

Douglas Denholm
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Summary: Broad experience in process research & development. Considerable hands-on bench, pilot, and commercial scale process engineering experience. Solid understanding of computers, software and how they can be applied to solving engineering problems. Planned, managed and executed simulation consulting projects for industry leaders such as Mitsubishi Chemical, GE Plastics, SASOL, and Broken Hill Proprietary. Demonstrated strengths:

- process development & design
- process modeling & simulation
- technical communication
- learning & applying new technologies

Professional Experience: *Envapower, Inc.* Cambridge, MA Sept 2002 - Feb 2004
Technical Group

Principal Engineer

With 5-person startup company supplying market intelligence to traders, generators, and commercial consumers of electricity in the New England Power Market. Developed software-based methods for analyzing historic generator bidding behavior and external inputs affecting market behavior (e.g. USGS river flow data impacting hydroelectric generator capacity and bids). Electricity demand modeled using proprietary neural net software trained on historical demand, calendar, and weather data.

NeuCo, Inc. Boston, MA 1999 - July 2002
Applications Group

Principal Engineering Consultant

With 15-person startup company; managed and executed eight neural net based online combustion optimization projects for electric utility customers in New Mexico, Colorado, Texas, and Germany. Scheduled and coordinated customer and third party DCS and Data Historian integration. Developed neural net models and optimization profiles for each unit. License and Services revenue for projects totaled around \$2.3 million.

ASPEN TECHNOLOGY, INC., Cambridge, MA 1987 - 1999
Applications consulting and Advanced Process Design groups

Principal Engineering Consultant (1996 to 1999)

Managed and executed process modeling and improvement projects for customers in the US, Spain, Finland, and South Africa. Processes modeled included Vinyl Chloride Monomer, Propylene Oxide/Styrene Monomer, Nitric Acid, Fuel Cells, and Ethylene. Wrote business requirement for Aspen Plus V10 OLE/ ActiveX API.

- European customer wanted to improve proprietary PO/SM design using simulation. Worked with customer engineers to develop customized Aspen Plus representation of key reactors. Project successfully completed in 2 weeks.
- US fuel cell manufacturer wished to develop Aspen Plus model of the steam-reforming subsystem of their automotive fuel cell design and integrate it with their internally developed stand-alone model of their fuel cell. Integrated A+/inhouse model developed and operational within one month.

Senior Staff Engineer (1991 to 1996)

Managed and executed process modeling projects for customers in the US, Japan, China, Australia, Sweden, UK, Holland, and Kuwait. Processes modeled included Ammonia, Bauxite, Terephthalic Acid, Nitric Acid, Styrene, Silanes, and Acrylonitrile.

- US manufacturer of silanes had assembled a team of in-house and E&C engineers to design a new European plant using "best available technology." The design was to be developed and implemented using Aspen Plus. Worked with the team of 16 engineers to ensure that challenging modeling issues were properly dealt with and to provide simulation mentoring as needed. Modeling work completed successfully over 6-month period.

Senior Engineer (1987 to 1991)

Managed and executed process modeling projects for customers in the US, Holland, Japan, and Australia. Processes modeled included Coke Oven Gas Scrubbing, Styrene, Coal Liquefaction, and Polybutylene Terephthalate (PBT).

- Worked onsite in Australia with Broken Hill Proprietary engineers for 6 months developing detailed model of proposed commercial scale coal liquefaction process.

CHAMPION INTERNATIONAL CORP., West Nyack, NY 1983 -1987

Senior Process Engineer

Conducted modeling and field studies to reduce process energy requirements.

ALLIS CHALMERS ENERGY & MINERALS, INC., West Allis, WI 1982 - 1983

Process Engineer

Designed gas-scrubbing systems for the KilnGas coal gasification process.

EIC LABORATORIES, INC., Newton, MA 1980 - 1982

Staff Chemical Engineer

Designed the regeneration reactors for the Cuprosul H₂S gas scrubbing process. Developed computer model to represent 3 phase, mass transfer-limited, regeneration system and tuned kinetic parameters based on pilot plant data.

KENNECOTT DEVELOPMENT, Lexington, MA 1980 - 1980

Development Engineer

Pilot plant engineer developing process for spinning boron nitride ceramic fibers. Constructed and operated high temperature boron oxide glass furnace and fiber spinning apparatus, fiber mat needling system, and ammonia nitriding furnace.

POLAROID CORPORATION, Cambridge, MA 1978 - 1980

Engineer

Pilot plant engineer developing novel photochemical systems. Designed and built controlled-environment bench scale reaction system and 5 gallon scale pilot reactor system. Supervised operation of three pilot scale web coaters.

Education: Massachusetts Institute of Technology
MS/BS Chemical Engineering 1978

Registration: Licensed Engineer, State of Wisconsin 1983

Skills: Comfortable working in Windows XP/2000, Macintosh, and UNIX/Linux environments. Expert in Aspen Plus. Familiar with VB, FORTRAN, and Pascal. Comfortable working with a broad range of technical software including Excel, MathCAD, and technical illustration tools. Experienced user of the WWW and web applications.