

David A. Rockstraw, Ph. D., P. E. (NM, TX)

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Executive Summary

I have worked in the chemical processing industries; academia; government labs; and private practice as consultant, R&D engineer, expert witness, and forensic analyst. I have a diverse set of experiences including: commodity chemicals; energy; water; petrochem; pharmaceuticals; agricultural chemicals; fluorochemicals; monomers, polymers and plastics; plutonium processing; membrane/electromembrane processes; safety; biofuels; processed foods; and academic administration. I have provided expert testimony in deposition, trial, and arbitrations.

Specific areas of expertise (not exhaustive)

- engineering education and administration
- chemical plant design, simulation, economic evaluation, construction, and operation (including direct exposure to dozens of products, processes, and chemical plants)
- 29 CFR 1910.119 process safety management of highly hazardous chemicals
- forensic analysis of chemical plant operations and incidents
- intellectual property and trade secret law, including inter partes review
- scale-up of laboratory and pilot plant operations to commercial facilities
- kinetics and catalysis, spontaneous combustion, runaway reactions, and explosions
- chemical separation and heat/mass transfer phenomena
- activated carbon synthesis and application as an adsorbent
- ethanol from fermentation of biomass and subsequent processing
- biodiesel production facilities
- ultrasonic flash pyrolysis synthesis of metallic nanoparticles

Education

The University of Oklahoma, Norman, Oklahoma Aug 1986 – Sep 1989
Ph.D., Chemical Engineering: *Experimental & Theoretical Electrodialysis Investigations*

Purdue University, West Lafayette, Indiana Aug 1980 – Jun 1986
B.S., Chemical Engineering

Academic Employment Experience

New Mexico State University, Las Cruces, New Mexico

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| ACADEMIC DEPARTMENT HEAD, CHEMICAL & MATERIALS ENGINEERING | SINCE JULY 2012 |
| ROBERT DAVIS DISTINGUISHED PROFESSOR | SINCE SEP 2013 |
| DISTINGUISHED ACHIEVEMENT PROFESSOR | SINCE AUG 2012 |
| INTERIM ACADEMIC DEPARTMENT HEAD, MECHANICAL & AEROSPACE ENGINEERING | AUG 2018 – AUG 2019 |
| DIRECTOR, NMSBREW BREWERY ENGINEERING PROGRAM | JAN 2016 – APR 2019 |
| PROFESSOR, CHEMICAL & MATERIALS ENGINEERING | AUG 2004 – AUG 2012 |
| ASSOCIATE PROFESSOR, CHEMICAL ENGINEERING | MAY 1998 – AUG 2004 |
| ASSISTANT PROFESSOR, CHEMICAL ENGINEERING | AUG 1995 – MAY 1998 |

Department Head Administrative Highlights:

- Installed Adobe Connect capability in CHME and leveraged the ability to broadcast classes to increase enrollments in undergraduate and Masters of Engineering programs.
- Designed and implemented NMSBrew, a program in Brewery Engineering that included design and installation of a pilot brewery in Jett Hall on the NMSU campus. The program first appeared in the catalog in 2017, and the program was awarded a National Championship in the 2019 AIChE Brewing Competition.
- Highlighted need for upgrades to program infrastructure leading to NMSU administration to put Chemical Engineering in the top capital outlay priority position. Began ~\$20 million renovation to the building in May 2015 with completion 2Q 2018.
- Led 2012 and 2018 Accreditation Board for Engineering & Technology (ABET) accreditation review of program.
- Established safety program and modified safety culture that includes: requirement of rigorous documentation and analysis of all experimental procedures carried out in the department; continuous training on issues of chemical safety; an internal audit program; regular safety meetings for faculty, staff, grad students, and researchers; an awards program to reward outstanding leadership in laboratory safety. Promoted and drove effort to hire College of Engineering Safety Specialist position. Recognized as a “Friend of Safety” by NMSU Environmental, Health, Safety, and Risk Management.
- Developed protocol and online form that permits a single advisor to advise 200 undergraduate chemical engineering students in a couple of days.
- Led effort to build and bring online (1Q 2019) a 1-barrel pilot plant brewery, as a component of a minor-of-study in Brewery Engineering for chemical engineering students, which will also be used in the unit operations laboratory for fitting mathematical models of fermentation kinetics.
- Integrated simulation science with Aspen Plus® across the BSChE curriculum, including four formal lab courses, one in each of the upper division semesters, with informal use within courses at the lower division level.
- Built and maintain department web site with form-driven data collection integrated into a continuous self-study for program assessment and accreditation.

Current and Recent Research Areas:

- additive manufacture of mechanoluminescent materials
- core & shell nanoparticle synthesis by ultrasonic aerosol formation
- plastic pyrolysis to liquid fuels
- activated carbon synthesis, characterization, and application
- process simulation
- ethanol from transgenic alfalfa

Primary Teaching Subject Areas: chemical kinetics & reaction engineering; equilibrium-staged separations; chemical process design & simulation (with Aspen Plus® and Dynamics®), and economic evaluation; transport phenomena; fundamentals of material and energy balances, numerical techniques in Matlab and Mathcad.

Comprehensive list of Subject Matter Taught at NMSU:

- Fundamentals of Chemical Engineering
- Computer applications (Matlab, Excel, Mathcad, C++, Fortran)
- Material and Energy Balances
- Engineering Data Analysis
- Transport Operations II: Heat and Mass Transfer
- Transport Operations III: Staged Operations
- Process Instrumentation Systems Laboratory
- Simulation of Unit Operations (with Aspen Plus®)
- Transport Processes Laboratory and Unit Operations Laboratory
- Novel Industrial Separation Processes (adsorption, crystallization, membranes)
- Chemical Kinetics and Reactor Engineering
- Engineering Economics
- Chemical Process Design and Economic Evaluation
- Chemical Process Simulation (with Aspen Plus®)
- Chemical Plant Design
- Chemical Plant Simulation (with Aspen Plus®)
- Advanced Process Simulation (with Aspen Plus®)
- Senior Seminar (Fundamentals of Engineering Exam preparation)
- Graduate Chemical Engineering Calculations (analytical methods)
- Graduate Chemical Engineering Calculations (numerical methods)
- Graduate Chemical Reactor Analysis & Design
- Chemical Complexation Analysis
- Fundamentals of Inline Hockey and Beginning Racquetball

Commercial Employment Experience

David A. Rockstraw, Ph. D., P. E., Mesilla, New Mexico

CHEMICAL PROCESS DESIGN/REVIEW/FORENSIC ANALYSIS & EXPERT WITNESS since 1997

Expert Witness/Testimony

1. Salvi, Schostok, & Pritchard, P.C.; Chicago, IL. Expert witness for the **plaintiff** on the emission of ethylene oxide from a sterilization facility (*Kamuda v. Sterigenics U.S., LLC, et al.*, Case No. 2018 L 010475 in the Circuit Court of Cook County, Illinois, 2019-).
2. Cabello Hall Zinda, PLLC; Houston, TX. Expert witness for the **plaintiff** of an inter partes review (*Energcorp Sand Solutions Inc. Petitioner, v. Specialized Desanders Inc., Patent Owner.* Case IPR2019-01582 Patent No. 9,861,921, 2019-).
3. Kallie L. Dixon, Business Law Southwest, LLC, Albuquerque, NM. Expert witness for the **plaintiff** to determine cause and origin of a residential fire (*Chaney, et al., v. Meagher Family Trust, FPI Management, Inc. and Sierra Meadows Apartments, LLC.*, Cause D-202-CV-2019-06097, 2nd Judicial District Court, Bernalillo County, NM, 2019-).
4. McDowell Hetherington LLP; Houston, TX. Expert witness for the **plaintiff** to determine cause and origin of a residential fire (Liberty Insurance Corporation, as subrogee of Vamseedhar Konda, Plaintiff, v. Taylor Morrison Of Texas, Inc.; Hearth & Home Technologies; Parrish & Company, Inc.; Pass & Seymour, Inc.; Powerhouse Electrical Services, Inc.; Custom Electronics, Inc.; And United Subcontractors, Inc.; Cause NO. D-1-GN-005833 District Court of Travis County, TX, 200th Judicial District, 2019-).
5. McGlinchey Stafford; Houston, TX. Expert witness for the **defense** in a breach of contract matter based on the design and installation of commercial steam boilers (Civil Action No. 4:18-cv-4349 - *Equistar Chemicals, LLC. v. Indeck Power Equipment Company*, in the United States District Court for the Southern District of Texas Houston Div., 2019-).
6. Motley Rice; Mt Pleasant, SC. Expert witness for the **plaintiff** in wrongful death matter occurring in a polyethylene terephthalate production facility (Civil Action No. 5:17-01010-JMC, United States District Court District of South Carolina Orangeburg Division - *Sallie M. Zeigler vs. Eastman Chemical Company, and Mundy Maintenance Service and Operations LLC*; 2019-).
7. Gibson Dunn; Irvine, CA. Expert witness for the **plaintiff** in a patent infringement matter based on U.S. Patent Number RE38,844E (No. 18-1391 RGA, U.S. District Court for the District of Delaware, C.A. - *Ingevity Corporation and Ingevity South Carolina, LLC, v. BASF Corporation*, 2018-).
8. Gibson Dunn & Crutcher; Irvine, CA. Expert witness for the **plaintiff** in a patent infringement matter based on U.S. Patent Number RE38,844E (U.S. International Trade Commission, Washington DC, Investigation No. 337-TA-1140 In the Matter of Certain Multi-Stage Fuel Vapor Canister Systems and Activated Carbon Components Thereof. - *Ingevity Corporation and Ingevity South Carolina, LLC, v. Mahle, et al.*, 2018-).
9. Alston & Bird; Charlotte, NC. Expert witness for the **plaintiff** in lawsuit involving intellectual property of HFC blowing agents and propellants (Civil Action No. 3:17-cv-

01390-N in US District Court for Northern District of Texas Dallas Division: *Honeywell International Inc. v. MEK Chemical Corporation*, 2018-).

10. Provost & Umphrey Law Firm, LLC, Beaumont, TX – Provided expert opinion for the **plaintiff** on the viability of simulated data in wrongful death case involving a sodium hydrosulfide storage tank explosion (Civil Action No.: 2:16-cv-02944-DCN, In The United States District Court District of South Carolina Charleston Division; *Kristie Allen, et al. v. Axelon Speciality Products, LLC, et al.*, 2018-).
11. McDermott, Will, & Emery LLP, Chicago, IL – Provided expert opinion for the **defense** in litigation involving operation of a 30MM gal/yer biodiesel production facility in Dubuque, IA (Case No. 2:16-cv-1038-LRR, In The United States District Court for the Northern District of Iowa Eastern Division, *United States of America v. NGL Crude Logistics, LLC and Western Dubuque Biodiesel*; 2017-18).
12. Stoel Rives, Portland, OR – provided expert opinion for **plaintiff** on formulations for fire resistant treatment chemicals (Case No. 12-2-01604-2 in Superior Court of the State of Washington for Whatcom County: *Global Building Products LTD et al v. Blue Mountain Log Sales, LTD et al*, 2017-2018).
13. Akin Gump; San Francisco, CA. Expert for **defense** in litigation concerning design of a 1,000 gpd biodiesel production facility (Case No. 5:16-cv-716-LHK, United States District Court Northern District of California San Jose Division - *R Power Biofuels, Inc., vs. Chemex, LLC*; 2017).
14. Birch Stewart Kolasch & Birch, LLP, Falls Church, VA – Expert opinion for the **plaintiff** on viability of chemical process simulation in IPR proceedings, (Case IPR2017-00165, U.S. Patent No. 9,073,843 - *Celanese International Corp. v. Daicel*; 2017)
15. Vuono & Gray, LLC, Pittsburgh, PA – provided expert opinion for the **plaintiff** and valuation of various nanotechnologies (Case #5978 OF 2012 2012CI05978, *Srikanth Raghunathan, Padmashri Sampathkumar, NGX, Inc. v. JP Morgan Chase, Mortgage Electronic Registration System, Phelan, Hallinan & Schmieg, Safeguard Properties*, 2017).
16. Moyer Law Offices LPA, Columbus, OH - Expert for **plaintiff** on matter of failures in engineering, procurement, construction, and management of mixed feedstock biodiesel production facility (Re-filed Case No. 2014 CV 1575, Common Pleas Court Montgomery County, OH - *Washakie Renewable Energy, LLC. Vs. Jatrodiesel, Inc.*, 2016-17)
17. Miller, Maki, LLP, Sudbury, ON, Canada – Provided expert opinion for **plaintiff** on the potential for spontaneous combustion to occur in carbon chars (Ontario Superior Court of Justice; *Helene Carter, et al. v. Placements C. Jolicoeur Limitee, Ontario Inc., Christine Jolicoeur, Isabel Lamarche, Marc Clement, Alain Lamarche, The Clorox Company of Canada, Ltd., and Charbon De Bois Feuille D’erable Inc.*; 2015-16).
18. Nossaman Guthner Knox & Elliott, San Francisco, CA – Provided expert opinion for the **plaintiff** on trade secret theft involving a process to manufacture ant insecticide baits (Case No. C13-01158, Superior Court of the State of California County of Contra Costa - *Copper Harbor Co., Inc. vs. Central Garden and Pet Company et al.*, 2015-16).

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