

CORE COMPETENCY

- Management
 - President of Cheme Engineering.
 - Responsible for creating most of the major systems and procedures within the company
 - Mentored and managed employees to help them grow personally and professionally
- Project Management
 - Management of project engineers
 - Co-ordination with owners, other consultants, contractors
 - Organize and run meetings for clients and vendors
 - Preparation of technical and economic feasibility studies including budget estimating and quotes
 - Project scheduling
 - Bid evaluation
 - Inspection of construction and supervision of contractors
- Process Design, Evaluation and Specifications
 - cGMP utilities
 - Bio-processing operations: CIP, SIP, sterilizing final filtration, cross flow filtration
 - Specification preparation (URS, FRS, Construction)
 - Subject Matter Expert (SME) in pharmaceutical water systems
 - Design and audits of clean utility systems (PW, WFI, Clean Steam, Medical Gases)
 - Equipment sizing and selection
- Commissioning and Validation:
 - Protocol preparation and execution
 - Management of group activities
 - Hands-on troubleshooting
- Training
 - Delivered theoretical and hands-on training for water systems
 - Presented at technical conferences

WORK EXPERIENCE

Cheme Engineering

- Collaborated with technicians, engineers and managers to fully document (process flow diagrams and block flow diagrams) component pertussis vaccine manufacturing process and procedures (fermentation, harvest, downstream purification)
- Managed deployment of a clinical laboratory information management system
- Design and PM of a highly flexible customized multi-target process CIP system
- Design and PM of a mobile CIP-able and SIP-able product compounding and sterile filtration system.
- Solvent recovery system troubleshooting and technical evaluation
- Hydrogen peroxide dosing system design
- Subject matter expert on pharmaceutical water and steam generation, storage and distribution
 - Conducted research and pilot testing of water purification equipment, including publishing and presentation of articles
 - Delivered training courses on water purification
 - Identification of numerous technically complex performance problems, and retrofit implementation on water systems
- Conducted audits of various clean utility and medical gas systems
- Design and PM of medical gas piping systems projects

- Concurrent management of large and small projects with budgets varying in size from \$10K to \$8 Million.

Barnes Huntington & Associates

- Project management of a variety of projects ranging in budget from \$4,000-\$4,300,000
 - Prepared budget estimates for engineering services and for overall project cost
- Design calculations and technology assessments
 - cGMP utility systems (Water, Steam)
 - System heating and cooling calculations, pump sizing, storage tank sizing etc.
 - Clean in place (CIP), steam in place (SIP) production equipment
 - Sterilizing final filtration
 - Tangential flow filtration (TFF)
- Specification preparation (URS, FS, equipment, instrumentation, stainless steel etc.) for PLC/computer controlled processes
- Construction inspection and contractor management
- Commissioning and validation protocol preparation, execution, management and review
- Trained operators on system operation
- Hands-on troubleshooting of malfunctioning equipment
- Conducted technical and economic feasibility studies

Barenco Inc.

- Installed pump and treat system for groundwater contaminated with gasoline
- Wrote pump and treat system operating manuals
- Conducted intrusive and non-intrusive (Phase 1 and 2) environmental site assessments including reporting of results to clients (written and verbal)
- Field experience in drilling including sampling, and monitor installation
- Supervised skilled trades
- Prepared budget estimates

EDUCATION, CREDENTIALS, AND PROFESSIONAL MEMBERSHIPS

- B.A.Sc. Chemical Engineering, University of Waterloo 1998
- M.A.Sc. Chemical Engineering, University of Waterloo 2001
- Professional Engineer, Professional Engineers of Ontario (PEO)
- Member, International Society of Pharmaceutical Engineers (ISPE)
- Member, American Society of Mechanical Engineers (ASME)
- Member, American Society of Plumbing Engineers (ASPE)
- Courses attended:
 - Presenter at Ultrapure Water Pharma Conference, Chicago, Illinois, 2013
 - Presenter at Ultrapure Water Pharma Conference, East Brunswick, New Jersey, 2010
 - Aseptic Processing Operations, Montreal, 2009
 - Pharmaceutical Water Systems - Design, Validation, Operation and Maintenance, Toronto, Ontario, 2008
 - Biotech Basics: Fundamental Principles of the Biotechnology Industry, Providence, Rhode Island, 2004
 - Biopharmaceutical Process Development, Providence, Rhode Island, 2004
 - Bioreactor and Fermentor Design, Atlanta, Georgia, 2004