


F. Paul Bertetti, P.G.

**Statement of Professional Qualifications**

Principal Scientist  
Geology and Geochemistry Group  
Center for Nuclear Waste Regulatory Analyses  
Geosciences and Engineering Division  
Southwest Research Institute®  
San Antonio, Texas

United States Nuclear Regulatory Commission Official Hearing Exhibit		
In the Matter of:	POWERTECH USA, INC. (Dewey-Burdock In Situ Uranium Recovery Facility)	
	ASLBP #:	10-898-02-MLA-BD01
	Docket #:	04009075
	Exhibit #:	NRC-159-00-BD01
	Admitted:	11/13/2014
	Rejected:	
Other:		Identified: 11/13/2014 Withdrawn: Stricken:

**Education:**

M.S., Geology, University of Texas at San Antonio, 1999  
B.S., Geology, University of Texas at San Antonio, 1991  
*In progress*, Ph.D. Environmental Science and Engineering, University of Texas at San Antonio

**Appointments:**

2007–present Principal Scientist, Southwest Research Institute  
2002–2007 Senior Research Scientist, Southwest Research Institute, San Antonio, Texas  
1999–2002 Research Scientist, Southwest Research Institute, San Antonio, Texas  
1995–1999 Project Manager, Cambrian Systems, Inc., San Antonio, Texas  
1993–1995 Research Scientist, Southwest Research Institute, San Antonio, Texas  
1991–1993 Research Assistant, University of Texas at San Antonio  
1983–1989 Nuclear Propulsion Electrician, U.S. Navy

**Professional Registrations and Affiliations:**

Licensed Professional Geoscientist, State of Texas, No. 2491  
Geological Society of America  
Geochemical Society  
National Ground Water Association

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Mr. Bertetti is responsible for conducting geochemical investigations to address the research and regulatory needs of Southwest Research Institute clients. Mr. Bertetti's primary expertise is in field and experimental investigations that seek to evaluate, model, and understand the relationships between the aqueous geochemistry, hydrology, and mineralogy of the subsurface.

Mr. Bertetti serves as principal investigator for activities related to Radionuclide Transport in the Saturated Zone as part of the U.S. Nuclear Regulatory Commission high-level waste repository safety program. He has authored review chapters for both the technical evaluation and safety evaluation reports for the proposed Yucca Mountain repository as well as numerous technical reports supporting high-level waste activities. As a subject matter expert supporting the Swedish Radiation Safety Authority, he has reviewed the proponent's characterization of site groundwater geochemistry, application of redox conditions to  $K_d$ -values in the geosphere, and development of  $K_d$  probability distribution functions for the geosphere in a license application for a deep geologic repository for Sweden's used nuclear fuel.

Mr. Bertetti has extensive experience in field and laboratory studies of radionuclide sorption and modeling of sorption on a wide range of minerals under a variety of geochemical conditions, including ranges of pH, partial pressure of CO<sub>2</sub>(g), redox, and ionic strength of solutions. He has conducted many field investigations to collect, analyze, and compile site-specific mineralogical and hydrochemical data related to radionuclide sorption. These data were used in conjunction with information gathered in laboratory experiments to develop K<sub>d</sub>-values, probability distributions, and novel approaches to sorption modeling in performance assessment. In addition, Mr. Bertetti conducted numerous experimental investigations of the potential sorption and ion-exchange behavior of fission products. He used the experimental results to develop thermodynamic models of ion exchange in zeolites and to assess fission product sorption in saturated environments.

Mr. Bertetti regularly plans and conducts field-based investigations of water quality. Mr. Bertetti uses hydrochemical data, experiments, and modeling to understand the hydrogeology of regional aquifer systems and to study the transport of inorganic contaminants. He has conducted multiple studies of groundwater chemistry to characterize flow systems, recharge, and interconnectivity of major aquifers, such as the Edwards, Edwards-Trinity, and Carrizo-Wilcox Aquifers, in southwest Texas. In addition, he conducts investigations to evaluate the potential impacts to groundwater from oil and gas production and waste disposal activities.

Before joining Southwest Research Institute, Mr. Bertetti directed the development of a National Science Foundation-funded, interactive, computer-based geoscience curriculum for secondary schools. He also investigated the influence of growth stimulation of indigenous microflora on the hydraulic characteristics of sediments at sites contaminated with organic and inorganic compounds. Mr. Bertetti also has experience serving in the U.S. Navy as a nuclear power engineer onboard ballistic missile submarines.