Causey Engineering LLC

"Forensic and Investigative Services"

PO Box 341057-0018
Austin, TX 78734
www.CauseyEngineering.com

Gerald J. Hietpas, PE
President

Phone & Fax (512) 261-3930
jhietpas@austin.rr.com

Curriculum Vitae

F. P. (PAT) MANCHACK, BS Chemistry

Mr. Manchack is an Associate of Causey Engineering, LLC. Causey Engineering has for over 18 years been providing forensic and investigative engineering services and litigation support, specializing in industrial, utility and construction issues. Mr. Manchack has a degree in chemistry and has particular experience in pulp and recovery operations and system design.

Education:

Lamar University, Beaumont, TX
BS, Chemistry

Lamar University, Beaumont, TX
8 Hours in Instrumentation
36 Hours towards MBA

Work Experience:

Causey Engineering LLC, Austin, TX 2007 to Present

Forensic Expert: Provide Forensic and investigative work primarily in the Pulp and Paper Industry related to Operations and System Design, with emphasis on the Pulp& Paper, Recycle, Chemical Recovery and Environmental areas. Causey Engineering provides engineering analysis, governmental regulation investigation and research, accident reconstruction and litigation support primarily related to pulp and paper, oil and gas, refineries, chemical and petrochem plants, central power stations, food processing, lumber manufacturing, industrial construction, and warehousing.

Pat Manchack & Associates, LLC Kingwood, TX 2002 to Present

Technical Expert: Provide consulting services nation wide to the Pulp & Paper industry. Investigate reoccurring equipment problem issues in pulp & paper, paper recycle, chemical preparation and recovery operations. Perform feasibility studies for capital projects. Develop training materials and train operators.

Kellogg Brown and Root, Houston, TX and Mobile, AL 1988 - 2002

Senior Process Engineer, Pulp & Paper and Recovery: Worked as part of a large staff for one of the worlds leading pulp & paper engineering consulting and construction firm. Specializations were in the manufacture of chemical and mechanical pulp, recycle material,

bleach plant, effluent, chemical preparation, lime kiln and recausticizing, and by-products areas.

Performed conceptual studies and detailed process design, including scope definition, design basis, process flow diagrams, engineering flow diagrams, equipment specifications and selection, layout, general arrangement, equipment lists, and control strategies. Provided technical support, check-out and start-up assistance for Brown & Root construction and other contractors.

Some projects were from scratch, others were modifications to existing operating facilities, and others were to get damaged facilities back on line.

Fisher Controls International, Austin, TX 1984 – 1988

Senior Applications Engineering Specialist: Developed new product solutions bulletins with Marketing and Applications Engineering for more competitively priced marketable products. Introduced new benefits analyses to sales group.

Introduced new technology packages for kraft mills, bleach plants, groundwood mills, recycle systems and thermo-mechanical pulp mills to attract new domestic and international clients.

Owens-Illinois, Orange, TX 1967 – 1972 and 1982 – 1984
Worked as part of the staff at a large brown paper manufacturing plant.

Project Engineer / Technical Supervisor: Supervised the Technical Department. Responsibilities included the following areas: manufacture of pulp, recycle paper, chemical preparation, brown paper, lime kiln, recausticizing, waste treatment plant; air pollution control equipment; by-product production, including tall oil and turpentine; and chemical additives to the paper machine.

Received an EPA award for preventing foam from blowing off the plant site.

Received an EPA award for improving the oxygen content to support fish habitat.

Senior Process Engineer: Responsible for appropriation of funds, design, and installation of various projects in the pulp & paper facility. These included major equipment as well as a major Distributed Control System. Redesigned and started up the existing tall oil plant. Provided operational technical support.

Southland Paper Mills / St. Regis Corporation, Sheldon, TX 1972 – 1982
Worked as part of the staff at a large brown and newsprint paper manufacturing plant.

Pulp Mill Superintendent: Responsible for the operation of a 650 TPD Kamyr Digester, 300 TPD and 500 TPD bleach plants, 165 TPD lime kiln and recausticizing area, 800 TPD groundwood mill, and 400 TPD thermo-mechanical pulp mill. Started up a 500 TPD bleach plant and 400 TPD thermo-mechanical pulp mill.

Developed a statistical quality control (SQC) operating method for the groundwood grinders to reduce the power consumption. Reduced steam consumed by the brown stock washers by increasing black liquor solids. Decreased lime kiln fuel consumption from 12 MM BTU per ton CaO to 8 MM BTU per ton CaO. Worked with corporate engineering to evaluate pressurized grinding.

Initiated a project to change to Sodium Hypochlorite from Calcium Hydrochlorite for the Bleach Plant Hypotower, which due to its greater soluability reduced plugging of the face wires for the Hypo Stage and the paper machines, thus reducing the associated downtime for clean-up.

Professional Memberships:

TAPPI Member of the Technical Association of Pulp and Paper Industry employees - from 1967 to 2002. Chairman of Alkaline Pulping Subcommittee

Presentations, Publications:

Presented approximately **50 seminars** in the United States, Brazil, Chile, and Canada on process control of equipment for the entire pulp & paper mill. The emphasis was on the lime kiln and recausticizing areas, evaporators, recovery boilers, and the liquor cycle.

Presented paper entitled ***"Retrofitting the Recausticizing Area with Advanced Controls"*** at the Associacao Technica Brasileira de Celulose e Papel (Brazillian TAPPI equivalent) in Sao Paulo, Brazil.

List of Chemicals:

Supervised an operation that safely unloaded, utilized, and/or loaded the chemicals listed below, including the maintenance of the vessels and handling equipment:

Chemical	***Formula***	***Use***
Aluminum Sulfate	$Al_2(SO_4)_3$	10 – 35 ton trucks per week.
Chlorine	Cl_2	2 – 90 ton rail cars per week.
Chlorine Dioxide	ClO_2	Designed a new system that produced 45 tons per day.
Defoamers	Formula Unknown	Used 1200 lbs. Per day to prevent foaming.
Ethylene Diamine-Tetraacetic acid	EDTA	Used in boilers for feed water for Iron chelation.
Fuel Oil	Formula Unknown	Used to fire boilers occasionally.
Hydrogen Peroxide	H_20_2	Designed Storage Tank for rail cars.
Lime	CaO	1 – 35 ton truck per 2 weeks. Onsite produced 165 tons per day.
Lime Mud	$CaCO_3$	Produced 300 tons per day.
Lime Stone	$CaCO_3$	1 – 100 ton per month rail car.
Black Liquor Production		Contained wood residue from cooking. Burned to Produce green liquor.
Green Liquor Production		Active chemical after burning in the recovery boiler.
White Liquor Production		Used to cook wood, NaOH, Na_2S, Na_2CO_3.
Methanol	CH_4OH	Designed storage and feed system to produce ClO2.
Muriatic Acid	HCl	Used 1 - 20 gal. carboy per month.
Natural Gas	CH_4	Fired the lime kiln with natural gas.
Sodium Chlorate	$NaClO_3$	Designed storage and feed system to produce ClO2.

Sodium Hydrosulfide	NaHS	1 – 30 ton truck per week.
Sodium Hydroxide	NaOH	3 – 90 ton rail cars per week.
Sodium Hypochlorite	NaOCl	Produced 90 GPM on site. Redesigned existing system.
Sodium Lignosulfonate	Formula Unknown	Used 600 lbs. Per day to clean grinder stones.
Sodium Phosphate	Na_3PO_4	Used in boilers for feed water for silica removal.
Sodium Polyacrylate	Formula Unknown	Used 600 lbs. Per day to prevent deposits in the digester.
Sodium Sulfite	Na_2SO_3	Used in boilers for feed water for Oxygen removal.
Sulfamic Acid	NH_2SO_3H	Used to clean lime mud filter.
Sulfuric Acid	H_2SO_4	1 – 90 ton rail car per week.