

E. Shashi Menon, Ph.D., P.E.

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Summary

An innovative, results oriented Executive/Technical Director with over 39 years of progressive experience in engineering, project management, project development, marketing and administration in the natural gas, petroleum and manufacturing industries. Achieves organizational objectives through teamwork, attention to detail, insistence on quality and effective communication skills. Strong computer background. Recipient of ARCO Outstanding Technical Achievement Award, 1983.

ACCOMPLISHMENTS AND EXPERIENCE

Engineering Consultant - SYSTEK 1998- Present

Oil & Gas Industry

Technical and Economic Feasibility studies for liquid/gas pipelines and power projects.

Conducted Training Programs in Pipeline Hydraulics (Gas and Liquid)

ASME Short Course Instructor for PD 431 and PD 434 – Liquid Pipeline Hydraulics

ENRON Engineering & Construction, Houston, TX 1997- 1998

Project Director - Cuiaba Pipeline (Bolivia and Brazil)

Responsible for all aspects of a \$140 million, 627 km 18-inch natural gas pipeline in Bolivia and Brazil.

Completed engineering & Environmental studies.

Initiated Construction management program to start pipeline construction in February 1999.

SYSTEK Engineering Consultants, CA 1996- 1997

Vice President - Engineering and Computer Systems

Technical and Economic Feasibility studies for oil and gas pipelines in Latin America and Russia.

Marketing and Development of electric power projects in India

Mojave Pipeline Company, Bakersfield, CA 1992 - 1996

Director/Chief Engineer - Engineering, ROW and Environmental Services

- Project Director for \$500 million gas pipeline expansion project consisting of over 600-miles of 30"/20"/16" pipeline, four compressor stations of over 100,000 HP and 60 meter stations.
- Led the project development team involving marketing studies, project evaluation, cost analysis and tariff calculations.
- Overall responsibility for engineering design, cost estimating, route selection, environmental studies, ROW, EIR/EIS permitting and FERC application.
- Managed capital and expense budget. Led department consisting of three managers, four engineers, technician and secretary, for the operations of an existing 362-mile 30"/42" natural gas pipeline system.
- Directed efforts of outside Engineering, ROW and Environmental consultants.
- Project manager for 80,000 gal/day LNG plant in Arizona for fleet vehicles.
- Pursued LNG as a fuel for locomotives. Developed economic and technical feasibility for converting BN and UP locomotives from diesel to LNG.

ARCO/Four Corners Pipe Line Company, Long Beach, CA 1988 -1991

Manager of Engineering Services/Director, Special Projects.

Managed department consisting of nine engineers, contract administrator and secretary, handling projects up to \$76 million involving preliminary and detail design, cost estimating, construction management and startup.

- Project manager for \$76 million gas pipeline conversion project. Completed preliminary engineering, cost estimating and environmental permitting for FERC filing.
- Directed a \$35 million acquisition and subsequent modification of a products terminal and pipeline system that resulted in over 50% ROR on investment in an accelerated project schedule of 18 months.
- Directed engineering and cost studies for heavy crude conversion project.

ARCO Transportation (Alaska Division), Long Beach, CA 1984-1988
Engineering Manager

- Managed engineering group providing oversight and support to all ARCO Transportation activities in Alaska - TAPS and Kuparuk pipelines.
- Represented ARCO on TAPS and Kuparuk technical committees - Hydraulics, pigging, corrosion and controls.
- Reviewed and approved ARCO share of capital and expense budgets for TAPS and Kuparuk systems upto \$200 million per year.

ARCO/Four Corners Pipe Line Company, Long Beach, CA 1978 -1984
Manager of Major Projects/Project Manager

- Planned, organized and managed the expansion of a 16-inch crude oil pipeline system, involving construction of 3 new pump stations and modification of 4 existing stations that resulted in \$7 million/year additional revenue. The project cost \$20 million and was completed in 18 months.
- Conceived and implemented an accelerated expansion of a pipeline system that yielded incremental revenue of \$600,000 within a 3 month time period. Received Outstanding Technical Achievement Award from ARCO.
- Planned, organized and directed the first field test using Drag Reduction Agent (DRA) on a 14-inch crude oil pipeline that produced a 20% improvement in flow.
- Played key role in the first full-scale DRA test in the Trans - Alaska Pipeline System (TAPS) that yielded flow improvements of up to 10% and revenue increases of \$150 million per year.
- Launched a Linalog Internal Inspection program for two critical pipelines from the harbor to a tank farm. Used results to plan preventive maintenance program.

Williams Brothers Engineering Company, Tulsa OK 1974-1978
Design/Project Engineer

- Hydraulic studies for Russian Ammonia pipeline.
- Batching and contamination studies for Ecuadorian products pipelines.
- Design and cost estimate of NG and NGL gathering systems for Oil Company of Iran.
- Transient and steady state hydraulics of crude and petroleum pipelines in Nigeria.

Larsen & Toubro, Bombay, India. 1971-1974

Danish-owned manufacturer of pressure vessels for chemical & nuclear industries ----- Design Engineer

EDUCATION

Engineering Management certificate program, California Institute of Technology.

Arctic Engineering course, University of Alaska.

PhD (Engineering management)- Madison University, Gulfport, MS.

M.S. (Mechanical Engineering) - California State University, Long Beach, CA

Bachelor of Engineering (Mechanical), Bhopal University, India.

Associate Fellow of the Royal Aeronautical Society (A.F.R.Ae.S), London, England.

LANGUAGES: English, French, Spanish, Hindi, Urdu, Tamil, Malayalam and Sinhalese

PROFESSIONAL ACTIVITIES

Member, American Society of Mechanical Engineers.

American Petroleum Institute, Planning Committee member 1987

Registered Professional Engineer (Mechanical), California.

PUBLICATIONS

Pumps and Pumping Stations, Elsevier Publications, December 2010 (ISBN: 978-1856178280)

Gas Pipeline Hydraulics, CRC Press, May 2005 (ISBN: 0-8493-2785-7)

Liquid Pipeline Hydraulics, Marcel Dekker Publishing Co., June 2004 (ISBN: 0-8247-5317-8)

Piping Calculations Manual, McGraw Hill, December 2004. (ISBN: 0-07-144090-9)

Pipeline Planning and Construction Field Manual, 2011 (ISBN: 978-0-12-383867-4)

Pipeline Engineering Programs for HP-41C/CV, July 1983

Design Procedure to Select Pumps for Multi-Products Pipelines, The Oil & Gas Journal, May 1976

Author of several commercial software programs in liquid and gas pipeline hydraulics and pump analysis, 1980-2006