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attention: dSGEIS Comments
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-6510

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Dear Commissioner Martens and DEC,

Thank you for the opportunity to address comments to DEC regarding the permitting process for high-volume horizontal hydraulic fracturing in Marcellus and other shale formations.

I am a landowner living in the heart of what will, in all likelihood, become a Marcellus "boom town". I depend on the vegetables I harvest for my food, the forests for timber and firewood, and my hayfields for income. I depend on groundwater for my water supply – and my well produces some of the best-tasting water in this area.

I am also an independent environmental journalist, a member of the Society of Environmental Journalists, with a graduate degree in biology. I began writing about shale gas drilling and the associated environmental and health impacts in 2007.

Halting gas drilling is not the answer. Gas may help us bridge the energy gap as our nation develops the alternative fuels we need to provide sustainable and renewable energy for the future.

But we do need to halt the "gas rush" mentality. New York needs to slow down the development of gas – in particular shale gas – so that the resource may be harvested in a more sustainable fashion. The Department also needs to assure that regulations will be followed and backed up with adequate field inspections.

Herewith are specific comments on the recently released draft SGEIS (Sept. 2011):

1. Estimate of gas reserves and economic impact too high: In Chapter 2 DEC outlines the public benefits of gas available in Marcellus. The Department also relies on inflated estimates of the amount of gas available in the reservoir. However, this summer the USGS revised their estimate of gas in the Marcellus to 84 trillion cubic feet of gas. While this 42-times higher than their previous estimate, it is only 1/5 of the amount that the industry insists is in the formation.

In addition, the Department relies on outdated and flawed economic studies. Economists who study rural impacts criticize both the studies and the models they are based on. Furthermore, a number of studies have already shown that job numbers from PA are inflated due to accounting and other errors.

2. Impacts are evaluated on single wells, not cumulative impacts to an area: The Department continues to rely on the 1992 GEIS, basing their evaluations of environmental impacts on single wells or individual well sites. A truer evaluation would include the cumulative impacts on an area. The dSGEIS purposefully leaves gathering lines, pipelines and compressors outside its scope, thus ignoring their cumulative impacts on land use and air quality. Because the impacts on a single well site cannot be fenced in, DEC must broaden its scope to incorporate cumulative impacts.

3. **BMPs and Reclamation Guidelines for agricultural land:** In Chapter 3 DEC states the Department will work with the NYS Dept. of Ag & Markets to develop permit conditions, best management practices (BMPs) and reclamation guidelines for agricultural land. While laudatory, the Department needs to make sure the BMPs reflect agricultural needs, not those of the gas industry. Also, these permit conditions should apply to all rural lands, not just those that are included in "agricultural districts", as there are many subsistence farmers who use the land for field and row crops but do not make an income that qualifies them for traditional ag district consideration.

4. No true accounting for loss of agricultural land: In Chapter 5 DEC notes that construction of well pads will take 5.5 to 7.5 acres, but some of that will be returned to previous state or use. However, DEC does not address how much agricultural land will be taken out of production, and how that will impact our food security.

Governor Cuomo reports that agriculture is one of the most important industries in the state, ranking either second or third and right up there with tourism as far as bringing money into the state. Every year the state shells out hundreds of thousands of dollars in grants for agricultural initiatives, including NY Pride and farm-to-school as well as crop research. Also, the area overlying Marcellus and Utica shale deposits provides fresh fruits, vegetables, milk and meat to New York City, Syracuse and Rochester. This area is, according to Cornell scientists, "the foodshed" to those major cities.

And yet the DEC has not adequately studied the impact of industrialized gas drilling on this region. Just last month two Penn State extension educators addressed this issue. Gary Sheppard reported that nearly 7500 acres of farmland has been affected by drilling in the past four years. That estimate is backed up by some work that Dr. Patrick Drohan at Penn State has completed, work showing that roughly 62% of the acreage affected by drilling is farmland. According to his colleague Mark Madden, compressor stations, gravel pits, staging areas and places to stockpile equipment are taking some of the best agricultural land out of production, due to their location (flat land) and proximity to access.

In additions, for each acre of forest that is cleared for well development, an additional 2.5 acres is indirectly impacted. How does that affect the wood products and maple industries?

5. Classification of waste fluids: In Chapter 5 the dSGEIS continues to classify flowback and drilling waste fluids as "industrial" waste rather than "hazardous" waste. This does not make sense when, prior to pumping the chemicals into the well they are classified as "hazardous", and radioactive waste would normally be treated separately from "industrial" wastes.

6. BUD for road-spreading brine: In Chapter 5 the dSGEIS sets out conditions for road-spreading brine from production fluids from wells. The SGEIS notes that, due to higher NORM the production waste fluids from Marcellus wells will not be allowed Beneficial Use Determinations. However, the Department has not looked closely at the impacts of this road spreading on surfaces near agricultural enterprises.

7. Gathering lines and compressor stations not subject to DEC rule-making: In Chapter 5 the DEC maintains that gathering lines, pipelines and compressor stations are not subject to their rule-making. This is a problem for rural areas because gathering lines and pipelines fragment forested and agricultural lands. In addition, accidents and releases of mists or fine droplets from compressor stations can coat crops and pollute livestock ponds. Incidents such as this have happened in PA – a compressor blew fine droplets of oily stuff over neighboring farms and the growers had to destroy their crops.

8. Need to address surface spills on agricultural lands: In Chapter 6 DEC addresses environmental impacts, but fails to address the impacts of surface spills on agricultural land.

Heavy metals present in the fracking chemicals and the drilling waste fluid can spill onto soil. Plants growing in that soil can take up heavy metals and incorporate them into the leafy green part, roots, and stems. Food and forage crops take up heavy metals: spinach, greens, beets, corn, forage crops for hay.... All of these take up and bio-accumulate metals. Metals in forage crops can poison livestock. Just as mercury is accumulated in fish, lead and other metals can be accumulated in milk of dairy animals. FDA does not test for these chemicals.

Radioactive elements are likewise bio-accumulated in plants and livestock that make up our food chain.

Last spring Pennsylvania officials quarantined 28 cows on a Tioga County, PA farm when they were exposed to a drilling waste fluid leak. Nobody knows for sure whether the cows and calves actually drank the spilled waste fluid, but officials found lots of bovine prints in and around the pool – enough evidence to hold the 20 adult cows from the food chain for six months. The eight calves are under quarantine for two years. Farmers cannot afford to feed cows they don't milk or butcher.

Cows that survive exposure to frack waste may lose their reproductive capabilities- one Cornell veterinarian says that PA farmers often lose more than half their herd to such accidents. Veterinarians nationwide report deaths, smaller litters, still births and abnormalities in cattle, goats, swine and horses exposed to drilling fluids and wastes. This is our food supply.

9. Watershed Protection and FAD's: In Chapter 6 the Department lists adverse impacts of industrialized hydro-fracked drilling to FAD watersheds. These same issues and concerns apply to most watersheds in NY State because of the steep slopes. These same issues and concerns also affect farmers who depend on unfiltered water for livestock and irrigation. These same issues and concerns also apply to nearly every rural resident living over the shale because ***our home water supplies are not filtered*** – for the exact same reason NYC and Syracuse supplies are not filtered: it would be prohibitively expensive.

10. Invasive species need more study: In Chapter 6 DEC admits that invasive species need more study. This is critical for agriculture. DEC needs to take a closer look at the impact of invasive weeds on fields, pastures and cropland; DEC needs to more closely study the reduction of forest value due to invasive species and fragmentation; DEC needs to take a broader look at the impact of invasive species on the relationship between beneficial organisms (birds and insects) and crop and timber pests, and study the impacts invasive species may have on the native pollinators that are responsible for 3/5 of our food.

11. NORM: In Chapter 6 DEC raises concerns about the presence of NORM in sewage sludge – as well as Total Dissolved Solids (TDS) remaining in the sludge. This is a serious issue if this sludge makes its way onto farmland, reclamation projects or other venues where sewage sludge is considered a "beneficial use". How will this be monitored to assure that contaminated sludge does not end up on our agricultural land?

12. Natural Flow Regime Method: In Chapter 7 DEC notes that the Department plans to adopt the "natural flow regime method" for gauging water withdrawal allotments as a permit condition. This sounds like a good idea – please elaborate on how it will be implemented.

13. Mitigation conditions: In Chapter 7 DEC sets out a number of conditions for mitigation. One of these mentions no wells shall be drilled within 500 feet of the boundary of primary aquifers. Given that the buffer for NYC and Syracuse watershed is 4,000 it leads one to wonder whether 500 feet is adequate, and whether the state values the health and safety of all NY State residents equally.

14. Requirements for Water Testing: In Chapter 7 DEC establishes requirements for water testing pre- and post-drilling. DEC would require operators to test individual water wells within 1,000 feet of a well pad. But contamination reports and two recent studies (Duke and Penn State) suggest that 3,000 feet is a better distance, given the migration data collected.

15. Setbacks: In Chapter 7 the Department establishes setbacks from wells and water sources. But given that some drinking water wells 3,000 feet from a gas pad are experiencing impacts, is the 500-foot setback from a domestic water well or farm well enough? Given heavy rains, is 150-foot setback from streams enough? A heavy downpour can overcome swales, dikes, and even freeboard and send polluted water into streams and creeks, down pastures and elsewhere.

16. Zoning and Comprehensive Plans: In Chapter 8 DEC stoutly defends its authority to issue permits, noting that DEC's authority supersedes local government authority with respect to well siting even if the town has zoning or a comprehensive plan. DEC also notes that, while the

operator has to "identify" zoning and/or town plans, they may not be compelled to observe or comply with town plans.

Zoning is distinctly separate from and apart from regulating the industry. People must have the right to determine whether they want a particular industry locating in their town or neighborhood. To deny this is to strip the basic rights of home ownership and local democracy from a community.

Additional Concerns Relating to Agriculture:

- Industrialized drilling compacts agricultural soil. This has been such an important issue in the past that both Cornell and Penn State have published documents to help farmers reclaim land impacted from drilling activities.

- Methane leaks from pipelines and emissions from flaring decrease soil fertility by lowering the organic carbon and increasing soil acidity. The result: decreased overall yield in food and forage crops.

- Withdrawal of huge amounts of water impacts agriculture. Surface water is connected to ground water in our geology (says the experts at soil & water conservation districts). The water removed from the hydrological cycle for drilling will never be replaced. During droughts, it can deprive livestock and crops from needed irrigation and drinking water, as well as lowering well levels.

- The biggest thing we must keep in mind as we consider drilling is that everything is connected. The air we breathe, the water we drink, the food we eat, the health of our children, the impact of health problems on our economy … There is no such thing as "cheap fossil fuel" – every aspect of the industry pollutes the environment we depend on for our very survival. And, in the end, drilling and production of unconventional fossil resources contributes to greenhouse gases and climate change, exacerbating all the other problems.