**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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| **Thursday, May 18** |  |
| 10:00-2:00 pm | **Field Trip: Investigating a Hypothetical Site in the Council Run Field for an Underground Injection Well for Waste Disposal (Meet in the Atherton Hotel Lobby at 9:30 am.) Transportation will be provided. Participants should bring a packed lunch.**  | Dave Yoxtheimer (PSU), Bruce Jankura (PA DEP), Mike Canich, (retired from EQT) |
| 2:00-2:30 pm | **Registration in the Atherton Hotel Lobby for Participants in the Computer Module** |
| 2:30 pm | **Computer module participants walk to 203 IST Building on PSU campus (20 minute walk)** |
| 3:00 - 5:00 pm | **Computer Module Demonstration and Hands-On Exercise: “Environmental Issues Related to Brine Disposal from Oil/Gas Development in Pennsylvania,” 203 IST Building** | Liza Brazil (CUAHSI), Stew Beattie, Seth Pelepko, Harry Wise (PA DEP); Susan Brantley, Dave Yoxtheimer, Andrew Nyblade, Kyle Homman (PSU)  |
| 6:00 – 7:00 pm | **Registration and Poster set up (must be up by 6:30) in Regency Ballroom, Atherton Hotel**  |
| 6:30 - 9:30 pm | **Poster Session with reception and cash bar – Regency BallroomPosters must be taken down at the end of the Poster Session** |
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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 Jalbert (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 Pelepko, 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**Adam Mumford**, Denise Akob, Kelly Maloney, Arianne Proctor, Jason Ditty, Luke Ulsamer, Isabelle Cozzarelli (US Geological Survey) - Quantifying Relationships between Shale Gas Development and Water Quality in Headwater Streams in Pa State Forests: Initial Results from a Replicated, Disturbance Gradient Study**Rose Nash**, M. Weiant, 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**TeenShale Network**: M. Bardo, M. Bokunewicz, L. Campbell, Z. Cook, J. Donoughe, M. Duiker, A. Fritz, H. Good, K. Lenze, A. Li, E. Lieb, K. Mann, L. Nyblade, Y. Pickering, M. R. Hertz, E. Rowland, E. Ruocchio, B. Schoonover, K. Thomas (S. College High School), B. Forsythe, J. Z. Williams, , M. Carroll, S. Brantley (Penn State Univ) - Monitoring, Collecting, and Analyzing Water Quality Data or Streams in Central PA**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 |

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| **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 Wary** (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 BuildingSurface and Ground Water Issues** | **116 EES BuildingBrines: From Geological Source to Disposal** |
| 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. Khalequzzaman** (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** |