

Present

President, - Ennis's New Jersey Corporation

1993 to Current

Project & Technology Developer; Consulting Chemical Engineer; Insurance Consultant; Accident Investigator; Litigation Consultant; Expert Witness

Contact Information

Education

M.S. Chemical Engineering, Villanova University 1967 (Air Products Fellowship)
B.S. Chemical Engineering, Villanova University 1965 (Tuition Scholarship)

Professional Activities

Licensed Professional Engineer
American Institute of Chemical Engineers
Association of Consulting Chemists & Chemical Engineers - Director
Sigma Xi, the Scientific Research Society of America
Pro Bono: Attorney Ethics Committee – Supreme Court of New Jersey
SAG-AFTRA Union Member (Screen Actors Guild – American Federation of Television and Radio Artists)

Focus of Corporation

Project and Technology Development; Chemical Consultation; Insurance Consultation; Accident Investigation, Litigation and Expert Witness

Capabilities

Creates, identifies, and commercializes patented and proprietary technology for license; provides development services to corporations, countries, inventors, universities, research institutes; obtains licenses; performs feasibility studies. Offers project development and management, equipment and systems supply, construction and operations technical services, laboratory services, and financial services for project developers, contractors, owners, investors, and attorneys.

Chemical accident investigation, litigation support, expert witness testimony for insurance companies and private corporations.

Expertise in OSHA 29 CFR 1910.119 (Process Safety Management for Highly Hazardous Chemicals) and Appendix F EPA 40 Part 68 of the Clean Air Act Section 112(r) (General Guidance for Risk Management Programs).

Consulting Assignments and Selected Projects

Project Development

Ammonia/urea project development; gasification process/project development, electric reactor process/project development, fuel oil emulsion process/project development; refinery relocation project development; power project development.

Litigation and Expert Consulting, Expert Witness

Areas include power plants ammonia/urea and cogeneration plants, olefins units, high temperature furnaces, special refrigerant plants, chlor-alkali, specialty and fine chemicals plants. Plant inspections for state-of-the-art conditions, safety, and environmental compliance; investigation of equipment failures, accidents and explosions. More than 20 cases. Refer to Web Site: www.

Power and Hydrocarbon Processing

Technology assessments include ethylene and engineering contractor bid reviews; ceramic coatings marketing services; LPG additives; motor oil recycling; polyethylene terephthalate recycling; quality management and ISO 9000 services; and technology management organization.

Global Projects

Advisor for Petrochemical industry to Socialist Republic of Vietnam Ministry of Planning and Development; Advisor for agricultural industry in developing African nation (prospectus available upon request).

Current Projects

Business developments for Engine Gasification Technology™ and Electric Reaction Technology™. “Carbon Capture with Power Generation” – Gas Turbine Upgrade Package integrating Electric Reaction Technology™ with Direct Carbon Fuel Cells. 15-20% More Power, Carbon Capture, Grid-Scale Storage.

Industrial Experience with Major Corporations**ABB Lummus Global, Inc.****1990 to 1993****Vice President – Advanced Engineering****Responsible Executive**

Develop and Install Formal Quality Standard Process and Performance Management Processes across eight global operating offices.

Assignments, Responsibilities, Projects

Executive Committee member working with company president and top management team to implement Quality Management and Process. Responsible for directing the worldwide quality process improvement and information technology activities for 3500 people in nine offices located in the USA, Europe, and South America. Organized and led international teams to redesign core work processes and instill a customer-focused culture through time-based management, supplier management, and internal quality systems. Founding member of the ABB Customer Satisfaction Council and the ABB Information Technology Council. Set policy and carried out programs for region wide ISO 9000 quality certification. Developed process for managing IT standardization.

ABB Lummus Global, Inc.**1989 to 1990****Vice President – Operations, Lummus Technology Division****Responsible Executive**

Project Management, Engineering, Initial Plant Operations

Assignments, Responsibilities

Projects. Directed project management, proposals, cost estimating, engineering and plant technical services for design of refinery and chemical processing plants including ethylene, styrene, maleic anhydride, hydrotreating, and reformulated fuels operations. Strengthened project and proposal management functions and overhauled related financial reporting and controls. Consolidated key technical functions. Initiated quality process and PC network computing capability. Responsible for safety and operability of ABB process plant designs.

**The M.W. Kellogg Company
Technology Development Manager****1987 to 1989****Key Function**

Acquire and Develop Process Technology for Licensing

Assignments, Responsibilities, Projects

Evaluated new technologies for potential company investment. Negotiated license agreements to add new technologies to company portfolio. Led business team of lawyers and process specialists to acquire next-generation high-activity ammonia catalyst from an international oil company. Project-managed the process redesign to implement technology. Led improvement effort for ethylene and ammonia process manufacturing technology. Promoted new business line and rationalized approach to hazardous waste market.

**The M.W. Kellogg Company
Manager – Basic Engineering****1984 to 1987****Key Function**

Direct All Basic Engineering Activities

Assignments, Responsibilities, Projects

Directed 325 engineers and technical staff in design of polymer, petrochemical, and agricultural chemical processing plants including ethylene, polyethylene, ammonia, and urea facilities. Scope of job function also included worldwide responsibility for specifications, standards, and work procedures including safety and operability. Upgraded instrument function to competency in advanced process control and computer integrated manufacturing. Head of Leadership Team for computerization of engineering via 3D CAD, database, networks, and other information technologies.

**The M.W. Kellogg Company
Manager – Furnace Engineering Department****1982 to 1984****Key Function**

Direct All Furnace Engineering and Design Activities

Assignments, Responsibilities, Projects

Integrated a subsidiary into the engineering operations of the company. Directed engineering, design, drafting, procurement, and subcontract fabrication of proprietary petroleum refining and chemical process furnaces. Combustion system design and control and hydrocarbon feedstock/fuels engineering.

The M.W. Kellogg Company
Project Manager, Proposals and Projects

1978 to 1982

Key Functions

\$120 MM revamp of 1.2 billion pounds per year, U.S. Gulf Coast ethylene plant. Major proposals for ethylene, cumene/phenol, and ammonia plants. Advanced millisecond pyrolysis furnace for Japanese ethylene manufacturing

Assignments, Responsibilities, Projects

Managed revamp of ethylene plant for Shell Chemical Company including feasibility studies, process design, basic engineering, detailed engineering, procurement and construction planning. Managed supply of third generation Millisecond pyrolysis furnace and quench system for Idemitsu Petrochemical Company (Japan). Process included advanced technology equipment and scope included process, basic and detailed engineering i.e. including all equipment, piping, instrumentation, controls, safety interlocks, operating requirements, etc.

The M.W. Kellogg Company
Process Engineer, Project Engineer, Petrochemical Process Development Engineer

1967 to 1978

Key Functions

Process Engineering and Project Engineering in Olefins, Ammonia, and Refining and Development Engineering for New Processes

Assignments, Responsibilities, Projects

Prepared process flow diagrams, heat and material balances and ratings for world scale olefins complexes in the USA, Korea, Japan, Canada and various European countries. Worked in coordination of engineering efforts among process, project and development engineering. Managed initial on-site Millisecond furnace technology development overseas.

Patents

Carbon Capture with Power Generation

U.S.A. Patent 8,850,826 (2014)

Electric Reaction Technology for Fuels Processing

U.S.A. Patent 7,563,525 (2009)

Method and Apparatus for Total Energy Fuel Conversion Systems

U.S.A. Patent 6,734,331 (2004)

U.S.A. Patent 6,419,856 (2002)

U.S.A. Patent 6,350,394 (2002)

U.S.A. Patent 5,938,975 (1999)

Method for Quenching Cracked Gases

U.S.A. Patent 4,107,226 (1978)

Patents Pending

Publications and Presentations

Project Development Opportunities in the Chemical Industry – An independent Developer's Perspective

The Chem Show Briefing Series:

Association of Consulting Chemists and Chemical Engineers -
Consulting Tips, Case Histories and More

Javits Convention Center, New York City December 11, 2013

Commercialization Opportunities in the Chemical Industry – An Independent Inventor's Perspective

Joint Meeting: Association of Consulting Chemists and Chemical Engineers

New Jersey Section of American Institute of Chemical Engineers

Scotch Plains, New Jersey September 17, 2013

Testing the Waters

Vietnam Economic Times and Vietnam Investment Review. Hanoi, Vietnam; June 2003.

Unifying International Structures

Ennis's Different Approach. Chemical Week (Special Issue). November 11, 1992.

ISO-9000 - Quest for the Quality Edge

Business Week. November 1992.

Primary Reformer Riser Liner Collapse

AIChE Ammonia Safety Symposium; Denver, CO; August 1983.

New Waste Heat Recovery Designs

Ammonia Technology Seminar, Tsingtao, China; July 1983.

Reformer Furnace Design Improvements

Ammonia Technology Seminar; Jakarta, Indonesia; June 1983.

Joint Development of Millisecond Furnace

AIChE Pachec 77, Denver, Col; August 1977.

Olefin Manufacture via Millisecond Pyrolysis

Chemtech Magazine. November 1975.

High Temperature Low Contact Time Pyrolysis Process

Institute of Chemical Engineers; Harrogate, UK; June 1975.

Project Assignment Profiles 1967 to 1981

- (i) **Period** 1980 to 1981
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Project Manager
- (iv) **Project Phase** Feasibility Studies through Procurement & Construction Planning
- (v) **Assignments/Responsibilities/Projects**

Managed revamp of 1.2 billion PPY ethylene plant for Shell Chemical Company, Deer Park, Texas including feasibility studies, process design, basic engineering, detailed engineering, procurement and construction planning

- (i) **Period** 1979 to 1980
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Project Manager
- (iv) **Project Phase** Project Development through Detailed Engineering
- (v) **Assignments/Responsibilities/Projects**

Managed supply of third generation Millisecond Pyrolysis Furnace and quench system for Idemitsu Petrochemical Company, Tokuyama, Japan. Process included advanced technology equipment and scope included process, basic and detailed engineering

- (i) **Period** 1979 to 1981
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Project Engineer
- (iv) **Project Phase** Engineering, Procurement, Construction
- (v) **Assignments/Responsibilities/Projects**

Project engineer for complete project for two second-generation Millisecond pyrolysis systems for ARCO Chemical Company, Channelview, Texas

- (i) **Period** 1979
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Project Engineer
- (iv) **Project Phase** Start-up
- (v) **Assignments/Responsibilities/Projects**

Start-up advisor for 1.2 billion PPY ethylene plant (BOP - Baytown Olefins Project) for Exxon Chemical Company at Baytown, Texas

- (i) **Period** 1978 to 1981
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Manager and Project Engineer
- (iv) **Project Phase** Conceptual Design and Feasibility Studies; Process Design; Engineering, Procurement, Construction, Start-up
- (v) **Assignments/Responsibilities/Projects**

Managed complete process design activities for a second-generation Millisecond Demonstration Furnace for Shell Chemical Company, Deer Park, TX. Project engineer for complete project including extended data gathering and analysis program after start-up

- (i) **Period** 1977
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Manager
- (iv) **Project Phase** Process Design
- (v) **Assignments/Responsibilities/Projects**

Managed complete process design activities for a 1.5 billion PPY ethylene plant for Shell Chemical Company, Norco, Louisiana

- (i) **Period** 1976
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Manager
- (iv) **Project Phase** Process Design
- (v) **Assignments/Responsibilities/Projects**

Managed complete process design activities for revamp and expansion of a 150,000 MTPA ethylene plant for Korea Oil Company, Ulsan, Korea

- (i) **Period** 1975
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Manager
- (iv) **Project Phase** Process Design
- (v) **Assignments/Responsibilities/Projects**

Managed the recovery plant design for a 1.5 billion PPY ethylene plant for Shell Chemical Company, Norco, Louisiana

- (i) **Period** 1974
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Manager
- (iv) **Project Phase** Process Design
- (v) **Assignments/Responsibilities/Projects**

Managed the compression and distillation plant design for a 750 million PPY ethylene plant for Shell Oil Company, Norco, Louisiana

- (i) **Period** 1974
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Manager
- (iv) **Project Phase** Process Design
- (v) **Assignments/Responsibilities/Projects**

Managed reimbursable process feasibility studies for alternate feed debottlenecking and expansion of a 500 million PPY ethylene plant for Arco Polymers, Inc., Pasadena, Texas

- (i) **Period** 1972 to 1974
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Lead Process Engineer
- (iv) **Project Phase** Process Design and Startup
- (v) **Assignments/Responsibilities/Projects**

Start-up and testing of the first Millisecond pyrolysis furnace for Idemitsu Petrochemical Company, Tokuyama, Japan

- (i) **Period** 1969 to 1970
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Engineer
- (iv) **Project Phase** Process Design
- (v) **Assignments/Responsibilities/Projects**

Process design calculations for 150,000 MTPA ethylene plant for Korea Oil Company, Ulsan, Korea and 500 million PPY ethylene plant for Instituto Venezuela de Petroleo, Maracaibo, Venezuela

- (i) **Period** 1967 to 1970
- (ii) **Company** The M.W. Kellogg Company
- (iii) **Job Title** Process Engineer
- (iv) **Project Phase** Process Design
- (v) **Assignments/Responsibilities/Projects**

Process calculations for numerous ammonia plants. Start-up of 1000 STPD ammonia plant for Hill Chemical Company, Borger, Texas