

LAPINA & ASSOCIATES, LLC

FORENSIC ENGINEERS & SCIENTISTS

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**Please Visit Our Website at:
www.LapinaAssociates.com**

Providing Expert Forensic Engineering and Science Services!

- Gas Fires & Explosions
- Vehicle Crashes
- Highway Engineering
- Industrial Injuries
- Workplace Health & Safety
- Product Failures
- Structural Failures
- Construction Injuries
- Construction Claims
- Premises Liability
- Architectural Issues
- Metallurgical Analysis
- Chemical Analysis
- Excavation & Trenching
- Chemical / Petrochemical
- Agricultural Machinery

- Mining Injuries
- Machine Guarding
- Building Failures
- Product Liability
- Mechanical Engineering
- Structural Engineering
- Civil Engineering
- Electrical Engineering
- Electrical Fire Analysis
- Chemical Engineering
- Agricultural Engineering
- Environmental Engineering
- Carbon Monoxide Poisoning
- MSHA / OSHA Violations
- Failure Analysis
- Subrogation

Ronald P. Lapina, P.E. – Manager / Mechanical Engineer:

- Typical Areas of Consulting: gas explosions; gas asphyxiations; vehicular crash reconstruction; mechanical equipment failure analysis; safety.
- Master's Degree in Mechanical Engineering
- Registered Professional Engineer – PA, OH, WV, NY, TX, LA, KY, AL, MD, VA, ID, CT, FL, PR, VI
- Member ASME, NSPE, SAE, IAAI, PAAI, ASSE, ASTM, NFPA, National Safety Council (firm), Energy Association of PA (firm).
- Investigated numerous propane and natural gas fires and explosions for gas companies, equipment suppliers, and plaintiffs, involving: cylinders, valves, piping, stoves, water heaters, furnaces, barbecue grills, etc.
- Investigated numerous carbon monoxide asphyxiations for gas companies, equipment installers, and plaintiffs.
- Presentations on Propane Fire Investigation: International Association of Arson Investigators, PA, NJ, and HI Chapters of IAAI, Ohio Arson School, and NY Office of Fire Prevention and Control.
- Wrote computer programs for evaluation of the performance of centrifugal compressors for the chemical and petrochemical industries.
- Authored 2 books published by Gulf Publishing Co. Authored or co-authored 11 articles published in major petrochemical and fire investigation magazines – some of these articles were published in 2 books and a chemical processing encyclopedia.
- Investigated numerous vehicular crashes involving cars, trucks, motorcycles, bicycles, and pedestrians.
- Investigated numerous products for mechanical design, manufacturing, and warning defects, or alleged defects, including: heaters, stoves, barbecue grills, cooking equipment, compressors, sprayers, circular saws, lawn mowers, presses, conveyors, mills, cranes, chairs, and others.

Victor D. Dozzi, P.E. – Civil Engineer:

- Typical Areas of Consulting: foundation failures; retaining walls; design and installation of structures, including steel, concrete, and reinforced masonry; highway and bridge design and maintenance - signing, corner sight distance, other aspects of safe highway design; site drainage; land development; building water proofing; septic system installation; construction claims.
- Bachelor's Degree in Civil Engineering.
- Registered Professional Engineer – PA, OH, WV.
- Life Member ASCE, Member ACI.
- Investigated: structural failures, including foundations, roofing, and ceilings; defects in concrete construction; drinking water well contamination; damaged structures to determine structural soundness; traffic crashes caused by defects in the roadway; water infiltration in basements.
- Managed major projects for remediation of contaminated buildings, soil, and groundwater.
- Provided oversight for construction of interstate bridge and highway projects.
- Conducted investigations of residential construction to certify structural soundness.
- Managed engineering design and analysis of heavy industrial structures.

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- Responsible for land use planning, engineering, field surveying, construction of roads and lakes, and installation of underground utilities for 1600-acre recreational facility.
- Developed new light gauge metal structural systems for floor and walls.
- Conducted structural product certification testing.
- Designed steel floating dock structures and conversion of deck barges into floating crane platforms.
- Conducted full-scale load tests of new and old buildings to determine structural soundness.
- Investigated and analyzed existing structures to predict future service life.

Robert S. Bogan – Metallurgist:

- Typical Area of Consulting: metal failure analysis.
- Master's Degree in Metallurgy
- Bachelor's Degree in Mechanical Engineering and Materials Science.
- Performed numerous materials investigations to determine cause of failure. Investigations involved material analysis via SEM and other standard metallographic techniques. Experience includes cast iron, carbon, alloy, and stainless steels, and aluminum.
- Awarded two U.S. patents related to improvements in the steelmaking process.
- Evaluated material cleanliness to determine suitability for specific applications.
- Performed SEM analysis of inclusions to improve steel's cleanliness and mechanical properties.
- Received highest corporate technical achievement award for practices to improve cleanliness and develop high quality deep draw stainless steel.
- Developed both hardware and software to evaluate steel cleanliness via a non-destructive ultra-sonic technique. Used SEM to verify the results.
- Developed software to minimize breakouts during continuous casting process.
- Taught at the college level.

Hubert C. MacDonald, Jr., Ph.D. – Chemist:

- Typical Areas of Consulting: chemical analysis; hazardous materials; environmental health and safety,
- Doctor of Philosophy Degree in Analytical Chemistry, Master of Science Degree in Inorganic Chemistry.
- Member ASTM, IEEE, ACS, SACP, SSP, and Committee Member of ASTM E30 (Forensic Science) and D27 (Electrical Insulating Liquids and Gases).
- Supervised use and disposal of hazardous materials (both "Toxic Substance Control Act" and "Resource Conservation Recovery Act").
- Experienced in the use of many chemical instrumental methods including gas chromatography, atomic absorption spectroscopy, x-ray fluorescence spectroscopy, x-ray diffraction spectroscopy, inductively coupled plasma spectroscopy, various electrochemical methods. Familiar with many other chemical instrumental methods.
- Completed US EPA Hazardous Materials Incident Response Operations training with 40 hours of training to meet requirements of 29 CFR 1910.120(e)(3)(i).

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- Provided compliance for Environmental Health and Safety plans.
- Participated in the clean-up of many PCB contaminated sites for major corporations.
- Presented “Right to Know” plans.
- Developed and directed implementation of site Environmental Health and Safety Plan for a major industrial manufacturer.
- Developed and implemented laboratory quality assurance plan.
- Performed periodic audits to determine compliance with health, safety, and environmental regulations.
- Co-edited and contributed to an eight volume book series on the use of computers in chemical instrumentation.
- Co-authored three papers in scientific journals.
- Taught analytical chemistry, inorganic chemistry, and forensic chemistry at the college level.

John G. Bistolas – Electrical Engineer:

- Typical Areas of Consulting: electrically powered equipment; electrical machine guarding; electrical fire causation; control systems; electrocutions.
- Bachelor’s Degree in Electrical Engineering.
- Registration: PE PA(Active-Retired)
- Investigated electrical equipment, controls, and wiring for cause of down time.
- Designed emergency generator systems for telecommunications systems and prisons.
- Designed power distribution systems for heavy industrial facilities.
- Designed electrical systems for process equipment for heavy industrial facilities.
- Managed on-site construction for expansion for wastewater treatment facilities.
- Managed on-site electrical construction for heavy industrial facilities.
- Coordinated on-site electrical design changes to ensure compliance to electrical standards.
- Prepared electrical construction specifications for equipment purchase and installation.
- Experience as submarine electrician in U.S. Navy.
- Experience as steel mill electrician.

Richard E. Horn, P.E. – Chemical Engineer:

- Typical Areas of Consulting: Process equipment failures; rotating equipment, associated piping, valves and equipment; electrochemical processing equipment, plating, anodizing, failures due to corrosion; pressure vessel failures; boiler water, waste water losses; chemical spills, associated pollution, and environmental concerns.
- Bachelor’s Degree in Chemical Engineering with advanced degree credits in Electrochemistry and Thermodynamics.
- Registered Professional Engineer – PA.
- Started and managed an inorganic chemical manufacturing company until it was sold. The company produced compounds of tin, zinc, copper, and other organic, inorganic and organometallic compounds.

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- Provided engineering design for company processes and for equipment manufactured by the company.
- Analyzed process and equipment failures due to corrosion and other causes. Directed repairs or engineered replacement components.
- The company serviced the Automotive, Chemical, Metal Finishing, Circuit Board, and Anodizing Industries.
- Provided technical service where equipment failure or other cause resulted in process or other equipment failures.
- Investigated process failures, and assisted in waste regeneration, remediation, and recovery.
- Assisted in the determination of the cause of an industrial fire suffered by the company, and in reestablishing production.
- Familiar with ISO 9000 accreditation.
- Authored six (6) U.S. patents in electrochemical and membrane processes.
- Authored and presented several papers at AIChE and MFSA meetings.
- Taught chemistry, physics, and calculus.

James J. Secosky, AIA – Architect:

- Typical Areas of Consulting: architectural design; construction means and methods; construction materials and assembly analysis; construction safety; premises liability, including stairways and ramps; slip and fall; Code and ADA compliance.
- Bachelors Degree in Architecture.
- Registered Professional Architect – PA.
- Provided professional design services of programming, schematic design, design development, building code review at the state and local levels, construction documentation, bidding, construction administration, construction management, LEED design and certification, project commissioning, project turnover and maintenance scheduling.
- Designed and managed construction of various types of new buildings, adaptive re-use projects, building renovations, interior design, historical preservation and landscape design.
- Designed, developed, and managed construction of facilities for a wide array of use groups: industrial, commercial, educational, health care, research, municipal, retail, hotel, food service, and residential.
- Developed, designed and managed construction of projects in conformance to model codes and provisions, including: BOCA, CABO, IBC, Life Safety, NFPA, OSHA, PA Labor & Industry, ADA guidelines, LEED, and various county, city, municipality, and township zoning ordinances.
- Provided client representation before zoning and planning commissions, health departments, water and sewage authorities and financial institutions.
- Provided Project Management services to coordinate professional consultants, including: surveying, geotechnical, hazardous materials removal, HVAC, electrical, plumbing, acoustical, environmental, and structural engineering.
- Provided master planning services for corporate, academic and research facilities.

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- Managed major construction management firms from initial project estimating, through engineering, construction and scheduling, to commissioning and project turnover.
- Evaluated existing facilities and sites for ADA accessibility and barrier free design.
- Set up maintenance and housekeeping contracts for major building projects.
- Lectured on design, project management and construction at the University level.

Roelof H. deVries, P.E. – Mechanical and Agricultural Engineer:

- Typical Areas of Consulting: agricultural machinery, turf care equipment, construction equipment, specialty off-road equipment, dump trucks, OTR trailers, hydraulics, mechanical equipment failure analysis, off-road vehicle stability, safety.
- Master's Degree in Agricultural Engineering, Bachelor's Degree in Mechanical Engineering.
- Registered Professional Engineer – PA.
- Member SAE, ASME.
- Provides instruction, lab supervision, and course development in Machine Design, Strengths of Materials, Engineering Design, Engineering Drafting, Computer Aided Engineering at University of Pittsburgh at Johnstown.
- Supervised and participated in design and project management for new product development, product improvement, stress analysis, specification development, warranty, and failure analysis for dump truck bodies, dump trailers, transfer trailers for solid municipal waste, pushout trailers, walking-floor trailers, and specialty equipment including frac sanders, custom trailers and fire trucks.
- Responsible for all aspects of starting production of forgings for automotive driveline parts, design and supply of forging tooling, and logistical support.
- Supervised and participated in design and project management for new product development, product improvement, warranty and failure analysis, prototyping and testing, manufacturing engineering, and technical publications for line of turf care equipment and sod farm equipment, including turf tractors, mowers, snow removal equipment, ground-working attachments, turf maintenance equipment, sod harvesters, wider-area rotary mowers, transportable forklifts, high-capacity vacuums, sod laying equipment, and golf course maintenance equipment.
- Provided design and project management for industrial tractors and tractor-loaders.
- Designed process equipment for frozen dinners and cookies.
- Designed tooling for agricultural equipment.
- Designed and Developed mine refuge alternatives for compliance with new MSHA regulations.
- Authored 7 patents for Sod Harvesters, Mowing Deck, and Cookie Sandwicher.

Timothy R. Eckert, P.E. – Civil/Structural Engineer:

- Typical Areas of Consulting: foundation failures; retaining walls; design and installation of structures, including steel, concrete, timber, masonry, and prestressed; bridge design and highway design including sight distance; excavation; railroad bridge design and evaluation; sheet piling; soldier pile and lagging; construction claims.
- Master's Degree in Civil Engineering.

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- Registered Professional Engineer – PA, WV.
- Member ASCE, AISC, ACI.
- Managed engineering and design of major bridge projects and airport projects.
- Investigated and analyzed existing structures for predicted life expectancy.
- Investigated buckling and thermal analysis.
- Investigated: structural failures including retaining walls, defects in concrete, water damage, structural soundness.
- Provided construction oversight on highway and bridge projects.

Michael L. Stallard, Ph.D., P.E. – Civil/Environmental Engineer:

- Typical Areas of Consulting: mining; design, operation, and permitting of air pollution control facilities; design, operation, and permitting of water and wastewater treatment facilities; acidic mine drainage treatment, prevention, and mitigation; hazardous and toxic waste management, recycling, and treatment; soil and groundwater remediation; total quality management; industrial health and safety; and storm water management.
- Doctor of Philosophy Degree in Civil Engineering from Virginia Tech.
- Master's Degree in Environmental Engineering from Virginia Tech.
- Registered Professional Engineer in PA, VA.
- First Class Mine Foreman in VA.
- Designed air pollution control facilities.
- Managed certain aspects of SVE and groundwater pump and treat remediation at federal government nuclear weapon and chemical weapon manufacturing sites.
- Prepared RCRA, NPDES, CAA, and NEPA permit applications and reports.
- Conducted flood analysis studies for FEMA (DHS).
- Managed design and construction of water/wastewater facilities, including the largest membrane filtration plant in the US.
- Was chief EHS officer for an activated carbon company.
- Was chief engineer and construction manager for water and sewer authority at a major northeast US city.
- Authored numerous technical papers concerning original research.
- Invented numerous air pollution control processes, PCB detoxification process, pyrite depressant for froth flotation, and others.

James R. Petrie, C.M.S.P. (Certified Mine Safety Professional – Retired Status):

- Typical Areas of Consulting: workplace safety and health in mining, construction and general industry; industrial accident prevention; machine guarding; surface and underground mine hazards; fall protection; entrapments; powered haulage equipment; welding and compressed gases; walkways; ladders; conveyors; crushers; screens; ground control; fire and electrical hazards; mine emergency procedures and preparedness; hazard communication; hearing conservation; safety programs; confined space entry; and occupational health hazards including noise, silica, asbestos, diesel particulates, mine gases, airborne contaminants, and radon.

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FORENSIC ENGINEERS & SCIENTISTS

- Over 36 years with the Mining Enforcement and Safety Administration (MSHA), U.S. Department of Labor.
- 15 years as an MSHA, Metal and Nonmetal, District Manager.
- 18 years as an industrial hygienist/health specialist in MSHA's national office.
- Certified Mine Safety Professional, International Society of Mine Safety Professionals (retired status)
- Bachelor of Arts Degree, University of Pittsburgh.
- Extensive investigation and inspection experience with cement, sand & gravel, crushed stone, dimension stone, salt, lead/zinc and other surface and underground mining and construction related industries.
- Investigated numerous mining fatalities; serious injuries; accidents; and occupational health hazards. Conducted root cause analysis of mining accidents and developed comprehensive accident investigation reports.
- Provided technical and educational assistance on occupational health and safety in mining.
- Evaluated company safety programs and recommended improvements to reduce injuries and accidents.
- Gave numerous presentations and provided training on MSHA policy, procedures, regulations and a wide variety of health and safety topics.
- Developed MSHA policy, procedures, instructional materials and regulations.
- Experienced in all aspects of MSHA enforcement including Regular and Special Investigations, accident investigations, Pattern of Violations, Petitions for Modification, and litigation.

Stephen P. Tubbs, P.E. – Electrical Engineer:

- Typical Areas of Consulting: electrical equipment and systems that have heavy or medium sized electrical machinery, power electronic circuitry, or protection equipment; electrical machine guarding; electrical fire causation; control systems; electrocutions.
- Master's Degree in Electrical Engineering.
- Bachelor's Degree in Applied Mathematics and Engineering Physics.
- Registered Professional Engineer – PA and MA.
- Senior Member IEEE, Member NFPA, Member IAAI, Member PAAI.
- Designed light and medium rail car electrical systems
- Designed locomotive test equipment.
- Designed transit motor test equipment.
- Former assistant professor, taught university electrical technology courses.
- Authored educational technical books on electrical machinery and PLC programming.
- Experience in electric motor design and repair.
- Investigated electric motor failures.
- Investigated failures of, and performed testing on, speed encoders.
- Experience in high voltage insulation testing.
- Experience in coal burning and nuclear power plants.