

Career Goals and History

My goal is to utilize my technical and managerial experience for the long-term growth of a technology driven organization. I would like to advance my career by progressing to the next level of responsibility, with no geographic restrictions on being relocated for a new opportunity.

The focus of my career has been the application of modern technology to industrial processes. Formal education has been in the physical sciences, culminating in a Ph.D. in Analytical Chemistry from **Iowa State University**. Undergraduate degrees are from **York College** (A.S., Science) and **Harding College** (B.S., Chemistry). My professional career has centered on the application of modern and classical analytical chemistry techniques to developing new products for the chemical and related industries. During my 14 years in **Ethyl Corporation's** R&D Department, a solid foundation of accomplishments was established in both the Analytical Research & Services group and in the subsequent assignments in New Product Development and Planning & Analysis groups.

Success in forming a consulting company, **GREEN, Inc.** (Goff Research Enterprises and Equipment Network) enabled me to bridge to a position with **General Engineering Laboratories**. Both **General Engineering Laboratories** and the **Lithium Division of FMC** went through restructuring and workforce reductions. Experience with these companies greatly enhanced my career by giving me the opportunity to demonstrate technical leadership and project management skills while making significant contributions to environmental and international projects.

My experience with **General Engineering Laboratories** enabled me to obtain a position with **Westvaco**, a pulp and paper company. This gave me a great introduction to wood pulp and paper technologies and provided the opportunity to complete a major project coordinating a corporate-wide dioxin-monitoring program. This seemed like a good opportunity to remain in the Charleston area, but **Westvaco** was not able to provide long-term employment. **GREEN, Inc.** again provided a consulting bridge to the opportunity with the **Lithium Division of FMC**.

These changes have presented me with unique career growth opportunities -- both to learn new technologies and to provide technical leadership in team environments. Rewarding experiences were gained managing an environmental lab group for **Duke Energy**. In 2001 an opportunity opened up to join **Halliburton Energy Services / Baroid Drilling Fluids** as a Principal Technical Professional based in Denver, CO. We led the market in the introduction of an innovative high performance polymer based drilling fluid systems that realized significant savings of time and rig expense for several basins in the Rockies. A change in management gave me the opportunity to serve as a Sr. Scientist/Chemist developing a new regional laboratory with sophisticated instrumentation supporting both drilling fluid and cementing product service lines for Halliburton. Subsequent changes in management have given me a new opportunity to seek a challenging position that can appropriately utilize my experience and benefit from my proven record of accomplishments.

Environmental Experience

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- ◆ Coordinated corporate-wide high resolution GC-MS dioxin monitoring program for **Westvaco**, a leading manufacturer of paper products. Initiated computerized validation processes to reduce reporting errors and improve environmental monitoring efficiency. Audited commercial analytical labs and external data validators. Reduced overhead costs associated with this mandated environmental analyses.
- ◆ Provided technical leadership as senior staff member of **General Engineering Laboratories (GEL)**, a leading environmental and analytical laboratory serving municipal, industrial and environmental markets. GEL is known for its use of the world's most advanced instrumentation in a sophisticated, state-of-the-art facility located in Charleston, SC.
- ◆ Led design and construction efforts to upgrade sample preparation and instrumentation laboratories. This renovation was critical to the successful implementation of an ultra-trace inductively coupled plasma mass spectrometer (ICP-MS) in a commercial environmental laboratory.
- ◆ Led installation, performance verification and conformation efforts to successfully bring the Agilent-4500 ICP-MS instrument into operation in a commercial environmental laboratory.
- ◆ Earned Certification from the South Carolina Department of Health and Environmental Control (SC-DHEC) for Hazwaste environmental analyses in the Trace Metals section of the GEL laboratory.
- ◆ First in the state of South Carolina to win approval for the use of the ICP-MS instrument for environmental analyses (SW-846, Method 6020, EPA Method 200.8). Over 700 pages of performance data were submitted to the SC-DHEC.
- ◆ Trained laboratory technicians in the theory and operation of the sophisticated ICP-MS instrument, allowing round-the-clock utilization of the equipment that resulted in significant improvements in throughput for the laboratory.
- ◆ Experienced in EPA SW-846, RCRA, TCLP and other related methods and protocols for the collection, digestion, extraction and determination of inorganic and organic analytes by various instrumental methodologies.

References:

The U.S. EPA Solid Waste analytical test methods publication, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," commonly referred to as SW-846.
"Analysis of Drinking Water and Waste Water by ICP-MS Using EPA Method 200.8"

Pharmaceutical Experience

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- ◆ Worked with external customers of FMC's Lithium Division -- a major supplier of lithium carbonate (Li_2CO_3) for treatment of bipolar disorders. Also, various lithium organometallic compounds are used as active intermediates in the production of modern pharmaceuticals. Responsibilities included working with our external customers to assure consistent chemical composition and particle size distribution.
- ◆ Served as Analytical Coordinator for \$3 million research project that pioneered the introduction of a novel pharmaceutical product for osteoporosis prevention and treatment.
 - Coordinated analytical components of NDA submission, Phase I & Phase II clinical trials.
 - Studied dose/response trends of various formulations.
 - All work was done under GMP/GLP regulations.
- ◆ Provided analytical support to guide development efforts for a new cost-effective route to commercial production of ibuprofen. Ethyl Corporation (later renamed Albemarle Corporation) now operates the largest North American ibuprofen production facility in Orangeburg, SC based on this technology.
- ◆ Worked on several drug-intermediate projects:
 - Zomepirac – analgesic for McNeill Labs
 - Tolrestat – drug for diabetes, clinical trial samples
 - Ketoprofen – next generation after ibuprofen, now OTC as Orudis KT
 - Tolmetin – anti-inflammatory
 - Cimetidine – active ingredient in OTC formulations of Tagamet
- ◆ Worked closely with our pharmaceutical subsidiary (Nelson Research) and our spin-off company (Whitby Pharmaceuticals) to develop and validate analytical methods in support of their drug studies.
- ◆ Analytical experience in developing quantitative methods to assess the purity and identity of drug substances and starting materials, determining the identity of unknown manufacturing impurities and degradation products and transferring these methods to other scientists inside and outside of Ethyl Corporation.
- ◆ Experienced in the following Procedures and Protocols: FDA, GLP, GMP, NDA, & USP.

Polymer Experience

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- ◆ Co-authored “*Opportunities in Plastic Additives*” technical report for upper management of Ethyl Corporation. This report outlined growth opportunities in antioxidants, UV stabilizers, antistatic agents, lubricants and nucleating agents.
- ◆ Member of Society of Plastics Engineers (previous). Represented Ethyl’s new project development efforts at the national SPE meeting in Houston, TX.
- ◆ Experienced in polyolefin, PVC, polyurethane, polyphosphazene, and plastic additives technologies.
- ◆ Ethyl Corporation was a major supplier of raw materials and specialty chemicals for polymer applications, including alpha olefins for the polyolefin marketplace.
- ◆ Ethyl also had a large polyvinyl chloride (PVC) production facility that was part of their integrated production complex in Baton Rouge, LA.
- ◆ Ethyl supplied a full line of flame retardant additives and antioxidant chemicals to the polymer marketplace.
- ◆ Led R&D product development efforts for antioxidants, flame retardants, various polypropylene, polyethylene and polyphosphazene projects.
- ◆ Identified new business opportunities, resulting in restructuring and consolidation of business and marketing efforts, as member of three man interdisciplinary team (chemist, chemical engineer, and marketing manager) that analyzed critical success factors for expanding plastics additives business.
- ◆ Studied role of compatibilizers in plastics recycling and recommended use of proprietary polyphosphazenes polymers.
- ◆ Managed migration and enhancement of computerized IDEA database, which was used as the focal point for submitting new project ideas, including antioxidants and flame retardants for polymer applications.
- ◆ Defined Idea Development Process and co-authored seventy-page manual to guide projects from conception to commercialization. Applied Stage/Gate principles to our business needs.

Product Development Experience

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- ◆ Selected by senior management of Ethyl Corporation to lead in their New Product Development cross-functional team effort (1990 – 1994). Extensive training in principles and application of Innovation in Research, New Opportunity Analysis, Marketing Basics and Tactics, Industrial Marketing Research, Time Management Systems, Training in Interpersonal Skills and the application of Stage / Gate principles to the successful introduction of new products.

- ◆ Technical management training and experience:

Group Leader (12 chemists / technicians), FMC Lithium Div., Technology Dept. 1996 – 1998

This assignment involved international responsibilities in Argentina and England.

Group Leader (8 chemists / technicians), Ethyl Corp. R&D Department 1980 – 1989

Graduate of Ethyl's Advanced Leadership Development Program 1985 – 1987

- ◆ Product development experience at Ethyl Corporation, FMC Lithium Division and Halliburton Energy Services includes contributions in the following product areas:

- Brominated organic compounds as flame retardants and water treatment chemicals
- Zeolites as detergent builders, supports for rare-earth catalysts, and for pharmaceutical uses
- Polymer additives, including flame retardants, antioxidants, and compatibilizers
- High purity silicon (Si) and gallium arsenide (GaAs) for semiconductor applications
- Carbon compounds as adsorbents for automotive uses
- Lithium metal and mixed metal oxides for battery applications
- CRYSTAL-DRIL clear water drilling fluid for clay-free system to inhibit reactive shales

Semiconductor/Electronics Experience

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- ◆ Led in development of ultra-trace analytical methods in support of Ethyl Corporation's large R&D effort to develop a new low-cost route to the commercial production of semiconductor grade Si.
- ◆ Designed and built laser excited photoluminescence spectrometer to measure sub-part-per-billion impurities in semiconductor grade gallium arsenide -- outperformed later commercial units.
- ◆ Directed β -test program for the commercial introduction of Perkin-Elmer's Plasma II ICP atomic emission spectrometer. Worked closely with their design and production teams to optimize the instrument's performance in an actual R&D lab setting. This unit was used extensively in support of Ethyl's semiconductor efforts, both Si and GaAs.
- ◆ Led design and construction efforts to upgrade sample preparation and instrumentation laboratories. This renovation was critical to the successful implementation of an ultra-trace inductively coupled plasma mass spectrometer (ICP-MS) in a commercial contract laboratory.
- ◆ Led installation, performance verification and conformation efforts to successfully bring the Agilent-4500 ICP-MS instrument into operation in a commercial contract laboratory. This unit had the very low detection limit required for semiconductor analyses.
- ◆ Trained laboratory technicians in the theory and operation of the sophisticated ICP-MS instrument, allowing round-the-clock utilization of the equipment that resulted in significant improvements in throughput for the laboratory.
- ◆ Led analytical method development and production quality assurance efforts in support of FMC Lithium Division's commitment to develop next-generation compounds for lithium ion based rechargeable batteries. This work involved working closely with our Japanese joint venture partners.
- ◆ Initiated and implemented statistical process control (SPC) techniques to the validation of analytical methodologies and production quality control measurements.

Oilfield Drilling / Petrochemical Experience

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- ◆ Set up regional laboratory to support drilling fluids and cementing product service lines. Trained technicians to operate sophisticated Internet-based instrumentation:
 - Fann 90 Dynamic Filtration
 - Fann 75 High Pressure / High Temperature Rheologies of Drilling Fluids
 - iPRO HPHT Consistometer for cementing support
 - iPRO UCA, ultrasonic cement analyzersRoutine and specialized tests including API fluid loss, HPHT fluid loss, MBT.

- ◆ Hands-on technical lead in introduction of CRYSTAL-DRIL clear water drilling fluid, a clay-free system designed to inhibit reactive bentonitic shales, eliminate bit balling, and enhance penetration rates (ROP) creating new business opportunities in the Rockies.

- ◆ Development experience with viscosifiers in aqueous polymer based drilling fluids.

- ◆ Drilling Fluids Technology

- ◆ Integrated Fluids Technology

- ◆ Well Control for Drilling Personnel

- ◆ Fluids Training for Field Service Representatives

- ◆ Solids Control for Drilling Personnel.

- ◆ DRIL-N Fluid Systems

- ◆ Field work on drilling rigs near Meeker and Rifle, CO and Wamsutter, WY