CURRICULUM VITAE

RICHARD J. VICARS

SUMMARY OF EXPERIENCE

A qualified ***Senior Forensic Electrical Engineer*** and ***NAFI Certified Fire and Explosion Investigator*** with formal education (BS and MS degrees) from two highly accredited universities, over 20 years of progressive skills development through corporate training programs of world class companies, and comprehensive hands-on experience in the application of advanced failure analysis and forensic methods (NFPA 921) for the investigation of fire scenes, failed or defective products, and systems. Advanced technical knowledge includes, but is not limited to, residential and commercial HVAC (heating, cooling, water heaters, hydronic, fossil fuel burning appliances and inserts, space heaters), building control systems, consumer appliances and electronics (including PC's), industrial/manufacturing machines, vehicles and boats, and orthopedic medical devices. Skilled in assessing safety issues in products, facilities, processes, work design, signage/labeling and proficient in generating effective, permanent, and inherently safe solutions. Highly proficient in explaining complex concepts, theories, and processes to non-technical audiences.

ADVANTAGE: One Investigator for O&C and Engineering Inspections.

- ***Provide continuity*** in one qualified investigator from start to finish, from the original scene processing all the way through the final lab inspections and testing of root cause hypotheses
- ***Can*** manage and participate in complex and large loss fire scenes
- ***Can*** competently and cost effectively follow those same investigations through the identification and verification of the root cause (physics of failure) in advanced laboratory/inspection settings without the need to "hand-off" the investigation from one investigator (the traditional O&C person) to another investigator (the engineer).
- ***Can*** maintain the most effective and accurate continuity (flow) of information throughout the investigation while providing a more efficient investigation process through a single point of contact.

CONTACT INFORMATION

Kodiak Enterprises, Inc.	**office: 260.432.6590**
6204 Constitution Drive	**cell: 260.437.4410 (best)**
Fort Wayne, IN 46804	**fax: 260.436.0768**
Email:	**rvicars@kodiakconsulting.com**
Website:	**www.kodiakconsulting.com**

EDUCATION

1988 **Purdue University** West Lafayette, Indiana
Bachelor of Science in Electrical Engineering

1992 **Ball State University** Muncie, Indiana
Master of Business Administration

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PROFESIONAL EXPERIENCE

Kodiak Enterprises, Inc. (Kodiak Fire & Safety) Fort Wayne, IN
Senior Forensic Engineer and Investigator
2004 – Present

- Report to company President and Founder
- Perform NFPA 921 (Guide for Fire & Explosion Investigations) compliant Origin and Cause investigations. Responsible for scene examination, documentation, evidence collection, origin and cause determination, case study/peer review, and consulting on product safety issues. Investigative and engineering scope covers:
    - small to large losses
    - pre-manufactured, residential and commercial structures
    - complex electrical, mechanical, HVAC, building systems, fire protection systems, and structures. *** Significant hands-on engineering experience in the design, development, manufacturing, testing, sourcing, fielding, and support of HVAC and gas burner appliances.
    - vehicles (automobiles, boats/yachts, all terrain, RV's)
    - Utilities (gas, electric, water)
    - agricultural and farm
    - consumer, commercial, and industrial products
    - medical devices to include orthopedic implants, instruments, and delivery systems
- Determine root cause through identification of the actual failure mechanism (physics of failure) using advanced laboratory analyses, test equipment, and metrology.
- Utilize extensive design, development, manufacturing (lean), logistics, supply chain management, and quality experience to develop Level 3 mistake-proof corrective actions via the scientific method and 8D/4D problem solving processes.
- Perform safety evaluations for products (Quality and Reliability) and facilities (OSHA)

Innovative Control Technologies Fort Wayne, IN
Consulting Engineer
2003 – Present

- Founder and president of design engineering and manufacturing consulting firm focusing on the development and implementation of mistake-proofed processes, operator documentation, and designs for client companies.
- Emphasis on consumer, commercial and industrial product quality/safety, failure analysis, reliability growth and manufacturing efficiency improvement.
- Provide physics of failure component analysis, test, product design analysis and improvement for Klipsch Audio Technologies, Indianapolis, IN, manufacturer of audiophile grade speakers, amplifiers, home theater, and Ipod based consumer audio systems. Comprehensive testing includes environmental testing and qualification (thermal, vibration, drop/shock, HALT) on products, associated packaging, and user manuals.
- Provide lean manufacturing and process improvement services to Deloro Stellite, Goshen, IN, manufacturer of welding powders and systems for industry. Specific emphasis on value steam mapping to streamline and error proof problematic processes as defined by plant manager. Includes the development of new MRP system to

automatically populate label fields and to provide succinct and clearly defined (unambiguous) operator instructions at point of application to eliminate wasteful process while reducing errors.

- Performed failure and forensic analysis for volume manufacturer of luxury boats. Identified elusive design defect and developed/implemented containment and corrective action that eliminated safety issue and improved performance and reliability. Assisted with development and implementation of a disciplined supplier sourcing and qualification process as permanent corrective action.
- Designed and installed comprehensive and custom home automation system (HVAC, Lighting, Home Theater and Sound, Network, Surveillance, Security) in 2nd largest private residence in Fort Wayne, IN. Installed scaled down versions of total control systems in churches, retail shops, and private residences.

Paragon Medical, Inc. Pierceton, IN
Senior Manager/Quality, Regulatory & Operations
2005 – 2007

Recruited by and reported to company president to turn around the operations and quality performance of rapidly growing orthopedic/medical device manufacturer amidst aggressive organic and inorganic growth. Assigned to mentor and develop a relatively inexperienced team of design, manufacturing, and quality engineers in the design of innovative orthopedic instruments and implants. Challenged with a 12 month window to achieve double digit margin profitability and customer quality improvement via seamless integration of acquisition and partner capability and the development and implementation of innovative product solutions for customers. Additional challenges included developing EH&S processes, systems, and documented training to measure and improve employee safety.

- Implemented world class visual metrics (Visual Factory) and lean processes to achieve within 6 months: 400% improvement in customer satisfaction, 42% improvement in delivery, and 3X reduction in EH&S Recordables. Performance earned company selection as one of seven strategic suppliers to Johnson & Johnson Corporation. Earned preferred vendor status with Zimmer Corp., Stryker, Smith & Nephew and Biomet.
- Evolved and "leaned out" the dated, inspection-focused quality practices into an integrated system that proactively relies on adherence to world class, design and process focused, quality methods.
- Primary customer interface for all product quality and performance issues. Responsible for root cause investigation and corrective action implementation (CAPA). Implemented 4D/8D problem solving process for the development of effective corrective actions.
- Rolled EH&S incidents into CAPA process for effective and timely root cause investigation of plant safety Incidents and Recordables which were formerly neglected. Examples of plant/operator safety related corrective actions implemented via CAPA follow:
    - Fork Lift Training and training logs to address and resolve ongoing accidents.
    - Total Productive Maintenance of facility (electrical and mechanical systems), machines, and metrology.
    - The comprehensive development of documented product handling, packaging, and boxing procedures – especially as it related to heavy or sharp products in WIP or at Final Pack. In-process dunnage was developed to not only product from being damage as it moved from station to station, but it also ensured that

the operator could not overload (by weight, volume, or height) the totes and skids used to move the product.

- Assessed existing strengths and weaknesses including personnel, business strategy, operational processes, product and service offering and re-organized company in response to assessment.
- Performed pre-acquisition due diligence and post acquisition assimilation of core competencies into efficient, responsive, and comprehensive business model.
- Achieved cash profitability and margin goals in September 2005, less than one year after initial hire.
- Developed and presented monthly and quarterly performance to executive staff and board members.
- Ensured FDA compliance for new products and services as well as ISO13485 accreditation.
- Product cleanliness, sterilization, validation, and packaging development and qualification per strict FDA standards
- CNC Machining (Mills, Lathes, Grinders, Water Jet) experience and their application to various metals
- Environmental Health and Safety responsibility, goal setting, and tracking.
- Blueprint reading, use of metrology (Optical Comparator, Calipers, Micrometers, Height Gages, CMM, pin gages, thread/ring gages), GD&T
- Multi-Plant P&L responsibility

Carrier Corporation – A Division of United Technologies Corporation Huntington, IN
Manager, Design Engineering Services
1997 – 2003

Engineering Manager (senior staff position) for international electronic controls division of Carrier Corporation (world's largest HVAC manufacturer), leading 6 direct reports, 15 globally sourced subcontract firms, and 40+ engineers and staff, responsible for the quality verification for new product development and manufacture of HVAC systems and controls, with emphasis on product reliability, failure analysis, and warranty.

- Recruited to resolve division's most expensive and critical product liability issue related to residential HVAC systems.
    - Successfully determined root cause and implemented design corrective action and process improvements to preclude the recurrence of this product anomaly.
    - Key point of contact with Consumer Product Safety Commission (CPSC)
- Performed extensive inspections of scenes of numerous installations of problematic HVAC systems (Residential, Commercial, Over-the-Road/Sea) in a variety of applications. Inspections frequently included products from other manufacturers. Scenes were sometimes fire damaged, some involved CO. Spent an entire year traveling across the country to fully understand the scope of warranty and reliability problems in installed systems (residential, commercial, industrial).
- Expertise in
    - residential HVAC split systems, zoning systems, thermostats
    - light commercial PTAC's, roof tops, VAV's
    - industrial chillers, cooling towers, control systems
    - over-the-road tractor trailer refrigeration systems and refrigerated sea-going containers

- Defined, researched, analyzed and developed multi-million dollar strategic partnerships, supply relationships, and marketing relationships with global distribution system to ensure comprehensive penetration of brand.
- Designed, built, and staffed component failure analysis laboratory utilized by all United Technologies divisions (Carrier, Otis Elevator, Pratt & Whitney, Hamilton Sundstrand, Sikorsky Helicopter, UTC Fuel Cells, Research Center). Lab was recognized by UTC corporate VP of Quality as "Best in Corporation".
- Managed all product regulatory and registration processes including UL, CSA, CE Mark, and European Union/TUV.
- Managed team of electrical, mechanical, test, reliability, and quality engineers. Developed "Best in Class" Reliability and Quality Test Standards for entire line of products.
- Member of team assigned to investigate the cause of a fire that severely burned an employee who was pouring liquid into a manufacturing machine.
    - The ignition source was deemed to be static electricity accumulated in the liquid being poured (verified via measurement).
    - The first fuel was the liquid (and associated vapors).
    - The liquid developed a charge as it was being splash loaded into the machine by the operator and the developed charged was released in the form of static electricity into the liquid (which was ignitable).
    - The corrective action was bonding the pouring container to a ground common to the machine and to the factory, as well as operator training (documented) in the handling of charge accumulating ignitable liquids and the verification of proper grounding.
- Multi-Plant P&L responsibility

ITT Corporation – Aerospace/Optical Division Fort Wayne, IN
Product Assurance Manager
1988 – 1997

Promoted to lead the quality and reliability program for aerospace and military products manufacturer and service provider, ITT Aerospace. Responsible for all quality aspects of developing products and services from concept to launch.

- Primary products supported included SINCGARS military radio systems and complex weather sensing technology (GOES/TIROS).
- Resolved over 2,000 open technical failure reports. Performance facilitated the award of follow-on projects totaling over $850M.
- Developed and refined operational business plan and concept into a solid operating plan delivering consistently on-time results with high levels of performance.
- Recruited key team members, selected outside vendors and partners for quality improvement projects
- Performed all acceptance testing including Environmental, Drop/Shock, Loose Cargo, Ballistic Shock, Temp/Altitude, Explosive Atmosphere, Life, PRAT, RAFT, RQT, RDGT, RFI/EMI, Immersion
- Hired to perform all system level failure diagnosis (pre-shipment) and corrective action implementation gating the delivery of $55M of product each month.
- Managed cross-functional team of 25 employees, 10 consultants, and 50 additional support staff.

- Six Sigma Black Belt (VBSS)
- P&L responsibility

Shambaugh & Son Contractors/Engineers
Fire Protection Division Fort Wayne, IN
Field Engineer - Intern
1986 - 1987

Field Engineer for installation of Fire Protection system (mechanical) at new General Motors Truck and Bus Manufacturing Facility.

- Duties included reading and interpreting blueprints to prescribe the locations and depths of the underground fire protection mains, hydrants, post indicators valves.
- Utilized a story pole and transit to locate underground pipe, and appropriate rise and fall, per the drawing.
- Organized the pressurization and testing of installed piping runs to ensure proper seal before backfill.

Felderman Construction Fort Wayne, IN
Estimator - Intern
1979 - 1986

Part time, while attending school, associate of design/build commercial contractor.

- Duties included project estimating jobs for competitive bid.
- Utilized CAD software provided by Butler Manufacturing to design buildings and create a comprehensive bill of materials.
- Responsible for job site clean-up of building and final punch-list review prior to delivery to customer.
- Performed audits of in-progress jobs to ensure compliance to applicable building codes.
- Performed job site management as required by company president.
- Developed keen understanding of commercial building construction.

AFFILIATIONS

- IEEE Product Safety Engineering Society – Principal Member (2008) selected by Committee Chair
- ISO 13485 Lead Auditor (Certificate No: 7019731-46720)

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TEACHING

- Relentless Root Cause Development (Mistake Proofing) using the 8D Method (2005, 2008)
- Failure Modes, Effects, and Criticality Analysis (1992, 1998, 2005)
- The Analysis of Residential Furnace Fires (1998)
- Common Failure Modes of Residential HVAC Split Systems (1998)
- Reliability Prediction (1995)
- Weibull Analysis (1998)
- FrontLine Leadership (1995)
- ACE Quality Improvement (1999)
- Failure Analysis Laboratory Techniques and Methods (1998)

CERTIFICATIONS

- CFEI (Certified Fire and Explosion Investigator by NAFI)
- ISO 13485 Lead Auditor (Certificate No: 7019731-46720)
- Six Sigma Black Belt (Value Based)

TRAINING

- Reliability Engineering Training Course (ITT – 1989)
- Product Assurance Lab Cross Training (ITT – 1989)
- Applied Reliability and Life Testing by Dr. Dimitri Kececioglu (ITT – 1990)
- The Taguchi Method (Design of Experiments) by Dr. Genichi Taguchi (1989)
- Value Based Six Sigma – Advanced Concepts (ITT – 1992)
- Proposal Process Training Program (ITT – 1993)
- SAE Potential FMEA for Product Design & Development (1994)
- SAE Advanced FMEA for Product Design & Development (1994)
- FMECA per MIL-STD-1629
- Zenger Miller FrontLine Leadership (1994)
- NASA Earned Value Program Management Techniques (1992)
- Principles of HVAC and the Refrigeration Cycles (1997)
- Microelectronics Failure Analysis by Integrated Circuit Engineering (1997)
- ISO 13485 Lead Auditor Course with Emphasis on ISO 13485:2003 by BSI Management Systems, Certificate Number: 7019731-46720 (2007)
- Achieving Competitive Excellence (UTC – 1998)
- National Seminar on Fire Analysis Litigation by NFPA (NAFI - 2008)
- Advanced National Fire, Arson & Explosion Investigation Training (NAFI - 2008)
- CALCE - Computer Aided Life Cycle Engineering Product and Systems Electronic Components, Product and Systems Analysis (University of Maryland – 1998)
- ITO University for Achieving Competitive Excellence (UTC – 1998)
- LEO Scanning Electron Microscopy Principles and Applications (1998)
- Weibull Analysis (1998)
- IXRF Energy Dispersive X-Ray Analysis (EDXA) (1998)
- CR Technology Real Time Micro-Focus X-Ray (1999)

- Ion Chromatography and Printed Circuit Board Contamination Effects by CSL (1997)
- Printed Circuit Board Manufacturing by Diversified Systems (1998)
- Principles of Wave Soldering by Electravert (1998)
- Highly Accelerated Life Testing (HALT) by Dr. Hobbs of QualMark (1998)
- Fundamentals of Vibration and Shock Testing by UnHoltz Dickey (2000)
- Indigo Thermograph Imaging and Analysis (2001)
- DaisyLab Data Acquisition and Analysis (2001)
- Visual Basic (UTC – 2001)
- Mil-Stress, Relex, and Predictor Reliability Prediction Training per Mil-Std-217

AWARDS/COMMENDATIONS

- Letter of Recommendation by James N. Wade, U.S. Army Field Office - CECOM, 14 December 1992 for quality of work in supporting reliable fielding of SINCGARS Radio System.
- Carrier Electronics Component Hospital – Best in Class – Award – 1998
    - Commendation by UTC's VP of Corporate Quality (Yuzuru Ito) for the most effective failure analysis laboratory capability and performance
- Willis Carrier Award 2001, 2002
    - Group award for division's overall performance as best in corporation – 2 years running
- OSHA VPP Star 2001
    - OSHA Highest Award indicating self-audit and control status for effective and proactive Environmental Health and Safety program.
- ACE Gold 2002
- Commendation for French government for excellence in the development and administration of FMECA performed on TIROS weather imaging system (1994)