NEW YORK STATE LEGISLATURE

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Comments Regarding the 2011 Revised Draft SGEIS for High Volume Hydraulic Fracturing in the Marcellus Shale

Comments submitted by:

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The following comments will contain both commentary and questions regarding the updated draft SGEIS submitted by the Department of Environmental Conservation (NYS DEC) for the public's review.

As an elected official, a member of the Assembly Environmental Conservation Committee, and the immediate past chairman of the Assembly Legislative Commission on Solid Waste, I would appreciate it if my questions (highlighted in ***bold italics***) could be answered in due time. I am aware of the volume of comments you receive, but future policy formulation regarding the regulation of High Volume Hydraulic Fracturing (HVHF) is contingent on a comprehensive understanding of the issues at hand.

I. Prohibited Locations and the Treatment of Primary and Principal Aquifers

While I applaud the DEC for taking the necessary action to protect the federal Filtration Determination Waiver (FAD) governing the Syracuse and New York City watersheds by banning HVHF in and around (4,000 ft buffer) them, I feel that contradictions within the updated SGEIS raise concerns about the treatment of Primary and Principal Aquifers.

I understand and strongly support the need for strict limits on human activity within FAD regulated watersheds, but the overall threat of contamination and enormous local expense remains the same for all public water systems.

With regards to Primary and Principal Aquifers, the SGEIS states, "...despite the best controls, there is a risk of releases to Primary and Principal Aquifers of chemicals, petroleum products and drilling fluids from the well pad (Sec. 6.1.3.4 pg 6-39).

The document goes on to state that there is a chance for "significant adverse impacts" to the quality of drinking water supplied by Primary and Principal Aquifers. While a two-year ban has been proposed for Primary Aquifers (with a 500 ft buffer zone), it is not extended to HVHF operations within Principal Aquifers, despite the document stating that Principal Aquifers could become Primary Aquifers overtime. (Sec. 6.1.3.4. pg. 6-36)

I think it is our duty to prioritize our current and future natural resources; water being the paramount priority. Our Principal Aquifers are just as valuable as our Primary Aquifers, and are of the utmost importance to the future of NYS. I would like to see similar treatment of both Primary and Principal Aquifers in the final SGEIS.

The DEC states in the SGEIS that the ban in Primary Aquifers and SEQRA evaluations in Principal Aquifers will be open to review and possible revocation after just two years of mitigation "experience". Allowing this ban to lapse would be a direct contradiction in the warnings contained in the SGEIS.

How can the first two years of drilling measure the "success" of mitigation efforts when years 1 and 2 will see remarkably less well construction than years 5-10 and beyond?

How could the DEC explain diminished concern for potential stormwater runoff contamination in the Aquifers, to the point where the Department would consider lifting the prohibitions from drilling on them? "...standard stormwater control and other mitigation measures may not fully mitigate the risk of potential significant adverse impacts on these water resources..." (7.1.3.5 pg. 7-40)

The DEC is proposing to potentially allow drilling on Primary Aquifers even though it highlights the fact that only 1% of the subsurface gas reserves will be made inaccessible

due to the ban and restrictions. The SGEIS clearly states that well operators will have access to the subsurface mineral rights underneath both Primary and Principal Aquifers because a drill leg can reach 3,500 ft., far beyond the proposed 500ft. buffer zones. (Sec.7.1.3.5 pgs. 7-40-41)

We should not re-evaluate and lift these restrictions on HVHF in these Aquifers. We should not endanger any public water source for the sake of opening up another 1% to well operators. **I strongly urge the Department to make the ban on Primary Aquifers permanent, and extend the same to Principal Aquifers in the final SGEIS.**

II. Management of Drill Cuttings

The Department proposes to require well operators to use a closed-loop tank system for the storage of drill cuttings if:

1.) There is no Acid Rock Drainage plan (ARD); or
2.) The cuttings are classified as requiring off-site burial.

How will it be determined whether or not drillers will need to use a closed-loop tank system when the drill cuttings will have varying compositions?

Will there be on-site testing and will the DEC oversee the testing?

If a driller opts to use an ARD plan, how can we be certain that the burial of these cuttings will be contained by the lime cuttings to prevent leaching? Please give an example outside the ARD-abatement project cited in the SGEIS. (Sec. 7.1.9 pg. 7-67)

Would allowing drillers to use ARD plans en masse cause problems for the future use of this land?

Would these sites be recorded and mapped?

Would ARD plans be allowed over Aquifers and/or areas where ground water is used for irrigation and feeding livestock?

III. Management and Treatment of Flowback Waste Water

With regards to the flowback waste water I am very concerned to read in the SGEIS that to date not a single Publicly Owned Treatment Works plant is willing to accept produced flowback waste water, and that not a single one is equipped with Total Dissolved Solids (TDS) technologies (Sec. 6.1.8.1 pg. 6-62).

This leaves well operators with few treatment and disposal options for flowback water. The only other options they have are to utilize out-of-state facilities or use injection wells. It is not known at this time if there are any out-of-state facilities that would be willing to handle the volume and/or content of the flowback water coming from operations in NYS. Also, the DEC states in the SGEIS that the six injection wells in NYS are privately owned and are approved to accept brine only (Sec. 7.1.8.2 pg. 7-66).

So, of the alternative options the DEC has proposed, none of them at this point in time appear to be viable, and this poses significant concerns acknowledged by the Department: "Potential impacts that may result from insufficient wastewater treatment capacity would include either storage of wastewater and associated potential for leaks or spillage**, illegal discharge of wastewater to ground surface or directly to waters of the State**, and increased truck traffic resulting from transport of wastewater to out of state treatment and disposal facilities." (Sec. 6.1.8.5 pgs. 6-64-65).

What concerns me the most is the chance for illegal discharge of wastewater to ground surface or other waters.

If a driller engages in illegal conduct can future permits be denied?

If so, what triggers the DEC's discretion to deny a violator from future business in NYS?

Does the Department have the resources to fully enforce their authority under Art. 71 to prosecute violators for criminal offenses relating to endangering public health, safety, or the environment?

In the Department's own assessment, does it believe current laws are a substantial deterrent to bad actors? If not, does the Department propose larger fines or stricter criminal offenses for violators?

While the SGEIS states that the wastewater will be tracked and that no well operator will be given a permit until they find a licensed wastewater treatment facility, I feel that the lack of options and the proposed scale of HVHF operations poses a high probability for the presence of bad actors, and I fear we don't have the laws on the books to deter bad actors from polluting our waters.

IV. Noise impacts

Page 6-294 states that "Once initiated, the drilling operation often continues 24 hours a day until completion and would therefore generate noise during nighttime hours, when people are generally involved in activities that require lower ambient noise levels. Certain noise-producing equipment is typically operated on a fairly continuous basis during the drilling process." In addition, during the hydraulic fracturing process in order to "...inject

the required water volume and achieve the necessary pressure, up to 20 diesel-pumper trucks operating simultaneously are necessary. Typically the operation takes place over two to five days for a single well." But the only mitigation procedures offered (Page 7-128) is to increase the distance from the source, "Noise is best mitigated by increasing distance between the source and the receiver; the greater the distance the lower the noise impact. The second level of noise mitigation is direction." Does this mean that people who are disturbed by the noise are to move their homes further from the drilling activities? The document also notes that "Timing also plays a key role in mitigating noise impacts. Scheduling the more significant noise generating operations during daylight hours provides for tolerance that may not be achievable during the evening hours." However, this contradicts the previous statements that drilling and other activities are a round the clock process. Therefore, people who live near the drilling activities will be forced to endure significant noise impacts for various periods.

What measures will be taken to minimize noise impacts to local residents?

V. Impacts to surface and groundwater

Since the exact composition of the fluids that are used in the HVHF process are proprietary, there is really no way to accurately assess and predict environmental and health impacts. Beginning on page 7-44, an elaborate procedure is described for investigating potential complaints about water quality. Chapter 11, "Summary of Potential Impacts and Mitigation Measures", discusses a substantial number of actions in the hydrofracking process that may result in contamination of ground and surface waters as well as various preventive and monitoring measures. But no information is provided here, or at any other point in the document about how contamination of surface and ground waters will be remedied if they occur, because there really is no way to reverse these impacts.

VI. Cumulative impacts to wildlife:

The document describes measures to limit disruption to species of concern, but it does not address the overall loss of habitat that will occur as a result of hydrofracking. Throughout the document, there is no acknowledgement that environmental impacts are *cumulative*. Habitats are a complex interaction of plants, insects, microbes, animals, etc. Disruption of large areas of the surface results in changes in vegetation, water flow, surface temperature, etc. and changes in the populations of insects, birds, fish and mammals that are dependent upon these factors. Noise and seismic tremors will cause birds, mammals, reptiles, etc. to move away from these stimuli into other areas. Adjacent areas may become stressed by the increased populations.

VII. Public Need and Benefit

There will be definite "winners" and "losers" if and when HVHF proceeds in NYS, and I am very hesitant to accept this enormous undertaking when faced with the untenable nature of oil and gas extraction for the purpose of sustained economic growth.

While the SGEIS states success in Pennsylvania, there is no mention of the quality of life in the Barnett Shale (TX) the Haynesville Shale (TX/LA), the Woodford Shale (OK), or the Fayetteville Shale (ARK). Being that development in these areas has occurred over a longer period of time I would like to know:

Have these areas experienced sustained economic growth?

If so, are they projected to continue to be successful?

Has the quality of life for people living in these areas increased or decreased?

The SGEIS states that the Marcellus Shale holds about 500 Tcf of natural gas with a recoverable low estimate of 50 Tcf and a high estimate of 489 Tcf. The SGEIS high estimate of 489 Tcf (50% probability) comes from a 2009 publication by Engelder (Sec. 2.2 pg. 2-4). A recent estimate published by federal geologists states that the estimate has been pared down to approx. 84 Tcf (Urbina, Ian. "Geologists Sharply Cut Estimate of Shale Gas." New York Times On the Web. 24 Aug. 2011 http://www.nytimes.com/2011/08/25/us/25gas.html?_r=1).

At current national consumption rates (22.3Tcf) HVHF operations in NYS would yield a 2.24 year supply of natural gas on the low-end recoverable estimate. Even at the disputed high-end estimate, HVHF in NYS would yield only a 21.9 year supply of natural gas. The new estimates provided by federal geologists would yield only about 3.8 years worth of natural gas for the country.

Given all of this, it is still unknown how much of this gas will actually be used for domestic use and how much will be exported. I am very concerned that the Marcellus Shale play will lead to the eventual industrialization of our oceans for the exportation of natural gas via Liquefied Natural Gas terminals (LNG), and a renewed push by Broadwater and other companies to put a terminal near one of the most populated cities in the world for the purposes of exportation, not importation.

These fears are not unfounded. As of this moment there are proposals before the Federal Energy Regulatory Commission (FERC) to construct LNG terminals off our coasts. One in particular is a proposal to revamp an idle terminal at Sabine Pass, LA and make it capable of liquefaction so that natural gas can be exported by Britain's BG Energy. The American Public Gas Association, a contingent of 1,000 publicly owned, not-for-profit gas utilities, has been quoted as saying that the move to export natural gas is the "single greatest threat" to stability in the gas market and it would lead to rising consumer prices

here at home (Leonard, Randy. National Geographic Daily News. 17 Nov. 2011 http://news.nationalgeographic.com/news/energy/2011/11/111117-us-natural-gas-export/

I urge the DEC to reach out to the U.S. Geological Survey (USGS) to get a better estimate on how much gas reserves would actually be recoverable. If NYS law deems the production and utilization of natural resources a "public interest" to both the state and nation, then I believe we should be consulting the federal government for some of these estimates, and not just relying on private contractors and the Independent Oil & Gas Association (IOGA) for the estimates. I also believe that while it may be our national interest to increase exports of goods and services, it is not in our interest to do it at the expense of the public health, welfare, and our environment.

Further, I find it highly unwise to characterize the "need" for HVHF as being significant when there is no documented shortage of natural gas in the U.S., and when the recoverability estimates range anywhere from 2-22 years of natural gas reserves, barring what is exported.

VIII. Government Revenue and Expenditures

While IOGA has no problem assessing the positive job and economic benefits from HVHF, there is no analysis of how much these operations will actually cost the state when weighed against potential revenues. The SGEIS says that HVHF would have "significant negative fiscal impacts" on the state and contribute greatly in the decline of the state's transportation infrastructure (Sec.6.8.4.1 pg.6-256).

It is probably fair to say that the start-up costs for regulation would run relatively higher than any anticipated revenues from HVHF operations. These costs would put further strain on our perennial budget deficits which has led to cuts in education, healthcare,

services to vulnerable populations, the government workforce, and hindered our ability to diversify and stimulate job growth in other areas.

It is also mentioned in the SGEIS that the current NYS tax code, combined with the possibility that the gas may be sold outside of the state, greatly reduces the potential taxable income from the natural gas industry (Sec.6.8.4.1 pg.6-256). **The final SGEIS should include measures the Hydraulic Fracturing Advisory Panel has agreed upon to raise revenue from HVHF operations and provide a cost-benefit analysis.** The industry must be responsible for paying for their own regulation if they're to use our land and resources to profit in NYS.

IX. Property Values/FHA Financing/ Impacts on Agriculture

The DEC contends that it is impossible to predict the actual impact of natural gas operations on real property values, but it was made clear by several studies included in the SGEIS that natural gas drilling depresses the value of real property (Sec. 6.8.3.4 pg.6-252).

What wasn't addressed in the SGEIS is the fact that HUD doesn't allow FHA financing for dwellings located closer than 300 ft. from an active or planned drilling site. This regulation is included in the HUD handbook 4150.2 pgs.2-7. It has also come to my attention that many large banks such as Wells Fargo have policies which ban lending to owners of leased property. The combination of deflated property values with the inability for residents residing on or near a leased property to sell their property is very troublesome.

What has not been taken into account is the effect natural gas drilling will have on farmers and our robust agricultural economy which is a major source of food for the East Coast. Farmers with non-leased properties adjacent or contiguous with leased properties

will find it very challenging if they feel like their land is no longer profitable and want to sell their property. Some farmers have already expressed fear that they will lose their organic certification and be trapped in an increasingly industrialized agricultural landscape, with no money to get out like their neighbors with leased land. Some food coops have already expressed their willingness to withdraw their investment in NYS if gas drilling moves forward. That development would be devastating for farmers that rely on this reliable source of income (Halloran, Amy. "The Farmer And The Well." Metroland. 23 Nov. 2011).

What is further troublesome is the fact that the DEC states in the SGEIS that gas development could last for thirty years and beyond the issuance of the first well permit. I am concerned that this long term disturbance will negatively impact our agricultural economy in such a severe way that it may never be able to recover.

X. Public Health Impact Study

This past October a group of 250 doctors and other health care professionals sent a letter to Governor Cuomo addressing their concerns over the omission of public health impacts in the SGEIS. They claimed that there is growing evidence of worsening health among people living near gas wells, compressor stations and waste pits. While the Department has stated that the NYS Department of Health (DOH) will be a lead co-agency during this whole process, **I believe the DOH must take a more integral role in assessing the potential impacts on human health and preparing a comparative analysis using data collected from other gas producing states.**

XI. Recent EPA Findings

One of the reasons many concerned citizens are asking for an extended moratorium on HVHF permits is because the DEC is drafting regulations at a pace which is exceeding federal EPA findings. On December 8th, 2011, the EPA released a study three years in

the making which said water contamination at the Pavillion gas field in Wyoming cannot be explained entirely by natural processes. What the EPA found was the presence of synthetic chemicals used during the fracturing process at concentrations well above Federal Safe Drinking Water Act standards (Johnson, Kirk. "E.P.A. Links Tainted Water in Wyoming to Hydraulic Fracturing for Natural Gas." The New York Times . 8 December 2011 http://www.nytimes.com/2011/12/09/us/epa-says-hydraulic-fracturing-likely-marred-wyoming-water.html. The Pavillion site is very similar to the Marcellus and Utica Shale formations described by the DEC in that they are well known for shallow naturally occurring methane accumulations (Sec. 4.7 pg.4-36).

While the SGEIS suggests that naturally occurring methane can occur in ground water based on the area's geology, it doesn't account for the EPA's findings which point to increased gas seepage around drilling sites. Even if methane seepage is well-documented in NYS to be a naturally occurring phenomenon, it should still be studied whether or not HVHF can facilitate seepage in well and ground water. The SGEIS even says that in 1997 drinking wells in Saratoga County became contaminated with methane when water wells were fractured to reach a greater supply of water (Sec.4.7 pg.4-37). If fracturing for water released methane into the water supply it is not far fetched to surmise its occurrence during HVHF operations.

XII. Conclusion

While the DEC has statutory authority over the development, production and utilization of natural resources, it is becoming evident that other state agencies should have a larger role in determining the overall public impact that HVHF operations will have on NYS. Upon its own admission, the DEC has stated that many of the issues concerning health and the impact on other industries are outside its scope of practice.

We lose nothing as a state to put HVHF on hold until we build a sufficient regulatory framework which addresses the most pressing concerns raised by residents, scientists, medical professionals, and elected officials at all levels of government. I find it disingenuous for the DEC to suggest that taking a "No-Action Alternative" to HVHF would be contrary to NYS and national interests, when the true cost of these operations cannot even be determined and compared with the beneficial economic data provided by the industry (Sec. 9.1 pgs.9-1-2)

Threats made by the industry to take its investment elsewhere are laughable considering the fact that the Marcellus Shale is the largest known shale deposit in the world (Sec.9.1 pg. 9-2). The Marcellus Shale dates back to the Devonian era, meaning it is about 400 million years old. These gas resources have been embedded since time immemorial and are not going anywhere soon. The DEC should reject any criticisms or threats by the industry to invest elsewhere as the interest in the Marcellus Shale will not wane.

It is in our greatest interest to ensure that these resources are developed on our terms, at the pace we want them developed, and that all the powers and duties given to the DEC under Article 23-0301 ECL are treated with equal gravity. That due diligence includes the language included in Article 23-0301 which states, "...that the correlative rights of all owners and the rights of all persons including landowners and the general public may be fully protected..."

I sympathize with the helplessness some communities must feel when they are told their local bans on HVHF will not have legal merit because of the State's pre-emption over matters involving mineral development. Not only are local legislatures starting to pass bans, it is fair to say that if HVHF had to be approved by the State Legislature, the measure would surely fail given the current concerns and unanswered questions. This places enormous responsibility on the DEC to proceed with caution.

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At this moment in time I believe the DEC does not have the resources to properly regulate HVHF and that deficiencies in the SGEIS would allow HVHF to proceed without the proper knowledge and safeguards needed to ensure that the general public would be fully protected. Therefore, I believe the SGEIS is lacking in key details required to make a sound judgment and I urge the DEC to withdraw the SGEIS and deny the issuance of permits until the adverse impact concerns can be substantially addressed.