



## FOR IMMEDIATE RELEASE

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### MARCELLUS SHALE NEEDS SCIENTIFIC STUDY TO SET GUIDELINES

#### *Researchers propose comprehensive research plan to understand the environmental impact of drilling*

PHILADELPHIA—The Academy of Natural Sciences is calling for a comprehensive research plan that would result in guidelines and an assessment tool for regulators and managers in order to minimize the environmental impact of Marcellus Shale gas drilling.

“At this time, there is very little information available as to the impacts of long-term exposure of a watershed to Marcellus Shale drilling activities,” said Dr. David Velinsky, vice president of the Academy’s Patrick Center for Environmental Research. “Nor do we know if there is a cumulative impact of drilling activity on the ecosystem services of a small watershed.”

Initial research by Academy scientists working with University of Pennsylvania graduate student Frank Anderson shows the environmental impact of drilling may be directly related to the amount of drilling in a specific area, referred to as the “density” of drilling. “The question that needs to be addressed is whether there is a threshold point past which a certain amount of drilling activity has an impact on the ecological health and services of the watershed—regardless of how carefully drilling is conducted,” Velinsky said.

#### **Loss of salamanders signals ecological impact**

In the preliminary research conducted this summer, scientists examined small watersheds in northeastern Pennsylvania—three in which there had been no drilling, three in which there had been some drilling and three in which there had been a high density of drilling. At each site, they tested the water, the abundance of certain sensitive insects, and the abundance of salamanders. The presence of salamanders is particularly important because amphibians are especially vulnerable to changes in the environment. The absence of amphibians is often an ecological early-warning system.

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For each of the measures, there was a significant difference between high-density drilling locations and locations with no drilling or less drilling. The studies showed that water conductivity (which indicates the level of contamination) was almost twice as high in the high density sites as the other sites, and the number of both sensitive insects and salamanders were reduced by 25 percent.

“This suggests there is indeed a threshold at which drilling—regardless of how it is practiced—will have a significant impact on an ecosystem,” Velinsky said. “Conversely, it also suggests there may be lower densities of drilling at which ecological impact cannot be detected.”

Velinsky stressed that the data is preliminary and that a larger, more comprehensive study must be done before definitive conclusions can be drawn. The Academy has applied to the Pennsylvania Department of Environmental Protection’s Growing Greener Program to fund such a study.

“When this study has been completed we will be able to indicate with a much higher level of certainty what the ecological risks are of drilling in the shale and how they might be managed.”

Founded in 1812, the Academy of Natural Sciences is the oldest natural science research museum in the America. The environmental program has been studying human impacts on the environment for more than 60 years.

For more details, see Dr. David Velinsky’s testimony on Sept. 30 to Philadelphia City Council’s Joint Committees on the Environment and Transportation and Public Utilities at [www.ansp.org/about/news/marcellus-shale.php](http://www.ansp.org/about/news/marcellus-shale.php).

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*The Academy of Natural Sciences, founded in 1812, is the oldest natural science research institution and museum in the Americas and a world leader in biodiversity and environmental research. The mission is the encouragement and cultivation of the sciences.*

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