

When it comes to hydrofracking there's at least one thing that those pro and con seem to agree on: that we should follow the science.

Unfortunately, when it comes to what "the science" is, the agreement separates like repelling magnets. What the gas industry means by "the science" is *their* science---as though no one not employed by the industry could ever know anything they don't about geology, hydrology or chemistry. And with even more hubris, they utterly disregard all of the social and human sciences---such as sociology, ecology, climate science, public health, radiology, medicine---considering them no more than nuisances that have no place in the research and evaluation of hydrofracking at all.

In contrast, those wary of hydrofracking generally hold that this unruly new technology needs to be studied by all relevant fields of science, its likely impacts objectively regarded in terms of the health, safety and welfare of citizens, communities and environments, both now and for the future.

No one doubts that when it comes to getting gas out of the ground and into world markets, the gas industry is the undisputed expert. Yet, too often they undermine their own credibility by *shaping* "their science" in order to entice investors and landowners or minimizing any research that might reveal public or environmental risk.

Just two (of the many) examples of such distortions:

1. In 2009, industry-supported scientist Terry Engelder estimated the amount of gas recoverable from the Marcellus Shale at 489 trillion cubic feet. A figure richly useful in promoting investor excitement and the Gas Boom mentality. Then in 2011, the U.S. Geological Survey revised Engelder's estimate down to 84 trillion cubic feet---an astonishing reduction of 83%!

2. In numerous versions, the industry has repeatedly claimed that "the chemicals in fracking fluid are no different than those found in common household products," failing to mention that the household products they mean include the likes of antifreeze, wasp spray, battery acid, rat poison and varnish remover---and in quantities not measured by the half-pint, but by tens of thousands of gallons per well.

When the companies say "follow the science," they certainly do not mean that fracking should have to wait until all the relevant science concerning its impacts have been independently researched and analyzed. They mean that we should just dumbly follow "their" science---ask no questions, look no further, and never listen to anything that runs contrary to their profit-dominated spin.

If we are really serious about following good science, what's demanded is fully-reviewed independent research on all aspects of high-volume hydrofracking, *including* its impacts on human health and safety, our communities, and environment.

But isn't that exactly what DEC's been doing for the past four years?

Unfortunately, no. Most of DEC's scientific data has come directly from gas companies and their funded affiliates, and has been analyzed in light of the *foregone conclusion* that hydrofracking should and will happen in NYS---seeming only to view their own role as that of "careful facilitator," seeking to promote fracking in the least destructive way that the industry will agree to.

Not only is this a backwards methodology, it's also bad science.

Marcellus shale gas has been ripening for 350 million years. It will wait for the proper scientific method to be followed---first, relevant research, then data analysis, conclusions and peer review. And, *only then*---after discussions of the findings with those most likely to be impacted, including community leaders, health and service providers, individual landowners and their neighbors---should discussions proceed as to where, or *if*, hydrofracking in NYS should be allowed.

That's what following good science would look like.

But we *can't* delay, we're told---because our country so desperately needs the gas right now. Never mind that this argument is belied by the present gas *glut*---falling wholesale gas prices, huge increases in gas storage, and growing plans for gas export to Europe and China.

With economics, too, the only science the industry wants to talk about is "their science." *Their* reason to hurry up and get the gas as quick as possible is obvious. They want to get their money while the getting's good, *before* independent science weighs in on the true cost of hydrofracking.

True enough, in these economic times, a gas boom would bring some money to many, create a number of short-term jobs, bring a lot of money to a few. Yet gas industry economics only refers to money involved in the *drilling and selling* of gas. It has nothing to say about the other side of the ledger, about value *lost*---lost profits and jobs, lost farmland and degraded farm products, lost potable water and air quality, increased taxes needed to pay for environmental cleanups, depressed real estate values, lost mortgaging and insurance capabilities, incessant road repairs, increased health and safety costs, costs of social disarray and displacement when the gas boom inevitably goes bust.

Meanwhile, more and more independent science *is* being done.

Just ten (of the many) prominent examples:

1. In response to industry claims of fracking being a “cleaner, greener bridge fuel to the future,” **Dr. Robert Howarth**, The David R. Atkinson Professor of Ecology & Environmental Biology at Cornell University, headed up a seminal study: "Fracking the Future: How Unconventional Gas Threatens our Water, Health, and Climate" that showed hydraulic fracturing to be at least as polluting to the environment and atmosphere as oil and coal.

<http://www.desmogblog.com/fracking-the-future/desmog-fracking-the-future.pdf>

2. This study has been attacked by the industry, but is defended in a second peer-reviewed Cornell study, and largely corroborated by a study by **Dr. Drew Shindell**, a NASA/Goddard Institute climate change expert in atmospheric chemistry.

Science magazine, vol 326, 30 October 2009 www.sciencemag.org

3. In his article “Radon in Natural Gas from Marcellus Shale,” (January 10, 2012), **Dr. Marvin Resnikoff**, Senior Associate and Principal Manager at Radioactive Waste Management Associates, writes:

“A significant public health hazard associated with drilling for natural gas in the Marcellus Shale formation must be seriously investigated by [NY DEC]. This hazard is from radioactive radon gas and the potential for large numbers of lung cancer among natural gas customers. This issue, which has been ignored in the DEC’s Draft Supplemental Environmental Impact Statement, must be addressed in a revised Impact Statement and before DEC issues any drilling permits.”

<http://www.nirs.org/radiation/radonmarcellus.pdf>

4. **Dr. Christopher Portier**, Director of the National Center for Environmental Health and Agency for Toxic Substances and Disease Registry, wrote to The Associated Press:

"We do not have enough information to say with certainty whether shale gas drilling poses a threat to public health. . . . More research is needed for us to understand public health impacts from natural gas drilling and new gas drilling technologies."

http://www.pittsburghlive.com/x/pittsburghtrib/news/s_775073.html#ixzz1jRWYVlWC]

5. Dr. Conrad (Dan) Volz --- former Assistant Professor of Environmental & Occupational Health at University of Pittsburgh Graduate School of Public Health, said in a May 6, 2011 interview:

“Wells are going to leak and they are going to leak when the cement shrinks and when the cement shrinks it pulls away from the geological layer that it is sealed from and then it serves as a conduit as straight into ground water aquifers.”

When asked if the chemicals could travel miles upward towards aquifers that lie well above the bottom of hydraulically fracked wells, Volz replied, “Of course.”

<http://checksandbalancesproject.org/2011/05/06/gas-patch-scientists-explain-how-hydraulic-fracturing-can-permanently-contaminate-public-water-supplies/>

6. Dr. Sandra Steingraber, PHD, biologist, Distinguished Scholar in Residence in the Department of Environmental Studies at Ithaca College, 2010 Heinz Award recipient, wrote (June 1, 2011):

“We know with certainty that fracking will increase smog and exposure to diesel exhaust and particulates. We know with certainty that exposure to these chemicals, in early life, is associated with preterm birth, asthma, and lowered I.Q. in children, and risk of stroke, heart attack, breast cancer, and diabetes in adults. How many premature deaths will fracking cause in New York State? What are the medical costs? “

<http://www.ecoshock.info/2011/11/fracking-gas-climate-crash.html>

7. Dr. Robert Kohut, member of the emeritus scientist faculty at the Boyce Thompson Institute at Cornell University; from Ithaca Journal, Dec. 16, 2011:

“Ozone is one of the most important and widespread pollutants in the United States. Elevated levels of ozone can harm human health, reduce agricultural production and injure native species of plants. . . . As a scientist with more than 25 years of experience assessing the effects of ozone on plants, I believe the effects of gas development on increasing ambient levels of ozone have been largely ignored in the Department of Environmental Conservation's comprehensive assessment of environmental impacts.”

<http://www.theithacajournal.com/article/20111219/VIEWPOINTS02/112190303/Guest-Viewpoint-Ozone-levels-concern-drilling-begins>
here?odyssey=tab|topnews|text|Viewpoints

8. Scientists Demanding More Independent Research from a 2011 letter to Governor Cuomo signed by **59 Scientists**:

“The State has proposed that hydraulic fracturing not be allowed in the watersheds of the New York City and Syracuse water systems (where no filtration occurs), but be allowed in watersheds where drinking water is filtered before use. The presumption appears to be that municipal water filtration plants provide protection from potential contaminants. The best available scientific information does not support this presumption.”

<http://polhudson.lohudblogs.com/2011/09/19/dec-commissioner-disputes-scientists-argument-on-fracking/>

9. Henry Schaeffer, MD, FAAP, Chair, American Academy of Pediatrics, District II, NYS, wrote:

“Hydrofracking has the potential to significantly destroy the water, air and soil of communities in and around the drilling areas and to effect large state aquifers providing water for millions of families across New York. As pediatricians, we are very concerned about how the negative environmental outcomes may impact children’s health, development and general well being in the hydrofracking areas and beyond.”

<http://www.neogap.org/neogap/2011/10/14/press-release-health-drilling,10/14/11>

Dr. Schaeffer was one of **250 pediatricians, family practitioners, otolaryngologists, endocrinologists, oncologists and other doctors** who, in 2011, wrote Governor Cuomo to warn that the state has failed to analyze public health impacts of hydraulic fracturing in its rush to approve permits for drilling.

http://www.neogap.org/neogap/2011/10/14/press-release-health-drilling_10-14-11/

10. from a 2011 report by the Center for Disease Control (CDC):

“In Texas, breast cancer rates rose significantly among women living in six counties with the most intensive gas drilling while, by contrast, breast cancer rates declined within the rest of Texas.”

http://www.dentonrc.com/sharedcontent/dws/drc/localnews/stories/DRC_Breast_Cancer_0831.11947df68.html

With an activity as invasive and potentially destructive as high-volume hydrofracking, the self-serving, half-baked science of the gas companies is woefully insufficient. It’s vital for all elements of this process to be rigorously and independently researched *before* the health and welfare of our families, communities, and precious region are put at risk.

---Steve Coffman, Dundee