Catskill Citizens
FOR SAFE ENERGY

TESTIMONY BEFORE
THE ENVIRONMENTAL COMMITTEE
OF THE NEW YORK CITY COUNCIL

September 10, 2008

I represent Catskill Citizens for Safe Energy. We are a grassroots organization that came into being earlier this year because we are deeply concerned about the dangers that unsafe, poorly regulated gas extraction pose to our health and our environment. Catskill Citizens has joined Riverkeeper and other organizations in calling for a moratorium on drilling in the New York City watershed because we believe that the gas industry proposes to use drilling techniques that could damage the groundwater and aquifers on which the city depends. Moreover we believe that the New York State Department of Environmental Conservation lacks the resources, and perhaps the political will, to regulate a powerful industry that has all too often been indifferent to the welfare of the communities in which it operates.

New Yorkers enjoy some of the best drinking water in the world because, over a hundred years ago, the city fathers had the wisdom to begin constructing a vast system of reservoirs and tunnels to supply the city with water from the Delaware River Basin and the Catskill Mountains. Today the Catskill/Delaware system meets 90% of the city's needs. Each day it quenches the city's thirst with more than a billion gallons of water, water that is so pure that it doesn't require filtration.

The extraordinary quality of this water is due in no small part to the city's proactive watershed protection program. Every year New York City spends tens of millions of dollars to buy land, purchase easements and build sewage treatment plants within the watershed. These measures do a superb job of mitigating the effects of farm runoff and residential development; but they were never intended to handle the full-scale industrial development which is now envisioned for the region.

The entire City watershed sits atop what is known as Marcellus Shale; and in recent months we've learned that this geologic formation is being targeted for natural gas extraction on a massive scale. Energy companies have already leased watershed land in Delaware County and it is anticipated that the watershed areas in Greene, Ulster and Sullivan Counties will also be targeted in coming years.

If all goes according to the plan, next spring gas companies will begin to clear forests and level hills in order to drill some 1,500 new wells west of the Hudson River. Each well pad will cover some two to six acres and require its own access road and feeder pipeline. Thousands of acres of undeveloped land will be industrialized, hundreds of miles of new roads will be cut and hundreds of miles of pipelines will be laid. Moreover, this rapid pace of intense industrialization is liable to continue, year after year, for decades to come.

Virtually every phase of gas extraction in the watershed poses a threat to New York City's water supply. While some dangers can be mitigated through careful regulation and the use of the best industrial practices, some of the most worrisome problems do not appear to have any ready solution.

EROSION AND STORMWATER RUNOFF

The construction of numerous wellpads, access roads and pipelines could potentially contribute to soil erosion and storm water runoff that increases turbidity in the water supply. Left unchecked, that might eventually require New York City to filter water from the Catskill/Delaware system. As I'm sure you're all aware, this would be an extremely expensive undertaking for the city.

Moreover, unchecked runoff could also contaminate the watershed with any of the dozens of harmful chemicals that are routinely used on drilling sites.

There's no doubt that the risks of turbidity and groundwater contamination could be minimized by scrupulous management practices and strict oversight. What is unclear is whether or not the gas industry is disposed to work in the safest possible manner, and whether the DEC has the resources to compel the industry to do so. This is a subject I'll return to later in my testimony.

EXTRACTING SHALE GAS

It's important to understand that the Marcellus Shale gas isn't sitting in a pool and it can't be sucked out of the ground like soda through a straw. The natural gas beneath the watershed is trapped in the rock itself, and this fact has two important implications.

First, the gas companies won't be looking for 'sweet spots' where they can 'strike' gas. Anywhere and everywhere within the Marcellus formation is a potential source of gas. Over time, the entire watershed could be targeted for gas extraction.

Second, gas trapped in rock can't be extracted by conventional means. Instead, the industry relies on a process called hydraulic fracturing, or 'fracking'. Millions of gallons of fluids are pumped underground to create stone-shattering pressure. Eventually, between 30 and 60% percent of the fluid is pumped back out of the well, then the gas flows out and is captured.

FRACKING FLUIDS

Proponents of hydraulic fracturing, including the NYS DEC, like to describe fracking fluid as little more than soap and water. Last June a DEC spokesperson wrote *"Marcellus shale fracing operations in New York State use fresh water, sand, nitrogen and a diluted soapy solution…"*.

That description was incomplete. A month later DEC Director Jack Dahl admitted as much when he amended the list to also include rust inhibitors, lubricants and bactericides. (Mr. Dahl did not specify the chemical composition of these additives and the Department has not responded to a written request for this information.) The fact is, even the expanded list of ingredients provided by Mr. Dahl is, in all likelihood,

incomplete. Although there has been some hydraulic fracturing in New York State in the past, the DEC has never required gas companies to disclose the chemicals they use in the process.

Recently the DEC announced that in a break with past policy it will require the disclosure of the chemicals used in fracking fluids in horizontal wells in the Marcellus Shale. But this policy shift does not provide New York City with the level of protection it needs and deserves. It still allows the industry to use undisclosed chemicals in vertical wells, and in wells that extract gas from the other geologic formations that underlie the watershed.

Since the DEC doesn't know what's in fracking fluids, our best information may come from the western states where hydraulic fracturing has been used on a massive scale. In states like Colorado and New Mexico independent investigators have identified hundreds of chemicals, many of them highly toxic, that are routinely used in gas extraction.

Toxic fracking fluids can threaten our health and the environment in two ways. First, flooding, leakage and spillage can contaminate land and groundwater. The DEC has the authority to minimize this risk by requiring the gas companies to store their toxic fluids in enclosed steel containers rather than open plastic-lined waste pits, but it has not indicated that it will insist on this simple, inexpensive safeguard. This seems highly irresponsible in light of the fact that the Catskill/Delaware region is frequently subjected to periods of intense rainfall and flooding. Open waste pits containing hundreds of thousands of gallons of toxic fluid are, quite simply, a recipe for disaster.

The second threat posed by fracking fluids stems from the huge quantities of toxic liquids that will remain underground. It is estimated that between 30% and 60% of the fluids injected into a well are never recovered. The gas industry and the DEC tell us that we shouldn't be concerned about this because the fluid will remain within the shale bed thousands of feet below the potable aquifers. Perhaps. But what if existing faults or seismic events cause the fluids to migrate upward into the sources of our drinking water? That's a question nobody wants to ask and nobody is prepared to answer. Furthermore, DEC Regional Director Michael Lenane says there are thousands of uncapped wells in New York State. Uncapped, and possibly unmapped, old wells could provide a ready conduit between fluids in the shale beds and the potable aquifers above them.

A LACK OF SCIENTIFIC STUDIES

Although the hydraulic fracturing process has been used for decades, it has never been properly studied. The gas industry and the NYS DEC say that there have been over one million instances of fracking and no related health or environmental problems, but this claim is not supported by peer-reviewed scientific studies. Rather, it represents the industry's own assessment as reported to the Interstate Oil and Gas Compact Commission. Independent investigators tell a very different story; they have uncovered numerous instances of health and environmental problems associated the process.

In 1997 complaints of drinking water contamination led the Federal 11th Circuit Court of Appeals to rule that hydraulic fracturing should be regulated by the *Safe Drinking Water Act.* Two years later the court

ordered the US Environmental Protection Agency to oversee fracking in Alabama, where the contaminated water had been reported.

In 2004 the EPA released a report declaring that hydraulic fracturing was safe and that no further studies were necessary. However there is overwhelming evidence that this report was shaped by politics, not science.

It's important to note that fracking was pioneered by the Halliburton Corporation, which earns about 1.5 billion dollars a year from the process. As we all know Dick Cheney is its former CEO, and there is abundant evidence that his office was instrumental in redacting harmful information and shaping the final conclusions of the EPA study. Six of the seven scientists who reviewed the report had direct ties to the oil and gas industry. One was a former Halliburton employee, and another was on the Halliburton payroll when he reviewed the report.

Upon its release, the EPA study was roundly denounced by reputable scientists both within and without the Agency. Catskill Citizens agrees with Rep. Henry Waxman, who concluded that the EPA 'made a faith-based leap to conclude that injecting toxic materials underground posed little or no threat" and that "the unanswered questions in the EPA's report cry out for further study."

It is imperative that these studies be conducted *before* any drilling is permitted in the New York City watershed.

PRODUCED WATER AND DRILL CUTTINGS

Just as the toxic chemicals pumped into the ground pose health risks, so do the substances that extracted from gas wells. Drilling produces solid wastes, known as cuttings that are liable to contain toxic heavy metals and radioactive material. Under current DEC regulations this material can be disposed of on-site.

Fluids extracted from a well, termed 'produced water', are contaminated with the chemicals that were originally injected into the well as well as volatile organic compounds, and the same heavy metals and radioactive material that is found in the cuttings. Innocuously labeled 'brine water', produced water is spread on roads to 'keep down the dust' in summer and to melt snow and ice in the winter. We all know that whatever goes onto our roads inevitably ends up in our creeks and streams and reservoirs.

NEW YORK CITY HAS BEEN STRIPPED OF FEDERAL PROTECTIONS

It is important to bear in mind that the gas industry will be drilling in the watershed at a time when it is less constrained by federal regulation than any time in recent memory. Under the *2005 Energy Act* the Bush/Cheney White House succeeded in getting the oil and gas industries exempted from most provisions of the *Safe Drinking Water Act,* the *Clean Air Act,* the *Clean Water Act* and other important environmental regulations.

IS THE NEW YORK STATE DEC UP TO THE JOB?

With virtually no federal protections, New York City must rely on the NYS DEC, but there's a real question of whether the agency is up to the job.

Most people are unaware of the fact the DEC takes the position that it is required by law to promote gas extraction, and it is our experience that the Department often seems to put the interests of the industry over those of the public. The Department recently backed a bill that expedited drilling in the Marcellus Shale while doing away with public hearings and failing to provide the health and safety protections that were being sought by New York State residents. Also, the DEC fails to use the permitting process to ensure that gas companies behave responsibly in the communities where they operate. The industry is routinely allowed to pass off its business expenses such as water testing and road repair onto local taxpayers while withholding important health and safety information from the public because it would violate their 'trade secrets'.

Even if the Department were disposed to vigorously defend our health and our environment, it's not clear that it has the resources to do so. The fact is the DEC is severely understaffed and underfunded. As noted earlier, the Department claims it lacks the resources to seal thousands of uncapped wells in the state, and it currently has only 19 inspectors to monitor some 13,000 to 14,000 active wells. That works out to about one inspector for every 700 wells.

In recent months DEC spokesmen have dismissed health concerns by claiming that the state's past safety record should reassure us that we have nothing to worry about going forward. But the fact is there have been serious environmental accidents in recent years and there is absolutely no evidence that the Department has ever used its limited resources to attempt to systematically study the environmental impact of gas extraction. Nor has it ever dealt with the consequences of gas drilling on the huge scale we are about to see.

CONCLUSIONS

1. Until peer-reviewed scientific studies have established the safety of hydraulic fracturing this method of gas extraction should not be permitted in the New York City watershed or anywhere else in New York State.
2. New York City should predicate drilling in the watershed on the restoration of Federal environmental regulations including the *Safe Drinking Water Act.*
3. Drilling in the New York State watershed should not be permitted until it is clear that the New York State DEC has the resources and the political will to provide thorough and vigorous oversight of gas industry.