

What: Unconventional Oil and Gas Wastewater Impoundment Leaks and Spills—
A Combined Field and Laboratory Study of Biogeochemical Processes

Who: Dr. Denise M. Akob, Research Microbiologist
U.S. Geological Survey, National Research Program-Eastern Branch, Reston,
Virginia

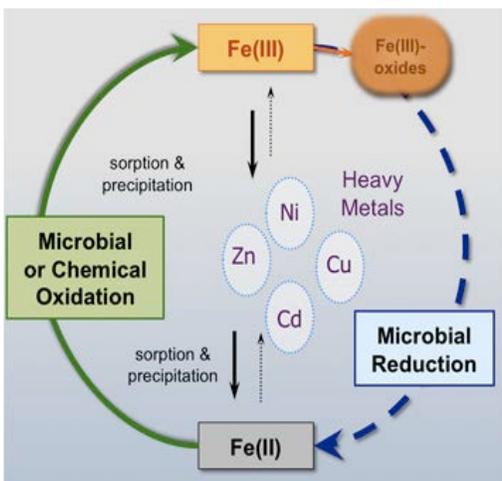
When: October 8, 2015 at 10:00 AM

Where: ND Dept. of Health Environmental Training Center
2639 East Main Ave, Bismarck [Training Center Map](#)
Access is off Main Ave or Railroad Ave, East of 26th St. Please park in the lot West or
South of the building



The development of unconventional natural gas resources via modern techniques, such as hydraulic fracturing, has increased rapidly in recent years, however, the environmental impacts and risks are not yet well understood. A single well can generate up to 5 million liters of wastewater consisting of a blend of injected fracturing fluids and brine from the formation. One method for the disposal of wastewater is underground injection. Dr. Akob and the [Reston Microbiology Lab](#) are assessing the potential risks of this method through an intensive, interdisciplinary study at an injection disposal facility in the Wolf Creek watershed in West Virginia.

In addition to field studies, we designed a series of microcosm experiments to assess the influence of organic wastewater components on microbial community composition and metabolism. Microcosms revealed a greater potential for anaerobic metabolism in sediments from the impacted site compared to the background site. Our findings demonstrate the potential for releases from a wastewater disposal facility to alter microbial communities and biogeochemical processes.



About: [Dr. Denise M. Akob](#) is a geomicrobiologist whose research focuses on understanding how microorganisms affect their environment and biogeochemical cycles and in turn, how an environment impacts microorganisms. Her research focuses primarily on understanding microbial impacts on Cold War biogeochemistry and energy production.

Dr. Akob received her PhD in Biogeochemical Oceanography from Florida State University in 2008 and was a post-doctoral research fellow at Friedrich Schiller University Jena, Germany from 2008-2012. Dr. Akob joined the U.S. Geological Survey's National Research Program in 2012.

For additional information contact: Steve Robinson at smrobins@usgs.gov