### Tentative Agenda, Shale Network 2017 Workshop, May 18-19, 2017

Note new venues: Poster Session at Atherton Hotel (State College PA); computer module in 203 IST Building (PSU); Plenary session in Cybertorium (IST Building); Afternoon sessions in EES Building (PSU).

Sharing Data about Shale Gas Development: From Drilling to Disposal

Workshop organizers include representatives from Penn State (Earth and Environmental Systems Institute; Marcellus Center for Outreach and Research), Univ of Pittsburgh, SUNY Binghamton, PA Department of Environmental Protection, TetraTech, CUAHSI.

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<th>Thursday, May 18</th>
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<td>10:00-2:00 pm</td>
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### Posters

Amal Agarwal, Sue Brantley, Zhenhui, Li, Lingzhou Xue (Penn State Univ) - Modeling Spatially and Temporally Sparse Surface Water Data as a Stochastic River Network

Kathryn Brasier, Kirk Jablert (FracTracker), Abby Kinchy (Rensselaer Polytechnic Institute), Susan Brantley, Colleen Unroe (Penn State Univ) - Barriers to Sharing Water Quality Data: Experiences from the Shale Network

Liza Brazil, Jon Pollak (CUAHSI) - Tools & Support for Integrating Real Environmental Data into Education

Lindsay Byron, Stew Beattie, Doug Catalano, Seth Pelepk, Rick Swank (PA DEP) - Pennsylvania Legacy Well Integrity and Emissions Study

Katie Farnsworth (Indiana Univ of PA), Cindy Rogers (Evergreen Conservancy) – Title To Be Determined

Thomas Geeza, Nate Warner, David Gillikin (Penn State Univ) – Reconstructing Surface Water Quality in Western Pennsylvania by the Isotopic and Elemental Analysis of Elliptio Dilatatus Shells

Kyle Homman, Andy Nyblade (Penn State Univ) - Seismicity in Pennsylvania and the PA State Seismic Network

Ramo Lord, Colleen Unroe (Friends for Environmental Justice) - Fracking Our Environment: A Historical Overview of Impacts in Southwest Pa

Kelly Maloney, John Young, Stephen Faulkner (USGS-Leetown Science Center) - Vulnerability of Headwater Streams to Shale Gas Development in the Pennsylvania Portion of Upper Susquehanna River Basin

Elizabeth Meyer, Todd Sowers, Erika Beddings (Penn State Univ) - Monitoring Nature Methane Variability in PA Stream Systems

Ashley Miller, Katie Farnsworth (Indiana Univ of PA) - Looking for Long Term Impact from a Small Marcellus Wastewater Spill in Indiana County, Pa


Rose Nash, M. Wei, M. Bell, Md. Khalequzzaman (Lock Haven Univ) - Long-term monitoring of AMD and Marcellus-related Parameters in Beech Creek and Clearwater Watersheds, PA

James Shallenberger, Dawn Hintz, Matt Elsasser, Andy Leakey, Blake Maurer, Kimberly Dagen, Jeff Zimmerman (SRBC) – Surface Water Monitoring Related to Shale Gas Development: The Susquehanna River Basin Commission Perspective

Elaine Tanner, Ted Auch (Frac Tracker) (Ohio River Citizens’ Alliance) - Upper Ohio River Valley Extractive Industry Mapping


Tao Wen (Penn State Univ), M. Clara Castro, Chris Hall (Univ of Michigan), Jean-Philippe Nicot, Toti Larson, Patrick Mickler, Roxana Darvari (Univ of Texas-Austin) - Methane Sources and Migration Mechanisms in the Shallow Trinity Aquifer in Parker and Hood Counties, Texas
Friday, May 19

Morning Session: Cybertorium – 113 IST Building, Penn State Campus

7:30 am Continental Breakfast: Informal Introductions (speakers please upload talks)

Plenary Talks (tentative order)

8:00 am Susan L. Brantley: Welcome to 2016 Workshop; Introduction to Shale Network and Introductory Overview: Sharing Data about Shale Gas Development: From Drilling to Disposal

8:30 am Seth Pelepko (PA DEP) Oil and Gas Development Waste Stream Statistics, Management Options, and Current Regulatory Perspectives Regarding Induced Seismicity

8:50 am Radisav Vidic (Univ of Pittsburgh), Dave Yoxtheimer (Penn State) Changes in the Quality and Quantity of Produced Water from Appalachian Shale Energy Development and their Implications for Water Reuse

9:10 am Roger Myers (RRM Completions, LLC) Well Construction and Cementing Practices in Shale and Saltwater Disposal Wells

9:30 am Tim Tyrrell (XTO Energy) Proactively Addressing Induced Seismicity

9:50 am Andy Nyblade (Penn State) Seismicity in PA

10:10 am Jennifer Baka (Penn State) eGovernance as a Data source for Evaluating Stakeholder Positions on Hydraulic Fracturing Regulation

10:30 am Coffee (speakers please upload talks)

10:50 am Dale Skoff (TetraTech) How many disposal wells does PA need and where are formations and locations they could be located

11:10 am Panel Discussion: What are the emerging issues and concerns among the public and scientists related to future disposal of solid and liquid wastes from shale gas wells?

Seth Pelepko (PA DEP) State Regulator

Dale Skoff (TetraTech) Disposal Well Technical Expert

Bryan Warly (Fountain Quail) Disposal Well Operator

Jim Manno, Polk Township (Jefferson County) Supervisor and Chairman

11:50 am William J. Hughes (Ohio Valley Environmental Coalition) Landfill Disposal of Shale Gas Waste

12:10 am Bruce Lindsey (USGS) Groundwater Quality in Energy-Producing Shale Basins of the United States

12:30 pm Walk to Earth-Engineering Sciences (EES) Building for lunch and afternoon sessions

12:40 pm Buffet Lunch in 117 EES Building and Foyer and Upstairs in 2217 EES

114 EES Building

Surface and Ground Water Issues

1:40 pm Josh Woda (Penn State) Engaging Angler Scientists in Methane Research: A Collaborative Approach

Richard Lamkie (PA DEP) Ground Vibration from Pennsylvania Surface Blasting Operations

2:00 pm Luanne Steffy (Susquehanna River Basin Commission) Preliminary Results from Stream Methane Monitoring in the Marcellus Shale Region of the Susquehanna River Basin

Moses Ajemigbitse (Penn State) Reducing the Environmental Impact of the Petroleum Industry by Waste to Resource Recovery

2:20 pm Molly Rudolchick (Indiana Univ PA) Quantifying Methane Emissions from Abandoned Legacy Gas Wells in Indiana County, PA

Isabelle Cozzarelli (USGS) Understanding Pathways of Unconventional Oil and Gas Produced Water Spills in the Environment

2:40 pm Harry Wise (PA DEP) The Department of Environmental Protection’s Mechanical Integrity Assessment Program

Marika Nell (Cornell Univ) Detecting Organic Chemical Additives Throughout the Hydraulic Fracturing Life Cycle: An Examination of Matrix Effects on Detection and Quantification Using Liquid Chromatography High-Resolution Mass Spectrometry

Coffee Service in 117 EES Building

3:05 pm Dawn Hintz (Susquehanna River Basin Commission) Evaluating Water Quality Trends in the Marcellus Shale Region of the Susquehanna River Basin

Md. Khaleduzzaman (Lock Haven Univ) Characterizing Sources of Turbidity in Stream Sediments in the Marcellus Shale Gas-Well Drilling Region in Central Pennsylvania

3:25 pm David Allard (PA DEP) An Update on DEP's Oil and Gas TENORM Work

Nate Warner (Penn State) Impacts of Treated Oil and Gas Wastewater Discharge on Sediments in Western Pennsylvania

3:55 pm 114 EES Building

Plenary Discussion: How can we use data to design a more sustainable future with respect to shale gas development in the northeastern United States and how can we include the public in this process?

4:30 pm Wrap Up Statements (Brantley, Vidic): What Do We Need to Do Next?

4:45 pm Assessment and Adjournment