

Testimony on Marcellus Shale Gas Drilling and the Environment Before the Pennsylvania House Majority Policy Committee

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September 29, 2011

Good morning. My name is David Masur, and I am the Director for PennEnvironment. PennEnvironment is a non-profit, citizen-based environmental advocacy organization. I'd like to start out by thanking Rep. Quinn, Chairman Reed and the members of the House Majority Policy Committee for inviting me to testify on the issue of Marcellus Shale gas drilling today.

I think that John Quigley, recent DCNR Secretary put it best when he said, "The cumulative impacts of the Marcellus/Utica Era will dwarf all of Pennsylvania's previous waves of resource extraction combined."

To put that to perspective, the current projected bill for cleaning up the legacy of coal mining pollution is \$16 billion—a price tag that will predominantly be paid by the taxpayers. I can only imagine what Secretary Quigley's prediction means for our environment, health and economy if the Marcellus and Utica shales are expected to have a cumulative impact that's greater than coal, oil and logging combined.

Here's the tip of the iceberg in Pennsylvania from Marcellus Shale gas drilling: a drinking water advisory for 325,000 residents of the Pittsburgh area; nearly 2,700 violations of cornerstone environmental laws in the last 24 months of drilling—that we know of. And in just a 48-hour period, the Pennsylvania state police placed 208 trucks out of service and issued nearly 1,000 citations (including taking 64 *drivers* out of service) while inspecting 1,135 trucks during its "Operation FracNET" efforts to rein in Marcellus Shale haulers with safety related violations—faulty brakes, hauling violations, exterior lighting issues.

These are just some examples of what we're seeing with Marcellus Shale gas drilling in what the industry refers to as its "infancy" phase—there are approximately 3,000 wells drilled in the Commonwealth with the industry predicting to hit a high mark of 50,000. If this is the legacy of Marcellus Shale gas drilling in its infancy phase, I'm not sure what to expect at maturity.

As you can see from some of the examples I've mentioned, Marcellus Shale gas drilling poses a number of potential threats to our environment and public health. From air emissions, to the destruction of our state lands and open spaces, to the contamination of

our drinking water supplies and our rivers and streams. First I'll cover some of the threats facing Pennsylvania's waterways and drinking water supplies due to Marcellus Shale gas drilling. Then I'll outline a few of PennEnvironment's solutions to these problems.

As you may know, the Marcellus Shale gas reserve runs underneath portions of a handful of states from New York all the way down to Maryland. In total, the Marcellus Shale covers about 54,000 square miles, equal in size to the state of Florida, and runs 5,000-8,000 feet below the surface. However, the largest stretch of the formation is found under Pennsylvania, under nearly two-thirds of the state's land mass. The gas is found in the pores and pockets created by the Marcellus Shale. Already, **over 7 million acres of land in Pennsylvania have been leased for Marcellus Shale gas drilling.**

To date, there are numerous cases of Marcellus Shale gas drilling activities leading to environmental damage and putting the health of the people of Pennsylvania at risk.

Chemicals in Hydraulic Fracturing

As part of the hydraulic fracturing processes, drilling companies use a cocktail of chemicals in order to help break up the shale and capture the gas deposits. We now have access to the full list of chemicals that could possibly be used during hydraulic fracturing. This list includes toluene, ethylbenzene, xylene, and petroleum distillates, which contain benzene, all of which can be toxic and harmful to human health at very low levels. Many of the chemicals on this list are suspected or known carcinogens, or could cause respiratory, hormonal, neurological and other serious health problems.

While we have access to the list of chemicals that could be used for gas extraction, we do not know what chemicals are used in any particular gas well or in what amounts. Without knowing the specific concentrations of each chemical, what it's being mixed with and where specifically it is being used or stored, the level of harm to human health cannot be predicted, thus endangering drilling operators, first emergency responders, and residents living nearby. This mixture either stays underground, or comes to the surface to be stored near our streams and rivers and transported on our roads or through wastewater pipelines—posing a threat to our environment and public health.

Moreover, when drilling wastewater leaks or is spilled – during storage in open-air pits, during transport, or other processes – it further increases the risk to our rivers, streams and drinking water supplies. As an example of such a spill: in September 2009, DEP ordered Cabot Oil and Gas to stop drilling after it spilled roughly 8,000 gallons of dangerous drilling fluids near Dimock, Pennsylvania, killing fish and wildlife in the area. In June 2010, a leaking waste water pipe from another gas driller polluted a tributary of Cross Creek Lake, in Washington County, killing aquatic life throughout a three-quarter mile section of the stream. Research by the Academy of Natural Sciences suggests that even without spills or other accidents, drilling for natural gas in Pennsylvania's rich Marcellus Shale formation could degrade nearby streams.

Water Well Contamination

Additionally, improper drilling practices can cause methane gas to migrate to nearby groundwater supplies and contaminate drinking water. Sadly, this is something that has already occurred too many times in Pennsylvania. Worse, improper drilling practices can cause dangerous explosions, such as the one that occurred last year in Clearfield County. Luckily, this incident caused no injuries or loss of life. However, such an accident could have been disastrous for public health and safety if it had taken place in a residential area, such as the city of Pittsburgh.

While the Delaware Valley does not fall within the Marcellus Shale, there is still reason for local residents to be concerned about drilling's effects on our local waterways and public health. The Upper Delaware River, which straddles the Marcellus Shale region of northeastern Pennsylvania, provides drinking water to 17 million people in Pennsylvania, New Jersey and New York. As drilling increases in northeastern Pennsylvania, residents downstream in the greater Philadelphia area could see the unfortunate effects of a growing number of spills, leaks, accidents or other problems outlined above if these problems are not addressed now. Of course, we would never want to see the type of drinking water advisory that was issued for hundreds of thousands of Pittsburgh-area residents issued for the Philadelphia area.

Water Use

The process of hydraulic fracturing also consumes large volumes of water, on average two-to-six million gallons of water per wellhead. Gas drilling operators often look to nearby streams and rivers for the enormous volume of water necessary. As more Marcellus gas wells are drilled in the future, the need for these large volumes of water will remain. We believe that all gas drilling companies must have permission before removing water from any part of the Commonwealth, and that local residents and residents downstream should have binding input into the decision making process. The first priority should be ensuring that downstream communities have adequate water supplies and that our aquatic ecosystems have the water that they need. Lastly, there should adequate reporting as to where, when and the amounts of water withdrawals that are made available to the public in a simple, easy-to-find format online.

Of course, air pollution is a growing concern from gas drilling as well. For example, in September the Colorado School of Public Health at the University of Colorado issued a draft Health Impact Assessment for Battlement Mesa, a community in Garfield County, CO where new natural gas drilling is planned. The conclusions stated that air quality is likely to change and health impacts may include respiratory disease, neurological problems and possible increased cancer risk; increased traffic is likely to cause negative health impacts; and that there is a high estimated Hazard index for acute non-cancer hazard of residents living adjacent to a well pad.

Lastly, gas drilling poses a threat to our forests and parks. We're all familiar with the threat posed to our state forests as hundreds of thousands of acres of our public lands have been leased out for gas drilling. Now, there is growing evidence that the gas industry is poised to access their mineral rights under other great natural places in Pennsylvania like Ohiopyle State Park and other popular outdoor locations since DCNR

estimates that approximately 85% of the mineral rights under Pennsylvania's state park system are privately held.

Clearly the threats posed by Marcellus Shale drilling run the full spectrum and must be addressed quickly and completely.

Regulatory and Legislative Solutions

PennEnvironment believes that any drilling that takes place must protect the public's health, our drinking water sources and Pennsylvania's rich natural heritage. If the gas industry is not willing to do this of their own accord, we believe the responsibility falls to state and federal legislators and regulators, and other officials to enact strong rules and laws.

PennEnvironment is calling for:

- Chemicals being discharged into surface water must be disclosed publicly. Amounts, concentrations, locations and specific compounds must be identified. They must be accessible on a simple website for public access.
- We must put some places off limits from drilling altogether, including the areas that supply our drinking water, critical habitat and public lands. This includes prohibiting any drilling near rivers and streams classified as Exceptional Value and High Quality, and prohibiting drilling on floodplains and riparian buffer zones. We must implement 300 foot stream buffer for all lands, just like DCNR currently requires for drilling on state lands.
- Implementing mandatory minimum penalties for polluters who violate laws. There must be a stronger incentive to obey the law and protect our health and environment--NOT an incentive to pollute and break the law.
- Pennsylvania must update and increase the bonding requirements for gas drilling companies in order to cover the full cost of completing a gas well, and worst case scenarios for accidents or long-term environmental effects from drilling. We do not want to leave Pennsylvania's taxpayers footing the bill for an expensive BP-like disaster related to gas drilling, or an expensive legacy of pollution for which the state's taxpayers foot the bill like the ongoing legacy pollution from coal mining.
- Increasing funding to DEP and other agencies so that they can properly do their job to enforce our laws. This enforcement should include:
 - Regular inspection of all drilling sites, especially at critical times (i.e. when wells are being sealed),
 - An inspection of erosion and sedimentation controls and plans prior to any start to drilling.
- Pennsylvania must prohibit drilling within 5,000 feet of all waterways and drinking water supplies. All private well owners within a half-mile of a drilling site should be notified prior to the submittal of a drilling permit application. Every private well owner should be given the opportunity to have their well tested—at the expense of the industry, not the land owner, prior to application. Drilling within a half-mile of a public drinking water supply should be prohibited.

In closing, I again want to thank Rep. Quinn and Chairman Reed for inviting me to today's policy committee hearing. I look forward to working with you all on this important issue.

