

## 2010 West Virginia Water Conference

### *West Virginia's Water Resources: Threats and Opportunities*

# Session Summaries

## PLENARY SESSIONS

### *Legislative Approaches to Addressing West Virginia's Water Quality Issues*

**When:** Wednesday, October 6<sup>th</sup> (9:30 AM – 10:30 AM)

**Moderator:** Joyce McConnell – Dean, College of Law at West Virginia University

**Speakers:** Don Garvin – Legislative Coordinator, WV Environmental Council

Joe Altizer – Counsel, WV House of Delegates Judiciary Committee

**Abstract Title:** Recent WV Legislative Activities Relating to the State's Water Resources, Quality and Quantity.

Corky DeMarco – Executive Director, WV Oil & Natural Gas Association

Tim Manchin – Delegate Marion County & Chair, Water Resources Committee

### *Surface Mining and Water Resources in West Virginia Coal Fields*

**When:** Wednesday, October 6<sup>th</sup> (11:00 AM – 12:00 PM)

**Moderator:** Dr. Scott Simonton – Professor, Marshall University

**Speakers:** Mindy Armstead – Potesta and Associates Inc.

Todd Petty – Assoc. Professor, Division of Forestry, West Virginia University

**Abstract Title:** Towards Managing Impacts in Actively Mined Watersheds

Pat Mazik – Unit Leader and Adjunct Assoc. Professor, Division of Forestry, West Virginia University

## PLENARY SESSIONS (continued)

### *The Monongahela River TDS Policy Concerns*

**When:** Thursday, October 7<sup>th</sup> (9:00 AM – 10:15 AM)

**Moderator:** Stephanie Timmermeyer – Environmental Consulting and Legal Services

**Speakers:** Paul Ziemkiewicz – Director, West Virginia Water Research Institute

Evan Hansen – Down Stream Strategies

David Yaussey - Robinson & McElwee PLC

**Abstract Title:** Water Quality Criteria and the TDS Conundrum

### *New Gas Well Extraction Methods: Does Marcellus Opportunity Mean Water Threats?*

**When:** Thursday, October 7<sup>th</sup> (10:45 AM – 12:00 PM)

**Moderator:** Michael Hohn – Director, West Virginia Geological Survey

**Speakers:** Lee Avary – (Retired) West Virginia Geological Survey

**Abstract Title:** The Marcellus Shale Play in West Virginia

Robert Vagnetti – US Department of Energy / National Technology Energy Laboratory

**Abstract Title:** Mitigating Environmental Impacts of Oil and Gas E&P Operations\

Dave McMahon – West Virginia Surface Owners' Rights Organization

**Abstract Title:** The Real and Timely Issues caused by the Marcellus Shale Play

## Concurrent Sessions

### Stream Restoration

**When:** Wednesday, October 6<sup>th</sup> (1:30 PM – 2:45 PM)

**Moderator:** Todd Petty - Associate Professor, Division of Forestry at WVU

**Speakers:** Eric Miller – WVU Grad Student

**Abstract Title:** Fish Habitat Restoration on the Little Coal River, WV as Compensation for Mining Impacts to Headwater Streams: Benefits and Constraints.

Neil Gillies – Executive Director, Cacapon Institute

**Abstract Title:** Failure is not an Option: A Low Cost Deer Exclusion Approach for Forested Riparian Buffer Plantings.

Scott Copen – Senior Engineer, Morgantown Utility Board

**Abstract Title:** The Burroughs Run Stream Restoration Project – Stream Design and Construction in Urban West Virginia.

Abby McQueen – Aquatic Restoration Specialist, Canaan Valley Institute

**Abstract Title:** Stream Restoration Success Monitoring: Is it Successful?

### Ground Water

**When:** Wednesday, October 6<sup>th</sup> (1:30 PM – 2:45 PM)

**Moderator:** Bill Toomey – West Virginia Bureau for Public Health

**Speakers:** Mark Kozar – US Geological Survey

**Abstract Title:** Use of Equivalent Porous Media Methods for Simulating Groundwater Flow in Karst Aquifers, Shenandoah Valley of Virginia and West Virginia

Dr. Benjamin M. Stout III – Wheeling Jesuit University

**Abstract Title:** Coal Slurry and Rural Well water Quantity in Southern West Virginia

Jeremy White – US Geological Survey

**Abstract Title:** Ambient Groundwater Quality in West Virginia, 1993-2008

Paul Ziemkiewicz – Director, West Virginia Water Research Institute

**Abstract Title:** Slurry Study

Andrew (Nick) Schaer – WV DEP

**Abstract Title:** Findings of the WVDEP and OSMRE SCR-15 “Phase I” Study on the Underground injection of Coal Slurry

## Concurrent Sessions (continued)

### Monitoring Programs

**When:** Wednesday, October 6<sup>th</sup> (1:30 PM – 2:45 PM)

**Moderator:** Gary Wick - Federal Bureau of Investigation

**Speakers:** Duane Nichols – Cheat Lake Environmental & Recreation Association

**Abstract Title:** Significant Results of Monitoring Local Streams in North Central West Virginia Over the Past Decade

**Ron Evaldi** – US Geological Survey

**Abstract Title:** USGS West Virginia Hydrologic Data Programs

**Sarah Veselka, Martin Christ & Brian Carlson** - Friends of Deckers Creek

**Abstract Title:** Eight Years of the Clean Creek Program

### PTTC Workshop

**When:** Wednesday, October 6<sup>th</sup> (1:30 PM – 4:00 PM)

**Instructors:** Kristin Carter - Chief, Carbon Sequestration Section, Pennsylvania Geological Survey

Paul Ziemkiewicz - Director, West Virginia Water Research Institute

Ronald E. McIlwain - President, FilterSure, Inc

C. David Locke- Principle Petroleum Engineer, Marcellus Shale Fracwater Cleanup Project

**Description:** West Virginia University, FilterSure, Inc and Powell Water Systems, Inc have combined their expertise to develop a treatment for water returned to the surface from massive hydraulic fracture treatments applied to horizontal Marcellus Shale gas wells. The main goal of this project is to develop and demonstrate a process for treating Frac Water Returns (FWR) that will allow an increased recycle rate while decreasing makeup water volumes and disposal requirements. Successful results were achieved from laboratory Phase I; in Phase II, a mobile unit with a rated capacity of 30 gallons per minute (GPM) will be constructed and tested at an active field well site(s). The results for Phase I, and the 2011 field plan for Phase II, will be presented during this workshop.

During Phase 1, the West Virginia Water Research Institute received frac water return samples from producers active in Marcellus Shale development. Various options for cleaning the FWR were evaluated. Electrocoagulation (EC) followed by FilterSure multi-media filtration produced a crystal clear effluent with the desired water chemistry needed for the next hydraulic fracture treatment.

The highly successful laboratory results can only be confirmed by field tests at active Marcellus Shale development sites. Therefore, in Phase II, a 30 GPM mobile unit will be constructed for field trials in the spring of 2011. Plans for these field trials, and opportunities for companies to participate and actually lease this unit, will be presented.

## Concurrent Sessions (continued)

### Mine Drainage

**When:** Wednesday, October 6<sup>th</sup> (2:45 PM – 4:00 PM)

**Moderator:** Brady Gutta – Research Associate, WV Water Research Institute

**Speakers:** Brittney Holmes – Graduate Student, Marshall University

**Abstract Title:** Environmental Site Characterization and Assessment of As, Cd, Zn, Pb, and Se

**Fionna Stewart** – Graduate Student, West Virginia University

**Abstract Title:** Effects of Acid Precipitation and Acid Mine Drainage on Leaf Litter Decomposition Rates in Central Appalachian Streams

**Ben Mack** – Research Associate, West Virginia Water Research Institute

**Abstract Title:** An Analysis of Steel Slag and Its Use in Acid Mine Drainage (AMD) Treatment

**Katlyn Amos:** Biology Department, Concord University (West Virginia)

**Abstract Title:** Detrital Processes in Streams Across a Conductivity Gradient in an Intensively Mined Watershed

**Eric Merriam** – Graduate Student, West Virginia University

**Abstract Title:** Additive Effects of Mining and Residential Development on Stream Conditions in a Central Appalachian Watershed

### Nutrients

**When:** Wednesday, October 6<sup>th</sup> (2:45 PM – 4:00 PM)

**Moderator:** Neil Gillies – Executive Director, Cacapon Institute

**Speakers:** Alan Collins – Professor, Agricultural and Resource Economics Program, West Virginia University

**Abstract Title:** Engaging Farmers on a Watershed Basis to Solve Agricultural Pollution

**Mike Arcuri** – Environmental Resources Analyst, WV DEP

**Neil Gillies** – Cacapon Institute

**Abstract Title:** Failure is not an Option: A Low Cost Deer Exclusion Approach for Forested Riparian Buffer Plantings

**Joe Hankins** – Director, Freshwater Institute

## Concurrent Sessions (continued)

### Monitoring Methods/Methodology

**When:** Wednesday, October 6<sup>th</sup> (2:45 PM – 4:00 PM)

**Title:** Concurrent Session - Monitoring Methods/Methodology

**Moderator:** Melissa O'Neal – Environmental Technician, West Virginia Water Research Institute

**Speakers:** David Gruber - Biological Monitoring, Inc.

**Abstract Title:** A Biological Water Quality Monitor

Jenna Fehr - OSM/VISTA Volunteerism Coordinator,  
Appalachian Coal Country Watershed Team

**Abstract Title:** Approaches to Volunteer Monitoring in Rural Mining Communities

Sharma Shikma - Assistant Professor in Department of Geology and Geography,  
West Virginia University

**Abstract Title:** Management of coal bed natural gas co-produced water:  
potential role of stable isotopes

### Dunkard Creek

**When:** Thursday, October 7<sup>th</sup> (1:00 PM – 2:15 PM)

**Moderator:** Amy Bergdale – Aquatic Biologist, US EPA

**Speakers:** Frank Jernejic – Fisheries Biologist, West Virginia DNR

Dan Cincotta – WV DNR

Pat Campbell – WV DEP

## Concurrent Sessions (continued)

### Water Use / Water Planning Lessons

**When:** Thursday, October 7<sup>th</sup> (1:00 PM – 3:30 PM)

**Moderator:** Ron Evaldi – US Geological Survey

**Speakers:** Heidi Moltz - Senior Water Resources Scientist, ICPRB  
**Abstract Title:** WV Statewide Water Planning from the Ground Up: Lessons from Local Trainings in Water Resource Management

**Karin Bencala** - Water Resources Planner, ICPRB  
**Abstract Title:** WV Statewide Water Planning from the Ground Up: Lessons from Local Trainings in Water Resource Management

**Lawrence Johnson** - Chester Engineers  
**Abstract Title:** Water Reuse – Is It in West Virginia’s Future

**Joseph Hankins** – Director, Fresh Water Institute  
**Abstract Title:** Water Reuse – Is It in West Virginia’s Future

**Dewey Sanderson** – Department of Geology, Marshall University  
**Abstract Title:** Water Budget of the Coal River Basin 2009

**Timothy Ball** - Interim General Manager, Morgantown Utility Board  
**Abstract Title:** Morgantown Utility Board - Perspectives and Efforts of a Leading Local Agency

### EDC's

**When:** Thursday, October 7<sup>th</sup> (1:00 PM – 2:15 PM)

**Moderator:** Frank Borsuk - Aquatic/Fisheries Biologist, US EPA

**Speakers:** Shanda Minney – West Virginia Rivers Coalition

**Doug Chambers** - US Geological Survey

**Sam Dinkins** – ORSANCO

## Concurrent Sessions (continued)

### Energy Issues

**When:** Thursday, October 7<sup>th</sup> (2:15 PM – 3:30PM)

**Moderator:** Rob Reash – American Electric Power

**Speakers:** Jeff Brown - Energy Economics & Project Development

**Abstract Title:** Geothermal Power Plant Cooling

Emily Grubert – Master's Student, University of Texas at Austin

**Abstract Title:** Air Impacting Water: How Carbon Emissions Standards Could Impact West Virginia Water

Rob Reash – American Electric Power

## POSTER PRESENTATIONS

- 1.) **Title:** Water Use Estimates for West Virginia, 2004  
**Author(s):** John Atkins, Jr.  
**Affiliation(s):** USGS
- 2.) **Title:** Designing In Stream Flow Programs for West Virginia  
**Author(s):** Terry Messinger  
**Affiliation(s):** USGS
- 3.) **Title:** Diversity of Ohio River Bacterial Communities Using Next-Generation Sequencing Techniques  
**Author(s):** Emily Anneken, Rutmann Desauguste, Gary Schultz  
**Affiliation(s):** Marshall University
- 4.) **Title:** Fish Cell Lines as Versatile Tools to Screen and Monitor Water Quality  
**Author(s):** Selvaraj Vellaisamy, Elizabeth Murray  
**Affiliation(s):** Marshall University
- 5.) **Title:** Determining Field Methods to Measure Boundary Shear Stress Along Vegetated Streambanks  
**Author(s):** Leslie Hoplinson, T.M. Wynn  
**Affiliation(s):** West Virginia University, Virginia Tech University
- 6.) **Title:** Generalized Skew Coefficients of Annual Peak Flows for Rural, Unregulated Streams in West Virginia  
**Author(s):** John Atkins  
**Affiliation(s):** USGS
- 7.) **Title:** DNA Phylogeography of Rhinichthys Species in West Virginia  
**Author(s):** Samantha Taylor, Geoffrey Smith, Thomas Jones, Elizabeth Murray  
**Affiliation(s):** Pennsylvania Fish and Boat Commission
- 8.) **Title:** Green Technologies in Spotsylvania County  
**Author(s):** Richard Street  
**Affiliation(s):** Spotsylvania County Sr. Environmental Engineer