



American Chemical Society

Central Pennsylvania Local Section  
Thursday, November 29, 2012, 6:30 PM  
102 Chemistry Building  
Pennsylvania State University

**Marcellus hydrofrac, flowback, and production waters:  
composition, environmental issues, and treatment/reuse  
options**

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**Abstract:** Pennsylvania has seen exponentially increasing development of the Marcellus shale for production of natural gas. This has resulted in strong feelings for and against for a variety of reasons, including the possible contamination of surface and ground waters. This talk will focus on what's in the frac solutions, what's in the flowback and production waters that come back up the pipe, and which of those constituents should be of concern. The talk will also deal with ways in which contaminants can be removed and what options are available and possible for ultimate disposal of the flowback and production waters.

**Bio:** Brian Dempsey is Professor of Environmental Engineering in the Penn State Department of Civil & Environmental Engineering, where he's worked for 26 years. He also served as associate director and interim director of the Penn State Institutes of Energy & the Environment. Dempsey taught chemistry at the National Autonomous University of Honduras while in Peace Corps/Honduras and worked as an environmental engineer for the City of Durham, N.C. He received his Ph.D. degree in environmental chemistry from the University of North Carolina at Chapel Hill in 1981, and was Assistant Professor of Civil Engineering at University of Missouri-Rolla for five years. Dempsey's specialty area is water chemistry as it relates to potable water treatment, wastewater treatment, and behavior of hazardous wastes in ground waters and surface waters. His publications and his students' theses have received several national awards.