



The Augustus Group
Ed Merrick – Principal Consultant

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SUMMARY

Professional Engineer with over 32 years experience in materials technology, process safety management, and risk analysis. Managed and conducted numerous failure analysis/incident investigations, fitness for service projects and risk/safety assessments (both qualitative and quantitative) to the satisfaction of clients and regulatory bodies. Experienced in hazard identification and probability/consequence analysis, particularly as it relates to crisis and asset integrity management for the petroleum and chemical industries (both upstream and downstream) and the power industry. Equipment experience in applications at power plants, chemical plants refineries, and pipelines. Specialized recently in assisting clients with implementation of strategies for optimization of inspection and maintenance programs through application of risk based and decision analysis principles. Recognized expertise in good bolting practices, metal bellows integrity, and mechanical integrity.

EDUCATION

MS, Materials Science
BE, Mechanical Engineering, Materials Science Option

PROFESSIONAL EXPERIENCE

2004 – Present Augustus Professional Engineers & Associates, LLC, President

- Focused on Execution and Sales of Technical Solutions to Industry
- Recent Consulting Included Resolution of Bolting Integrity Issues for Global Santa Fe

2001 – 2005 RBIT Consulting, Houston. TX, Principal Consultant

- Vice President Responsible for all aspects of Company Operations, including Business Development, Marketing, and Management of all Projects
- Recent work has included project management and implementation of Mechanical Integrity Projects and Risk Based Inspection Projects for Orion Refinery, DSM Copolymers, BP GOM Deepwater Platform Horn Mountain, BP Chocolate Bayou Chemical Plant, BP Texas City Refinery, and Atlantic Methanol's plant in Bioko Equatorial Guinea

1988 – 2001 APTECH Engineering Services, Inc., Houston TX, Principal Engineer

- Managed financial risk analysis for Oman India Gas Pipeline
- Risk Analysis for Altura Energy's CO₂ Gas Pipeline
- Responsible for creation development and management of Petroleum and Chemical Business Unit, reporting to the President
- Created Aptech's program for Risk Based Inspection and assisted with development of Plant Life Extension Program for Chemical Plant

- Author of the Chemical Manufacturers Association's Mechanical Integrity Guideline Manual
- Incident investigations and failure analysis, e.g. degradation and failure of Incoloy 800H metal bellows, failure of low alloy extruder flange bolts, metal bellows failure due to carbon wedging
- Bolting technology research, e.g. use of low strength fasteners in cryogenic application
- Mechanical Integrity/Risk Based Inspection audits and gap analysis, e.g. use of API RBI software in cryogenic plant
- Construction and operations risk analysis of Oman to India sub-sea pipeline, identified and evaluated materials fabrication related hazards
- Fitness for service analysis of, e.g. service damaged flare tip, and hydrogen damaged and cracked butane storage sphere, and microbial induced corrosion damaged service water piping
- Risk based inspection projects for ammonia plants, chemical plants and refineries
- Training on risk based inspection and API RP 580

1986 – 1988 Tennessee Valley Authority, Knoxville, TN, Assistant Branch Chief for Materials Technology

- Supervised 20 to 25 professionals in TVA's Central Staff responsible for providing materials, welding and NDE solutions to TVA's nuclear power plants. Responsible for Singleton Materials Laboratory (metallurgy, concrete, environmental, etc.)

1985 – 1986 Tennessee Valley Authority, Knoxville, TN, Specification Improvement Program Manager

- Managed \$6.5M project to improve the quality of TVA's Nuclear Construction and Maintenance Specifications, reporting to Director of Engineering Design. As a result received highest performance rating possible and Letter of Commendation from Director of Engineering.

1979 – 1985 Tennessee Valley Authority, Knoxville, TN, Manager of Codes Standards and Materials Group

- Responsible for resolution of pervasive materials related issues – Microbial induced corrosion of service water systems, damage to metal bellows, stress corrosion cracking of reactor coolant pressure boundary components, under clad cracking of reactor vessel materials, stress corrosion cracking of high strength fasteners, etc.
- Responsible for development and implementation of a strategy for the Nuclear Industry in the United States to resolve Generic Safety Issue on Bolting Degradation and Failure in U.S. Nuclear Plants to the satisfaction of the NRC
- Vice Chairman (Codes and Standards) of AIF Committee on Nuclear Plant Life Extension, assisted with development of the strategy to re-license existing nuclear power plants beyond 40 years. Founding Vice Chairman of Bolting Technology Council

1973 – 1978 Tennessee Valley Authority, Knoxville, TN, Metallurgical Engineer Codes Standards and Materials Group

- Responsible for review and approval of Nuclear Steam Supply System specifications and fabrication procedures
- Supervised numerous failure and fitness for service analyses
- Responsible for cost effective resolution of a multitude of nonconforming conditions
- Responsible for development of an ASME code case to allow repairs to bellows assemblies for nuclear applications
- Secretary to ASTM's Committee on Structural Fasteners

SELECTED PUBLICATIONS

Over 30 Technical Publications and Reports, Some Recent Examples:

- Electric Power Research Institute Manual on Good Bolting Practices
- ASTM A320 Grade B8 Cl 1 Low Strength Bolting Issues
- Development of Site and Equipment Specific Probability of Failure Frequency Data for Quantitative Siting Calculations
- Pilot Project on Piping Risk Directed Inspection for Tennessee Eastman Terephthalic Acid Plant
- Safety and Reliability Assessment of Equipment for SK Corporation Heavy Oil Up grader
- Risk Directed Mechanical Integrity Program for BHP Petroleum.
- Implementation and Creation of Huntsman Chemical Companies Risk Directed Inspection Program
- Risk Based Inspection Program for British Petroleum Chemical Plant
- Risk Based Inspection Program for British Petroleum Grass Roots Offshore Gulf of Mexico Deepwater Platform