishment Systems
- Slip and Fall Hazards Analysis and Evaluations
- Code Compliance (NFPA, SBCCI, ANSI, FM, OSHA, ABYC, NEC, etc.)
- Water Loss Causation Investigations
- Post-Accident Mechanical Evaluation of Vehicles and Vessels
- Post-Theft/Recovery Mechanical Evaluation of Vehicles and Associated Systems
- Product Liability Litigation
- Forensic Evaluation of Failed Components
- Marine Vessel Failure Analysis
- Loss Investigation Training

Education

B.S., Mechanical Engineering, Mississippi State University, 1986

Licensed Professional Engineer (P.E.)

- State of Louisiana... License No. 29622
- State of Mississippi... License No. 20373
- State of Texas..... License No. 112104
- State of Arkansas..... License No. 16865
- State of Alabama License No. 40102

March 2024



Professional Affiliations/Honors

American Society of Mechanical Engineers (ASME)

Member since 1989

International Association of Arson Investigators (IAAI)

Certified Fire Investigator, IAAI, #09-056, 1996

Member since 1990

National Association of Fire Investigators (NAFI)

Certified Fire and Explosion Investigator, NAFI, #3185-0263I, 1990

Certified Fire Investigator Instructor, NAFI, #3185-0263I, 1990

Certified Vehicle Fire Investigator, NAFI, #3185-0263V, 2007

Member since 1990

National Fire Protection Association (NFPA)

Member since 1999

National Board on Fire Service Professional Qualifications (NBFSPQ)

Certified Fire Investigator, NBFSPQ, #380021, 1991

Society of Fire Protection Engineers (SFPE)

Member since 2015

Court Qualifications

Expert Witness: Fire Origin & Cause

Expert Witness: Mechanical Engineering

Positions Held

Engineering Systems Inc., Houston, Texas

Manager of Houston Operations, February 2014 to February 2024

Senior Managing Consultant, June 2013 to present

Senior Consultant, December 2005 to June 2013

Engineering and Fire Investigation, Inc. (EFI), Houston, Texas

Senior Technical Consultant 2002-2005,

Mechanical Engineer/Fire Investigator/District Manager 1998-2002

Fire Investigator 1997-1998

Interscience, Inc., Tampa, Florida

Senior Failure Analyst/Branch Manager, 1988-1997

Factory Mutual Engineering

Loss Prevention Consultant Level II, 1986-1988

Sigma Associates, Ltd.

Staff Technician, 1981-1985

Continued Education

Tanks 101 Course, NISTM, 2023

16th Annual National Aboveground Storage Tank Conference, NISTM, 2023

Hot Work Safety Online Training, NFPA, 2023

Engineering Ethics: The East Ohio Gas Company Explosion, PDHengineer.com, 2023

Protecting Flammable and Combustible Liquids, SFPE, 2022

Chemistry and Thermal Events, Engineering Systems Inc., 2022

Current States of OSAC and NFPA 921, 1033, 1321, Engineering Systems Inc., 2022

LP Gas Sample Collection, Engineering Systems Inc., 2022

Industrial Loss Prevention, Engineering Systems Inc., 2022

Contacts and Terminals, Engineering Systems Inc., 2022

Computational Analysis, Engineering Systems Inc., 2022

Circuit Board Potential Ignition, Engineering Systems Inc., 2022

Fundamentals of Fire Investigation - The Relationship Between Compartment Fire Dynamics and
Resulting Post-Incident Damage Patterns, SFPE, 2022

Propane Explosions: Investigation, Failure Modes, Scene Exam, and Litigation Essentials, IAAI, 2022

How Things Break: Thermal Effects, PDHengineer.com, 2022

Engineering Ethics: The Ford Pinto Exploding Fuel Tank, PDHengineer.com, 2022

MagneTek: A Case Study in the Daubert Challenge, IAAI, 2022

Extreme Ownership 100 Series, Echelon Front Online Foundation Courses, 2021

Premium Webinar - Forensics and FPE - Part 5: Power Hour, SFPE, 2021

Premium Webinar - Forensics and FPE - Part 4: Analysis of Selected Fire Protection System Failures,
SFPE, 2021

Premium Webinar - Forensics and FPE - Part 3: Applications of Fire Science in Forensics, SFPE, 2021

Premium Webinar - Forensics and FPE - Part 2: Engineering Analysis of Building Fires, SFPE, 2021

Premium Webinar - Forensics and FPE - Part 1: High Level Overview, SFPE, 2021

Engineering Ethics, PDH-Pro, 2021

Lithium-Ion Battery Fires, IAAI, 2021

Live Premium Webinar Series - Human Behavior - Power Hour, SFPE, 2021

Live Premium Webinar Series - Human Behavior - Part 3: Engineering Practice, SFPE, 2021

Live Premium Webinar Series - Human Behavior - Part 2: Tools for Evacuation Design, SFPE, 2021

Live Premium Webinar Series - Human Behavior - Part 1: Theory & Data, SFPE, 2021

Investigating Natural Gas Systems, IAAI, 2021

Critical Evaluation and Testing of Commonly Reported Accidental Causes, IAAI, 2021
Motor Vehicle Incident Analysis: Opposing the Adverse Expert, Engineering Systems Inc., 2020
Recommended Guidelines for Design, Construction and Forensic Evaluation of Inground Swimming Pools in Texas, Geotech Engineering and Testing, 2020
Professional Ethics for Texas Engineers, PDHengineer.com, 2020
A Study of Reproducibility of a Full-Scale Multi-Room Compartment Fire Experiment, SFPE, 2020
NFPA 285: A Burning Question Combustibles in Non-Combustible Construction, Internek, 2020
Evaluation of Foundation Distress and Causation for Distress of Building Structures, Geotech Engineering and Testing, 2020
How to Prevent Thermal Runaway in Lithium-Ion Batteries, SFPE, 2020
Data at a Distance: The Art of Remote Inspections – Event, DRI, 2020
Electrical Aspects of Fire Investigation, IAAI, 2019
Electrical Safety, IAAI, 2019
Basic Electricity, IAAI, 2019
Residential Electrical Systems, IAAI, 2019
Engineering Ethics for Texas Professional Engineers, Continuing Education & Development, 2019
HVAC Fundamentals and their (Mis)Application, Engineering Systems Inc., 2019
29 CFR 1910.120 Hazardous Waste Operations & Emergency Response, Engineering Systems Inc., 2019
Gas Dispersion Analysis, Engineering Systems Inc., 2019
Case Study – Williams V. Centerpoint, Engineering Systems Inc., 2019
Case Study – Oil Field Fires, Engineering Systems Inc., 2019
Self-Heating, Engineering Systems Inc., 2019
VOC Detection Camera, Engineering Systems Inc., 2019
Case Study – Bottle Rockets, Engineering Systems Inc., 2019
NRTLs in the Forensic World, Engineering Systems Inc., 2019
Airplane Electrical Power Generation, Systems & Installations, Engineering Systems Inc., 2019
Cargo Vessel MV Courage Vehicle Fire, Engineering Systems Inc., 2019
Getting ESI's Work into Evidence, Engineering Systems Inc., 2019
Marine Fire Investigation, IAAI, 2019
VR's Past and Future: Entering the Digital World, Engineering Systems Inc., 2019
Understanding Undetermined, IAAI, 2018
Design of Bolted Flange Joints, ASME, 2018

ASME B31.4 Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids, ASME, 2018
Forensic Analysis Involving Fugitive Natural Gas and Propane, SunCam, Inc., 2018
Visualization Demonstration, Engineering Systems Inc., 2018
Case Study-Large Transport Category Airplane Accident Investigation, Engineering Systems Inc., 2018
Preparation for Deposition, Engineering Systems Inc., 2018
A Case Study of Engineering Ethics: The Deepwater Horizon Disaster, SunCam, Inc., 2018
NFPA 72 & Carbon Monoxide Detection and Warning Equipment, NFPA, 2018
Computational Fluid Dynamics, Engineering Systems Inc., 2018
Case Study - Cigarette Calcination, Engineering Systems Inc., 2018
Case Study – Petrochemical Fire, Engineering Systems Inc., 2018
Fire Investigation Techniques - Thermography of Automobile Fire, Engineering Systems Inc., 2018
Data Acquisition, Engineering Systems Inc., 2018
Prediction of Mechanical Properties of Carbon and Low Alloy Steels After Heat Treatment or Cold
Work, Engineering Systems Inc., 2018
Damage Tolerance Analysis of a Yankee Roller using FEA and NASGRO, ESi, 2018
Process of Elimination, CFITrainer.net, 2018
How Things Break: Thermal Effects, PDHengineer.com, 2017
Engineering Ethics for Texas Professional Engineers, CEDengineering.com, 2017
Automotive Accident Crash Testing, Engineering Systems Inc., 2017
Primary Battery Training Seminar, Engineering Systems Inc., 2017
Arc Mapping, Engineering Systems Inc., 2017
Fire Protection Systems and Common Failure Modes, Engineering Systems Inc., 2017
Site Inspection - Electrical Safety / Electrical Equipment, Engineering Systems Inc., 2017
Propane Incident Investigation, Engineering Systems Inc., 2017
GM Ignition Switch Litigation, Engineering Systems Inc., 2017
Recorded Data Sources Available in Aviation Accidents, Engineering Systems Inc., 2017
Large Loss Fire Investigations: The ABC's of an SOP to CYA, IAFI, 2016
TBPE – Professional Engineering Practices Update/Ethics, TBPE, 2016
Asbestos Awareness Training, Safety Unlimited, 2016
Advanced Principles of Fire Dynamics Program, Gulf Coast Fire, 2015
Arc Flash & NFPA 70E, Westex by Milliken, 2015
Digital Image Correlation (DIC), Engineering Systems Inc., 2015
Water Based Systems, Part 2 Water Supplies, SFPE, 2015

Passive Fire Protection & Life Safety, SFPE, 2015
Human Behavior – Human Response, SFPE, 2015
Passive Building Systems, SFPE, 2015
Fire Explosion Protection and Protection Systems, SFPE, 2015
Smoke Management Systems, SFPE, 2015
Fire Detection and Alarm Systems, SFPE, 2015
Special Hazard Systems, SFPE, 2015
Time Management, Baker Communications, Inc, 2015
Water Based Extinguisher Systems, SFPE, 2015
Fire Protection Analysis – Division 3 Fire Protection Management, SFPE, 2015
Fire Dynamics, SFPE, 2015
Fire Protection Analysis – Types, SFPE, 2015
Engineering Ethics: The East Ohio Gas Company Explosion, PDHengineer.com, 2015
Data Privacy and Cyber-Security Concerns for Claims & Litigation Professionals, NGCLA, 2015
Understanding and Managing Quality Assurance/Quality Control Programs in a Quality Management System Environment, NGLCLA, 2015
Anatomy of an Infrastructure Failure, NGCLA, 2015
Electrical Engineering Forensics, Engineering Systems Inc., 2015
How Hot is Too Hot Based on EIC Standards, Engineering Systems Inc., 2015
3D Laser Scanning – Fire Investigation Techniques, Engineering Systems Inc., 2015
Photographic Techniques, Engineering Systems Inc., 2015
Engineering Investigation Case Studies, Engineering Systems Inc., 2015
Fire Investigation Licensure, Training and Certification, Engineering Systems Inc., 2014
Grounding Impedance – Relevance and Measurement Techniques, Engineering Systems Inc., 2014
Job Safety: An Overview for Consideration, Engineering Systems Inc., 2014
Combustible Dust: From Sparks to Fires to Explosions, Occupational Health & Safety Magazine Webinar, 2014
Dust Explosion Hazards, GexCon US, 2014
Fire Dynamics Calculations – Version 2.0, CFITrainer.net, 2013
Fire Protection Systems, CFITrainer.net, 2013
Inspection Safety & PPE, Engineering Systems Inc., 2013
Advanced Photography, Engineering Systems Inc., 2013
Fire Science & Litigation – DRI 2013 Seminar

Critical Thinking Solves Cases, CFITrainer.net, 2012
Introduction to Evidence, CFITrainer.net 2012
Documenting the Event, CFITrainer.net, 2012
Preparation for the Marine Fire Scene, CFITrainer.net, 2012
Postflashover Fires, CFITrainer.net, 2012
Conjugate Heat Transfer Simulations, Mechanical Engineering Magazine Webinar Series/COMSOL
2012
Electrical Forensics Engineering, Decatur Professional Development, LLC, 2012
Expansion Joints In-Depth, Piping Technology & Products, Inc., 2011
Engineering Ethics, Course R102, PDHonline.org, Inc./PDH Center 2011
Combustion and Explosion Thermodynamics, Engineering Systems Inc., 2010
Introduction to Fire Dynamics Simulator and Smokeview, The Society of Fire Protection Engineers
(SFPE), 2010
8 Hour Hazwoper Refresher Training 29 CFR 1910.120 (e) (8), Houston Area Safety Council, 2010,
2011, 2012, 2013, 2015, 2016
Fire Investigation Testing, Engineering Systems Inc., 2010
Wind Loads, Engineering Systems Inc., 2010
Human Behavior Patterns in Fire Situations, Engineering Systems Inc., 2010
Fire and Explosion Investigations: Utilizing NFPA 1033 and 921, CFITrainer.net, 2009
Arc Mapping Basics, FCITrainer.net, 2009
40 Hour Hazwoper Training 29 CFR 1910.120 (e) (3) (i), Houston Area Safety Council, 2009
Professional Ethics for Engineers, Decatur Professional Development, LLC, 2009
Vehicle Fire, Arson & Explosion Investigation Science & Technology Seminar, NAFI, 2007
Boiler Failures, Engineering Systems Inc., 2007
Finite Element Analysis, Engineering Systems Inc., 2006
Engineering Ethics, Engineering Systems Inc., 2006
OSHA Fire Protection & Prevention, RedVector.com, Inc., 2006
Safety: Electrical Part 1 – Fundamentals, Materials & Equipment Grounding, RedVector.com, Inc., 2006
Safety: Fire Part 1 – Workplace Fire Hazards & Preventing Fires, RedVector.com, Inc., 2006
Ethics and the Fire Investigator, CFITrainer.net, 2006
The Scientific Method for Fire and Explosion Investigation, CFITrainer.net, 2006
MagneTek: A Case Study in the Daubert Challenge, CFITrainer.net, 2006
Digital Photography and the Fire Investigator, CFITrainer.net, 2006

Introduction to Fire Dynamics and Modeling, CFITrainer.net, 2006
Basics of Failure Investigations and Forensic Engineering, Red Vector.com, Inc., 2005
Ethical Decision Making for Engineers, RedVector.com, Inc., 2005
Fire Safety Design: Egress and Extinguishing Systems, RedVector.com, Inc., 2005
Interior Codes 5: Fire Resistant Materials, RedVector.com, Inc., 2005
Boilers an Operators Workshop, National Technology Transfer, Inc. 2004
Private Investigator Continuing Education PRVT 0223 03, McNeese State University, 2004
ASME B31.8 Gas Transmission & Distribution Piping Systems, ASME, 2003
Lighting 101, Vaisala, Inc. 2003
Ethics for Engineers and Land Surveyors, Steensland Center for Professional Development, 2003
Building and Regulatory Code Liability Issues for Engineers and Land Surveyors, Steensland Center for Professional Development, 2003
Private Investigation Rules, Regulations, Reciprocity, Law Enforcement Relations, Domestic Investigations, Ethics, Business Practices, Forensic Financial Fraud, Consensual Monitoring and Federal Privacy Issues, LSBPIE, 2002
Investigation of Vehicle Fires, Lee S. Cole & Associates, Inc., 2001
The Role and Responsibility of and Engineering Expert, ASME, 2000
Review Course for the Professional Mechanical Engineering Examination, Engineering Education Associates, 2000
Daubert Challenge, State Farm Insurance Companies, 2000
Fire and Arson Investigation, GAB Robins North America, 1999
Investigation of Electrical Appliance Related Fires, IAAI, 1999
Expert Testimony (The Daubert Challenge), IAAI, 1999
Level I Alarm Technician Course, National Training School, 1998
22nd Annual Fire and Arson School, Mississippi Fire Investigators Association, 1997
22nd Basic Private Investigators Course, LSU, 1997
12th, 13th, 14th, 15th, 16th, 17th, and 18th Annual Fire and Arson Investigation Schools, IAAI Florida Chapter, 1990, 1991, 1992, 1993, 1994, 1995 and 1996
Fire Protection and Hydraulics, ASME/ASHRAE, ASPE, 1996
Low Impact Training Seminar and Crash Testing School, 1996
Property Damage Seminar, State Farm SIU, 1996
Insurance Fraud, State Farm SIU, 1996
Fire Protection and Hydraulics, ASME/ASHRAE/ASPE/FES, 1995

Successful Development and Prosecution of an “Aged” Commercial Arson Case, FACAP, 1995
Automobile Theft and US Customs, State Farm SIU, 1995
Training in Fire Investigation Techniques, Florida Chapter IAAI, 1995
How to Investigate Fires Safely: A Basic Origin and Cause Including Fire Scene Hazards, Florida Chapter IAAI, 1995
Principles and Practice of Mechanical Engineering, Miami Section ASME, 1995
Building Codes and Marine Fires, Florida Chapter IAAI, 1994
Fire and Arson Investigation Photography, Polaroid School of Law Enforcement Imaging, 1994
Manufactured Housing Fire O & C Investigation and Juvenile Fire Setters, Florida Chapter IAAI, 1994
Instructed in Vehicle Fire Origin and Cause Investigation, Florida Chapter IAAI, 1993
Automatic Fire Sprinklers and Basic Origin & Cause, Florida Chapter IAAI, 1993
Arson Investigation in a Civil Disturbance, FACAP and Florida Chapter IAAI, 1993
Soda Acid Bombs, Electrical Fires and Pyrophoric Carbonization, and Arson Prosecution, FACAP, 1993
Recognizing Arson, Florida Chapter IAAI, 1993
Fundamentals of Fire and Explosion Hazards Evaluation, American Institute of Chemical Engineers, 1993
11th, 12th, 13th and 17th Annual Seminars, FACAP, 1987, 1988, 1989, and 1993
Instruction in Fire Origin and Cause, Florida Chapter IAAI, 1992
Fire Scene Photography and Sketching, Florida Chapter IAAI, 1992
Building Safety, Georgia Institute of Technology, 1992
Preparing and Delivering Courtroom Testimony, FACAP and Florida Chapter IAAI, 1991
Managing Multiple Priorities, Dun and Bradstreet Business Education Services, 1991
Fire, Explosion, and Arson Investigation – NAFI and The University of Southern Mississippi, 1988 and 1990
The 1990 National Electrical Code, University of Toledo, 1989
Slips, Trips and Falls, Stress and Safety Skills – Tampa Area Safety Council, 1989
Product Safety and Liability Prevention – The Role of Engineering Expert Witness, University of Wisconsin, College of Engineering, 1988
Fire and Extended Coverage II Training Seminar, Factory Mutual Engineering, 1987
Fire and Extended Coverage I Training Seminar, Factory Mutual Engineering, 1986

Publications

- “The Implications of Post-Fire Physical Features of Cylindrical 18650 Lithium-Ion Battery Cells.”, Nagourney, T., Jordan, J., Marsh, L., **Scardino, D.** May, B., Fire Technology. January 20, 2021. <https://doi.org/10.1007/s10694-020-01077-8>
- “Emergency Structural Engineering Support of a Fire Origin and Cause Analysis.”, Turner, D., **Scardino, D.**, Published in the proceedings of and presented at ASCE Forensic Engineering 8th Congress, Austin, TX., November 29 – December 2, 2018.

Presentations

- “Evaluating Appliance Fires from an Investigator’s Perspective”, presented at LA Chapter IAAI, 2012
- “Accident Analysis in the Oil Field”, presented at NDDLA, 2012
- “Addressing Circumstantial Evidence of Product Defect in a Fire Case”, presented at DRI, 2011
- “Fire Scene Sketching”, presented at Engineering Systems, Inc., 2010
- “Report Writing”, presented at Engineering Systems, Inc., 2010
- “Fire Origin and Cause Analysis and the Belated Notification Case”, presented at NGCLA 2007
- “Fire Investigation for Adjusters”, presented at Claims Adjustment Specialist, 2002
- “Daubert Challenged”, presented at FL Chapter IAAI, 2000
- “Advanced Fire Origin and Cause Investigation Techniques for Adjusters”, presented at State Farm Insurance Company, 1999
- “Recreational Vessel Fire Investigations”, presented at GAB Robbins North America, 1999
- “Automobile Fire Investigation”, presented at Louisiana Chapter IASIU, 1998
- “Low Velocity Vehicular Impact Analysis”, presented at Mississippi Claims Association, 1998
- “Fire and Water Loss Subrogation”, co-presented at Allstate Insurance Company, 1996
- “Dryer Fires”, presented at Fort Lauderdale Claims Association, 1996
- “Manufactured Housing Fire Origin and Cause Investigation”, presented at FL Chapter IAAI SW Regional, 1995
- “Information and Document Management Concerns Between Insurers and Public Agencies During Investigation, Prosecution and Litigation”
- “Structure, Automobile and Vessel Fire Investigation”