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## **CURRICULUM VITAE**

**Kenneth L. Norcross III, B.E., M.E.**

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### **Areas of Experience and Expertise**

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#### **Legal and Litigation Experience**

- Expert Witness in Warranty and Liability Claims and Litigations
- Forensic Expert in Litigations in Europe, North America, and China
- Contracts: Writing, Review, and Negotiation
- Process and Equipment Warranty Claims and Negotiations

#### **Technical Experience: Wastewater Treatment, Biosolids Stabilization, and Sludge Reduction**

- Wastewater Treatment Plants - Design, Operation, Analysis and Troubleshooting of Processes and Equipment
- Design, Operation, Analysis, and Troubleshooting of Processes and Equipment, including:
  - Municipal Wastewater Treatment Systems
  - Industrial Wastewater Treatment Systems
  - Activated Sludge Systems
  - Sequencing Batch Reactors (SBR)
  - Biological Nutrient Removal Systems (BNR)
  - Membrane Biological Reactors (MBR)
  - Biosolids Reduction and Stabilization
  - Thermophilic Waste Treatment and Sludge Stabilization (ATAD)
  - High-Strength Industrial Waste - Low Sludge-Yield Systems
  - Dissolved Air Flotation (DAF)
  - Aeration and Mixing Systems
- Activated Sludge Biomass Issues – Bulking, Dispersed Solids, Turbidity, Poor Settling, Effect of Salinity on Biomass Flocculation, Filtration Breakthrough
- Water/Wastewater Disinfection
- Mixing Systems - Design, Testing, and Analysis
- Automated Process Controls

#### **Sales & Marketing**

- Evaluation of New Processes or Equipment, or of Existing Products Failing to Meet Sales Expectations
- Market Entry Strategy for New Companies, Processes, or Products

#### **Business**

- Small Business Startups
- Patent Claims and Patent Writing
- Evaluation of Technologies and Companies for Potential Investors or Prior to Corporate Acquisitions

## Professional Experience

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- **SynergisTech, Inc. Founder and President, 2002 to present.**  
SynergisTech provides consulting services to the wastewater treatment industry and has worked with clients in the following areas:
  - **Forensic and Expert Witness** services for the inevitable litigations that arise in the business of wastewater treatment including: contractual disagreements; warranty claims; performance failures; and related forensic analyses.
  - **Consulting Services** emphasizing wastewater treatment process and equipment troubleshooting, cost reduction (Value Engineering), efficiency verification, Warranty Claims and Negotiations
  - **New Product Development Consulting.** Many new products are introduced each year which fail to perform as expected. We help protect investors' interests by insuring the product is properly analyzed, performance-optimized, and the real marketability accurately evaluated.
  - **New Product Marketing.** The wastewater market is large and complex – introduction of a new product, process, or business into this market is difficult, and many good ideas have failed due to a lack of market knowledge. SynergisTech knows the industry, the players, the sales channels and paths to market to quicken the growth curve.

### **Recent Litigation and Related Projects**

- Forensic Expert - Analysis of Wastewater Treatment Process
- Failure and Warranty Liabilities at the City of Dublin WWTP, Ireland.
- Forensic Expert - Witness and Analysis of Wastewater Treatment Process Failure and Warranty – Yorkshire, UK.
- Forensic Expert - Analysis of a Failed Wastewater Treatment System at a Small Municipality.
- Forensic Expert - Analysis of a Failed Anaerobic Wastewater Treatment System at a Large Dairy
- Forensic Expert Witness – Analysis and Defense of a Patent Position on an Industrial Mixing Device
- Consulting Expert - Neutralization of Toxicity in the Wastewater Plant – Fujian, China
- Consulting Expert - Doubling Performance Capacity of an Existing Activated Sludge Plant in a Small Municipality
- Consulting Expert - Improved Process Operation with a High COD:BOD Wastewater - Yunnan, China
- Consulting Expert – Restoring Proper Function to a Very Lightly-Loaded Activated Sludge Plant
- Consulting Expert – Analysis of Failure and Restoration of a Thermophilic Sludge Stabilization Process (ATAD)

- Consulting Expert - Analysis of Failure and Restoration of a Failed Anaerobic/Aerobic Treatment Process Treating Beverage Wastewater

### **Recent New Product or Business Startup Projects**

- Consulting Expert – Analysis of an Innovative Wastewater Treatment Process: Efficacy, Marketability, Economic Viability as Due Diligence Prior to a Corporate Acquisition – Denver, Colorado
  - Consulting Expert - Development, Patenting, Demonstration, and Market Entry of an Innovative Process for Sludge Reduction in Wastewater Treatment – Las Vegas, Nevada.
  - Consulting Expert – Development and Training of Engineering Design Protocol for Implementation of Sequencing Batch Reactor Technology Deployed in Portugal and Africa – Lisbon, Portugal
- **Sandhu Consultants, Inc. Principal, Board of Directors, Technology Adviser, 2010 to present.** SCI is an international environmental consulting business. Mr. Norcross helped qualify and select certain American Green Technologies for export. He then participated in successful effort to go to, and open markets in, the Middle East through strategic partnerships and authorized agents. Mr. Norcross also did technical presentations, and wrote and negotiated the agreements and contracts involved.
- **PMC BioTec, Inc. Founder and Executive Vice President, 2003 to 2010.** PMCB was formed to offer a sustainable, patented, thermophilic biosolids destruction technology with special efficacy for hazardous industrial wastes and sludges.
- The technology was successfully commercialized with installations in Europe, North America, and Asia achieving the destruction of tens of millions of kilograms of hazardous waste and sludge onsite where it was generated, at a fraction of Incineration costs.
  - The core technology was ultimately modified, patented, and applied to destruction of municipal sludge while enhancing the efficiency of sludge-to-energy conversion.
- Mr. Norcross co-founded and funded the growth of the company, developed Sales and Marketing materials, established a national Sales Rep network, did direct Technical Sales, conducted Contract Reviews and Contract Negotiations, and made Technical Sales Presentations.
- **Western Water Group of China. Co-Founder, Board of Directors, Vice President of Technology, 2001 – present.** The explosion of the Chinese industrial economy led to the much-publicized water pollution challenges facing China. WWC was formed to utilize American

environmental technology for Water and Wastewater Treatment Plants within China. The result was:

- 14 water and wastewater projects are installed and operating.
- These projects were sold as financed, 25-year BOOT projects (Build/Own/Operate/Turnover).
- The 14 Installations are spread over five (5) Chinese provinces.
- At full build-out, the installations will produce a total of 375,000 metric tons per day of treated water.

Mr. Norcross is a co-founder and co-funder of the company. He directed or participated in Sales and Marketing Training, Concept Sales with Provincial and Municipal Authorities, Customer Relations, Project Development, Technology Selection and Plant Design, Contract Negotiations, Plant Startups, Operator Training, Operations Troubleshooting, and Warranty Claim Forensics and Resolution Negotiations. He also was responsible for Developing and Writing several of the Company's Patents.

- **Hans Technologies, Inc. Board Member, Principal, Technology Adviser, 2000 to present.** Han's Technologies, Inc. (HTI) is an engineering and management firm providing environmental planning and project supervision to municipalities, industry, and private developers. It specializes in the export of American Environmental technology to Asia, and is the parent company of Western Water Group of China. HTI selected and exported the American Technologies installed in Western Water Group's 14 Chinese installations. Mr. Norcross directed or participated in Concept Sales, Customer Relations, Project Development, Technology Selection and Plant Design, Contract Negotiations, Plant Startups, Operations Troubleshooting, and Warranty Claim Forensics and Negotiations. He also Developed and Wrote several of the Company's Patents.
- **Veolia Water Company. 1995 to 2001, Vice President of Technology**
  - **Veolia Water Company. Vice President of Technology, 1999 to 2001.** Operating within the US Filter Division, Mr. Norcross had responsibilities for Process and Equipment Design, Technical Sales Support, Operator Training, Process Troubleshooting, Patent Development, Warranty Claim Forensics and Negotiations, and Technology Acquisition Evaluations. He also served on the International Biological Treatment Steering Committee of the \$15 Billion French parent company - Veolia Water - at a time of growth and transition.
  - **US Filter Corporation. Vice President of Technology, 1995 to 1999.** Mr. Norcross had responsibilities for Process and Equipment Design, Technical Sales Support, Operator Training, Process Troubleshooting, Technical Papers and Presentations, Patent Development, Technology Acquisition Evaluation, and. He also served as Director, US Filter Product Rationalization from 1996 to 1999, when US Filter was acquired by Veolia Water.

- **Jet Tech Incorporated. Co-Founder, Vice President of Technology, 1981 to 1996.** Mr. Norcross had responsibility for Research and Development, Process and Equipment Design, Field Testing, Pilot Plants, Technical Sales Support, Operator Training, Process Troubleshooting, Technical Papers and Presentations, Warranty Claims, and Patent Development. He authored or co-authored 14 patents in that time. In 1995, Jet Tech Inc. was acquired by the US Filter Corporation.
  
- **Pentech Division of Houdaille Industries. Research and Development Engineer and Process Troubleshooting Engineer, 1979 to 1981.** Pentech was an aeration, mixing, and biological process company. Mr. Norcross conducted equipment testing and evaluation both in the factory and in the field, wrote technical reports, gave technical papers and Sales presentations, designed systems for Biological Treatment and for Mixing Processes, and did field evaluations/solutions for Warranty claims.
  
- **GS Environmental Engineers, Inc., Chief Project Engineer, 1977 to 1979.** Conducted equipment testing and evaluation both in the factory and in the field, wrote technical reports, designed systems for biological treatment and for Chemical Processes.

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## **Educational Background**

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Vanderbilt University, Nashville, Tennessee  
M.E., 1978, Masters of Engineering in Water Quality  
B.E., 1976, Environmental and Water Resources Engineering

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## **Patents**

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**Seventeen (19) Patents in the area of Water/Wastewater Treatment**

Inventor or Co-Inventor – 14 patents in wastewater treatment processes and/or equipment  
Inventor - one patent in Hazardous Waste Remediation  
Inventor - two patents for Autothermal Thermophilic Sludge Digestion (ATAD) Process and Equipment  
Inventor – two Patents for SBR Equipment in China

## **Technical Papers and Presentations**

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**“Biosolids Destruction Alternatives: Approaching Zero Residuals” – Seminar to the Korean EPA, Seoul, South Korea, October, 2009.**

**“Application of AFCsm Technology for Sludge Minimization for Municipal Wastewater Treatment Plants – Bench Pilot Test and Concept Design,” Kenneth L Norcross, Alan F. Rozich, Ph.D., P.E., DEE, Philippe Maltais, presented at PNCWA Conference, 2009.**

**“Wastewater Treatment – The Next Generation of Technology” – Presented at 5<sup>th</sup> Annual Chinese Investment Conference, Xiamen, China, 2008.**

**“Zero-Sludge Treatment of High-Strength or Hazardous Industrial Wastewater” – Presented at 2005**

**“Reduce Sludge Handling Costs by Destroying Sludge Onsite – Case Study”, White Paper written for PMC BioTec, Inc.. 2005**

**“Consideration of an Innovative Low Sludge Yield Process” – Patent, Process Development, and White Paper prepared for private equity firm, 2007.**

**“SBR Systems: Effectice Biological Nutrient Removal for Small and Medium Sized WWTP’s” - 1<sup>st</sup> WEF Plant Operations Specialty Conference, Milwaukee, Wisconsin, June, 1999. K. L. Norcross and R. Shamskhorzan.**

**“Innovative ATAD Design Saves Costs at Franklin, Tennessee”, Water Environment Federation Conference, Chicago, Illinois, October, 1997.**

**“Successful Conversion from Anaerobic to Aerobic Treatment of a High Strength Dairy Waste Water”, Food Industry Environmental Conference, Proceedings, Pp. 409-422, November, 1994.**

**“Solving Activated Sludge Process Problems”, Oklahoma Water and Pollution Control Association Conference, October, 1994.**

**“High Efficiency Biological Waste Water Treatment Design”, Waste Water Treatment Seminar, Poly Technical Institute of Mexico, Mexico City, June, 1994.**

**“Selection of Batch Reactor Design Parameters for Varying Influent and Effluent Characteristics”, Federal Engineering and Technology Center, Mexico City, June, 1994.**

**“Expansion and Retrofit of a Four Tank SBR for Treatment of Poultry Processing Waste Water”, 1994 Industrial Pollution Control Conference, Atlanta, Georgia, February, 1994.**

## **Papers and Presentations (Continued)**

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“Nutrient Removal from Municipal Waste Waters”, 1993 Conference of the Pennsylvania Water Pollution Control Federation, Harrisburg, Pennsylvania, October, 1993.

“Biological Nutrient Removal in SBR’s - Theory, Practice, and Results“, June, 1993, New England Water Pollution Control Conference, Boston, Massachusetts, June, 1993.

"Biological Nutrient Removal from Potato Processing Wastewater", Food Industry Environmental Conference, November, 1992.

“Nutrient Removal”, Pacific Northwest Pollution Control Association, Boise, Idaho, October, 1992.

"An Overview of SBR Technology", 16th Biennial Conference of the International Association of Water Pollution Research and Control, Washington, DC., published in Water Science Technology, Vol. 26, No. 9-11; pp 2523-2526, May 1992 (London England).

"Biological Treatment Process Selection - Guidelines for the Selection of Batch Reactors", 24th Annual Wastewater Design and Operations meeting, Des Moines, Iowa, May, 1992.

“Biological Treatment - Process Alternatives”, Iowa Environmental Engineering Conference, Des Moines, Iowa, April, 1992.

"Performance and Design Considerations for Treatment of food Processing Wastewaters", 1990 Food Industry Environmental Conference, November, 1990.

"SBR Treatment of Food Processing Wastewater - 5 Case Studies", 1988 Food Processing Waste Conference, November, 1988.

"Process Performance Parameters for Three Full-Scale SBRs Treating Meat, Dairy, and Industrial Park Wastewaters", 60th Annual Water Pollution Control Federation Conference, October, 1987.

"Treatment of Meat Processing Wastes with a Sequencing Batch Reactor", Annual Purdue Industrial Waste Conference, May 1987.

"Upgrading Treatment Plants to Reduce Operating Costs", 5th Annual Pacific Northwest Pollution Control Association Conference, November 1986.

"Potential Operation and Maintenance Reductions with SBR Technology", Kentucky Water Pollution Control Association Conference, March 1986.

## **Papers and Presentations (Continued)**

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"SBR Treatment of Hazardous Wastewaters - Full-Scale Results", International Conference on Innovative Biological Treatment of Toxic Wastewaters, Pp 275 - 295, June UPS. Environmental Protection Agency, June 1986.

"Mass Transfer and Process Characteristics of Hazardous Waste Treatment in a Sequencing Batch Reactor", Norcross, K. L., Irvine, R. L., Herzbrun, P. E., Water Pollution Control Federation Annual Conference, October 1985.

"A Full-Scale Evaluation of Thermal Efficiency for a Mechanical Surface and a Submerged Jet Aeration System", 58th Annual Water Pollution Control Federation Conference, October 1985.

"Biological Degradation of Hazardous Wastewater", 52nd Annual Conference of the Northwest Water Pollution Control Federation, November 5, 1985.

"Economical Retrofit for Expansion of Existing Package Process Treatment Plants", Kansas Water Pollution Control Federation, March 1984, Norcross, K. L., Bailey, J., Schomaker, M., May, 1984

"The Effect of Aeration Device Shear Characteristics on Apparent Alpha Factor", WEMA Annual Conference, Houston, Texas, 1981.

"Process Efficiency of Submerged Jet Aeration", Wastewater Equipment Manufacturers Association Annual Conference, June 15, 1980

"Improved Efficiency of High-Speed Mechanical Surface Aerators", Purdue Industrial Waste Conference, May 12, 1978, Shell, G. L., and Norcross. K. L.

*\* Sole author unless noted.*

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## **Major Research and Development Projects**

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Evaluation of an Innovative Process for Minimizing Sludge Yield in Activated Sludge Processes, PWI Corporation, 2006.

Evaluation of an High-Intensity Shearing on MBR Membrane Flux and Permeability Rates, PWI Corporation, 2007.

MBR (Membrane Bioreactor) Process Development for Veolia Water, 1999.

Improved Efficiency and Reliability for the Autothermal Thermophilic Aerobic Sludge Digestion Process (ATAD), February through March, 1994.

Assessment of Alpha Factor Variation as a Function of Aerator Device and Dissolved Solids Content, 1993.



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## **Major Research and Development Projects (continued)**

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Efficiency Enhancement of Submerged Jet Diffusers Through Augmented Horizontal Momentum, June through August, 1987.

Control of Microbial Population Distribution Through Substrate Feed Rate Variation, July through December, 1987.

Enhancement of Biological Phosphorus Removal in an SBR Through Reduction of Apparent Sludge Age, June through December, 1987.

Examination of Oxygen Transfer Rate Enhancement Through Rapid Uptake and Utilization, January, 1986 through March, 1988.

Optimization of Liquid/solid Separation Mechanisms for Batch Reactor Applications, January, 1985 through October, 1987.

Reduction of Nozzle Blockage Through Simplified Reversed Hydraulics, August, 1984 through August, 1986.

Analysis of Hydraulic Efficiency of Large-Diameter, Low-Speed Horizontal Propeller Mixers, July through September, 1985.

Effect of Bulk Liquid Velocity Termination on the Settling Behavior of Mixed Liquor Solids, May, 1986 through October, 1986.

Effect of Compound Nozzle Configuration Upon Two-Phase Transfer Performance, April 1982 through June, 1983.

Low Head Surface Aeration Using Free Jet Discharge, June through August, 1980.

Impact of Ohnesorge Number-Based Design on Dissolved Air Flotation Efficiency, August through December, 1978.

Effect of Discharge Trajectory on Surface Aeration Efficiency, April through July, 1978

Nozzle Distribution Hydraulic Considerations for Granular Media Filters, May through September, 1978.

Impact of Pore Geometry on Elastomeric Diffusion Transfer Efficiency, February through June, 1978.

Induced Air Flotation of Liquids Containing High MBAS-Quantified Constituents, May, 1977 through September, 1977.

## **Professional Societies**

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**International Water Association  
Environmental Engineering Division of the ASCE  
American Society of Chemical Engineers  
American Society of Chemical Engineers Product Review Panel  
Water Environment Federation  
United States Environmental Technology Export Council - Advisory Board**