PINCHOT INSTITUTE FOR CONSERVATION

Leadership in Conservation Thought, Policy and Action

Assessing the Environmental Effects of Marcellus Shale Gas Development: The State of the Science

April 1, 2011

Academy of Natural Sciences
1900 Benjamin Franklin Parkway
Philadelphia, PA 19103

Agenda [DRAFT: March 28, 2011]

Workshop objective: To objectively review and evaluate the current science basis for assessing, regulating, and monitoring the environmental effects of unconventional natural gas development in the eastern region of the Marcellus Shale Formation, and meet the information needs of stakeholders, regulators, and scientists in a timely manner with respect to proposed energy development.

8:00 Coffee

8:30 Welcome. *David Velinsky,* Patrick Center for Environmental Research, Academy of Natural Sciences.

8:45 Introduction and workshop objectives. *Al Sample*, Pinchot Institute.

9:00 Panel 1: Scientific basis for cumulative effects assessment.

Overview: Ongoing environmental studies on Marcellus Shale development. *Richard Hammack*, DOE-NETL

- Ecological effects on water resources. *Jerry Mead,* Academy of Natural Sciences
- Ecological effects on terrestrial habitat and biodiversity. *Nels Johnson,* The Nature Conservancy of Pennsylvania
- Effects on water consumption and management (e.g. groundwater and surface water withdrawals) *Jim Richenderfer,* Susquehanna River Basin Commission
- Cumulative effects on ground water and aquifers *Jim Campbell ,* US Geological Survey
- Cumulative effects on surface water quality (e.g. in-stream effects, spills, tailings/waste materials*)*. *Dan Volz*, University of Pittsburgh
- Source water protection in the upper Delaware (e.g., benchmarking, monitoring, contingency planning). *Chris Crockett,* Philadelphia Water Department

Facilitated discussion

12:00 Lunch. Virtual tour of informational website. *Ken Klemow,* Wilkes University

1:00 Panel 2: Scientific basis for best practices standards and regulation.

Overview: Managing to minimize potential impacts to water, wildlife, and biodiversity values. *Bill Manner*

- Measures to minimize effects on habitat *(e.g. access roads, pipeline corridors, migration, fragmentation, etc.). Ellen Shultzabarger,* Pennsylvania Department of Conservation and Natural Resources
- Measures to minimize effects on watersheds. *Jeff Fulgham* , General Electric Power & Water
- Application of current science and new research by energy developers. *David Alleman,* ALL Consulting

Facilitated discussion

2:30 Panel 3: Refinement of user needs—critical information for anticipating potential cumulative effects and establishing effective standards and regulations

- *Carol Collier*, Delaware River Basin Commission
- *Matt Keefer*, Pennsylvania Department of Conservation and Natural Resources
- *Tom Schuler,* USDA Forest Service
- *Jack Ubinger*, Pennsylvania Environmental Council

3:00 Plenary discussion. Status of current science to address user information needs: research synthesis and implications for future research.
Moderators: *Al Sample* and *David Velinsky*

- Relevant information that is in the technical literature, but is in need of a synthesis and/or summary to make it understandable and easily usable by stakeholders and regulatory agencies.
- Key information needs that are not addressed in the current literature, but are the subject of ongoing research (When are results expected? Who is doing the research? What opportunities are there for additional coordination, cooperation, and communication among various researchers working on related topics?)
- Critical information needs that are not addressed by existing information or current research, and that needs to be made a priority for new or additional research.

4:30 Next steps: Approaches to strengthening the science basis for environmental effects assessment, regulation and monitoring, and meeting information needs of stakeholders, regulators, and scientists themselves in a timely and cost-effective manner.

5:00 Adjourn. Reception to follow.

About the Pinchot Institute

The mission of the Pinchot Institute is to advance conservation and sustainable natural resource management by developing innovative, practical, and broadly-supported solutions to conservation challenges and opportunities. The Pinchot Institute accomplishes this through nonpartisan research, education and technical assistance on key issues influencing the future of conservation and sustainable natural resource management. An independent nonprofit organization based in Washington, DC, the Pinchot Institute was dedicated in 1963 by President John F. Kennedy at Grey Towers National Historic Site, home of the early conservation leader Gifford Pinchot. The Pinchot Institute is supported by the Pinchot Associates and a diversity of public and private research and charitable organizations. Additional information about the Pinchot Associates, and current programs and activities at the Pinchot Institute, can be found at www.pinchot.org.

About the Academy of Natural Sciences

Founded in 1812, the Academy of Natural Sciences is America's oldest natural history museum and is a world leader in biodiversity and environmental research. For nearly 200 years, the Academy has carried out its mission to encourage and cultivate the sciences, exploring the remarkable diversity of our natural world and sharing these discoveries with the public through innovative exhibits, publications and educational programming. The Academy is a 501(c) (3) non-profit organization with an annual operating budget of over $13 million and over 200 staff. It is a member of Parkway Council, a coalition of cultural and educational institutions and businesses in the Benjamin Franklin Parkway area of Philadelphia, known as the Parkway Museums District. The Academy will celebrate its 200th birthday in 2012. Additional information about the Academy can be found at www.ansp.org.

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