



Kim R. Mniszewski, P.E.
Senior Engineer
krmniszewski@proaaci.com

2000 – Present **Professional Analysis and Consulting, Inc. – Naperville, IL**
Senior Engineer

FX Engineering, Inc. – Hinsdale, IL
President

Mr. Mniszewski is currently president of FX Engineering, Inc. and is associated with Professional Analysis and Consulting, Inc. as a Senior Engineer. Directs and conducts projects related to analysis (many are forensic) of fire / explosion / carbon monoxide incidents, life safety studies, fire detection and suppression system issues, hazards, product liability studies, and testing to support forensic investigations.

1997 – 2000 **Triodyne Fire & Explosion Engineers, Inc. – Oak Brook, IL**
Senior Engineer

Responsible for investigations involving areas listed above.

1988 – 1997 **Varley-Campbell & Associates, Inc. – Oak Brook, IL**
Senior Engineer

Responsible for investigations involving areas listed above.

1981 – 1989 **Illinois Institute of Technology, Department of Fire Protection and Safety Engineering – Chicago, IL**
Part-time Instructor

Courses taught include: Building Design for Fire Safety, Theory of Fire, and Fire Instrumentation

1980 – 1988. **IIT Research Institute, Dept. of Explosion Sciences – Chicago, IL**
Research Engineer

Directed and conducted research projects involving hazards analysis, risk assessment, fire protection issues, explosives technology and explosive device development, chemical warfare problems, and railroad technology. Also served as Safety Officer for the Explosion Science and Engineering group during 1984-1987. Top Secret government security clearance was held during this period.

1979 – 1980 **Continental Grain Company – Des Plaines, IL**
Corporate Fire Protection Engineer

Reviewed corporate fire protection needs in grain elevators, feed mills, food processing plants and warehouses. Conducted inspections and loss investigations, negotiated with insurance carriers, wrote specifications for fire protection changes, tested fire protection equipment, defined maintenance requirements and initiated contracts to install fire protection equipment.

1977 – 1979 **IIT Research Institute, Dept. of Fire & Explosion Engineering – Chicago, IL**
Associate Research Engineer

Conducted and assisted in research projects involving fire protection issues such as smoke detector performance and the response of materials to fire.

1975 – 1977. **Engineering Worker, Reliable Fire Equipment Company – Alsip, IL**
Part Time

Installed fire alarm systems and halon, carbon dioxide and dry chemical fire suppression systems; including restaurant kitchen systems. Conducted system design and drafting work, fire protection system inspections and maintenance. Repaired and hydrotested fire extinguishers and agent containers.

ACADEMIC

Bachelor of Science, Fire Protection & Safety Engineering, Illinois Institute of Technology, Chicago, 1977

Master of Gas Technology Engineering, Illinois Institute of Technology, Chicago, 1984

PROFESSIONAL REGISTRATIONS, CERTIFICATIONS, AND MEMBERSHIPS

Registered Professional Engineer - Illinois, 1981 – Present

Registered Professional Engineer – Michigan, 1997 – Present

Society of Fire Protection Engineers, 1977-Present; Chicago Executive Committee; current editor of website, www.chicagosfpe.org; past Chicago SFPE newsletter editor; Recipient of 1999 Freeman Award

Salamander, Honor Society of Fire Protection Engineers, 1976 – Present

National Fire Protection Association, member of Industrial and Research sections, 1978 – Present

National Fire Protection Association Technical Committee on Fire Investigations, 1991-2000; Explosion Chapter task group member 2008 – Present

National Fire Protection Association Technical Committee on Single and Multiple Station alarms and Household Fire Alarm Systems, 2009 – Present

International Association of Arson Investigators, 2001 – Present

National Association of Fire Investigators, 2005 – Present

Certified Fire & Explosion Investigator, National Association of Fire Investigators, 2005 – Present

Registered Gas Distribution Professional (RGDP), Gas Technology Institute, July, 2007 – Present

American Society of Gas Engineers, January 2008 – Present

American Society of Civil Engineers, March 2012 – Present

FEMA-authorized Fire and Emergency Incident Investigator, 1994 – 1997

International Pyrotechnics Society, 1986 – Present

Sigma Xi, 1985 – Present

International Code Council, 1989-Present (i.e. BOCA prior to ICC merger)

American Defense Preparedness Association, 1986 – 1987

Technical Editor for Journal of Pyrotechnics, 2001 – 2007

SELECTED SEMINARS / COURSES COMPLETED

Explosives Technology Course, Computational Mechanics Associates, Washington, D.C., 1988 Structural Blast Protection Course, U.S. Federal Emergency Management Agency, Emmitsburg, MD, 1988

Technical Fundamentals of Fire Investigation Course, University of Wisconsin, Madison, WI, 1989 Fire Alarm Systems Workshop, NFPA, Chicago, IL, 1989

Fire Dynamics Seminar, Society of Fire Protection Engineers, Chicago, IL, 1990

Emergency Response Planning and Accident Investigation in the Gas Industry, Institute of Gas Technology, Chicago, IL, 1991

The Role of Warnings and Instructions, course, University of Wisconsin, Madison, WI, March 1993

Advanced Origin and Cause Seminar, the Illinois Advisory Committee on Arson Prevention, Wheaton, IL, July 1993

Vehicle Fire Investigation Seminar, Office of Illinois State Fire Marshal, Oct. 1994

Fire Protection of Flammable and Combustible Liquids, Society of Fire Protection Engineers and Underwriters Laboratories, Northbrook, IL, April 1997

Investigation of Gas and Electric Appliance Fires, Fire Findings, St. Joseph, MI, May 1998

Technical Symposium on Explosion Protection, Society of Fire Protection Engineers, Kansas City, MO, August 1998

International Symposium on Hazards, Prevention and Mitigation of Industrial Explosions, Schaumburg, IL, Sept. 1998

Warehouse Sprinkler Protection Seminar, Society of Fire Protection Engineers and Underwriters Laboratories, Northbrook, IL, Oct. 1999

Advanced Computer Modeling Course, Society of Fire Protection Engineers, Baltimore, MD, Oct. 2000

Introduction to Fire Dynamics Simulator and Smokeview, Society of Fire Protection Engineers, Baltimore, MD, Sept. 2002

Safety Standards Seminar for Industrial Furnaces & Ovens, Industrial Heating Equipment Association, Rosemont, IL, May 2004

Dust Explosion – Hazard Recognition, Assessment and Management, Society of Fire Protection Engineering, Chicago, IL, Sept. 2004

Gas Distribution Engineering Course, Gas Technology Institute, Nov. 2004

Natural Gas & LP Odorization Conference and Exhibition, GTI Annual Conference, Chicago, IL, July 2005

Gas Distribution Operations Course, Gas Technology Institute, Sept. 2005

High-Rise Fire Protection Seminar, Society of Fire Protection Engineers, Underwriters Labs, Nov. 2005

Advanced Fire Dynamics Simulator and Smokeview, Society of Fire Protection Engineers, Baltimore, MD, Oct. 2006

Gas Regulator Station Design Course, Gas Technology Institute, July 2007

Underwriters Laboratories Smoke Characterization Seminar, Lombard, IL, Oct. 2007

Minnesota IAAI Burn to Learn Seminar, Sisseton, SD, June 2011

AFAA Illinois, Fire Alarm System Testing and Inspection Training, Addison, IL, January 2012

International Symposium on Fire Investigation Science and Technology, 2006, 2008, 2012 and 2014

Numerous National & Local SFPE seminars including Fire Protection Webinars, 1977 – Present

Various NFPA semi-annual & annual conferences, 1977 – Present

Numerous (37 to date) CFITrainer educational modules, 2008 – Present

TECHNICAL PAPERS, REPORTS, AND PRESENTATIONS

“The Use of Drones (UAS) for Improved Fire Investigation”, Fire & Arson Investigator, July 2014

“Fuel Gas Leakage Potential from Common Threaded Pipe Connections – Considerations for Fire/Explosion Investigations”, International Symposium on Fire Investigation Science and Technology, College Park, MD, October 15-17, 2012

“Explosion Phenomena and Effects of Explosions on Structures, Parts 1-3; Part 1 – Phenomena and Effects, Part 2 – Methods of Analysis (Explosion Effects), Part 3 – Methods of Analysis (Explosion Damage to Structures) and Example Cases”, Practice Periodical on Structural Design and Construction, V15, No. 2, May 2010 (with R. Pape and A. Longinow)

“Residential Post-Fire Smoke Alarm Evaluations”, International Symposium on Fire Investigation Science and Technology, Cincinnati, Ohio, May 19-21, 2008

“Smoke Alarm Evaluations”, special report, Fire Findings, Winter 2008, Vol.16, No. 1

“Dust Explosions and Fires – Part 1, How Industrial Dust Explosions Occur”, Safety and Forensic Engineering Journal, February 2006

“Computational Fluid Dynamics Methods of Calculating Gas Dispersion in a Building or Outside as a Result of Gas Leaks”, GTI Natural Gas & LP Odorization Conference and Exhibition, Chicago, IL, July 26, 2005 (with R. Pape)

“Case Study: The 1999 Ford Power Plant Explosion, Explosion and Loss Issues”, NFPA Annual Meeting, Las Vegas, NV, June 7, 2005 (with H. Lyson and C. Hales)

“Air Blast TNT Equivalency for Rolls of Paper Toy Caps”, Journal of Pyrotechnics, issue 21, Summer 2005

“Fuel Gas Incident Fire/Explosion Investigation-Good Practices and Guidelines”, Safety and Forensic Engineering Journal, January 2005

“Power Loss; The 1999 Ford Power Plant Explosion: A Study of Problems Encountered During Large-Loss Fire Investigations”, NFPA Journal, July/August 2004 (with H. Lyson and C. Hales)

“Explosion Fundamentals and Loss Lessons”, presentation, Chicago Society of Fire Protection Engineers’ Explosion Protection Seminar, Underwriters Laboratories, Northbrook, IL, February 21, 2002

“Explosion Fundamentals and Loss Lessons”, presentation, MABAS Division 10 Origin and Cause Fire Investigation Team, Westmont Fire Station, Westmont, IL, April 11, 2002

“Explosion Fundamentals and Loss Lessons”, presentation, Kane County Fire Investigators’ Strike Force, Kane County Judicial Center, St. Charles, IL, March 18, 2003

“WAAS-Enabled GPS Receivers May Have Applications for Larger Fire-Scene Work”, Fire Findings, Winter 2002, Vol. 10, No. 1

“The Use of FDS for Estimation of Flammable Gas/Vapor Concentrations”, presented at the 3rd Technical Symposium on Computer Applications in Fire Protection Engineering, Baltimore, MD, September 12-13, 2001

“Miami Intermodal Center, Rental Car Facility-Quick Turn Around Proposal Workshop”, Miami, Florida, November 2000 (with various other consultants)

“A Survey of Analytical Tools for Explosion Investigations”, Journal of Pyrotechnics, Issue 12, Winter 2000 (with R. Pape)

“Safety and Economics Considerations in the Design of an Industrial Hydrogenation Facility”, Eighteenth Conference on Catalysis of Organic Reactions, April 2000 (with various Searle staff members)

“The Use of Experts in Industrial Fire and Explosion Investigations”, AGIG/Claims Management Workshop, Chicago, IL, November 15, 1999 (presentation only)

“Analytical Tools for Gas Explosion Investigations”, proceedings of Third International Conference on Fire Research and Engineering, Chicago, Illinois, October 4-8, 1999 (with J. Campbell)

"Practical Analytical Techniques for Explosion Investigations", presented at the International Symposium on Hazards, Prevention and Mitigation of Industrial Explosions, Schaumburg, Illinois, September 21-25, 1998 (with R. Pape)

"Report of the Expert Panel on Structural Issues Arising from Guidelines for the Distribution of Natural Gas in Multifamily Buildings", for Union Gas, Ltd., Canada, May 14, 1998 (with other panel members)

"Post Blast Examination", seminar presentation to the Fire Investigators Strike Force, Rosemont, Illinois, May 20, 1998 (presentation only)

"The Nuisance Problem with Acetylene B Cylinders", presented at the 1996 International Mechanical Engineering Congress and Exposition, Atlanta, Georgia, November 20, 1996; published in proceedings (with A. Tudor)

"Oklahoma City Bombing", presentation to the Chicago Chapter of the Society of Fire Protection Engineers, Chicago, Illinois, May 13, 1996 (presentation only)

"Precautions and Limitations in Fire Modeling", presented at the 1996 Department of Energy Fire Safety Conference, Oak Brook, Illinois, May 1, 1996

"Protecting Buildings against Vehicle Bomb Attacks", Practice Periodical on Structural Design and Construction, vol. 1, no. 1, February 1996 (with A. Longinow)

"Using Experts in the Defense of Your Equipment Manufacturing Company", Institute of Gas Technology, Second Annual Conference on Defending against and Mitigating Incidents involving Injury or Property Damage in the Natural Gas and LP Industries, October 16-18, 1995 (with J. Campbell)

"Rock Island Flexible Welding System Hazard Analysis", Rock Island Arsenal, for Babcock and Wilcox, July 1995 (with E. Swider)

"The Pepcon Plant Fire/Explosion: A Rare Opportunity in Fire/Explosion Investigation", Journal of Fire Protection Engineering, Vol. 6, No. 2, 1994 (also reprinted as a Triodyne Safety Brief, February 1995)

"Natural Gas Experience (relating to fires/explosions) in the Chicago Multifamily Building Stock", Wiss, Janey, Elstner Associates, Inc., WJE No. 931987, March 23, 1994 (with A. Longinow)

Shabonna County Fire Investigation Seminar, Commonwealth Edison Training Center, Braidwood, Illinois, September 19, 1993 (presentation only)

"High Value Underground Fire Protection: Engineered Systems and Fire Department Preparedness", presented at NFPA Fall Meeting, Dallas, Texas, November 18, 1992 (with J. Shanley, presentation only)

"Burn Pattern Seminar", for Chicago Police Bomb and Arson Squad, October 1992 (presentation only)

"Blast Protective Design Course Materials", Instructor's Guide and Student Manual, Federal Emergency Management Agency, August 1992

"Fire and Explosion Investigations - A Historical and Hysterical Perspective", Triodyne Safety Brief, Dec. 1991 (with J. Campbell)

"Fire/Life Safety Aspects of Main Injector Ring Design", for Fermi National Accelerator Laboratory, May 1991 (with T. Miller and J. Campbell)

"The Use of Computerized Thermodynamics Tools In Fire/Explosion Investigation", paper presented at SFPE Seminar, NFPA Fall Meeting, November 1990 (printed in Journal of Fire Protection Engineering, Vol. 3, No. 3, 1991)

"Mathematical Modeling with Experimental Support Applied to Fire Loss Investigation", paper presented at Second International Fire Protection Engineering Institute, Ottawa, Canada, May 1989 (with J. Campbell)

"Evaluation of Fire/Explosion Hazards of XXXX Cyclone Units", report for manufacturing client, May 1989

"Study of Critical Bell South Facility Needs for Fire Suppression Systems", report for M and M Protection Consultants, December 1988 (with R. Varley, J. Campbell, and T. Miller)

"Review of Risk Assessment Data on Accidents Related to Production, Processing, Transportation, Distribution, and Use of Natural Gas", IITRI Report H08245, ENEA (Energia Nucleare e delle Energie Alternative, Rome, Italy), September 1988 (with S. Marek and H. Napadensky)

"Final Hazards Analysis for the Modernization of the Nitrocellulose Production Facility at Badger Army Ammunition Plant", IITRI Report H06121, Olin Corporation, July 1988 (with R. Pape)

"Preliminary Hazards Analysis for Modernization of the Nitrocellulose Production Facility at Badger Army Ammunition Plant", IITRI Report H06116-B, Olin Corporation, November 23, 1987 (with S. Newberg, R. Pape and K. Williams)

"Preliminary Hazards Analysis for Modernization of the Single Base Propellant Production Facility at Badger Army Ammunition Plant", IITRI Report H06116-A, Olin Corporation, October 12, 1987 (with S. Newberg, R. Pape and K. Williams)

"Explosive Components for an Advanced Technology System", IITRI Report IITRI-114-H003-1, McDonnell Douglas Astronautics Company, August 1987 (with A.J. Tulis and J.L. Austing)

"Simulated Pool Fire Testing of Railroad Tank Car Plates Protected with Two Insulation Systems", IITRI Report H08230, Union Tank Car Co., June 1986

"Fire Suppression by Means of Explosively Disseminated Dry Chemical", IITRI Report H01100, In-House Research, May, 1986

"The Characterization of High-Energy Chemical Sources for Fracturing of Devonian Shale", presented at the Unconventional Gas Technology Symposium of the Society of Petroleum Engineers, Louisville, Kentucky, May 18-21, 1986 (with P. Westcott)

"The Characterization of High-Energy Chemical Sources for Fracturing of Devonian Shale", IITRI Report H08208, Gas Research Institute, Contract 5084-213-0979, September 1985 (with H.S. Napadensky)

"Simulated Pool Fire Tests of Tank Car Plate Protected with Kaowool Blanket B Tank Car, Insulation and Glass Fiber", Babcock and Wilcox, IITRI Report H08222, July 1985

"Hazards Analysis of XXXXX Company", IITRI Report H08219, Illinois State Attorney General's Office, May 1985 (with S. Marek and H. Napadensky)

"Results of Various Prefabricated Mobile Home Fire Tests", IITRI Report H08212, Manufactured Building Systems, Inc., March 1985

"Simulated Pool Fire Tests of Tank Car Plate Covered with Fibrex Tank Car Insulation and Glass Fiber", IITRI Report H08202, Fibrex Corp., October 1984

"Hazards of Chemical Rockets and Propellants", CPIA Publication 394, September 1984 (i.e. coauthor of several sections dealing with fire protection)

"Fire Protection Planning for LNG Facilities", paper presented at the American Gas Association Distribution/Transmission Conference in San Francisco, California, May 7-9, 1984

"Development of a Mask Leakage Sampler - Task 2, Chemical Systems Mechanisms and Procedures", CRDC-CR-84038, U.S. Army Armament, Munitions and Chemical Command, Contract No. DAAK11-82-C-0149, March, 1984 (with T.E. Waterman, G. Yamate, L.W. Wolf and J.D. Stockham)

"Feasibility of Smoke Detector Use in Grain Facilities", IITRI Report C08678, National Grain and Feed Association Report DCE-83-078, November 1983 (with R. Welker and T. Waterman)

"Definition of Bounding Physical Tests Representative of Transport Accidents - Air and Marine", IITRI Report K06019, Office of Nuclear Regulatory Research, Contract No. NRC-04-81-203, November 1983 (with H. Napadensky and several other coauthors)

"A Guide to Fire Protection Planning at LNG Facilities", Institute of Gas Technology, Project Report for Master's Degree, Illinois Institute of Technology, December 1982

"Study of Smoke Detection and Fire Extinguishment for Rail Transit Vehicles", UMTA-MA-06-OL53-83-3/DOT-TSC-UMTA-83-13. U.S. Department of Transportation, Contract DTRS-57-81-C-000124, August 1982 (with J. Campbell, T.E. Waterman and H. Wakeley)

"Thermocouple Temperature Measurement for Fire Testing", Independent Study Project Report, Department of Fire Protection and Safety Engineering, Illinois Institute of Technology 1982

"Development of a Home Energy Alert (HEAL) System", IITRI Report J06553, Department of Housing and Urban Development, Contract 4-5268, July 1982 (with E. Swider)

"Total System Hazards Analysis for the Western Area Demilitarization Facility at Hawthorne Army Ammunition Plant", IITRI Report C06538, U.S. Army Armament Material Readiness Command, Contract DAA09-91-C-3006, July 1982 (with E. Swider, R. Pape, D. Eacret and C. Heilker)

"Fire Venting of Sprinklered Buildings", IITRI Report J08385, Fire Venting Research Committee, July 1982 (with T. Waterman, C. Foxx and D. Eacret)

"Fire Protection for Gas Crews - Phase I, Problem Definition and Analysis of Potential Solutions", GRI-8110083, Gas Research Institute, Contract 5081-352-0495, March 1982 (with T.E. Waterman)

"Development of Improved Fire Detection Concepts", IITRI Report J06527, U.S. Fire Administration, Federal Emergency Management Agency, March 1982 (with R. Welker, T. Waterman and S. Ledvina)

"Fire Management/Suppression Systems/Concepts Relating to Aircraft Cabin Fire Safety", DOT/FAA/CT-82/134, Federal Aviation Administration, Contract DTFA-80-C-00092, February 1982 (with T. Waterman, J. Campbell and F. Salzberg)

"CTA Rail System Analysis", IITRI Report T06020, Urban Mass Transportation Administration, Contract G0351-1, February 1982 (with R. Pape, H. Wakeley and S. Marek)

"Design and Development of Disposable Grease Filters", IITRI Report C8568, XXXXX Corporation, August 1980 (with N. Rajendran)

"Propane Fire/Explosion Probabilities and Risk Reduction Measures", IITRI Report J06484K01, Argonne National Laboratory, Contract 31-108-38-5159, July 1979 (with H.S. Napadensky)

"The Effectiveness of Duct Installed Smoke Detectors in Two Different Ventilation System Configurations", IITRI Report J06464, U.S. General Services Administration, Contract GS-00B-2217, February 1979 (with T.E. Waterman)

"Cost/Benefits of Early Detection/Alarm", presented at the Conference on Automatic Fire Detection and Alarm, Chicago, IL, January 24-26, 1979

"Analysis of Fire Detectors - Test Methods/Performance", IITRI Report J06391J03, U.S. Fire Administration, Federal Emergency Management Agency, Contract NSF-C76-19255, December 1978 (with T.E. Waterman, S.W. Harpe and W.J. Christian)

"Detector Directory", IITRI Report J06391J04, U.S. Fire Administration, Federal Emergency Management Agency, Contract NSF-C76-19255, December 1978 (with T.E. Waterman and S.W. Harpe)

"New Concepts of Fire Detection", IITRI Report J06391J02. U.S. Fire Administration, Federal Emergency Management Agency, Contract NSF-C76-19255, December 1978 (with K.S. Rajan, T.E. Waterman and others)

"State-of-the-Art: Fire Alarm Technology Related to Protecting Life in Work Places", IITRI Report J06529, NIOSH, Contract 210-77-0144, September 1978 (with H. Wakeley, T. Waterman and J. Campbell)

"Heat Tape Hazards/Freeze Protection", IITRI Report J08310, Wrap-On Company, Inc., September 1978 (with R. Daniels and T. Waterman)

"Cost/Benefit Analysis of Fire Detectors", IITRI Report J06391J02, U.S. Fire Administration, Federal Emergency Management Agency, Contract NSF-C76-19255, September 1978 (with T.E. Waterman and D.J. Spadoni)

"Effects of Open Doors on Sprinkler Effectiveness in a Patient Room", IITRI Report J08299-2, Builders Hardware Manufacturers Association, June 1978 (with T.E. Waterman)

"Effects of Automatic Door Closers on Fire in a Patient Room", IITRI Report J08299-1, Builders Hardware Manufacturers Association, June 1978 (with T.E. Waterman)

"Fire Hazard Properties of Candidate Solar Heating Materials for Residential Dwellings", IITRI Report J06416, Sandia Laboratories, Contract EY-76-C-02-0578M, October 1977 (with W.P. Chien and T.E. Waterman)

"Fire Protection Systems Study - Nuclear Power Plants", IITRI Report J06380, Sandia Laboratories, Contract E (11-1)-578, June 1976 (with T.E. Waterman)

Various classified Government reports are not listed.