

*Program*

# Overcoming the Technical and Community Challenges of Hydraulic Fracturing for Shale Gas

August 4-8, 2013

Boulder, Colorado

Conference Chairs:

Dr. Danny Reible

Center for Research in Water Resources, University of Texas

Dr. Margaret MacDonell

Environmental Sciences Division Argonne National Laboratory



**Engineering Conferences International**

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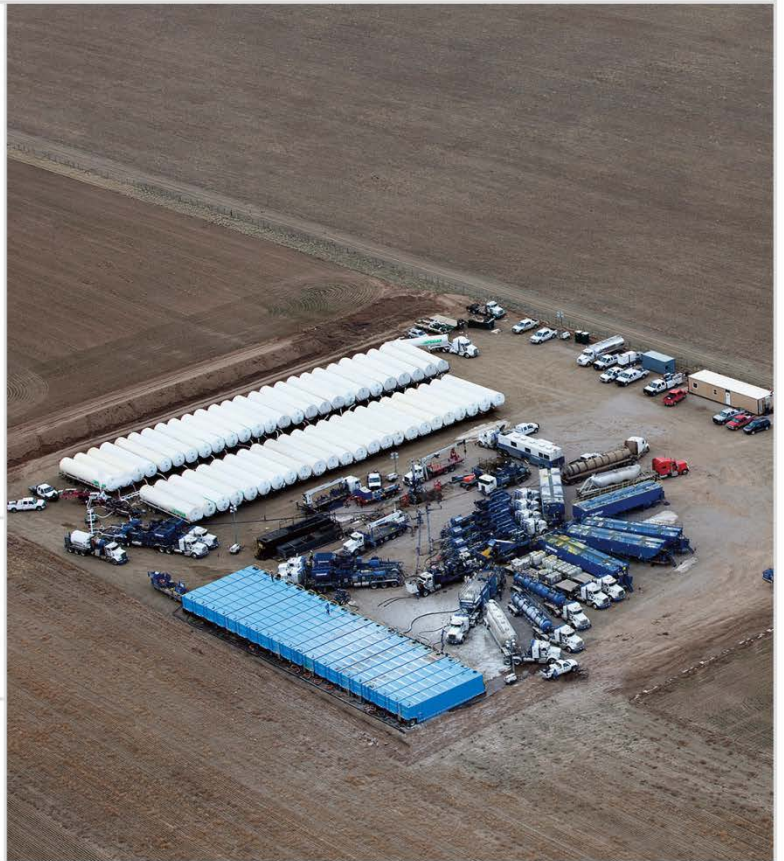
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**Sunday, August 4, 2013**

17:00 – 18:30	Conference Check-in (Sunshine Room)
18:00 – 20:00	Opening reception (Firepit)

***NOTES***

- Audiotaping, videotaping and photography of presentations are strictly prohibited.
- Please do not smoke at any conference functions.
- Turn your mobile phones to vibrate or off during technical sessions.
- Technical Sessions will be in the Canyon Ballroom.
- Breakfasts will be in the Restaurant.
- Lunches will be in the Garden and the banquet will be in the Century Room.
- Social Hours will be in the Sunshine Room and Foyer.
- Be sure to check your contact information on the Participant List in this program and make any corrections to your name/contact information online. A corrected copy will be sent to all participants after the conference.
- Speakers – Please leave at least 5 minutes for questions and discussion. Be available for discussion during meals and social periods

## **Monday, August 5, 2013**

- 07:30 - 09:00 Breakfast
- 09:00 – 09:15 **Welcome and Introduction to the conference**  
Danny Reible and Margaret MacDonell, Conference Chairs  
Nicholas Clesceri, ECI Technical Liaison
- 09:15 – 10:00 **Status: Shale gas extraction**  
Danny Reible, University of Texas
- 10:00 – 10:30 **Shale gas and sustainable development**  
Deborah Shields, Colorado State University
- 10:30 – 11:00 Coffee break

### **Subsurface Processes and Hydraulic Fracturing**

- 11:00 – 11:30 **Assessing the subsurface geologic risks for hydraulic fracturing**  
Jon Olson, University of Texas
- 11:30 – 12:00 **Two-year surveys comparing earthquake activity and injection/extraction well locations in the Barnett Shale and Eagle Ford of Texas**  
Cliff Frohlich, University of Texas
- 12:00 – 12:30 **Feasibility of using depleted shales as a repository for permanent storage of CO<sub>2</sub>**  
Andres Clarens, University of Virginia
- 12:30 – 14:00 Lunch
- 14:00 – 16:30 Free time / Opportunities for sightseeing and networking
- 16:30 – 17:00 Coffee break
- 17:00 – 17:30 **Formation and transportation of barite in subsurface**  
Can He, University of Pittsburgh
- 17:30 – 18:00 **Impact of water chemistry on trace element mobilization from shales**  
Lin Wang, Washington University of St. Louis
- 18:00 – 18:30 **New ultra high performance Ferrium® steels for demanding fracking applications**  
Jeff Grabowski, QuesTek Innovations
- 18:30 – 19:00 **Computational tribology – A method to reduce wear, friction & fluids for shale gas hydraulic fracturing**  
Ward Thomas, Sentient Science
- 19:00 – 19:30 Social Period
- 19:30 Free evening / Dinner on your own



**Tuesday, August 6, 2013**

07:30 - 09:00            Breakfast

**Subsurface Impacts on Water**

09:00 – 09:30            **Water use and consumption for hydraulic fracturing: A Texas study**  
JP Nicot, University of Texas

09:30 – 10:00            **Water quality concerns surrounding shale gas development in the Michigan Basin**  
Brian Ellis, University of Michigan

10:00 – 10:30            **Water quality impacts of shale gas development**  
Roxana Darvari, University of Texas

10:30 – 11:00            Coffee break

11:00 – 11:30            **Disclosure of fracturing fluids**  
Terence Centner, University of Georgia

11:30 – 12:00            **Carbon dioxide hydraulic fracturing: A path forward to sustainable unconventional hydrocarbon management**  
Mark Holtz, Praxair

12:00                      Boxed Lunch

12:30                      Optional Excursion -TBA

**Wednesday, August 7, 2013**

07:30 - 09:00 Breakfast

**Characteristics and Management of Flowback and Produced Water**

- 09:00 – 09:30 **An expedited method for Ra-226 measurement and fate of Ra-226 from flowback/produced water in centralized impoundments and treatment facilities**  
Tieyuan Zhang, University of Pittsburgh
- 09:30 – 10:00 **Produced water management: Importance of microbial ecology for the fate of naturally occurring radioactivity**  
Kelvin Gregory, Carnegie Mellon University
- 10:00 – 10:30 **Evaluating characteristics of source, flowback, and produced water for effective water treatment**  
Scott Tucker, Hach
- 10:30 – 11:00 Coffee break
- 11:00 – 11:30 **Developing a framework for sustainable flowback water management**  
Neha Mehta, MIT
- 11:30 – 12:00 **Hydraulic fracturing - Water reuse challenges and solutions**  
Andrew Collier, GE
- 12:00 – 12:30 **Concern and potential of flowback treatment and reuse - German approach**  
Dirk Weichgrebe, ISAH, Leibniz University
- 12:30 – 14:00 Lunch
- 14:00 – 16:30 Free time / Opportunities for networking
- 16:30 – 17:00 Coffee break

**Community and Environmental Risks of Hydraulic Fracturing**

- 17:00 – 17:30 **Continuous monitoring of stable carbon isotopes for methane source determination at a Marcellus Shale development site in southwestern PA**  
Matt Reeder, National Energy Technology Laboratory
- 17:30 – 18:00 **Effects of produced water management options on drinking water treatment systems**  
Jeanne VanBriesen, Carnegie Mellon University
- 18:00 – 18:30 **Soil erosion and surface water quality impacts of natural gas development in east Texas, USA**  
Matt McBroom, SF Austin St University

**Wednesday, August 7, 2013 (continued)**

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|---------------|---|
| 18:30 – 19:00 | <b>Environmental remediation and restoration management: Lessons learned from DOE-EM</b><br>Dawn Wellman, Pacific Northwest National Laboratory |
| 19:00 – 19:30 | Reception   |
| 19:30 – 21:30 | Conference Banquet  |

**Thursday, August 8, 2013**

07:30 - 09:00

Breakfast

Departures