

STEPHEN AARON RANDOLPH

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PERSONAL:

Married, no children
U.S. citizen
Business and personal travel to 6 continents, 50+ countries for extended periods of time

EDUCATION:

B.S. Mechanical Engineering, June 1971
Rose-Hulman Institute of Technology
Terre Haute, Indiana

Past Member, American Society of Mechanical Engineers
Past member, ASME/ANSI Code Committee
Licensed Professional Engineer, Illinois #62-34151
German read, written and spoken
Past Chairman, Plan Commission of La Grange, Illinois for 19 years
Volunteer alumni recruiter for Rose-Hulman Institute of Technology

Willingness to travel nationally and internationally on a sustained basis: 50%-60%

BUSINESS EXPERIENCE:

04/00 to Present-----S. Randolph Associates, Ltd.
11/89 to 04/00-----Corn Products International (spinoff name since 01/98)
05/87 to 11/89-----Interlake
09/76 to 05/87-----Corn Products Division of CPC International
03/74 to 09/76-----Monsanto
08/71 to 03/74-----Bureau of Engineering, Chicago Department of Public Works

TOTAL CAPITAL VALUE OF PROJECTS FOR WHICH I WAS TOTALLY AND PERSONALLY RESPONSIBLE: \$1.9 Billion (2021 Dollars, indexed by ENR Const Cost Index)

S. RANDOLPH ASSOCIATES, LTD.

04/00 to Present

Project Manager—Consulted with a very large multi-national chemical manufacturing corporation in multiple plants to diagnose process systems which did not work and made detailed calculations, cost estimates and schedules to correct multimillion dollar problems. Consulted with a manufacturer of dryers and evaporators and coordinated safety reviews and upgraded equipment documentation. Consulted on an extended basis with a startup organic chemical company as their Project Manager, directing a large engineering firm's efforts, including multiple capital cost estimates and process development. Consulted for several months with a firm engaged in developing a unique, high margin product for the automotive industry. Consulted on an ongoing basis with an enzyme manufacturing company with facilities in Mexico and commuted there regularly. Consulted on an on-going basis with a major manufacturer in Argentina for over 5 years for a new corn wet milling plant; various processes proposed and accepted. Consultant to a number of ethanol manufacturing firms for both new facilities and capacity increases, both domestic and foreign. Project Engineer for a 100+ MM gal/yr ethanol

plant. Consultant for a foreign biotechnology facility. Responsible for ASME Code calculations and interpretations necessary to resolve potentially costly construction cost and schedule issues on a new 600 MW combined cycle power plant in Illinois. Negotiations with a major engineering firm on my client's behalf resulted in their complete acquiescence, resulting in the savings of several weeks of construction and about \$1 MM in construction costs. Conducted detailed inspections of every mechanical system in a new 1150 MW combined cycle cogeneration plant in Michigan, resulting in hundreds of problems discovered and resolved before startup. Conducted detailed inspections of most equipment at a new 1200 MW combined cycle power plant in New Jersey. Performed inspections for a confidential power utility and recommended a number of items which reduced operating and maintenance costs, simplified operations, increased operating safety and reduced water-borne emissions. Provided recommendations for improving the operation of a large industrial facility; these recommendations will result in annualized savings of \$2.7 MM/yr. Provided non-destructive testing of a major municipal waste treatment plant's piping system, resulting in minimization of capital cost and plant life extension. Provided hydraulic and stress analysis calculations and recommendations for major hydraulic systems at a new industrial waste treatment plant. Provided several months of intensive investigation and project management counsel to a major U.S. legal firm, resulting in their tendering me as an expert defense witness in one of the U.S.'s largest civil lawsuits. My testimony directly resulted in their client's monetary gain of an amount of \$10-100 MM (exact amount protected by secrecy agreement). Provided technical investigation services as an expert plaintiff witness in a civil lawsuit, resolved in the plaintiff's financial favor (rendering sealed by court order). Provided extensive expert witness services for large, lengthy cases in Kansas, Illinois, Arizona, Georgia.

CORN PRODUCTS INTERNATIONAL (since renamed Ingredion, a NYSE corporation)

11/92 to 04/00

Senior Staff Engineer/Project Manager—Responsible for the plurality of corporate engineering's worldwide consulting to Corn Products' 42 plants in 21 countries, including coordination of new technology with third world plants. Extensive failure analysis, equipment inspection, and detailed interface with local personnel was involved. Current activity includes assignments in 21 countries such as Mexico, Brazil, Colombia, Kenya, Australia, Pakistan, and South Africa. Annual cost savings due to my direct efforts were routinely measured in \$MM/year. I became the "go to" person for high profile and difficult problems in machinery analysis and redesign, international plant wide disaster recoveries, due diligence evaluations of competitors' plants to be purchased by the company, establishing and coordinating a corporate program for purchasing and refurbishing expensive long-delivery process equipment for rapid insertion into capital programs and rebuilding efforts in anticipation of rapidly evolving, but unpredictable situations in many plants, both in evolving and mature countries. I was also responsible for the majority of the company's competitive intelligence program, which monitors ALL industry competitors on a plant-by-plant and product-by-product basis, both internationally and domestically, including both aerial and ground photographic reconnaissance and interpretation, FOIA information searches and interpretation, and assimilation of other information. This work, which was always conducted on both a legal and ethical basis, yielded a superlative knowledge base for the company in terms of constant awareness of all competitor capacity, plans for future growth and timing of current growth, both qualitatively and quantitatively. These activities positioned me to effectively transfer new and developing technologies in appropriate degrees to our many worldwide plants. Managed engineering design, construction and startup of six capital projects in U.S. and Canada.

01/91 to 10/92

Project Manager—Responsible for the total design engineering, construction and startup of one of the world's largest (>1200 ton/day), most automated corn oil plants based on modernized solvent (hexane) extraction technology. Both domestic (Crown) and foreign (DeSmet) technology and equipment providers were evaluated; Crown was chosen to provide the critical process equipment and well as part of the technology. The technologies chosen involved total automation of multiple buildings into an intrinsically safe distributed control system (DCS) and a process utilizing regulated volatile

organic compounds (VOCs), which are inherently hazardous; the plant has maintained an unblemished safety record since its startup. Crown's solvent extraction process and equipment designs were integrated into the overall design of the process plant under my leadership, utilizing the services of a major engineering services firm for the detailed engineering, whose services were directed by my "in-residence" owner's team. My leadership of multiple site analyses, technology searches, and economic assessments relevant to CPC's two major divisions resulted in innovative approaches to project authorizations. Considerable learning experiences from past operations were integrated into the design to enhance operating costs and maintenance. My efforts also resulted in successful transfers of technology from Brazil to the U.S.

11/89 to 12/90

Staff Engineer—Responsible for worldwide consulting to CPC's multiple foreign operations and initiation of new technology to third world and U.S. plants, including evaluations to establish legal positions. Significant failure analyses, equipment inspections, and detailed interface with local personnel was involved. Internal consulting activity involved plants in twelve countries.

INTERLAKE

05/87 to 11/89

Senior Project Manager—Responsible for directing detailed machinery designs with about a 50 person engineering staff, including total software design for integrated projects. Responsible for overall project engineering design, project management, construction and startup, including system integration of complex automated materials handling systems, including rack-supported buildings, conveyor systems, automated stacker cranes, and automated guided vehicle systems, integrated via host computer systems (DCS) with multiple PLC-driven downstream controls, including real-time tracking of all in-process inventory and machinery, FIFO inventory control, and intelligent software to automatically reroute traffic flows when the system detected congestion within various parts of the process. Heavy coordination and communication with clients was routine, including negotiations of all contract change orders. Total responsibility for Interlake's project margins was managed. All relevant activities with Interlake's multiple equipment manufacturing plants (all equipment was designed and fabricated internally) was managed as a part of tight project control. This role can be described as sophisticated system integration and contract management. Capital costs of systems managed by me were routinely in the range of \$15-\$30 MM.

CORN PRODUCTS DIVISION OF CPC INTERNATIONAL

08/83 to 05/87

Project Engineer/Manager—Responsible for the total design engineering, construction and startup of the world's largest, most highly automated sweetener plant. Constant heavy coordination and communication with over thirty major contractors, construction management personnel, home office design engineering, CPC upper management, operations and maintenance management was accomplished. Nine different production channels were constructed, and unit investment cost was about 50% of newly constructed regional plants, which were technological leaps beyond their predecessors. This was accomplished despite the increased complexity, reduced schedule time (16 months from beginning of engineering to startup) allotted, and integration of the new plant into an existing operating plant site. Most utilities infrastructure (for coal-fired high pressure boilers with 100% power cogeneration) was installed in anticipation of additional capital investment in the future. Total capital cost exceeded \$150 MM. The new plant became CPC's most efficient, highest quality producer and its products set new quality standards for its major customers—pharmaceutical and beverage.

05/82 to 08/83

Staff Engineer—Headed a small task force of about 10 individuals to make technical and economic investigations and managerial recommendations to implement capital and maintenance expenditures

to reduce energy and maintenance in CPC's largest plant. Heavy interface and instructional programs with the operations and maintenance staff were used. Several innovative techniques for efficiency improvements were implemented. During this period of time, I was also CPC's principal manager and negotiator with DuPont for the siting of a new grassroots plant on the East Coast.

01/80 to 05/82

Project Engineer—Responsible for the total design engineering, construction, startup and optimization of the world's largest ethyl alcohol plant, which was a joint venture of CPC and Texaco. Responsible for the successful management of a team composed of CPC, Texaco and Austrian process experts, existing plant operations (contentious union environment) and maintenance personnel and an untried outside engineering firm. Responsible for the integration of the high purity, low energy consumption, highly-automated 60 MM gal/yr anhydrous ethanol plant, in addition to the installation and integration of a DCS system for automation of both the new and existing plant with high pressure, coal-fired cogeneration. Was responsible for the direction of all phases of the entire project, which included a six-month optimization period. Coordination of constant integration of "new" activities with existing plant operations was accomplished on a daily basis. Extensive training and orientation programs were developed and executed under my direction. Total project capital cost was \$65 MM, with 20 months from start of engineering design to beginning of startup. This was CPC's most successful (to that time) integration of PLCs and distributed control systems, with commensurate process stability and manpower savings.

11/78 to 01/80

Project Engineer—Responsible for the total engineering and export purchasing for two grassroots sweetener and starch plants in Latin America (Brazil and Mexico). Each plant's capital cost was about \$30 MM. Responsible for managing a team of CPC engineers and about 75 engineers and designers of a large U.S. engineering firm. The scope of my responsibility included capital estimates, economic analyses and all process and detailed engineering for the entire process plants, which were performed in metric-only units. Modular construction design and construction techniques were used almost exclusively, combined with a high degree of system automation. Coordination of CPC "client" personnel from these countries was accomplished on a daily basis. The design of these plants was so thorough and cost-effective that, twenty years later, it is still being replicated in many third world countries.

09/76 to 11/78

Mechanical Engineer—Responsible for the mechanical design and coordination of modifications and additions to process and utility systems in domestic process plants, as well as their cogeneration operations. I accomplished several innovative designs and solved several plant-wide problems that had plagued operations for years, introduced new technical techniques and received early management recognition. Failure analyses, some worldwide, were conducted on large, complex systems.

MONSANTO

03/74 to 09/76

Lead Mechanical Engineer—Responsible for process and utility systems design and engineering coordination for chemical process plants, primarily various types of inorganic acid plants. Included were development of plot plans, process and utility flowsheets, detailed specifications for process equipment such as boilers, pumps, compressors, turbines, process vessels, and heat exchangers. Various mechanical calculations including heat and material balances, hydraulic calculations, and utilities balances were accomplished. Partially responsible for interpretation of client directives, specifications and change notices. Field investigations and provision of technical advice to clients were performed. Project costs for such plants varied from \$5-30 MM, involving modifications and upgrades as well as new grassroots installations.

BUREAU OF ENGINEERING, CHICAGO DEPARTMENT OF PUBLIC WORKS

08/71 to 03/74

Mechanical Engineer II—Partially responsible for utility system design and engineering coordination for utility systems and review of plans and specifications submitted for new construction at Chicago-O'Hare International Airport. This included field investigations, preparation of feasibility studies and preparation of detailed specifications for HTW boilers, heat exchangers, HVAC systems, pumps, demineralizers and other utilities equipment associated with high pressure/high temperature water ("boiler") systems, chilled water, and steam systems. Responsible for various mechanical calculations including heat loads, stress analyses, steam and hydraulic analyses.