



Public Lecture

Future Directions towards Environmental Stewardship over the Unconventional Energy Lifecycle

Dr. Audrey D. Levine, Fulbright Specialist



KHULUMA
SIZWE SERIES

Date: 30 July 2015

Time: 17H30 for 18H00

Venue: University of Pretoria, Hatfield Campus, Sanlam Auditorium

RSVP: shaficka@wrc.org.za

Abstract

This presentation will consider relationships between unconventional energy development and environmental stewardship from a lifecycle perspective. The presentation will focus on water management and groundwater protection. The importance of developing robust baseline data prior to unconventional energy development will be illustrated using a US example where intensive drilling activities and the co-location of private wells has confounded the ability to discern potential impacts due to drilling, well completion, hydraulic fracturing, water management, or well operation. Some of the challenges associated with deriving forensic baseline biogeochemical data from different types of wells will be discussed and preliminary data on chemical fingerprinting to differentiate sources of waterborne contaminants will be presented. Opportunities to leverage ongoing international unconventional energy activities towards developing best practices will be discussed and an overview of research needs related to environmental stewardship will be presented.

Biosketch

Dr. Audrey Levine is in South Africa as a 2015 Fulbright Specialist in collaboration with the Water Research Commission. She is visiting from Washington DC where she is currently serving as a Program Director at the US National Science Foundation. She is also affiliated with Flinders University (Adelaide, South Australia) as a Strategic Professor in Energy and Environment. She has been actively involved in applied science and technology research on a wide range of water and energy topics for several decades. Since 2010, she has worked on research related to unconventional energy with an emphasis on water management, environmental fate and transport, chemical and isotopic fingerprinting of gases and hydrocarbons, biogeochemical interactions, alternative technologies for controlling biofouling, water reuse, and safeguards for protecting water resources, particularly sources of drinking water. She is also interested in "green" completion technologies, mechanical well integrity, sensor technologies, and adaptive management policies. She has worked with regulatory agencies (USEPA, state oil and gas commissions) and industry on projects related to coalbed methane extraction (in Colorado and Australia) and shale gas development (in Ohio and Pennsylvania). From 2006-2011, Dr. Levine served as the National Program Director (NPD) for Drinking Water Research in the US Environmental Protection Agency (EPA) Office of Research and Development (ORD). She has also held tenured faculty academic appointments at several US universities (University of South Florida, Utah State University, New Jersey Institute of Technology, Iowa State University) where she conducted applied research in environmental engineering, water systems, water reuse, public health protection, and environmental policy. She is a Professional Engineer (P.E.) and a Board Certified Environmental Engineer (BCEE). Dr. Levine's academic background is interdisciplinary and she holds a Ph.D. in Civil and Environmental Engineering (University of California at Davis), an M.S. in Public Health (Tulane University), and an undergraduate degree in Biology (Bates College).



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