

# Workshop on the Development of Unconventional Hydrocarbon Resources in the Appalachian Basin



Erickson Alumni Center  
West Virginia University  
Morgantown, West Virginia

September 9-10, 2013

THE NATIONAL ACADEMIES  
*Advisers to the Nation on Science, Engineering, and Medicine*

## Agenda

### *Monday, September 9*

8:00 Registration

8:30 Welcome

*James P. Clements, President  
West Virginia University*

8:40 Overview of the workshop

*George Hornberger, Chair, Vanderbilt University*

[Biography](#) | [Presentation](#)

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9:00 **Session 1: Geology, hydrocarbon resources and their development,  
and induced seismicity (15 minute talks)**

9:00 Geology, resources, and potential activity levels

*Ray Boswell, NETL*

[Biography](#) | [Presentation](#)

9:20 Engineering and technology for developing unconventional hydrocarbon  
resources: Current and prospective methods for exploration and production

*Joseph Frantz Jr., Range Resources Corporation*

[Biography](#) | [Presentation](#)

9:40 Earthquakes induced by hydrocarbon production: What Texas can tell us  
about Appalachia

*Cliff Frohlich, University of Texas*

[Biography](#) | [Presentation](#)

10:00 Questions

10:20 Instructions to the working groups

*George Hornberger*

10:25 Break and divide into working groups

12:00 Working lunch

1:00 Working groups report back (*5 minutes each*)

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1:30 **Session 2: Water and regulations** (*15 minute talks*)

1:30 Water issues relating to unconventional oil and gas production

*John Veil, Veil Environmental LLC*

[Biography](#) | [Presentation](#)

1:50 Identifying and assessing potential impacts of unconventional hydrocarbon production on surface and groundwater quality

*Rosemary Capo, University of Pittsburgh*

[Biography](#) | [Presentation](#)

2:10 State shale gas regulation in the Appalachian Basin: Recent enhancements, remaining gaps, and opportunities for change

*Hannah Wiseman, Florida State University*

[Biography](#) | [Presentation](#)

2:30 Questions

2:50 Instructions to the working groups

*George Hornberger*

3:00 Break and divide into working groups

4:30 Working groups prepare reports

4:45 Working groups report back

5:15 Workshop adjourns for the day

***Tuesday, September 10***

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- 8:00 Registration
- 8:30 Welcome and plans for the day *George Hornberger*
- 8:40 **Session 3: Ecosystems, air, and climate** (*15 minute talks*)
- 8:40 Potential impacts of unconventional hydrocarbon production on stream biota: Current and needed research  
*Kelly Maloney, USGS* [Biography](#) | [Presentation](#)
- 9:00 Assessing and minimizing ecological impacts of shale development  
*Michael Powelson, The Nature Conservancy* [Biography](#) | [Presentation](#)
- 9:20 Assessing emissions of hydrocarbons from rural and natural gas drilling impacted areas in Pennsylvania  
*Jose Fuentes, Pennsylvania State University* [Biography](#) | [Presentation](#)
- 9:40 Climate impacts of shale gas  
*Paulina Jaramillo, Carnegie Mellon University* [Biography](#) | [Presentation](#)
- 10:00 Questions
- 10:20 Instructions to the working groups *George Hornberger*
- 10:25 Break and divide into working groups
- 12:00 Working lunch
- 1:00 Working groups report back
- 1:30 Wrap-up and discussion
- 3:30 Workshop adjourns