**Department of Chemical**

**Engineering Seminar Schedule**

**Adsorption of N-Nitrosodimethylamine on Pecan Shell Char and Activated Carbon**

Dr. David A. Rockstraw P. E.

*NMSU Distinguished Achievement Professor, Academic Department Head*

**Abstract**

N-Nitrosodimethylamine (NMDA) is a trace organic groundwater contaminant at NASA’s White Sands Test Facility (WSTF) and several other facilities, as well as an emerging concern at wastewater treatment plants using chloramines. WSTF currently uses UV photolysis technology to degrade NDMA but the high treatments costs and long expected treatment system operation (>100 years) has created the opportunity to develop alternative methods. Previous research conducted at New Mexico State University on NDMA adsorption onto pecan shell-derived activated carbons gave promising preliminary data, but the part-per-trillion concentrations created analytical challenges that limited the conclusions that could be drawn. Current studies are following a new approach to address the analytical issues and thus enable activated carbon testing and development: liquid scintillation counting of 14C-labeled NDMA. Liquid scintillation counting is a radioactivity detection method with very low quantification limits that should allow NDMA isotherm creation and analysis in-house with smaller samples (20 ml vs. 1 L) and faster analysis times (hours vs. weeks). The developed 14C-NDMA method is being applied to the measurement of adsorption isotherms for pecan shell chars and activated carbons made under different temperature conditions and activation methods. These isotherms will be compared to the isotherms from commercially available activated carbons to understand technological and treatment cost feasibility of an adsorption treatment system at WSTF.

**Bio**

David A. Rockstraw, Ph. D., P. E. is the Robert Davis Distinguished Academic Department Head and NMSU Distinguished Achievement Professor in Chemical & Materials Engineering.  He is a Fellow of the American Institute of Chemical Engineers, a former Director with the National Society of Professional Engineers, and serves the industry as a consultant and expert witness.  Prior to joining the CHME faculty in 1995, Rockstraw worked for E. I. duPont de Nemours, Conoco, Ethyl, and Kraft where he gained experience in design, development, pilot, and commercial implementation of chemical processes that involved alternatives to CFCs, catalyst manufacture, agricultural & pharmaceutical intermediates processing, monomer recovery by depolymerization, ultrafiltration and reverse osmosis of cheese by-products, electromembrane processes, bioethanol production, and numerous food processing operations.

**Seminar**

**Friday, August 25, 2017**

**3:00 pm**

**Livermore 101**