



## **Comments by Catskill Citizens for Safe Energy Re: Docket D-2009-13-1**

It would be irresponsible for the Delaware River Basin Commission to approve the Stone Energy Docket D-2009-13-1 (or any other water withdrawal dockets that would facilitate hydraulic fracturing) at this time. The scientific data necessary to make an informed decision is lacking, and regulatory bodies at every level of government are still struggling to figure out how to safely regulate unconventional shale gas extraction.

### **Does Hydraulic Fracturing Threaten Groundwater and Drinking Water?**

Anecdotal evidence suggests the answer is “yes,” but there is insufficient information to authoritatively answer this question.

Last summer, in testimony before the House subcommittee on Energy and Mineral Resources, the American Petroleum Institute repeated its claim that “fracking” has been used safely for fifty years without contaminating water. But when asked if he knew of any recent scientific studies that supported this claim, API’s senior policy analyst, Richard Ranger said, “I’m not aware of any.”<sup>1</sup>

The fact is, there has never been a single credible, peer-reviewed study of hydraulic fracturing and its effect on water supplies;<sup>2</sup> yet there have been over one thousand instances of drinking water and ground water contamination linked to the process.<sup>3</sup>

To date, the most thorough assessment of hydraulic fracturing in the Marcellus Shale may be the report commissioned by the New York City Department of Environmental Protection and submitted to the New York State Department of Environmental Conservation in December of 2009. The NYC DEP study, conducted by the environmental engineering firm, Hazen and Sawyer, concluded:

Subsurface migration of fracturing fluids or formation water and pressures could present risks to potable water supplies if such fluids were to intercept a shallow fresh water aquifer . . . Potential migration pathways include migration of fracturing and formation fluids along the well bore as well as migration across and out of the penetrated and hydraulically fractured strata.<sup>4</sup>

The report described the geological conditions that were encountered during the construction of the city’s water tunnels:

Brittle geological features such as faults, fractures and crushed zones were encountered during water supply tunnel construction. Groundwater inflows were also encountered at numerous locations during tunnel construction, and in several cases, these align with mapped faults, fractures or linear features. More importantly saline, methane, and hydrogen sulfide seeps were encountered as well. These seeps are considered to be indicative of a hydraulic connection to naturally-occurring pressurized groundwater/fluids from much deeper strata. Existing connections to deeper strata can transmit pressurized fluids (e.g., saline and/or radioactive formation water and residual hydrofracturing chemicals) upward to the vicinity of the fresh water aquifer . . . (and to the surface).<sup>5</sup>

The New York City watershed, which was the focus of the Hazen and Sawyer study, is not far from the area targeted for fracking by Stone Energy. In the absence of any other data, it's only prudent to suppose that the geologic conditions in Wayne County are similar to those found less than one hundred miles away in New York State.

Of course the Hazen and Sawyer report is not conclusive evidence that hydraulic fracturing would threaten drinking water in the Delaware Basin, but it certainly establishes the need for further research before the Commission permits water withdrawals for fracking.

Fortunately, The US Environmental Protection Agency is undertaking an in-depth peer-reviewed study entitled "*Potential Relationships Between Hydraulic Fracturing and Drinking Water Resources*" It will include research conducted in the Marcellus Shale regions of New York and Pennsylvania and, when complete, it may well provide the thorough analysis that can support informed decision-making by the Commission.

### **Most Spent Fracking Fluid Will Not Be Disposed of Outside the DRB**

The Stone Energy docket claims that the corporation "currently intends to transport the wastewaters generated from this water withdrawal to approved treatment facilities outside the DRB." But most spent fracking fluid will never be recovered. It will remain underground in the DRB. Expert opinion suggests that approximately 75 to 80% of injected fluids will never be recovered.<sup>6</sup> If Stone Energy were to withdraw the maximum amount of water allowed under the pending docket (1.27 billion gallons), then around one billion gallons of toxic fluid would remain underground in the Basin.

How great a threat is one billion gallons of toxic fluid to our water supplies? Is there any member of the commission who, in the absence of reliable scientific data, is prepared to hazard a guess?

### **Has the DRBC Conducted a Cumulative Impact Study of Shale Gas Extraction in the Basin?**

Stone Energy is not the only company seeking to frack within the DRB, nor is it one of the largest. Unless and until the DRBC develops a plan that will allocate water to all the natural gas corporations and still protect the resources of the basin, it would be imprudent and unfair to allocate resources to any natural gas company.

### **Is Pennsylvania Prepared to Regulate Hydrofracking?**

The answer is clearly "no."

Marcellus shale gas extraction is already underway in other parts of the state and we've had a chance to see the results. Some place names, such as "McNett Township," "Dimock," and "Dunkard Creek" have practically become household words because of the instances of water and soil contamination that have occurred there.

In a submission to the EPA's Science Advisory Board (attached), William Wegner, staff scientist of Riverkeeper, Inc., listed sixteen instances in which Marcellus Shale gas extraction has negatively impacted water and air quality. Fourteen of the sixteen occurred in Pennsylvania; a fifteenth occurred along the Pennsylvania-West Virginia border.

Elevated levels of total dissolved solids in the Monongahela River and a whole string of disasters in Dimock have led the Pennsylvania Department of Environmental Protection to conclude that it must do a

better job regulating drilling activities and wastewater disposal, but new regulations are not yet in place, and it's not clear if they will be adequate.

**The Delaware River Basin has escaped the environmental disasters that have plagued other parts of the Pennsylvania, because the DRBC has, thus far, proceeded with caution.**

A federal review of hydrofracking safety is now underway, and Pennsylvania (and New York) are developing regulations to safely manage shale gas extraction. The only prudent course of action for the DRBC is to delay permitting water withdrawals for hydrofracking until the science is in, and the regulations are in place.

1. *FRAC Act—Congress Introduces Twin Bills to Control Drilling and Protect Drinking Water* ProPublica, June 3 2009
2. To date the only peer-reviewed report on the subject is the widely discredited 2004 study conducted by the federal Environmental Protection Agency.
3. “A [series of investigations by ProPublica](#) found that fracturing is the common thread in more than 1,000 cases of water contamination [across seven states](#).” *EPA Launches National Study of Hydraulic Fracturing* ProPublica, March 18, 2010.
4. *Final Impact Assessment Report: Impact Assessment of Natural Gas Production in the New York City Watershed* Hazen & Sawyer Environmental Engineers and Scientists, December 2009. Page 57.
5. *Ibid.* Page 54.
6. At a Commons Waters Meeting in Narrowsburg, NY on February 10, 2010, Brian Grove, Director of Corporate Development for Chesapeake Energy stated that his company’s Marcellus wells in Pennsylvania require an average of five million gallons of fracking fluid, and that four million gallons of the fluid are never recovered. The wastewater treatment company ProChem Tech, in a report entitled. *Marcellus Gas Well Fracture Wastewater Recycle and Water Supply*, estimates that 60 to 90% of injected fluids are recovered. In 2008 the New York Department of Environmental Conservation collected information from drillers on the hydraulic fracturing of shale formations. Data supplied by the gas companies showed recovery rates of between 20 and 50%, meaning that 50% to 80% of the fracking fluid remains unrecovered. In a private communication on September 15, 2009 Brad Gill, Executive Director of the New York Oil and Gas Association states “. . . on the order of 10 to 30% initial recovery is being seen. Then, as the well is produced, additional fluids can be recovered . . .”