

2018 Shale Network Workshop Agenda

Integrating Data about Shale Gas Development: Toward a More Collaborative Future

May 17–18, 2018, State College, Pennsylvania

Workshop Organized and/or Sponsored By:

Penn State (Earth and Environmental Systems Institute; Marcellus Center for Outreach and Research), University of Pittsburgh, Evergreen Conservancy, PA Department of Environmental Protection, Shell Oil Co., CUAHSI, and ORAU

Thursday, May 17, 2018

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| 9:30 am – 2:00 pm | Field Trip to Mock Spill Event on Black Moshannon Creek (<i>Meet in The Atherton Hotel lobby at 9:45 am</i>) <i>Dave Yoxtheimer, Josh Woda, Jennifer Williams, Tao Wen (Penn State University); Stephanie Wharton (PA Department of Environmental Protection (PA DEP))</i> |
| 1:30 – 2:30 pm <i>Lobby The Atherton Hotel</i> | Registration for Non-Field Trip Participants |
| 2:30 pm | Computer module participants walk to 116 Steidle Building on campus <i>(15-minute walk from The Atherton Hotel; field trip participants will be able to attend)</i> |
| 3:00 – 5:00 pm <i>116 Steidle Building</i> | Computer Module Demonstration and Hands-on Exercise: “Marcellus-related Spills: Monitoring and Investigating Spills” <i>Tao Wen (Penn State), Liza Brazil (CUAHSI), Amal Agarwal, Susan L. Brantley, Jennifer Williams (Penn State University), Seth Pelepko, Stephanie Wharton (PA DEP)</i> |
| 6:30 – 7:30 pm <i>Lobby The Atherton Hotel</i> | Registration |
| 6:30 – 8:00 pm <i>Lobby The Atherton Hotel</i> | Ice Breaker <i>Put posters up in the Lobby. NEW! Poster session will be during the day Friday</i> |
| 7:30 – 9:00 pm <i>TBD The Atherton Hotel</i> | Small group discussion: Oil and Gas Subsurface Inspection Process and Brief Introduction to Mobile Inspection Tools <i>Rick Swank (PA DEP)</i> |

Friday, May 18, 2018

*****All Sessions are at The Atherton Hotel in the Ballroom unless notated otherwise*****

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| 7:30 am <i>Breakfast – Regency Ballroom Poster Session – Lobby The Atherton Hotel</i> | Continental Breakfast and Poster Session <i>Speakers, please upload talks Poster presenters, post posters Thursday during Icebreaker or Friday before 8:00 am</i> |
| 8:00 am | Integrating Data about Shale Gas Development: Toward a More Collaborative Future <i>Susan L. Brantley, Tao Wen, Zhenhui Li (Penn State University)</i> |
| 8:20 am | Building a Collaboration Between Citizen Groups and Scientists: Monitoring Energy Extraction Impacts to Surface Water in Indiana County <i>Katie Farnsworth (Indiana University of PA), Cindy Rogers (Evergreen Conservancy)</i> |

Friday, May 18, 2018 – Continued

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| 8:40 am | Oil and Natural Gas Production Related Health Concerns in Pennsylvania <i>Stephanie Hasanali, Anil Nair, Sharon Watkins (Pennsylvania Department of Health Division of Environmental Health Epidemiology)</i> | |
| 9:00 am | DEP Underground Injection Control (UIC) Program Regulatory Update <i>Seth Pelepko (PA Department of Environmental Protection)</i> | |
| 9:20 am | Monitoring Seismicity within the Appalachian Basin of Pennsylvania <i>Andrew Nyblade, Kyle Homman (Penn State University)</i> | |
| 9:40 am | Perspectives on the Ohio Experience of Natural Gas Development: From Hydraulic Fracturing to Brine Injection <i>Richard Simmers (DNR, Ohio)</i> | |
| 10:00 am | Midstream Communities and Public Data Gaps: A Call for Increased Spatial Transparency <i>Brook Lenker, Matt Kelso (FracTracker Alliance)</i> | |
| 10:20 am | Coffee Break <i>Speakers, please upload talks</i> | |
| 10:40 am | How gas companies monitor sites and respond <i>Robert Hendricks (Shell Oil Company)</i> | |
| 11:00 am | Public Health Issues Related to Shale Gas Development: From Exposure to Epidemiology <i>Donna Vorhees, Anna Rosofsky, Kathryn Liziewski (Health Effects Institute)</i> | |
| 11:20 am | Public Health Issues Related to Shale Gas Development: From Exposure to Epidemiology <i>Donna Vorhees (Health Effects Institute), Moderator; Jim Fabisiak (University of Pittsburgh Graduate School of Public Health); Nicole Deziel (Yale University); Uni Blake (American Petroleum Institute); Kathy Condo (Babst Calland, Pittsburgh); Heather Harr (League of Women Voters of PA)</i> | |
| 12:40 pm | Poster Session and Reception-Style Lunch <i>Lobby The Atherton Hotel Afternoon speakers, please upload talks</i> | |
| <i>Coffee Service located in back of each room</i> | Regency Ballroom A <i>From Wastes to Roads to Landfills</i> | Regency Ballroom B <i>From Water to Health</i> |
| 2:20 pm | Spatial Modeling of Sociodemographic Predictors and Hydraulic Fracturing Wastewater Injection Wells <i>Genevieve Silva (Yale College), Joshua L. Warren, Nicole Deziel (Yale Schl Public Health)</i> | Groundwater Quality in the Marcellus Region and other Energy-Producing Shale Basins of the United States <i>Bruce Lindsey, Peter B. McMahon, Matthew Conlon (U.S. Geological Survey)</i> |
| 2:40 pm | Fracking and Radon Levels: A Case of Ice Cream Sales and Murder Rates? <i>Katie Jo Black (Kenyon College), Shawn McCoy (University of Nevada), Jeremy G. Weber (University of Pittsburgh)</i> | Quantifying relationships between shale gas development intensity and water quality in headwater streams of the PA State Forests <i>Adam Mumford, Kelly Maloney, Denise Akob (U.S. Geological Survey), Arianne Proctor, Jason Ditty, Luke Ulsamer (PA Department of Conservation and Natural Resources), Isabelle Cozzarelli (U.S. Geological Survey)</i> |

Friday, May 18, 2018 – Continued

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| 3:00 pm | <p>The World of “Beneficial Reuse”: Regulating the Spread of Oil and Gas Wastewater on Roads <i>Lara B. Fowler (Penn State University)</i></p> | <p>Bio-monitoring the Impacts of Oil and Gas Development on Surface Water Quality using Mollusk Shells <i>Thomas J. Geeza, Nathaniel Warner (Penn State University), David Gillikin (Union College)</i></p> |
| 3:20 pm | <p>Characterization, potential toxicity, and fate of O&G wastewaters spread on roads in Pennsylvania <i>T.L. Tasker, W.D. Burgos, P. Piotrowski, L. Castillo–Meza (Penn State University), T.A. Blewett (University of Alberta), K.B. Ganow, A. Stallworth (Penn State University), P.L.M. Delompré, G.G. Goss (University of Alberta), L.B. Fowler, J.P. Vanden Heuvel (Penn State University; INDIGO Biosciences, Inc.), F. Dorman, N.R. Warner (Penn State)</i></p> | <p>Does Shale Gas Development Impact Infant Health through Drinking Water? <i>Elaine Hill (University of Rochester Medical Center)</i></p> |
| 3:40 pm | <p>Coupling geochemical data with waste shipment information to anticipate impacts from drill cuttings disposal <i>Joe Graney (Binghamton University)</i></p> | <p>Unconventional Natural Gas Operations and Childhood Cancer Development in a Pennsylvania Birth Cohort <i>Shaina Stacy (UPMC Hillman Cancer Center; University of Pittsburgh), Jeanine M. Buchanich, James P. Fabisiak, (University of Pittsburgh), Linda Robertson (UPMC Hillman Cancer Center; University of Pittsburgh), Ravi K. Sharma, Evelyn O. Talbott (University of Pittsburgh), Jian–Min Yuan (UPMC Hillman Cancer Center; University of Pittsburgh)</i></p> |
| 4:00 pm | <p>Impacts of unconventional oil and gas drilling waste on Pennsylvania landfills <i>Sara A. Lincoln, David A. Yoxtheimer, Odette Mina, Susan L. Brantley (Penn State University)</i></p> | <p>Using a Convolutional Neural Network and a Collaborative Web Application to Aggregate Data from Scanned Well Integrity Reports in Colorado and New Mexico <i>Greg Lackey, Hari Rajaram, Devansh Chauhan (University of Colorado, Boulder), Owen A. Sherwood (ES Dalhousie University), Joseph N. Ryan (University of Colorado, Boulder)</i></p> |
| 4:20 pm | Break: Open Room Back Up | |
| 4:30 pm | <p>Wrap Up Statements: What Do We Need to Do Next? <i>Susan L. Brantley, Radisav Vidic</i></p> <p>Plenary Discussion: How can we use data to design a more sustainable and healthy future with respect to shale gas development in the northeastern United States and how can we include the public in this process?</p> | |
| 5:00 pm | <p>Assessment and Adjourment <i>Poster presenters, please remember to take your posters</i></p> | |

POSTERS

Moses Ajemigbitse, Nathaniel Warner, Fred Cannon (Penn State University) – A Novel Process for Reclaiming Marketable Raw Materials from Hydraulic Fracturing Wastes

Uni Blake (American Petroleum Institute) – Oil and Natural Gas Industry's Role in Public Health

Kathy K. Condo (Babst Calland Clements and Zomnir, P.C.), Uni Blake – Evidence of Air Quality Around Oil and Gas

Katie Farnsworth (Indiana University of PA), Cindy Rogers (Evergreen Conservancy), – The Research, Educational and Environmental Benefits of the Indiana County Stormwater Education Partnership

Elaine Hill, Andrew Boslett (University of Rochester Medical Center) – How do oil and gas leases influence economic, environmental, and public health outcomes?

Kyle Homman, Andrew Nyblade (Penn State University) – Crustal Structure Across the Appalachian Basin Using Joint Inversion of P-wave receiver functions and Surface Wave Dispersion

Steve Hovan (Indiana University of PA) – Well Mapper – A new app to crowdsource location and condition of abandoned and orphaned oil and gas wells

Marika Nell, Damian E. Helbling (Cornell University) – Exploring Matrix Effects and Quantifying Organic Additives in Hydraulic Fracturing Associated Fluids Using Liquid Chromatography Electrospray Ionization Mass Spectrometry

Rebecca Tisherman, Daniel Bain (University of Pittsburgh) – Alkali Earth Ratios Differentiate Conventional and Unconventional Hydrocarbon Brine Contamination

Nathaniel Warner (Penn State University) -- Isotopic tracers of oil and gas bioaccumulation

Tao Wen, Mengqi Liu, Guanjie Zheng, Xianzeng Niu, Matthew Gonzales, Josh Woda, Zhenhui Li, Susan L. Brantley (Penn State University) – Applying machine learning in water quality data: implication for controlling factors and occurrence time of elevated methane in groundwater

Grace Wildermuth, Elyzabeth Engle, Jennifer Baka, Kathryn Brasier (Penn State University) – Media Representations Across Space, Place, and Time: Impact Framing of Ethane Plant Development in Southwest Pennsylvania

Grace Wildermuth (Penn State University) – Marcellus Shale Landowner Coalitions: Form, Function, and Impact

Josh Woda, Tao Wen, David Oakley, Susan L. Brantley (Penn State University) – Hydrocarbon Migration and Aquifer Degradation near Shale Gas Wells

TeenShale Network: Mariah Airey, Lachlan Campbell, Zachiah Cook, Serena Duncan, Scarlett Gingerich, Nyra Graham, Aaron Li, Emily Lieb, Chidere Oputa, Ethan Rowland, Bryn Schoonover, Soumya Thapa, Madaleine Wilson, Jessica Zhang, Matthew Bardo, John Donoughe, Phil Gipe, Yvonne Pickering, Eugene Ruocchio (State College High School), Susan L. Brantley, Matthew Carroll, Nooreen Meghani, Jennifer Z. Williams (Penn State University) – The Signals of Environmental Contamination on Black Moshannon and Wallace Run in Central Pennsylvania