

I am commenting upon SGEIS chapter 5 pertaining to natural gas development activities and high-volume hydraulic fracturing. This is as obtained here:

[http://www.dec.ny.gov/docs/materials\\_minerals\\_pdf/ogdsgeischap5.pdf](http://www.dec.ny.gov/docs/materials_minerals_pdf/ogdsgeischap5.pdf)

This commentary is essentially for the initiation of slickwater hydrofracking in the Marcellus Shale. Hydro-fracking activities operate 24 hours a day, 7 days a week during production. Volumes of toxic, radioactive, and caustic liquid waste by-products pose storage, treatment, and disposal problems. Regular operations, as well as accidents can adversely impact the environment and public health. Especially problematic is the lack of federal protection for drinking water, air quality, water treatment infrastructure, and landowner liability.

Communities from Texas to Pennsylvania have already been impacted from industrial hydro-fracking operations. A peer reviewed study published in the National Academy of Science found water wells near gas wells had 17 times higher methane levels. Families in Dimock, PA live with drinking water contaminated with methane and heavy metals. Blowouts from gas wells have spewed liquid fracking waste into the air and into local streams.

New Yorkers cannot and must not choose between energy and clean water; we need both. The gas trapped in shale is not going anywhere. The US Environmental Protection Agency (EPA) is in the process of studying the impacts of hydro-fracking on water, with the results expected in September 2012. New information about hydro-fracking emerges regularly. It is imperative for New York State to take the time needed to ensure protection of the state's priceless water resources, signature community character, and clean air.

Marcellus Shale is a large deposit of black shale and is characterized by being very rich in unoxidized carbon. Marcellus Shale covers most of New York State and ranges in depths down to 9,000 feet below the surface and is included in most of the Appalachia. Utica Shale is deposited broadly across the Appalachian Basin and into Ontario, Canada. In New York there is an outcrop along the west and southeast sides of the Adirondack Mountains, and is also exposed along the northern Allegheny Plateau. One of the characteristics that is common with black shale is that it contains levels of uranium. The concentration of this uranium at the surface, on drilling equipment, and in combination with drilling muds, fracking fluid, and other elements exposed in the process of drilling is the primary cause for concern with exposing this shale. Samples from well blowouts and fluids pits in Colorado, Wyoming and New Mexico found fluids to contain diesel fuel and more than 200 different kinds of chemicals, over 95% of which have adverse side effects including brain damage, birth defects and cancer. For example, one chemical of the 200 in the process, 2-Butoxyethanol, is readily absorbed by skin or by inhalation. It is an irritant, causes central nervous system effects, may damage the liver, kidneys and lungs, and is a suspected carcinogen. It is also a known endocrine disruptor with effects noted at extremely low concentrations. The produced water from the Marcellus Shale is toxic waste. In addition to the added chemicals, the water picks up hydrocarbons, heavy metals like arsenic, and radioactivity from the shale. The proper disposal of these cuttings, worker exposure, and the potential contamination from open on-site storage must be adequately addressed and present significant environmental and public health challenges. Billions of gallons of waste water will be produced in our area alone and will need to be trucked to a final disposal site. Air pollution also occurs from diesel engines, compressor stations, and flaring.

Gov. Cuomo himself said "It is imperative that any drilling in the Marcellus Shale be environmentally sensitive and safe. These reviews must demonstrate that health and environmental risks are adequately addressed and protected."

Fewer than 2 percent of property owners in the Marcellus Shale area of the state will see any immediate financial benefit from drilling, he said. At the same time, unlike other states, New York does not levy a special tax on the fuel companies that drill. And nobody has set up a fund to pay for damages, which can include everything from health ailments coming from contaminated water to reduced property values. Like all natural gas production, Marcellus wells have temporary noise pollution from drilling and fracking that will last about a month per well. In addition, compressor stations will be needed for every 100 or so wells, to bring the gas pressure in gathering lines up to that of larger pipelines. Compressor stations are permanent, extremely noisy, and run day and night. Fracking requires large quantities of fresh water. Fracking the Marcellus will require many billions of gallons of water over the next 15 years. This water can be withdrawn from lakes, rivers, streams, wetlands, ponds, and wells. Because the water becomes contaminated, it may never be returned to the watershed. Some of the fracking fluid (estimates range from 15-70%) comes back out, but the fate of the rest is unknown. Does it stay trapped in the shale, or eventually move through soil and rock layers, reaching underground water supplies? What does come out (called "flowback") is even more hazardous than what went in because fracturing releases radioactive materials (such as radon and radium), heavy metals (such as arsenic, lead, mercury), and many salts from the shale. Each well site emits air pollution. In addition to pollution from diesel generators, drill rigs, trucks and other equipment, condensate tanks and the flaring of wells are significant sources of VOC's and nitrogen oxide, which react with sunlight to form ozone. Proposed Marcellus Shale drilling in New York will be high density. In high-density drilling areas in Colorado and Wyoming, rural communities that were once pristine now have ozone levels higher than Los Angeles. Ozone can cause a range of respiratory health problems and lung disease.

NYS DEC's draft Environmental Impact Statement (dSCEIS) is fatally flawed in its open support of drilling, its minimization and dismissal of risks, and its failure to consider the total cost of drilling. Infrastructure development will involve extensive clearcutting, 24-hour noise and light pollution, huge increases of truck traffic, and the permanent altering of existing landscapes. Industrialization is incompatible with agriculture, tourism, recreation; drilling and related development will significantly alter existing use patterns of rural area. Drilling will introduce over 250 chemicals into our air and water, placing local residents, wildlife, and critical agriculture and watershed areas at risk.

Brian Babiak MD  
1004 Highland Rd.  
Ithaca NY 14850

A handwritten signature in cursive script, appearing to read "B. Babiak", with "MD" written below it in a simpler, blocky font.